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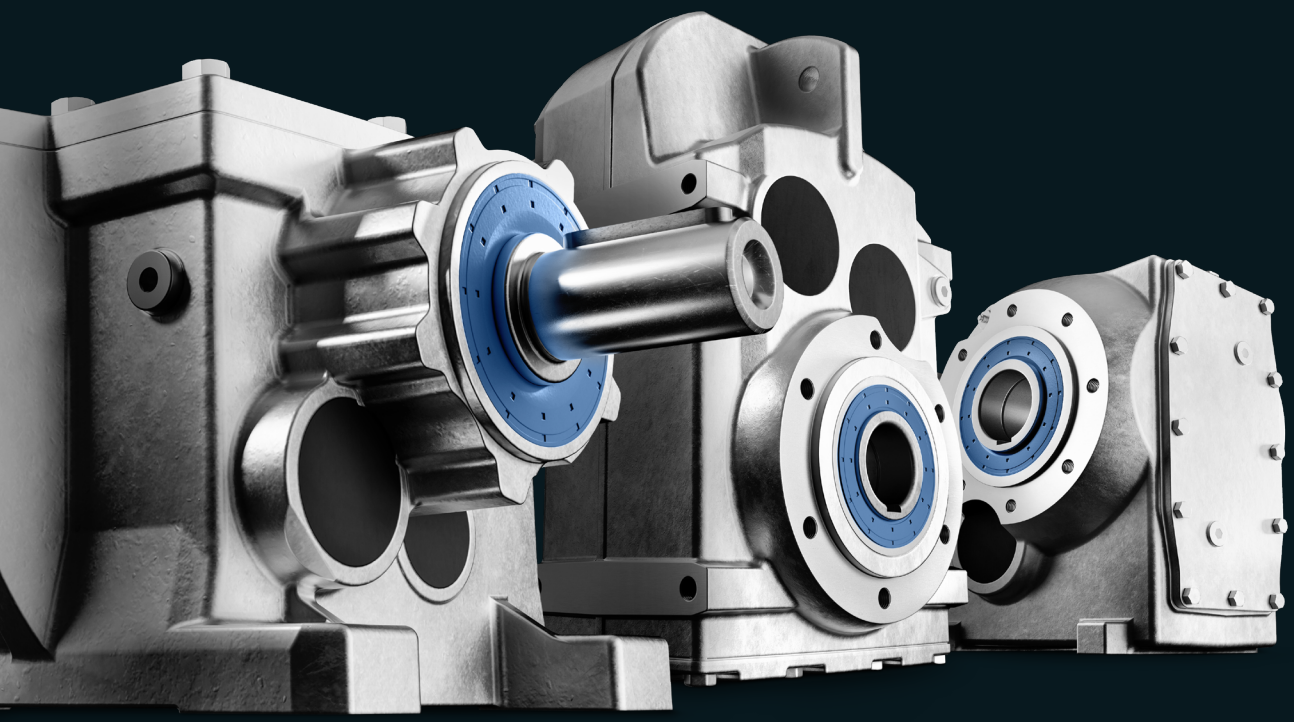

Catalog D 50.1 | Edition 10/2024

Innomotics Moves!

SG Geared Motors

Helical, Parallel Shaft, Bevel, Helical Worm,
Worm Geared Motors and
Electric-Monorail Geared Motors

innomotics.com/geared-motors

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Orders received as of **August 1, 2024**, will be confirmed exclusively with the product mark **"Innomotics"** regarding the concerned products and services. **Orders** received by the Innomotics **SG Geared Motors** business unit from **June 1, 2024** onwards will be confirmed exclusively with the **"Innomotics"** product brand for the products and services involved.

Independent of the order date, all ordered products or services with **delivery** dates from **April 1, 2025**, will be delivered with the product mark **"Innomotics"**.

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Innomotics SG
Standard Geared Motors

Innomotics.com/geared-motors

Dear Customer,

We are happy to present the edition of Catalog D 50.1 | October 2024.
The catalog provides a comprehensive overview of the 2KJ3 Innomotics SG Standard Geared Motors.

Please contact your local Innomotics office if you want to obtain more information.

Current information about Innomotics SG Standard Geared Motors is available on the internet at
www.innomotics.com/geared-motors

We hope that you will often use our Catalog D 50.1 | October 2024 as a selection and ordering reference document, and wish you every success with our products and solutions.

With kind regards,

Martin Prescher

Head of Product Portfolio Management

Innomotics GmbH, Geared Motors

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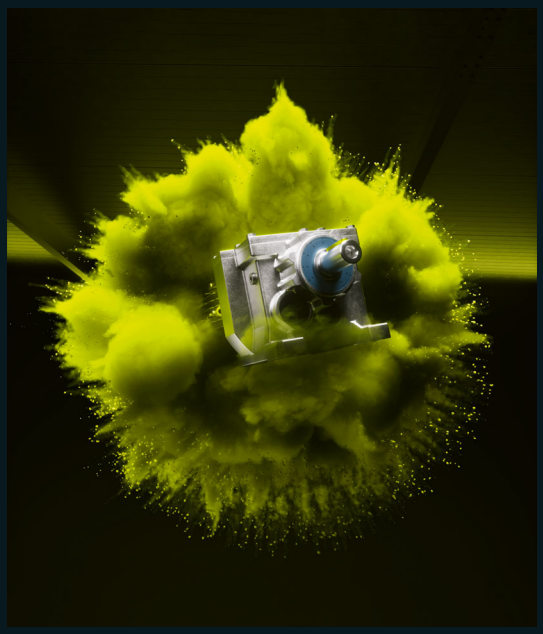

Innomotics SG Standard Geared Motors

Helical, parallel shaft, bevel, helical worm, worm geared motors and electric-monorail geared motors

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Catalog D 50.1 | October 2024

Supersedes:
Catalog D 50.1 · April 2024

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For current updates of this catalog, refer to innomotics.com

Please contact your local Innomotics branch

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Introduction

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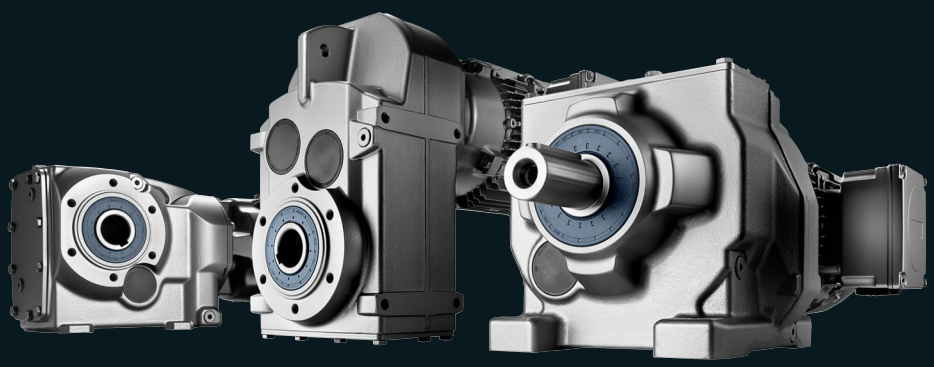

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Geared motors

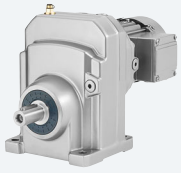
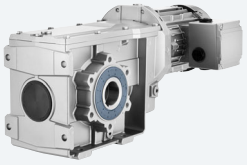
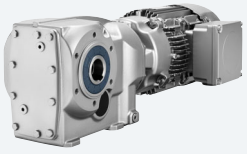
Overview

Innomotics SG Geared Motors are available as helical, parallel shaft, bevel, helical worm, and worm geared motors.

State-of-the-art production technology and improved testing methods ensure the highest degree of quality and reliability.

The geared motors listed in this catalog are dimensioned up to a motor power of 55 kW. When an adapter is mounted, a motor power of up to 200 kW is possible.

More information about gearboxes with adapter mounting is provided in Catalog D 50.11 as at www.innomotics.com.

Gearbox type	Gearbox designation	Number of sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power[1] P_1 kW	Supported motors
Helical geared motors						
	Z19 ... Z189 (2-stage) D19 ... D189 (3-stage) Cooling tower geared motors ZK89 ... ZK189	13 13 6	100 ... 19000 100 ... 19000 1060 ... 19000	3.4 ... 62.48 36 ... 328 3.85 ... 62.48	200 200 200	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
Fig. 1-1 Helical geared motor Z/D						
	E39 ... E149 (1-stage) Cooling tower geared motors EK89 ... EK149	7 4	30 ... 1490 280 ... 1490	1.29 ... 9.79 1.3 ... 9.79	90 90	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
Fig. 1-2 Helical geared motor E						
Parallel shaft geared motors						
	FZ29 ... FZ189 (2-stage) FD29 ... FD189 (3-stage)	11 11	150 ... 19000 150 ... 19000	3.5 ... 70.74 32 ... 413	200 200	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
Fig. 1-3 Parallel shaft geared motor FD/FZ						
Bevel geared motors						
	B19 ... B49 (2-stage)	4	50 ... 450	3.5 ... 59	7.5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
Fig. 1-4 Bevel geared motor B						
	K39 ... K189 (3-stage)	10	150 ... 19500	5.17 ... 244	200	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
Fig. 1-5 Bevel geared motor K						

[1] With 4-pole motor up to 55 kW for a 50 Hz line frequency in integral type of construction. An adapter must be mounted for a motor power > 55 kW.

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Overview

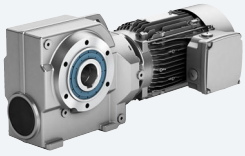
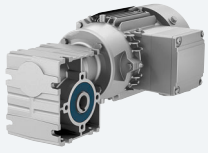
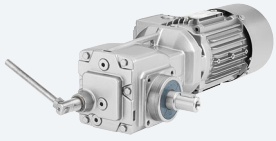
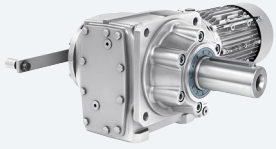
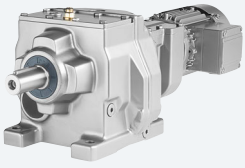
Gearbox type	Gearbox designation	Number of sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power[1] P_1 kW	Supported motors
Helical worm geared motors						
	C29 ... C89 (2-stage)	5	61 ... 1450	6.48 ... 363	7.5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
Worm geared motors						
	S09 ... S29 (1-stage)	3	33 ... 116	5.0 ... 100	0.37	_ Induction motors with B14 flange
Electric-monorail geared motors EHB						
	BH29 ... BH.39	2	90 ... 200	7.32 ... 60.21	3	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors
	KHF49 ... KHF79	3	420 ... 820	10.27 ... 244.25	7.5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors
Tandem geared motors						
	Z.29-Z19 ... D.189-D69 (4 to 6-stage)	12	140 ... 19000	325 ... 27816	7.5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
	FZ.29-Z19 ... FD.189-D69 (4 to 6-stage)	11	150 ... 19000	274 ... 29900	7.5	
	K.39-Z19 ... K.189-Z/D69 (5 or 6-stage)	10	220 ... 19500	170 ... 14900	7.5	
	C.29-Z19 ... C.89-D39 (4 or 5-stage)	5	80 ... 1310	270 ... 19000	7.5	

Fig. 1-6 Helical worm geared motor C

Fig. 1-7 Worm geared motor S

Fig. 1-8 Electric-monorail geared motors for light-load applications

Fig. 1-9 Electric-monorail geared motors for heavy-load applications

Fig. 1-10 Example of a tandem geared motor

[1] With 4-pole motor up to 55 kW for a 50 Hz line frequency in integral type of construction. An adapter must be mounted for a motor power > 55 kW.

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Overview

Torque classes

Innomotics SG geared motors are classified according to fixed torque steps. Within a torque class, for the various gearbox types, almost the same output torques are achieved.

Helical gearboxes Z and D (2- stage and 3-stage)															
Size		–	19	29	39	49	59	69	79	89	109	129	149	169	189
Maximum output torque	Nm	–	100	140	200	320	450	600	840	1680	3100	5000	8000	14000	19000
Cooling tower gearboxes ZK (2-stage)															
Maximum output torque	Nm	–	–	–	–	–	–	–	–	1680	3100	5000	8000	14000	19000
Helical gearbox E (1-stage)															
Size		–	–	–	39	49	–	69	–	89	109	129	149	–	–
Maximum output torque	Nm	–	–	–	65	108	–	205	–	365	565	800	1490	–	–
Cooling tower gearboxes EK (1-stage)															
Maximum output torque	Nm	–	–	–	–	–	–	–	–	365	565	800	1490	–	–
Parallel shaft gearboxes FZ and FD (2-stage and 3-stage)															
Size		–	–	29	39	–	49	69	79	89	109	129	149	169	189
Maximum output torque	Nm	–	–	150	290	–	480	600	1000	1850	3100	4850	8000	13600	19000
Bevel gearbox B (2-stage)															
Size		–	19	29	39	–	49	–	–	–	–	–	–	–	–
Maximum output torque	Nm	–	50	110	250	–	450	–	–	–	–	–	–	–	–
Bevel gearbox K (3-stage)															
Size		–	–	–	39	–	49	69	79	89	109	129	149	169	189
Maximum output torque	Nm	–	–	–	220	–	420	600	820	1600	2900	4400	8000	13000	19500
Helical worm gearbox C (2-stage)															
Size		–	–	29	39A	–	49	69	–	89	–	–	–	–	–
Maximum output torque	Nm	–	–	110	235	–	400	675	–	1450	–	–	–	–	–
Worm gearbox S (1-stage)															
Size		09	19	29	–	–	–	–	–	–	–	–	–	–	–
Maximum output torque	Nm	33	72	116	–	–	–	–	–	–	–	–	–	–	–
Electric-monorail geared motors EHB (light-load and heavy-load applications)															
Size		–	–	29	39	–	49	69	79	–	–	–	–	–	–
Maximum output torque	Nm	–	–	90	200	–	420	600	820	–	–	–	–	–	–

Benefits

High energy efficiency for a fast return on investment

When developing Innomotics SG geared motors, significant emphasis was placed on achieving the highest possible energy efficiency.

Using the plug-on pinion principle in the first gearbox stage, higher transmission ratios are achieved when compared to gearboxes with slip-on pinion.

This means that frequently instead of 3-stage gearboxes with an efficiency of approx. 94 %, 2-stage helical and parallel shaft gearboxes with a high efficiency of ≥ 96 % can be used.

The 2-stage bevel geared motors B have a mechanical efficiency of ≥ 96 %. With a range of transmission ratios from i = 3.5 to 60, they have been specifically designed to address the requirements in conveyor technology.

Together with the Innomotics Low voltage motors for efficiency classes IE3 (Premium Efficiency) and IE4 (Super Premium Efficiency), our geared motors allow a high amount of energy to be saved and reduce the stress on our environment.

Extremely compact and low weight for easy handling in the machine or system in the smallest space

An integrated end shield instead of an adapter plate and end shield reduces the weight and space required in your machine or system. In addition, interfaces and sealing joints are reduced as a result of the integrated end shield.

With the bevel gearboxes, the length was able to be significantly reduced through an optimized bearing design.

The helical gearboxes Z/D19 to Z/D39 (200 Nm), parallel shaft gearboxes F29 (150 Nm) and bevel gearboxes B19 to B49 (450 Nm) as well as helical worm gearboxes C29 and C39A (235 Nm) have an aluminum gearbox housing.

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Benefits

Harmoniously coordinated modular system to provide the optimum solution for your particular drive task

The fine size graduations of Innomotics SG gearboxes provide you the optimum drive for every application regarding gearbox type, rated output torque and transmission ratio.

When developing Innomotics SG geared motors, significant emphasis was placed on achieving well-balanced gearbox properties:

_ Maximum output torque
_ Permissible radial force
_ Output shaft diameter
_ Bearing service life
_ Housing stiffness
_ Gearing reliability (fatigue endurable)
_ Shaft strength (fatigue endurable)

Fine ratio stages to always obtain the output speed required

With their wide range of transmission ratios, from very low up to very high, Innomotics SG geared motors provide the necessary flexibility for your drive application.

As a result of the wide ratio range, 4-pole induction motors can be mainly used – the most cost-effective solution.

Further, the gearboxes are quieter as a result of the lower circumferential velocity of the first gearbox stage.

Intelligent sealing concept for a high degree of maintenance friendliness

An optimally coordinated sealing concept is available for the Innomotics SG gearbox output shaft to address the various application areas and ambient conditions.

Gearbox sizes 19 and 29 are lubricated for life.
All Innomotics SG geared motors with venting have as standard a pressure breather valve.

The MODULOG modular principle for outstanding flexibility

The motors have a modular design using our well-proven MODULOG modular principle.

At the heart of the system is a basic motor dimensioned for international line supply conditions with power ratings extending from 0.09 to 55 kW (2/4/6/8-pole).

At the non-drive end (NDE), you have an individually configurable MODULOG modular system, e.g. for brakes, backstop, rotary pulse encoder, separately driven fan, and canopy.

This guarantees high availability as well as short delivery times.

Motors for converter operation

Converter World Motor

The Converter World Motor has been designed for worldwide use, taking into account the worldwide voltage networks and different converters. Since no derating has to be taken into account for line voltages in the range of 380 V to 480 V, the full rated power is always available during the configuration.

VSD10 line motors and synchronous reluctance motors

The VSD10 line motors and the synchronous reluctance motors have been specifically designed for converter operation.

The motors have compact dimensions in a surface-cooled, enclosed version with self-ventilation.

The high power density and compact design ensure low space requirements combined with low weight.

An optimally harmonized drive system is achieved because the motor is optimally coordinated and harmonized with the converters, e.g. no derating of the converter is required or low temperature rise.

Explosion-protected motors

Explosion protection has been fully harmonized by directive 2014/34/EU in Germany and in the other member states of the European Union.
Innomotics SG explosion-protected geared motors are designed and built according to directive 2014/34/EU and comply with the requirements for using equipment in hazardous zones.

The plant manufacturer or plant operating company is responsible for correct selection and proper usage of the equipment.

Many selectable motor options are available for the explosion-protected motors (gas and dust protection, Zone 2 and Zone 22).

Innomotics SG Drive Train

Flexible combinations of Innomotics motors and gearboxes with adapters can be configured in the TIA Selection Tool.

In addition to the separate order of the gearbox-adapter unit and the motor, it is also possible to order assembled gearbox-adapter-motor combinations.

The order can directly be placed thanks to the connection of the TIA Selection Tool to the ordering system.

You can find additional information about the TIA Selection Tool at:
www.siemens.com/tia-selection-tool

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Benefits

Electric-monorail systems

Electric-monorail systems (suspended monorail) are a modern and cost-effective transport system for handling internal material flows.

Typical applications for these systems include the transport of light loads (such as components used in the assembly of domestic appliances) and the movement of heavy loads (vehicles in the automotive industry, for example).

Electric-monorail systems are already well established in many industrial sectors:

- Automotive industry
- Domestic appliance industry
- Storage and distribution centers
- Passenger transport
- Food processing technology

Thanks to electric-monorail systems, it is possible to utilize the "third dimension", i.e. the ceiling area. As a result, the floor area remains unobstructed so that many hazards associated with material transport can be avoided. They also offer a host of other advantages:

- Flexible routing
- Fast, flexible transport speed
- High availability; each vehicle has its own independent drive
- Low maintenance costs due to minimal wear
- Easy expansion of plant by addition of further trolleys
- High overall efficiency

Electric-monorail systems comprise the following components:

- Electric-monorail geared motor with or without distributed converter technology
- Controller
- Frequency converter

Innomotics SG electric-monorail bevel geared motors are based on the modular system of Innomotics SG geared motors. As a result, the motors can be equipped with a large number of options.

A special feature of electric-monorail drives which essentially differentiates them from other products in the range is their mechanical clutch that releases the traction between the drive and the conveyor system.

Using a mechanical clutch offers options for taking action in the following situations, for example:

- To commission the plant in the early stages before electrical power is available. In this case, the trolleys can be moved manually in the uncoupled state along the conveyor rails.
- To move or redirect the trolley manually in the event of a fault to prevent a collision with the next trolley.
- To move the trolley along steep upward or downward gradients, e.g. using a chain conveyor.

Innomotics electric-monorail systems are mainly characterized by the seamless integration of their components and a host of other advantages at product level.

Configuration

Siemens Product Configurator (SPC)

The Siemens Product Configurator (SPC) supports you when configuring the optimum drive technology products for a number of applications – from gearboxes, motors, converters as well as the associated options and components through to controllers, software licenses and connection systems.

The SPC can be used on the internet without requiring any installation. The SPC can be found at the following address: configurator.innomotics.com

TIA Selection Tool

Selection guide and configurator for automation technology

Error-free configuration without expert knowledge through intelligent configurators and selection wizards. Desktop and cloud versions enable cross-team collaboration with maximum flexibility.

More information about the TIA Selection Tool is provided at: www.siemens.com/tia-selection-tool

More information

The latest technical documentation (catalogs, dimensional drawings, certificates, manuals and operating instructions as well as further technical specifications) are available on the internet at:

www.innomotics.com/geared-motors

and

configurator.innomotics.com

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Overview

The Article No. comprises a combination of digits and letters. To obtain a better overview, the Article No. is split up into three, hyphenated blocks.

Example:

2KJ3105-1EM22-2AS1-Z +D01+M55

The first block (data positions 1 to 7) designates the gearbox type; the second (data positions 8 to 12) designates the output shaft and the motor type; and additional design characteristics are coded in the third block (data positions 13 to 16).

Ordering data

- Complete Article No. with a **-Z** suffix, and order code(s) or plain text.
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete geared motor as a replacement unit, the serial number of the original geared motor must be specified.

Structure of the Article No.

Position of the Article No.		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
Innomotics SG geared motors																					
1st to 5th position: Digit, letter, letter, digit, digit	Helical gearbox E, 1-stage	**2**	**K**	**J**	**3**	**0**															
	Helical gearbox Z, 2-stage	**2**	**K**	**J**	**3**	**1**															
	Helical gearbox D, 3-stage	**2**	**K**	**J**	**3**	**2**															
	Parallel shaft gearbox FZ, 2-stage	**2**	**K**	**J**	**3**	**3**															
	Parallel shaft gearbox FD, 3-stage	**2**	**K**	**J**	**3**	**4**															
	Bevel gearbox B, 2-stage	**2**	**K**	**J**	**3**	**5**															
	Bevel gearbox K, 3-stage	**2**	**K**	**J**	**3**	**5**															
	Helical worm gearbox C, 2-stage	**2**	**K**	**J**	**3**	**6**															
	Worm gearbox S, 1-stage	**2**	**K**	**J**	**3**	**7**															
	Electric-monorail gearbox EHB	**2**	**K**	**J**	**3**	**8**															
6th to 7th position: Digit, digit	Gearbox size																				
8th position: Digit	Output shaft								-												
9th to 10th position: Letter, letter	Motor frame size																				
11th position: Digit	Converter World Motor												**1**								
	Induction motor LE General Purpose (aluminum)												**2**								
	Induction motor LES Severe Duty; Basic Line (cast iron)												**3**								
	Explosion-protected motors MB (gas and dust protection, Zone 2 and Zone 22)												**7**								
12th position: Digit	Motor with improved efficiency (Standard Efficiency IE1)													**1**							
	Motor with high efficiency (High Efficiency IE2)													**2**							
	Motor with premium efficiency (Premium Efficiency IE3)													**3**							
	Synchronous reluctance motors for converter operation (Super Premium Efficiency IE4)													**7**							
	VSD10 line motors for converter operation													**8**							
13th position: Digit	Frequency, voltage With Article No. 9, additional order code required														-	**2, 4, 9**					
	Converter World Motor, star connection															**6**					
	Converter World Motor, delta connection															**7**					
14th position: Letter	Foot-mounted design																**A**				
	Foot/flange-mounted design																**B**				
	Torque arm Bevel gearbox K																**C**				
	Torque arm Parallel shaft gearbox F, Bevel gearbox B Helical worm gearbox C Worm gearbox S																**D**				
	Flange-mounted design																**F**				
	Housing flange design																**H**				
15th to 16th position: Letter, digit	Transmission ratio																				
Special designs																					
Coded	Order code required																			-	**Z**
Non-coded	Plain text required																				

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Introduction

Article No. code

Overview

Additional order codes

Customer-specific data on the rating plate can be indicated with option **Y00** and plain text (e.g. Y00:*LSF@plain text*).

The following data is necessary for geared motors in ATEX version:

Information when ordering	Input speed in continuous operation and Input power Rated motor power
Order code	**Y00**
Plain text specification	Y00:*AND@input speed**ANL@input power*
Example of plain text specification	Y00:*AND@1450**ANL@1.5* (input speed 1450 rpm, input power 1,5 kW)
Information required	ATEX design

Ordering example

A helical geared motor is required:

_ Gearbox type, size Z59
_ Motor 1.5 kW, 4-pole with 50 Hz line frequency
_ Output speed 49, transmission ratio i = 28.89
_ Solid shaft V35 x 70
_ Mounting position M1
_ Terminal box position 1A

This results in the following Article No. with order codes:

Position of the Article No.		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z	+	Order codes	+	
Selection criteria	Requirements																								
Gearbox type	Helical gearbox Z, 2-stage	**2**	**K**	**J**	**3**	**1**	.	.	-	■	.	.	■	■	-	■	■	■	■	-	■	+	.	+	.
Gearbox size	Size 59	**2**	**K**	**J**	**3**	**1**	**0**	**5**																	
Output shaft	Solid shaft V35 x 70	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**															
Motor frame size	Frame size 90; 1.5 kW; 4-pole	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**	**E**	**M**													
Motor type	Induction motor LE General Purpose	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**	**E**	**M**	**2**												
Motor efficiency	Premium Efficiency IE3	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**	**E**	**M**	**2**	**3**											
Line voltage, frequency	230 V Δ/400 V Y // 460 V Y, 50//60 Hz	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**	**E**	**M**	**2**	**3**	-	**2**									
Mounting type	Foot-mounted design	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**	**E**	**M**	**2**	**3**	-	**2**	**A**								
Transmission ratio	i = 28.89	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**	**E**	**M**	**2**	**3**	-	**2**	**A**	**S**	**1**						
Mounting position	M1	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**	**E**	**M**	**2**	**3**	-	**2**	**A**	**S**	**1**	-	**Z**	+	**D01**		
Terminal box position	1A	**2**	**K**	**J**	**3**	**1**	**0**	**5**	-	**1**	**E**	**M**	**2**	**3**	-	**2**	**A**	**S**	**1**	-	**Z**	+	**D01**	+	**M55**

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Type designation of the gearboxes

The type designation is a meaningful name for Innomotics SG geared motors.
It provides information about the fundamental design of the geared motor and its main technical features.

Example of gearbox type designation:		**F**	**D**	**A**	**F**	**S**	**W**	**89**	**-**	**Z**	**39**
Gearbox type	Helical gearbox	**–**									
	Cooling tower gearbox, 1-stage	**EKF**									
	Cooling tower gearbox, 2-stage	**ZKF**									
	Parallel shaft gearbox	**F**									
	Bevel gearbox, 2-stage	**B**									
	Bevel gearbox, 3-stage	**K**									
	Helical worm gearbox	**C**									
	Worm gearbox	**S**									
	Electric-monorail gearbox light-load	**BH**									
	Electric-monorail gearbox heavy-load	**KH**									
Stage	1-stage (for helical gearbox only)		**E**								
	2-stage		**Z**								
	3-stage		**D**								
Type											
Shaft	Solid shaft			**–**							
	Hollow shaft			**A**							
	Plug-in shaft			**E**							
Mounting	Foot-mounted design				**–**						
	Foot/flange-mounted design				**B**						
	Flange-mounted design				**F**						
	Housing flange design				**Z**						
	Torque arm				**D**						
Connection	Feather key/without feather key					**–**					
	Shrink disk					**S**					
	Splined shaft					**T**					
	ShaftMount assembly system					**R**					
Special features	Reduced-backlash version						**W**				
Gearbox size	Helical gearbox, 1-stage							**39 ... 149**			
	Helical gearbox, 2-stage/3-stage							**19 ... 189**			
	Cooling tower gearbox, 1-stage							**89 ... 149**			
	Cooling tower gearbox, 2-stage							**89 ... 189**			
	Parallel shaft gearbox, 2-stage/3-stage							**29 ... 189**			
	Bevel gearbox, 2-stage							**19 ... 49**			
	Bevel gearbox, 3-stage							**39 ... 189**			
	Helical worm gearbox, 2-stage							**29 ... 89**			
	Worm gearbox, 1-stage							**09 ... 29**			
	Electric-monorail gearbox light-load							**29 ... 39**			
	Electric-monorail gearbox heavy-load							**49 ... 79**			
Gearbox type – intermediate gearbox											
Gearbox type	Helical gearbox									**–**	
Stage - intermediate gearbox	2-stage									**Z**	
	3-stage									**D**	
Gearbox size	Helical gearbox 2-stage/3-stage										**19 ... 69**

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Type designation of the motors

Example of motor type designation:			LE	90	ZLT	4	SV	-	FW	L	32/14	MN	-	IA	SI04	
Motor																
Motor type	Three-phase motor	Aluminum housing	**LE**													
		Cast-iron housing	**LES**													
	Explosion-protected motor	Aluminum housing	**MB**													
		Cast-iron housing	**MBS**													
Type	Integral mounting		**–**													
	IEC B14 flange		**I**													
Motor frame size	Defined according to EN 50347			**63...250**												
Overall length	Extended housing				**Z, Y**											
	Overall length defined according to EN 50347				**S, L, M**											
	Packet length/power value				**A ... Z**											
Number of poles	2-pole					**2**										
	4-pole					**4**										
	6-pole					**6**										
	8-pole					**8**										
Special features																
Efficiency class	Different to IE2 or IE3						**–**									
	IE2 (High Efficiency)						**E**									
	IE3 (Premium Efficiency)						**P**									
	IE4 (Super Premium Efficiency)						**S**									
Design	Converter World Motor						**PV**									
	Synchronous reluctance motor						**SV**									
	VSD10 line motor						**V**									
Ventilation	Self ventilation								**–**							
	Forced ventilation								**F**							
	High inertia fan								**I**							
Canopy	With protective cover								**W**							
Handwheel	With handwheel								**D**							
Backstop	With backstop								**X**							
Options																
Brake type	DC brake									**L, LS, FDX**						
Rated braking torque	L brakes										**4 ... 400**					
	LS brake										**4 ... 400**					
	FDX brakes										**30, 40**					
	Adjusted braking torque										**/1.4 ... 1000**					
Brake options	Microswitch for monitoring brake release											**M**				
	Standard version											**N**				
	Enclosed brake											**G**				
	Manual brake release											**H**				
	Manual brake release with locking mechanism											**HA**				
Encoder	Absolute encoder singleturn (DRIVE-CLiQ)													**AS**		
	Absolute encoder multiturn (DRIVE-CLiQ)													**AM**		
	Incremental encoder													**IN**		
	Absolute encoder													**IA**		
	Prepared for encoder mounting													**IV**		
	Functionally safe rotary encoder														**SI04**	
ATEX	Explosion protection according to ATEX															**-1**

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Overview

Helical geared motors

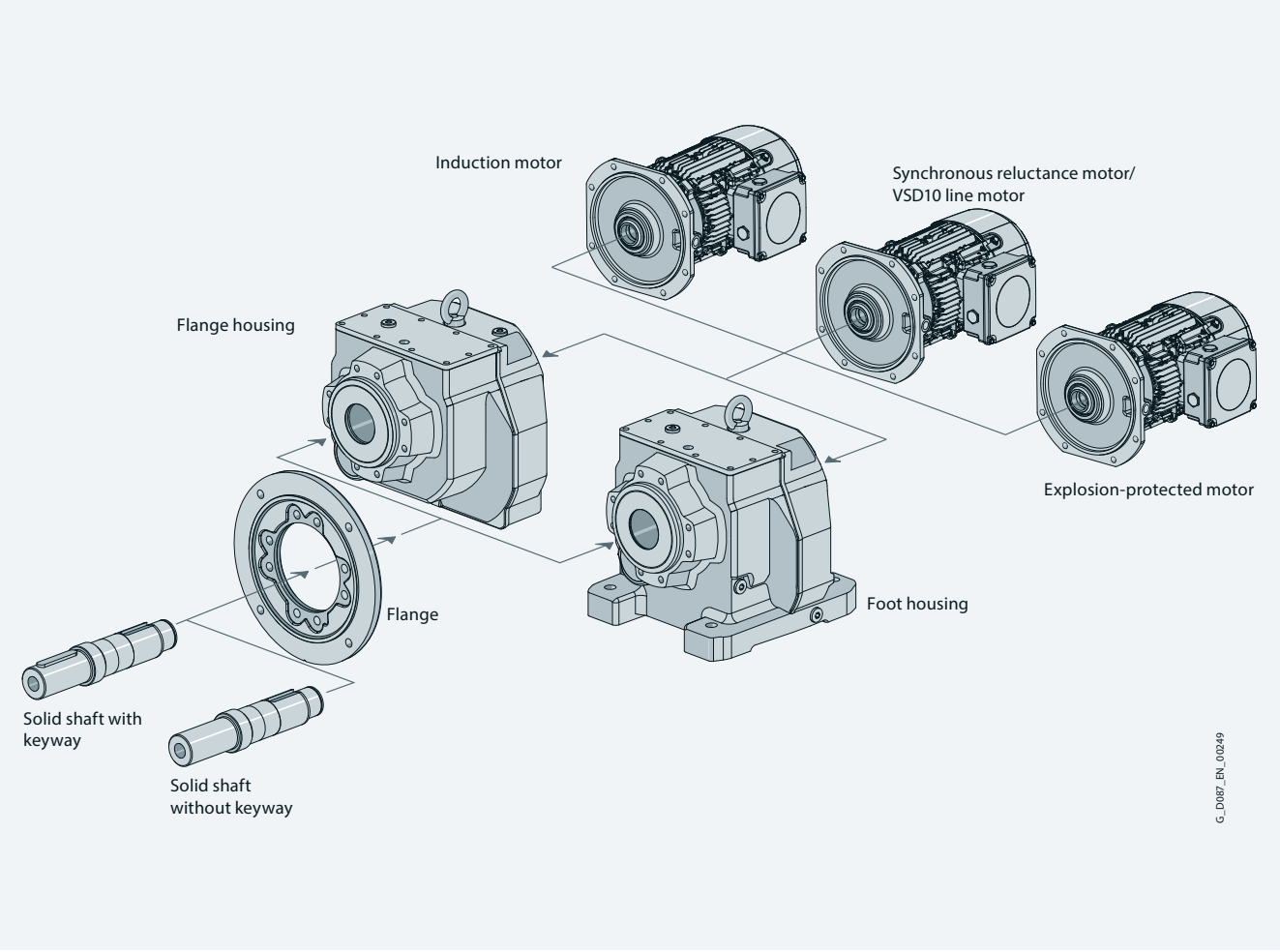

Fig. 1-11 Modular system, helical geared motor

Innomotics SG helical geared motors are available in the following versions for mounting in any position:

- 2 or 3 stages
- 1 stage for high output speeds
- 4 to 6 stages for especially low output speeds
- Foot-mounted design
- Flange-mounted design
- Flange-mounted design with VLplus and XLplus reinforced bearing systems
- Design with integrated housing flange
- Combined foot/flange-mounted design (frame size 29 to 89)
- Cooling tower design
- Solid shaft design with and without feather key

Typical applications

Helical gearboxes are used where there is sufficient axial space and efficient and low-cost drives are required:

- Roller conveyors, belt conveyors, chain conveyors
- Pumping systems
- Fan systems
- Water/wastewater systems
- Agitators
- Cooling tower drives

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Overview

Parallel shaft geared motors

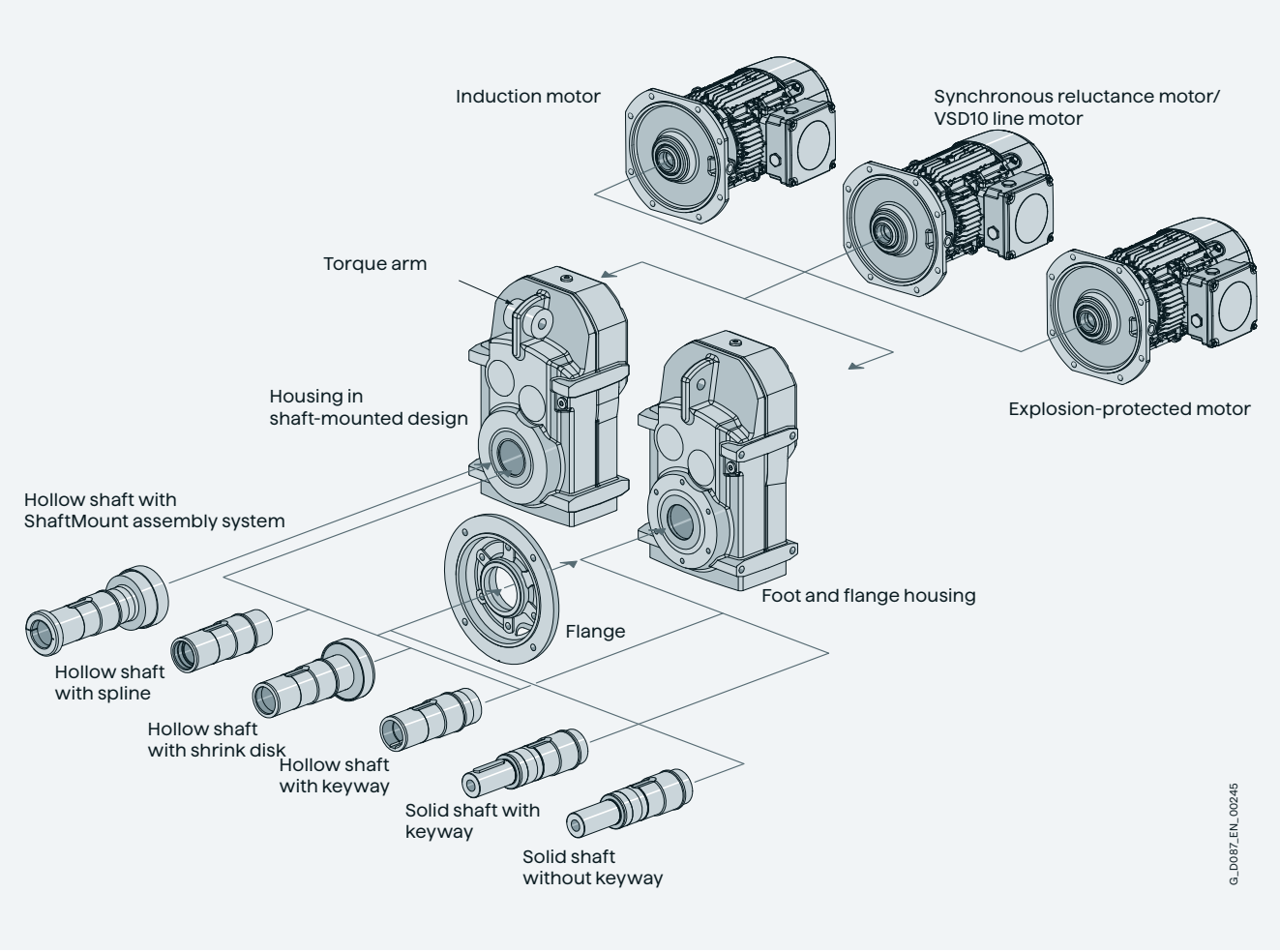

Fig. 1-12 Modular system, parallel shaft geared motor

Innomotics SG parallel shaft geared motors are available in the following versions for mounting in any position:

- 2 or 3 stages
- 4 to 6 stages for especially low output speeds
- Shaft-mounted design with torque arm
- Flange-mounted design
- Flange-mounted design with VLplus reinforced bearing system
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, splined shaft, shrink disk or ShaftMount assembly system
- Solid shaft design with and without feather key

Typical applications

The parallel shaft gearboxes are mainly used in applications where compact geared motors are required which are fitted to the drive shaft of the machine:

- Chain conveyors, belt & bucket elevators, belt conveyors, roller conveyors
- Screw conveyors
- Pumping systems
- Fan systems
- Agitators
- Extruders
- Cooling tower drives

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Overview

Bevel geared motors B

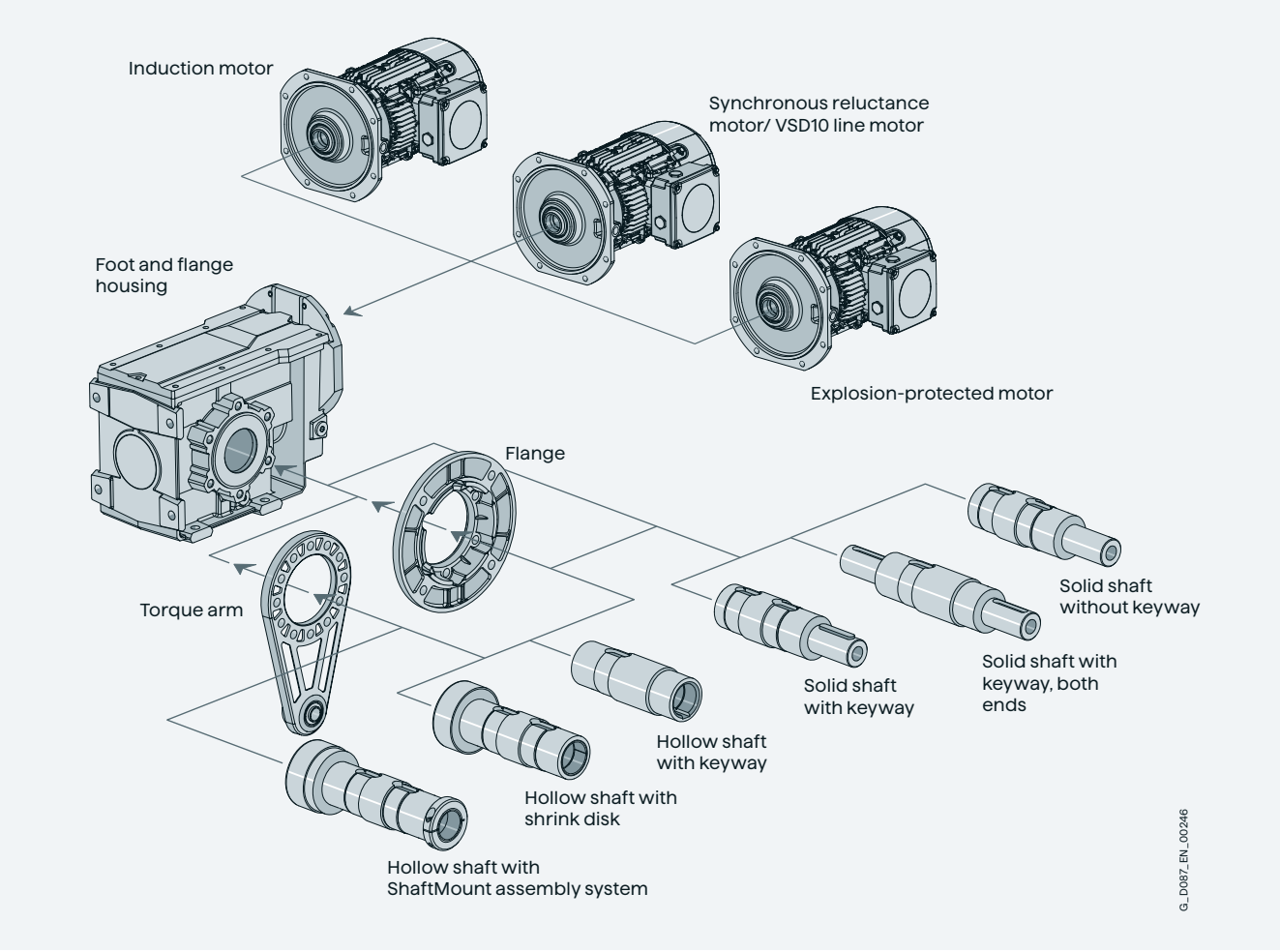

Fig. 1-13 Modular system, bevel geared motor B

Innomotics SG bevel geared motors B are available in the following versions for mounting in any position:

- 2 stages
- Shaft-mounted design with torque arm
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, splined shaft, shrink disk or ShaftMount assembly system
- Solid shaft design with and without feather key (at one end or both ends)

For 2-stage bevel gearboxes B, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Typical applications

The 2-stage right-angle gear units with maximum efficiency are used when there is little axial space available:

- Airport industry
- Automotive industry (electric overhead conveyors)
- General conveyor technology (general cargo and bulk goods)
- Agitators
- Cooling tower drives

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Overview

Bevel geared motors K

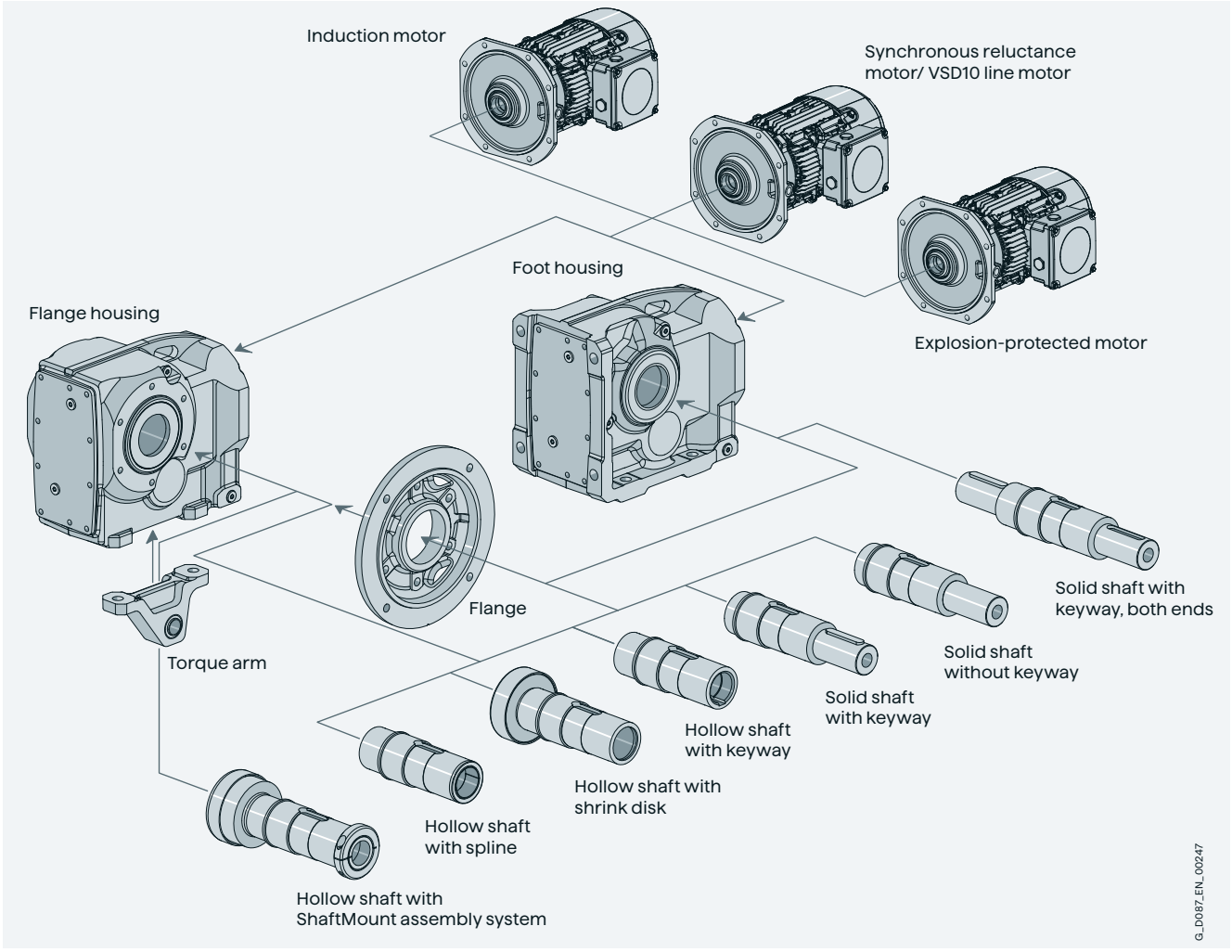

Fig. 1-14 Modular system, bevel geared motor K

Innomotics SG bevel geared motors K are available in the following versions for mounting in any position:

- 3 stages
- 5 or 6 stages for very low output speeds
- Shaft-mounted design with torque arm
- Flange-mounted design
- Flange-mounted design with VLplus reinforced bearing system
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, splined shaft, shrink disk or ShaftMount assembly system
- Solid shaft design with and without feather key (at one end or both ends)

Typical applications

The 3-stage right-angle gear units with high efficiency are used when there is little axial space available:

- Automotive industry (electric overhead conveyors)
- General conveyor technology (general cargo and bulk goods), pallet conveyor, belt conveyor, chain conveyor
- Hoisting gear
- Drives in storage and retrieval machines
- Agitators
- Cooling tower drives

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Overview

Helical worm geared motors

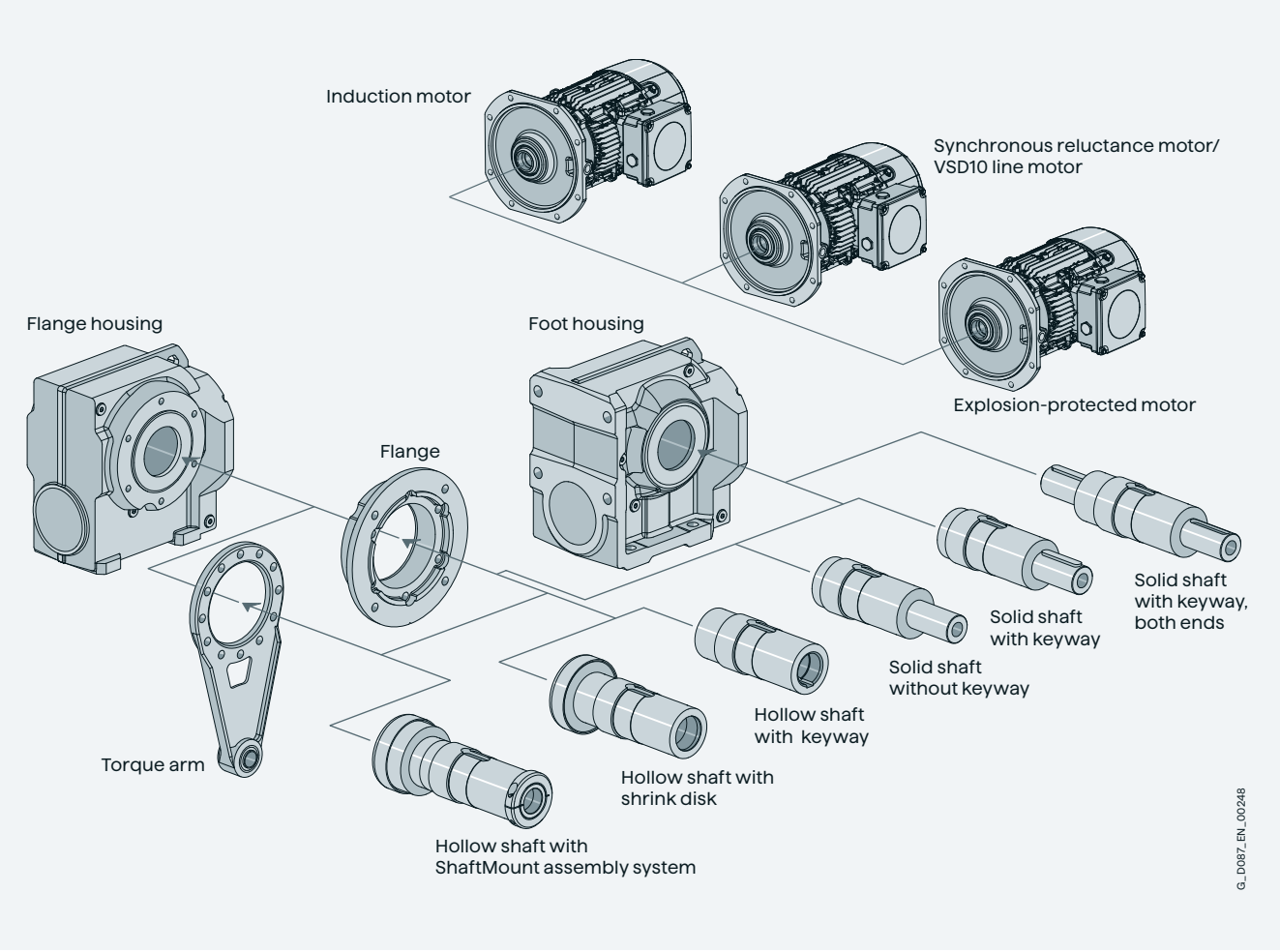

Fig. 1-15 Modular system, helical worm gearbox

Innomotics SG helical worm gearboxes are available in the following versions for mounting in any position:

- 2 stages
- 4 or 5 stages for very low output speeds
- Shaft-mounted design with torque arm
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, shrink disk or ShaftMount assembly system
- Solid shaft design with and without feather key (at one end or both ends)

For helical worm gearboxes, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Typical applications

The 2-stage helical worm gearboxes are used when compact and smooth-running right-angle gear units are required.

- Conveyor technology
- Rotary tables
- Drives in stage/theater applications

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Overview

Worm geared motors

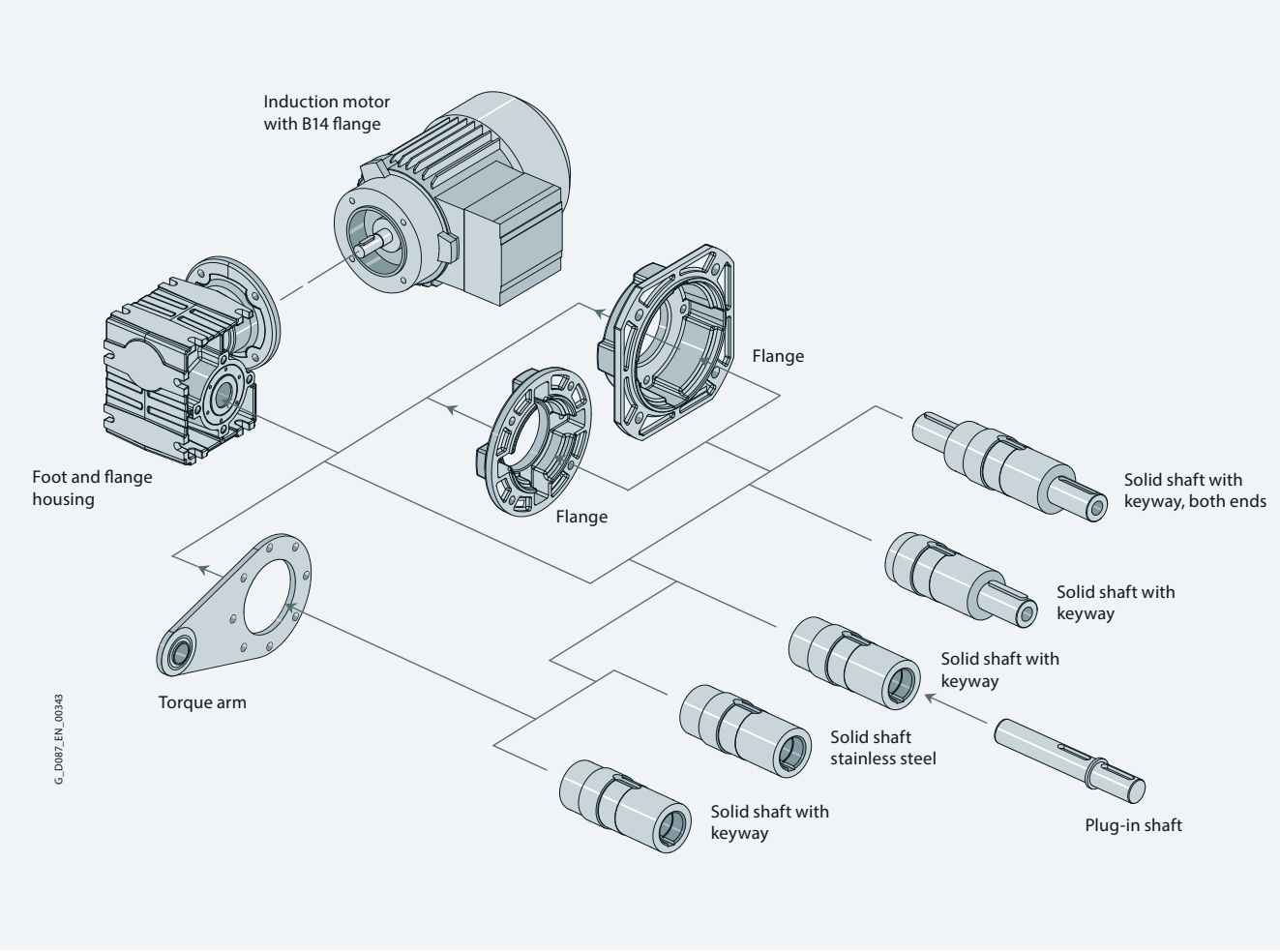

Fig. 1-16 Modular system, worm gearbox

Innomotics SG worm gearboxes are available in the following versions for mounting in any position:

_ 1 stage
_ Shaft-mounted design with torque arm
_ Flange-mounted design
_ Design with integrated housing flange
_ Foot-mounted design
_ Solid shaft design with feather key (at one end or both ends)
_ Hollow shaft design with feather key
_ Hollow shaft design with plug-in shaft

For worm gearboxes, the torque arm is supplied loose to enable it to be mounted as required on site. The position of the torque arm can be freely selected.

Typical applications

The 1-stage worm gearboxes are mainly used in tight spaces where a low-cost and smooth-running drive is required:

_ Small conveyor belts
_ Rotary tables
_ Corner transfer conveyors
_ Agitators
_ Drives in stage/theater applications

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Structure of the tables for geared motors up to 55 kW

In the selection tables you will find the most frequently used versions and combinations of geared motors sorted according to the motor power.
Additional combinations can be selected with our SPC.

The power ratings and torques specified in the catalog refer to mounting position M1 and comparable types of construction, where the input stage does not run completely immersed in oil.

Further, standard equipment and standard lubrication of the geared motors as well as normal ambient conditions are assumed.

The specified output speeds are guide values.
You can calculate the rated input speed based on the rated motor speed and the transmission ratio. Please note that the actual output speed will depend on the motor load and the line supply conditions.

P_N	n_2	T_2	i	F_{R2}	f_B	m	**Article No.**	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	Number of poles
0.75	**K.89-LE80ZMQ4P**							
	6.3	1140	231.80	18100	1.4	62	**2KJ3510- ■ DF23- ■ ■ K2 -Z**	**–**
⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

(1) Rated motor power at 50 Hz
(2) Geared motor output speed
(3) Geared motor output torque
(4) Transmission ratio
(5) Permissible radial force at the center of shaft extension
The radial force applies to foot-mounted design with solid shaft "1" (2KJ3...-**1**...-....), see Shaft designs as of page 10/50.
(6) Service factor
(7) Drive weight without any oil
(8) Article No.
(9) Additional identification code for the number of poles

Structure of the tables for transmission ratios and torques

In the selection tables for transmission ratios and torques, the gearboxes are sorted according to gearbox type and ratio.

i	n_2	T_{2N}	F_{R2}	φ	J_G	R_{ex}	**Motor frame size**												**Article No.**
–	rpm	Nm	N		10^{-4} kgm²	–	**63**	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	(Article No. supplement, see below)
Type designation D.59																			
76.38	19	450	7660	7.0	0.59	611/8	✓	✓	✓	✓	✓	✓	✓						**2KJ3205 - ■■■■■ - ■■ E1**
⬇	⬇	⬇	⬇		⬇	⬇	⬇												⬇
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)												(9)

(1) Transmission ratio
(2) Geared motor output speed at a motor speed of 1450 rpm
(3) Maximum gearbox output torque with service factor of $f_B = 1$
(4) Permissible radial force at the center of shaft extension
The radial force applies to foot-mounted design with solid shaft "1" (2KJ3...-**1**...-....), see Shaft designs as of page 10/50.
(5) Torsional backlash in minutes of arc for reduced-backlash version (order code **G99**)
If torsional backlash is not specified, option "reduced-backlash version" is not possible with this transmission ratio.
(6) Moment of inertia of the gearbox reduced to the input shaft
(7) Ratio, number of teeth
(8) Geometrically possible geared motor combination
(9) Article No.

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Introduction

Notes on selection tables

Structure of the tables for efficiencies for helical worm geared motors

	n_{mot} = 2800 rpm				n_{mot} = 1400 rpm				n_{mot} = 900 rpm				**Article No.** (Article No. supplement, see below)
i	***n*₂**	***T*₂N**	***P*mot**	**h**	***n*₂**	***T*₂N**	***P*mot**	**h**	***n*₂**	***T*₂N**	***P*mot**	**h**	
–	rpm	Nm	kW	%	rpm	Nm	kW	%	rpm	Nm	kW	%	
Type designation C.49													
127.64	22	300	0.95	73	11.0	355	0.56	73	7.1	355	0.37	71	**2KJ3603 - ■ ■ ■ ■ ■ - ■ ■ F2**
⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇
(1)	(2)	(3)	(4)	(5)	(2)	(3)	(4)	(5)	(2)	(3)	(4)	(5)	(6)

(1) Transmission ratio
(2) Geared motor output speed at specified motor speed n_{mot}
(3) Maximum gearbox output torque with service factor of $f_B = 1$
(4) Input power
(5) Efficiency
(6) Article No.

Structure of the tables for motors

Converter World Motor

Left-hand side

Frame size	**Motor**	***P*N**	**Connection**	***f*N**	***T*N**	***I*N**	***U*N**	**cos *φ***	***η*** PDS (90, 100)	**Efficiency class** acc. to IEC TS 60034-30-2 and IEC 60034-2-3
		kW		Hz	Nm	A	V	–	%	
1500 rpm										
112	LE112ZMKB4PV	4	Y	51.5	26	9.58	330	0.83	87.46	3
1750 rpm										
112	LE112ZMKB4PV	4.7	Y	59.5	26	9.58	380	0.76	88.37	3
⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

(1) Motor frame size
(2) Motor designation
(3) Rated power
(4) Connection
(5) Rated frequency
(6) Rated torque
(7) Rated current
(8) Rated voltage
(9) Power factor
(10) Efficiency acc. to PDS90 measurement (90 % rated speed; 100 % rated torque)
(11) Marking efficiency class

Right-hand side

Frame size	**Motor**	**Mech. speed limit**	***J*mot**	**m*mot***	9th to 13th position of the Article No.							
		rpm	10^{-4} kgm²	kg	2KJ3... - .	■	■	■	■	-	- ■	- ... -Z
1500 rpm												
112	LE112ZMKB4PV	4200	145	57	2KJ3... - .	**G**	**J**	**1**	**3**	**-**	**6**	**- ....**
1750 rpm												
112	LE112ZMKB4PV	4200	145	57	2KJ3... - .	**G**	**J**	**1**	**3**	**-**	**6**	**- ....**
⬇	⬇			⬇		⬇	⬇	⬇	⬇		⬇	
(1)	(2)	(3)	(4)	(5)		(6)	(6)	(7)	(8)		(9)	

(1) Motor frame size
(2) Motor designation
(3) Mechanical speed limit
(4) Moment of inertia
(5) Weight (without end shield at DE)
(6) Article No. of the motor frame size
(7) Article No. of the motor type Converter World Motor
(8) Article No. of the motor series
(9) Article No. of the Converter World Motor, star or delta connection

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Structure of the tables for motors

Motors with Premium Efficiency IE3

Left-hand side

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η			Efficiency class	I_{St}/I_N	T_{St}/T_N	T_{Bk}/T_N
					50 Hz: 400 V		4/4 load	3/4 load	2/4 load	acc. to IEC			
		kW	rpm	Nm	A	–	%	%	%	60034-30	–	–	–
50 Hz power													
4-pole, 1500 rpm													
80	LE80MH4P	0.55	1440	3.65	1.26	0.78	80.8	81.5	79.8	IE3	5.9	2.1	3.1
	LE80ZMQ4P	0.75	1450	4.95	1.75	0.75	82.5	82.3	80.1	IE3	7.1	2.7	3.9
2-pole, 3000 rpm													
80	LE80ME2P	0.75	2850	2.50	1.56	0.86	80.7	82.2	81.9	IE3	6.2	2.6	3.0
	LE80ZMJ2P	1.1	2885	3.65	2.25	0.85	82.7	83.9	83.1	IE3	7.1	3.0	3.3
		⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(8)	(9)	(10)	(11)	(12)

(1) Motor frame size
(2) Motor designation
(3) Rated power
(4) Rated speed
(5) Rated torque
(6) Rated current
(7) Power factor
(8) Efficiency
(9) Marking efficiency class
(10) Relative starting current
(11) Relative starting torque
(12) Relative breakdown torque

For different voltages, the starting, average acceleration and breakdown torque change acc. to a square law from their rated value.

Right-hand side

Frame size	Motor	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.						Additional identification code **-Z** with order code
		–	dB (A)	dB (A)	1/h	10^{-4} kgm²	kg	2KJ3... - .	■	■	■	■	- .... **-Z**	Number of poles
50 Hz power														
4-pole, 1500 rpm														
80	LE80MH4P	2.3	52	60	15000	21	9	2KJ3... - .	**D**	**C**	**2**	**3**	**- ....**	**–**
	LE80ZMQ4P	3.0	58	66	15000	29	10	2KJ3... - .	**D**	**F**	**2**	**3**	**- ....**	**–**
2-pole, 3000 rpm														
80	LE80ME2P	2.9	60	71	5100	11	9.3	2KJ3... - .	**D**	**B**	**2**	**3**	**- ....**	**P00**
	LE80ZMJ2P	3.3	60	71	8700	13	10	2KJ3... - .	**D**	**M**	**2**	**3**	**- ....**	**P00**
		⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇		⬇
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(9)	(10)	(11)	(12)

(1) Motor frame size
(2) Motor designation
(3) Relative average acceleration torque
(4) Measuring surface sound pressure level
(5) Sound power level
(6) No-load switching frequency
(7) Moment of inertia
(8) Weight (without end shield at DE)
(9) Article No. of the motor frame size
(10) Article No. of the motor type
(11) Article No. of the motor series
(12) Additional identification code for the number of poles

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Introduction

Structure of the tables for motors

VSD10 line and synchronous reluctance motors for converter operation

Left-hand side

Frame size	Motor	P_N	Connection	f_N	T_N	I_N	cos φ	η	L_{pfA}	L_{WA}
						50/87 Hz: 400 V 60 Hz: 460 V		4/4 load		
		kW		Hz	Nm	A	–	%	dB (A)	dB (A)
50 Hz power										
4-pole, 1500 rpm										
112	LE112ME4V	4	Y	52.3	25.5	8.6	0.85	83.1	77.4	89.4
60 Hz power										
4-pole, 1800 rpm										
112	LE112ME4V	4.55	Y	62.2	24.0	8.3	0.85	85.0	77.2	89.2
⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

(1) Motor frame size
(2) Motor designation
(3) Rated power
(4) Connection
(5) Rated speed
(6) Rated torque
(7) Rated current
(8) Power factor
(9) Efficiency
(10) Measuring surface sound pressure level
(11) Sound power level

For different voltages, the starting, average acceleration and breakdown torque change acc. to a square law from their rated value.

Right-hand side

Frame size	Motor	Mech. speed limit	J_{mot}	m_{mot}	Preferred SINAMCS G120-PM240 Other SINAMCS converters also possible	Frame size	IES class acc. to EN 50598-2	9th to 12th position of the Article No.						Additional identification code **-Z** with order code
		rpm	10^{-4} kgm²	kg	Type			2KJ3... - .	■	■	■	■	- .... **-Z**	Power
50 Hz power														
4-pole, 1500 rpm														
112	LE112ME4V	4200	100	27	6SL3210-1PE21-1.L0	FSB	IES1	2KJ3... - .	**G**	**H**	**2**	**8**	**- ....**	**P92**
60 Hz power														
4-pole, 1800 rpm														
112	LE112ME4V	4200	100	27	6SL3210-1PE21-1.L0	FSB	IES1	2KJ3... - .	**G**	**H**	**2**	**8**	**- ....**	**P92**
⬇	⬇			⬇	⬇	⬇	⬇		⬇	⬇	⬇	⬇		⬇
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(9)	(9)	(10)	(11)		(12)

(1) Motor frame size
(2) Motor designation
(3) Mechanical speed limit
(4) Moment of inertia
(5) Weight (without end shield at DE)
(6) Preferred SINAMCS G120-PM240
(7) Frame size
(8) IES class acc. to EN 50598-2
(9) Article No. of the motor frame size
(10) Article No. of the motor type
(11) Article No. of the motor series
(12) Order code for power

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Structure of the tables for motors

Motors according to UL and CSA standards

Left-hand side

Frame size	Motor	P_N		n_N	T_N	EISA	I_N	cos φ	η			I_{St}/I_N	T_{St}/T_N
						CC No.	460 V		4/4 load	3/4 load	2/4 load		
		kW	hp	rpm	Nm	CC032A	A	–	%	%	%	–	–
60 Hz, 50 Hz power													
4-pole, 1800 rpm													
90	LE90SM4P	1.1	1.5	1750	6.00	✓	2.15	0.75	86.5	86.4	84.2	8.2	3.4
2-pole, 3600 rpm													
90	LE90SM2P	1.5	2	3525	4.05	✓	2.60	0.84	85.5	84.8	82.3	9.8	3.1
⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇
(1)	(2)	(3)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(9)	(9)	(10)	(11)

(1) Motor frame size
(2) Motor designation
(3) Rated power
(4) Rated speed
(5) Rated torque
(6) Energy Independence and Security Act
(7) Rated current
(8) Power factor
(9) Efficiency
(10) Starting current
(11) Relative starting torque

For different voltages, the starting, average acceleration and breakdown torque change acc. to a square law from their rated value.

Right-hand side

Frame size	Motor	T_{Bk}/T_N	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.						Additional identification code **-Z** with order code	
															Number of poles	Specification
		–	–	dB (A)	dB (A)	1/h	10^{-4} kgm²	kg	2KJ3... - .	■	■	■	■	- .... **-Z**		UL-R/CSA
60 Hz, 50 Hz power																
4-pole, 1800 rpm																
90	LE90SM4P	4.4	3.7	O. R.	O. R.	O. R.	36	12	2KJ3... - .	**E**	**K**	**2**	**3**	**- ....**	**–**	**N38**
2-pole, 3600 rpm																
90	LE90SM2P	4.9	3.4	O. R.	O. R.	O. R.	21.0	12	2KJ3... - .	**E**	**K**	**2**	**3**	**- ....**	**P00**	**N38**
⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇	⬇		⬇	⬇
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(10)	(10)	(11)	(12)		(13)	(14)

(1) Motor frame size
(2) Motor designation
(3) Relative breakdown torque
(4) Relative average acceleration torque
(5) Measuring surface sound pressure level
(6) Sound power level
(7) No-load switching frequency
(8) Moment of inertia
(9) Weight (without end shield at DE)
(10) Article No. of the motor frame size
(11) Article No. of the motor type
(12) Article No. of the motor series
(13) Order code for number of poles
(14) Order code for special specifications

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Overview

Shaft heights

DIN 747 shaft heights for machines

Shaft height	Tolerance
mm	mm
≤ 250	-0.5
> 250	-1

Note:
For foot-mounted gearboxes, the mounted motor can extend below the mounting surface of the gearbox.

Shaft extensions

DIN 748-1 cylindrical shaft extensions

Diameter tolerance:

Diameter	Tolerance
mm	mm
≤ 50	ISO k6
> 50	ISO m6

Center holes according to DIN 332 type DR:

Diameter	Thread size
mm	–
> 16 ... 21	M6
> 21 ... 24	M8
> 24 ... 30	M10
> 30 ... 38	M12
> 38 ... 50	M16
> 50 ... 85	M20
> 85 ... 130	M24
> 130	M30

Undercut according to DIN 509:

Diameter	Undercut acc. to DIN 509	Suggested construction, minimum hollow on mating piece
mm		mm
> 16 ... 18	E1.0x0.2	0.9 x 45 °
> 18 ... 50	E1.2x0.2	1.1 x 45 °
> 50 ... 80	E1.6x0.3	1.4 x 45 °
> 80 ... 125	E2.5x0.4	2.2 x 45 °

Hollow shafts

Hollow shaft design with feather key

Diameter tolerance Ø: ISO H7 measured using a mandrel gauge

Feather keys: acc. to DIN 6885-1 (high form)

Hollow shafts with shrink disk

Diameter tolerance Ø: ISO H7 with mandrel gauge, measured in the area of the shrink disk seat. Hub seat, output side equipped with journal bearing sleeve.

Minimum requirement for the design of the customer shaft:
- Elastic limit Re ≥ 360 N/mm²
- Module of elasticity, approx. 206 kN/mm²
- Without threaded hole on the face
- Customer shaft must not be in contact with shaft shoulder

Hollow shafts with splines

Splined shaft according to DIN 5480

Hollow shafts for the ShaftMount assembly system

The diameters of the taper bushing and the bronze bushing are designed to hold a customer shaft with tolerance h11.

Minimum requirement for the design of the customer shaft:
- Bright steel drawn EN 10278 (tolerance Ø: ISO h11)
- Elastic limit Re ≥ 360 N/mm²
- Module of elasticity, approx. 206 kN/mm²
- Straightness less than 0.5 mm/m

Note:
Deviation from the specified straightness will cause radial runout of the customer shaft. Customer shafts with minor radial runout ensure optimum operating conditions for geared motors. This has a positive impact on the service life of the drive train.

Flanges

Centering edge tolerance:

Outer flange diameter	Tolerance
mm	mm
≤ 300	ISO j6
> 350	ISO h6

Vent valves

The gearboxes are shown in the dimensional drawings with screw plugs.
If venting is required, then depending on the type of construction, an activated vent valve is installed.
The contour dimension can change slightly as a result.

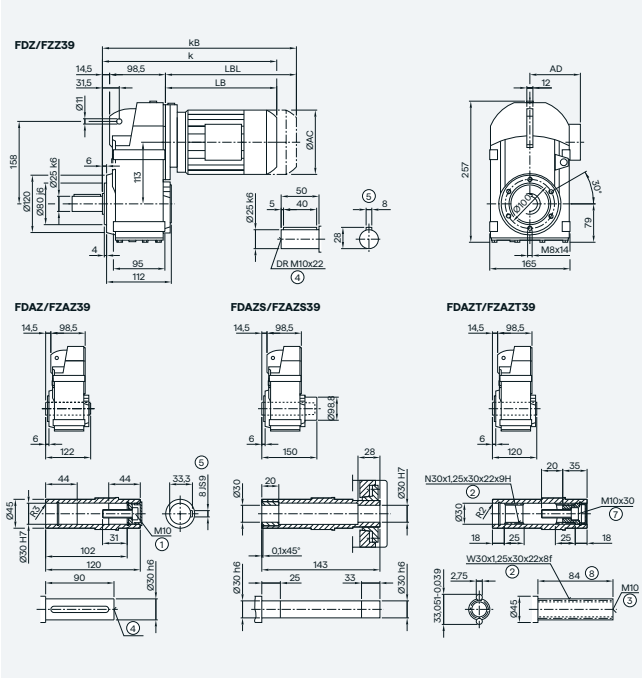

Fig. 1-17 Example, dimensional drawing

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Overview

The following certificates are available for Innomotics SG geared motors. You can select these individually, or combine them freely into a multi-certificate.

Specifications

Marking Examples	**Legal/normative requirements**
CE	**Machinery directive 2006/42/EC**
UKCA	**United Kingdom Conformity Assessed** Supply of Machinery (Safety) Regulations 2008
IE3	**Regulation (EU) 2019/1781** Requirements relating to electric motors and variable-speed controls according to guideline 2009/125/EC and change regulation (EU) 2021/341
MG1-12	**NEMA MG1 Table 12-12** National standard
cULus	**UL 1004** Standard of the Underwriters Laboratories Inc. (testing and certification body)
CC032 A	**EISA** Energy Independence Security Act
CSA	**CSA-C22.2 No. 100** Standard of the Canadian Standards Association
Energy Verified	**EER** Energy Efficiency Regulations
CCC	**CCC** China Compulsory Certification
	CEL – China Energy Label based on the national standard GB 18613-2020
	KEA Korea Energy Agency - Korea Energy Label
EAC	**EAC** TR CU EAC declaration for the Eurasian customs union
ISI	**BIS** Indian standard IS 12615:2018
Ex	**ATEX** EU directive 2014/34/EU

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Introduction

Converter World Motor

The Converter World Motors are available in frame sizes 71 to 250 in accordance with IEC TS 60034-30-2.

The following specifications and options are integrated with the Converter World Motor and do not require any additional order codes:

_ Design in accordance with CE / UKCA, UL-/CSA and EAC

_ Pt1000 resistance thermometer

The Converter World Motor is designed exclusively for converter operation; the rated frequency of the induction motors is not 50 Hz; they therefore do not fall within the scope of the following certifications:

_ China Compulsory Certification (CCC)

_ China Energy Label (CEL)

_ Bureau of Indian Standards (BIS)

_ Korea Energy Management Corporation (KEMCO)

Converter World Motor	11th and 13th position of the Article No.	
	2KJ3… -… ■ . - ■ …**-Z**	
Converter World Motor, star connection	**1**	**6**
Converter World Motor, delta connection	**1**	**7**

UKCA – United Kingdom Conformity Assessed

The UKCA mark is the product marking for products placed on the market in the UK (England, Scotland and Wales). The UKCA marking applies to most products that were previously subject to CE marking and is mandatory for products placed on the market after December 31, 2022. The Innomotics SG geared motors have the UKCA marking as standard.

For the Innomotics SG explosion-protected geared motors, the UKCA marking is required additionally.

Motors for Great Britain	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
UKCA marking for explosion-protected geared motors		**N76**

Without CE, UKCA marking for export

To export geared motors to countries outside the European economic area, order option "without CE, UKCA marking for export" for motors with a power rating of 0.75 kW or more is available. The CE, UKCA marking is not displayed on the rating plate of these motors.

These geared motors may only be exported to countries outside the European economic area which do not require the CE, UKCA marking.

Motors without CE, UKCA marking for export	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Without CE, UKCA marking		**N68**

Motors for the North American market

Motors in frame sizes 63 to 250 are available in designs which meet the UL-R and CSA standards.

Motors for the North American market	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Design in accordance with UL-R and CSA		**N38**

Note:
In the USA, a distinction is made between the rated voltage of the supply system and the rated voltage of the motor.
See the table below for the assignment:

Country	Rated voltage of the supply system	Rated voltage of the motor
USA	208 V	200 V
	240 V	230 V
	480 V	460 V
Canada	600 V	575 V

UL-R – Underwriters Laboratories Inc.

The motors are listed for up to 600 V by Underwriters Laboratories Inc. ("Recognition Mark" = R/C). Motor voltages up to 600 V are certified according to UL. "UL Recognition Mark" is included on the rating plate of the motor.

Externally or internally mounted components such as:

_ Motor protection

_ Heating element

_ Forced ventilation

_ Brake

_ Encoder

_ Plug connection

are UL-R/C, CSA, or C-US listed or used by manufacturers in accordance with regulations. UL-R/C cable glands must be used for the cable entry.

CSA – Canadian Standard Association

The motors are approved for up to 690 V in accordance with the "Canadian Standard Association" (CSA). Externally or internally mounted components which are used are listed by CSA or are used by manufacturers in accordance with regulations. The CSA mark and the rated voltage are stamped on the rating plate.

There is no approval for explosion-protected motors.

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Motors for the Chinese market

CCC-certified motors, frame sizes 63 to 90, are available for export to China.

The "China Energy Label" required for import into China is available for motors in frame sizes from 80 to 250.

The motors are marked according to the requirements with CCC, CEL or both specifications.

Motors for the Chinese market	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Design for the Chinese market		**N67**

CCC – China Compulsory Certification

Motors with small powers (small power motors) that are exported to China must be certified up to a rated power of:

2-pole: ≤ 2.2 kW
4-pole: ≤ 1.1 kW
6-pole: ≤ 0.75 kW
8-pole: ≤ 0.55 kW

Note:
Chinese customs checks the need for certification of imported products by means of the commodity code.

The following do not need to be certified:

- Explosion-protected motors
- Multi-voltage motors
- Multi-speed motors with powers higher than those listed above
- Synchronous reluctance motors
- Repair parts

CEL – China Energy Label

According to the current CEL007-2021 directive, China has a mandatory energy efficiency labeling for electric motors.

The scope includes Innomotics SG geared motors and explosion-protected geared motors:

- Line voltage: ≤ 1000 V
- Line frequency: 50 Hz
- Power range: 0.75 kW to 375 kW
- Number of poles: 2, 4, 6, 8-pole
- Continuous duty: S1, S3 ≥ 80%
- Self-ventilated

The motors for the Innomotics SG gearboxes are classified according to the minimum requirements corresponding to the International Efficiency (IE) in the efficiency classes (Minimum allowable values of energy efficiency and values of efficiency grades for motors) defined in Chinese standard GB 18613-2020.

IEC IE class	**GB 18613-2020**
IE5	Grade 1
IE4	Grade 2
IE3	Grade 3

Motors for the Eurasian Customs Union

To import geared motors into the Eurasian Customs Union area, the TR CU EAC declaration (Russia, Belarus, Kazakhstan, Armenia, Kyrgyzstan) is required.

TR CU = Technical Regulation Customs Union
EAC = Eurasian Conformity

The motors have the "EAC" logo marked on the rating plate and the packaging.

The "TR CU EAC declaration" must be available; however, it is generally not included with the delivery. The customs authorities use the motor article number to check the motor certification.

The following are available at
configurator.innomotics.com

- TR CU EAC declaration in line with the low-voltage directive
- Additional TR CU EAC declaration according to the EMC Directive.

The TR CU EAC declaration is valid for all geared motors. For gearboxes with adapters, the certificate is not necessary as the TR CU EAC declaration only refers to the motor.

Motors for the Eurasian Customs Union	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Design in accordance with EAC		**N30**

Motors for the Indian market

For export to India, the motors are available in accordance with the IS 12615:2018 standard. The IS 12615:2018 standard covers the efficiency classes IE2, IE3 and IE4 for operation at sinusoidal voltage sources. It is also valid for:

- 2, 4, 6 or 8-pole
- Rated power from 0.12 kW to 1000 kW
- Rated voltage up to 1000 V with rated frequency of 50 Hz
- Ambient temperature -20 °C to +60 °C
- Operating mode S1 (continuous duty)
  Operating modes from S2 with comparably measured motors in operating mode S1 are also covered. The motors must be marked with the power corresponding to S1 and the associated IE class.
- Cooling method: IC411, IC511 and IC611

The motors must meet the requirements of the starting current limit from the IS 12615:2018 standard and are tested individually.

Motors for the Indian market	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Design in accordance with BIS		**N27**

Note:
For motors with forced ventilation (order code **M23**), no certification is required up to motor frame size 112; sizes 225 and 250 on request.

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Motors for the Korean market

Minimum efficiencies required by law

According to a legislative amendment with reference to the MKE-2015-28 (Ministry of Knowledge Economy Korea) dated February 12, 2015, Minimum Efficiency IE3 became obligatory for motors from 0.75 to 375 kW in Korea.

2, 4 and 6-pole Innomotics SG motors 0.75 to 55 kW with efficiency class IE3, which comply with IE3 requirements for energy efficiency for line frequencies 50 Hz and 60 Hz (P50), are approved for the South Korean market.

Scope of Korean standard KS C 60034-2-1

This Korean standard is applicable for Innomotics three-phase induction motors with the following parameters:

_ Voltage: ≤ 600 V
_ Power supply: 60 Hz three-phase
_ Rated power: 0.75 ... 55 kW
_ Number of poles: 2, 4, and 6
_ Speed: Constant
_ Coolant temperature: ≤ 40 °C

Korea Energy Label

The Korea Energy Efficiency Label (**N33**) can only be ordered for motors that comply with Korea's KEA (Korea Energy Agency) efficiency requirements. The certification confirms that the efficiency and power factor comply with KS C 60034-2-1.

The Korea Energy Label includes the following information:

_ Full-load efficiency
_ Motor Type (MT)
_ Rated output power
_ Number of poles
_ CO_2 emission per hour
_ Energy costs per annum

Motors for the Korean market	Additional identification code **-Z** with order code	
	2KJ3... -.....-....**-Z**	Order code
KEA Korea Energy Efficiency Label		**N33**

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WEEE directive

Recycling and disposal of Innomotics SG geared motors

EU directive 2012/19/EU governs the disposal of used electrical and electronic devices that are placed on the market in the EU. Since August 15, 2018, geared motors have also been subject to EU directive 2012/19/EU and are marked accordingly:

Information on proper disposal is provided in the latest operating instructions of the geared motors.

European RoHS directive

Innomotics SG geared motors comply with the stipulations set up in the directive 2011/65/EU and "The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012" regarding the restriction of the use of certain hazardous substances.

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Introduction

Explosion protection according to ATEX

Overview

The motors and gearboxes for use in hazardous zones are designed and built according to the EU directive 2014/34/EU (ATEX). Suitable versions are available for many application conditions and hazardous zones, e.g. in explosive gas atmospheres in the chemical/ petrochemical sector or in explosive dust atmospheres in mining or food & beverage sectors. The explosion-protected geared motors are approved for use in Zone 2 (gases) and Zone 22 (dusts).

4-pole motors with efficiency classes IE3 and IE2 are available in the power range from 0.25 to 22 kW. Different types of construction, voltage versions and a wide variety of options/ add-ons are available to precisely adapt the geared motors to application and customer-specific requirements.

Note:
The electric-monorail geared motors EHB are not available as explosion-protected geared motors.

Ex atmosphere / Zone		**Category**	**Frequency**	**Innomotics SG gearbox available**
G (gas and steam)	D (dust)			
0	20	1	constantly or long-term	No
1	21	2	infrequently	Yes
2	22	3	rarely or briefly	Yes

Use in explosive atmospheres G (gases) is permissible for temperature classes T1 to T3. When used in explosive atmosphere D (dusts), it must be noted that the maximum permissible surface temperature for the gearbox is 120 °C. An oil level sensor can be integrated for monitoring in inaccessible areas.

Designs for Innomotics SG explosion-protected geared motors in Zone 2 and Zone 22

Explosive zone	**Explosion group**	**Equipment category**	**Equipment protection level**	**Marking**		Additional identification code **-Z** with order code	
				Gearbox type of protection	**Motor type of protection**	2KJ3… -…..-….**-Z**	Order code
Gas (G) Zone 2 [1]	IIC	3G	Gc	Ex II 3G Ex h IIC T4 Gc Ex II 3D Ex h IIIC T120 °C Dc	Ex II 3G Ex ec IIC T3 Gc		**K72** + **K82** + **K78** [2]
	IIB	3G	Gc	Ex II 3G Ex h IIB T4 Gc Ex II 3D Ex h IIIB T120 °C Dc	Ex II 3G Ex ec IIB T3 Gc		**K72** + **K81** + **K78** [2]
Dust (D) Zone 22	IIIB	3D	Dc	Ex II 3G Ex h IIB T4 Gc EX II 3D Ex h IIIB T120 °C Dc	EX II 3D Ex tc IIIB T120 °C Dc		**K74** + **K81** + **K75** [3]

[1] Innomotics SG explosion-protected geared motors for use in hazardous Zone 2 (order code **K72**) may only be supplied with an electrically conductive paint finish or unpainted.

[2] Explosion group IIC (order code **K82**) or IIB (order code **K81**) must be selected for hazardous Zone 2. It is not necessary to separately select the temperature class (order code **K78**). This is specified automatically.

[3] With the selection of hazardous Zone 22, the additional order codes **K75** and **K81** are specified. These indicate the explosion group and the temperature class. It is not necessary to separately select the temperature class.

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Efficiency classes for converter operation according to IEC 60034-30-2

Determination of the efficiency classes of converter-fed motors

For the determination of the efficiency of the Converter World Motor, the method according to IEC 60034-2-3 is used. The efficiency class (IE) is defined in accordance with IEC TS 60034-30-2.

The motor is part of a frequency-variable drive system (PDS). Due to the operation on the converter, there are various motor losses:

- Fundamental frequency (e.g. iron, friction, ventilation, rotor winding, stator winding and additional losses)
- Harmonics due to the clock frequency of the feeding converter

When the measuring data is determined, the motor is fed by a drive converter that matches the motor size.

As converter-fed motors can be operated at different speeds, the so-called PDS90 measurement is defined by seven characteristic load points (see figure). The operating point decisive for the efficiency class is that of 90 % speed and rated torque (100 %).

Frequency converters usually have a voltage drop, so the maximum voltage at the motor terminals is lower than the line-side input voltage of the converter.

The standard accommodates this and demands efficiency with the reduced speed of 90 % rated speed compared to line motors or converter motors, which are defined according to the IES class.

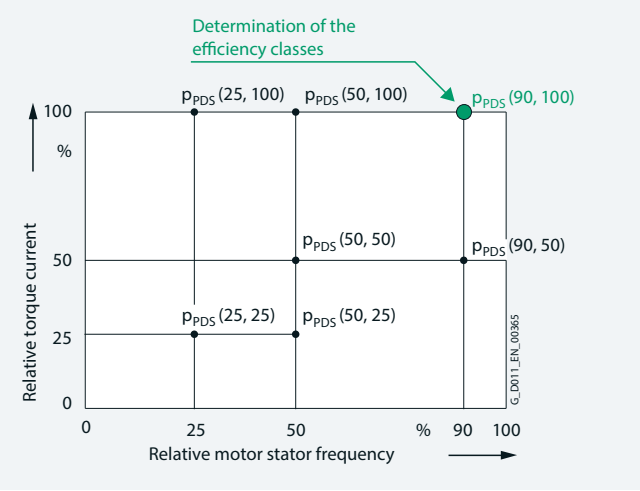


Fig. 1-18 Power Drive System (PDS) – Determination of the efficiency class

Efficiency classes and efficiencies according to IEC 60034-30-1

Harmonization of the efficiency classes

Various energy efficiency standards exist worldwide for induction motors. To promote global standardization, the international standard IEC 60034-30-1:2014 (Rotating electrical machines – Part 30-1: Efficiency classes of single-speed, three-phase, cage-induction motors (IE code)) was drawn up.

Applicability (excerpt)

- Low-voltage motors up to 1000 V (50/60 Hz for line operation)
- Power rating: 0.12 to 1000 kW; 2, 4, 6, or 8 poles
- Operating mode: S1

The efficiencies in IEC 60034-30-1 are based on the method for determining losses according to IEC 60034-2-1:2014.

IE efficiency classes

The efficiency classes are grouped according to the following nomenclature (IE = International Efficiency):

- IE1 (Standard Efficiency)
- IE2 (High Efficiency)
- IE3 (Premium Efficiency)
- IE4 (Super Premium Efficiency)

IEC 60034-30-1 EU and other countries	NEMA MG1	GB 18613-2020
IE4 [1]		Grade 1 (IE5)
IE3	Premium Efficient (60 Hz)	Grade 2 (IE4)
IE2	Energy Efficient (60 Hz)	Grade 3 (IE3)

[1] Defined in IEC/TS 60034-31.

Note:
All efficiency classes are stated with reference to 50 Hz data (unless specified otherwise).

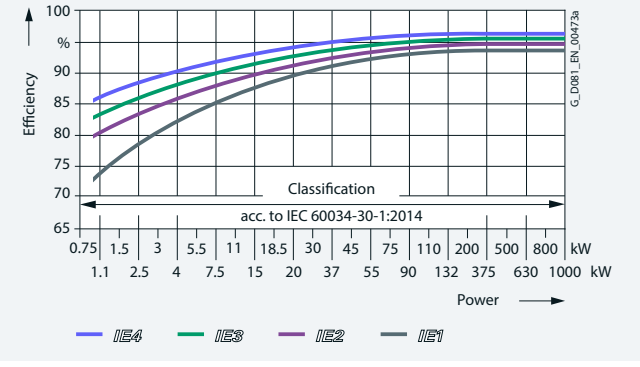
Measuring method according to IEC 60034-2-1:2014 for determining the efficiency

With this measuring method, motor losses are no longer applied as a percentage, but are determined by standard methods. The nominal efficiencies are therefore reduced from EFF1 to IE2 and from EFF2 to IE1, even though there have been no technical or physical changes to the motors.

Previously: P_{LL} = 0.5 % of P_1
(consumed power; IEC 60034-2)

Now: P_{LL} = individual measurement (IEC 60034-1)

P_{LL} = Load-dependent supplementary losses



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General information regarding efficiency in accordance with International Efficiency

Efficiency classes and efficiencies according to IEC 60034-30-1

Minimum efficiency according to IEC 60034-30-1:2014

Rated power P_N	Efficiency η in % IEC IE class							
	IE1 Standard Efficiency				**IE2** High Efficiency			
kW	2-pole	4-pole	6-pole	8-pole	2-pole	4-pole	6-pole	8-pole
0.18	52.8	57.0	45.5	38.0	60.4	64.7	56.6	45.9
0.20	54.6	58.5	47.6	39.7	61.9	65.9	58.2	47.4
0.25	58.2	61.5	52.1	43.4	64.8	68.5	61.6	50.6
0.37	63.9	66.0	59.7	49.7	69.5	72.7	67.6	56.1
0.40	64.9	66.8	61.1	50.9	70.4	73.5	68.8	57.2
0.55	69.0	70.0	65.8	56.1	74.1	77.1	73.1	61.7
0.75	72.1	72.1	70.0	61.2	77.4	79.6	75.9	66.2
1.1	75.0	75.0	72.9	66.5	79.6	81.4	78.1	70.8
1.5	77.2	77.2	75.2	70.2	81.3	82.8	79.8	74.1
2.2	79.7	79.7	77.7	74.2	83.2	84.3	81.8	77.6
3.0	81.5	81.5	79.7	77.0	84.6	85.5	83.3	80.0
4.0	83.1	83.1	81.4	79.2	85.8	86.6	84.6	81.9
5.5	84.7	84.7	83.1	81.4	87.0	87.7	86.0	83.8
7.5	86.0	86.0	84.7	83.1	88.1	88.7	87.2	85.3
11	87.6	87.6	86.4	85.0	89.4	89.8	88.7	86.9
15	88.7	88.7	87.7	86.2	90.3	90.6	89.7	88.0
18.5	89.3	89.3	88.6	86.9	90.9	91.2	90.4	88.6
22	89.9	89.9	89.2	87.4	91.3	91.6	90.9	89.1
30	90.7	90.7	90.2	88.3	92.0	92.3	91.7	89.8
37	91.2	91.2	90.8	88.8	92.5	92.7	92.2	90.3
45	91.7	91.7	91.4	89.2	92.9	93.1	92.7	90.7
55	92.1	92.1	91.9	89.7	93.2	93.5	93.1	91.0
75	92.7	92.7	92.6	90.3	93.8	94.0	93.7	91.6
90	93.0	93.0	92.9	90.7	94.1	94.2	94.0	91.9
110	93.3	93.3	93.3	91.1	94.3	94.5	94.3	92.3
132	93.5	93.5	93.5	91.5	94.6	94.7	94.6	92.6
160	93.8	93.8	93.8	91.9	94.8	94.9	94.8	93.0
200 ... 375	94.0	94.0	94.0	92.5	95.0	95.1	95.0	93.5

Rated power P_N	Efficiency η in % IEC IE class							
	IE3 Premium Efficiency				**IE4** Super Premium Efficiency			
kW	2-pole	4-pole	6-pole	8-pole	2-pole	4-pole	6-pole	8-pole
0.18	65.9	69.9	63.9	58.7	70.8	74.7	70.1	67.2
0.20	67.2	71.1	65.4	60.6	71.9	75.8	71.4	68.4
0.25	69.7	73.5	68.6	64.1	74.3	77.9	74.1	70.8
0.37	73.8	77.3	73.5	69.3	78.1	81.1	78.0	74.3
0.40	74.6	78.0	74.4	70.1	78.9	81.7	78.7	74.9
0.55	77.8	80.8	77.2	73.0	81.5	83.9	80.9	77.0
0.75	80.7	82.5	78.9	75.0	83.5	85.7	82.7	78.4
1.1	82.7	84.1	81.0	77.7	85.2	87.2	84.5	80.8
1.5	84.2	85.3	82.5	79.7	86.5	88.2	85.9	82.6
2.2	85.9	86.7	84.3	81.9	88.0	89.5	87.4	84.5
3.0	87.1	87.7	85.6	83.5	89.1	90.4	88.6	85.9
4.0	88.1	88.6	86.8	84.8	90.0	91.1	89.5	87.1
5.5	89.2	89.6	88.0	86.2	90.9	91.9	90.5	88.3
7.5	90.1	90.4	89.1	87.3	91.7	92.6	91.3	89.3
11	91.2	91.4	90.3	88.6	92.6	93.3	92.3	90.4
15	91.9	92.1	91.2	89.6	93.3	93.9	92.9	91.2
18.5	92.4	92.6	91.7	90.1	93.7	94.2	93.4	91.7
22	92.7	93.0	92.2	90.6	94.0	94.5	93.7	92.1
30	93.3	93.6	92.9	91.3	94.5	94.9	94.2	92.7
37	93.7	93.9	93.3	91.8	94.8	95.2	94.5	93.1
45	94.0	94.2	93.7	92.2	95.0	95.4	94.8	93.4
55	94.3	94.6	94.1	92.5	95.3	95.7	95.1	93.7
75	94.7	95.0	94.6	93.1	95.6	96.0	95.4	94.2
90	95.0	95.2	94.9	93.4	95.8	96.1	95.6	94.4
110	95.2	95.4	95.1	93.7	96.0	96.3	95.8	94.7
132	95.4	95.6	95.4	94.0	96.2	96.4	96.0	94.9
160	95.6	95.8	95.6	94.3	96.3	96.6	96.2	95.1
200 ... 375	95.8	96.0	95.8	94.6	96.5	96.7	96.3	95.4

Background information

Comprehensive laws have been introduced in the European Union (EU) with the objective of reducing energy consumption and therefore CO_2 emissions. EU directive 2019/1781 handles the energy consumption or efficiency of induction motors in the industrial environment. This regulation is in force in every country of the European Economic Area. The main contents of and exceptions are explained below.

For more information on internationally applicable standards and legal requirements, visit:
meps.innomotics.com

Regulation (EU) 2019/1781

- Motors that are designed to be operated totally submerged in a liquid
- Motors fully integrated into a product (e.g. a gearbox, pump, fan or compressor) whose energy efficiency cannot be measured independently of this product
- Motors that are specially designed for operation under the following conditions:
  - At altitudes greater than 4000 meters above sea level
  - Where ambient temperatures exceed 60 °C
  - At maximum operating temperatures above 400 °C
  - At ambient temperatures below -30 °C
  - With cooling liquid temperatures at the product intake of below 0 °C or above 32 °C
  - Motors in hazardous zones in the sense of directive 2014/34/EU of the European Parliament and the Council that are designed and certified for mining applications
  - Motors with an integrated brake that is an integral part of the inner motor design and can neither be removed or powered from a separate source when testing the motor efficiency
  - Motors with an integrated speed control (compact drives), whose energy efficiency cannot be tested independently of the speed control

The following motors are not involved:

- Pole-changing motors
- Synchronous motors
- Totally enclosed, naturally ventilated motors (TENV motors);
- Motors specifically developed for converter operation according to IEC 60034-25

Note:
Different minimum efficiency class requirements apply in China, Korea, and Australia. Other countries will be available soon.

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General information regarding efficiency in accordance with International Efficiency

Motors for the North American market

The Energy Policy Act (EPAct) was superseded in December 2010 by the Energy Independence Security Act (EISA).

The following motors must fulfill the NEMA Premium Efficient Level:

_ 1 hp (0.75 kW) ... 500 hp (373 kW): 2 and 4-pole
_ 1 hp (0.75 kW) ... 350 hp (261 kW): 6-pole
_ 1 hp (0.75 kW) ... 250 hp (186 kW): 8-pole
_ 2, 4, 6 and 8-pole
_ ≤ 600 V
_ NEMA Design A, B or C. IEC Design N or H

For details, see NEMA MG1 Table 12-12.1

Abbreviations

NEMA: National Electrical Manufacturers Association

IEC: International Electrotechnical Commission

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Noise

Geared motor noise

Innomotics SG geared motors have noise levels below the permissible noise levels defined for gearboxes in VDI Guideline 2159 and for motors in IEC 60034-9.

When used in conjunction with gearboxes, the motor noise values L_{pfA} or L_{WA} increase on average by 3 to 5 dB (A).

The circumferential velocity of the motor pinion has a significant influence on the additional gearbox noise level. This is the reason that higher speeds or low transmission ratios result in higher noise.

Here, Innomotics SG geared motors provide a decisive advantage, as the motor plug-on pinion allows transmission ratios of up to 12 in the input stage.

Code	Description	Unit
L_{pfA}	A-weighted measuring-surface sound pressure level	dB (A)
L_{WA}	Sound power level	dB (A)

Motor noise in line operation

The noise level is measured according to ISO 1680 in a low-reflection room and is specified as an A-weighted measuring surface sound pressure level L_{pfA} in dB (A). This value is the spatial average value of the sound pressure levels measured at the measuring surface. The measuring surface is a cube 1 m away from the surface of the motor. The sound power level L_{WA} is also specified in dB (A).

The values specified in the motor selection tables apply to the motor without gearbox at 50 Hz
Selection and ordering data, see page 9/18.

The tolerance is +3 dB. At 60 Hz, the values are approximately 4 dB (A) higher. Noise values for converter operation on request.

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Overview

All geared motors are connected as standard so that the motor rotates in the clockwise direction. It is necessary to specify the desired direction of rotation of the output shaft when ordering a geared motor with backstop.

Note:
For bevel gearboxes B and K, helical worm gearboxes C, and worm gearboxes S, the direction of rotation must be specified when viewing the DE (A) or NDE (B).

The direction of rotation of the output shaft cannot be selected for explosion-protected motors (MB motors) and electric-monorail geared motors.

Direction of rotation	Abbreviation	Description	Additional identification code **-Z** with order code 2KJ3… -…..-….**-Z**	Order code
Clockwise	CW	Clockwise direction of rotation (when viewing the input/ output shaft)		**K18**
Counterclockwise	CCW	Counterclockwise direction of rotation (when viewing the input/ output shaft)		**K19**

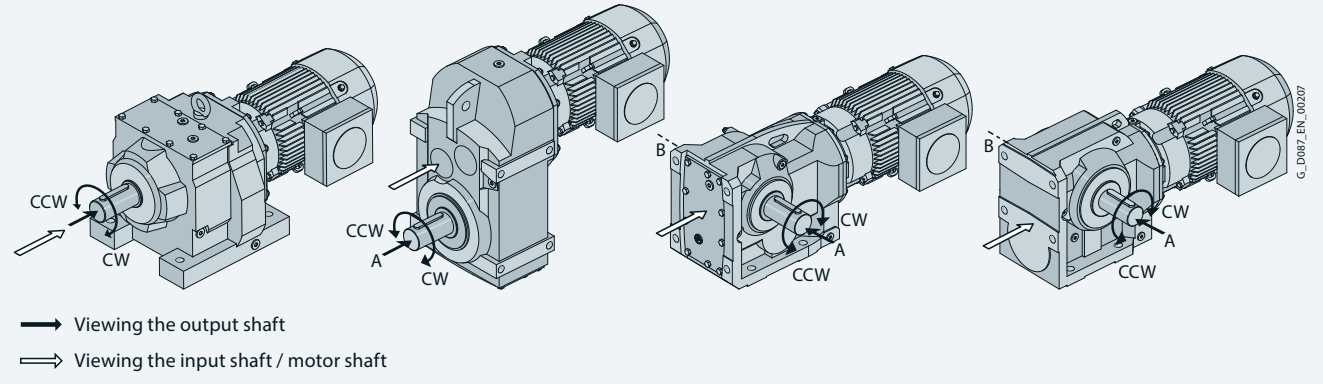

Fig. 1-19 Definition of the direction of rotation

Direction of rotation, input to output

Gearbox type	Gearbox size	Gearbox stages	Output side	Direction of rotation	
				Input shaft	Output shaft
Z	19 … 189	2	–	CW	CW
D	19 … 189	3	–	CW	CCW
FZ	29 … 189	2	–	CW	CW
FD	29 … 189	3	–	CW	CCW
B	19 … 49	2	A	CW	CW
			B	CW	CCW
K	39 … 189	3	A	CW	CCW
			B	CW	CCW
C	29 … 89	2	A	CW	CW
			B	CW	CCW
S	09 … 29	1	A	CW	CCW
			B	CW	CW

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Configuring guide

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2

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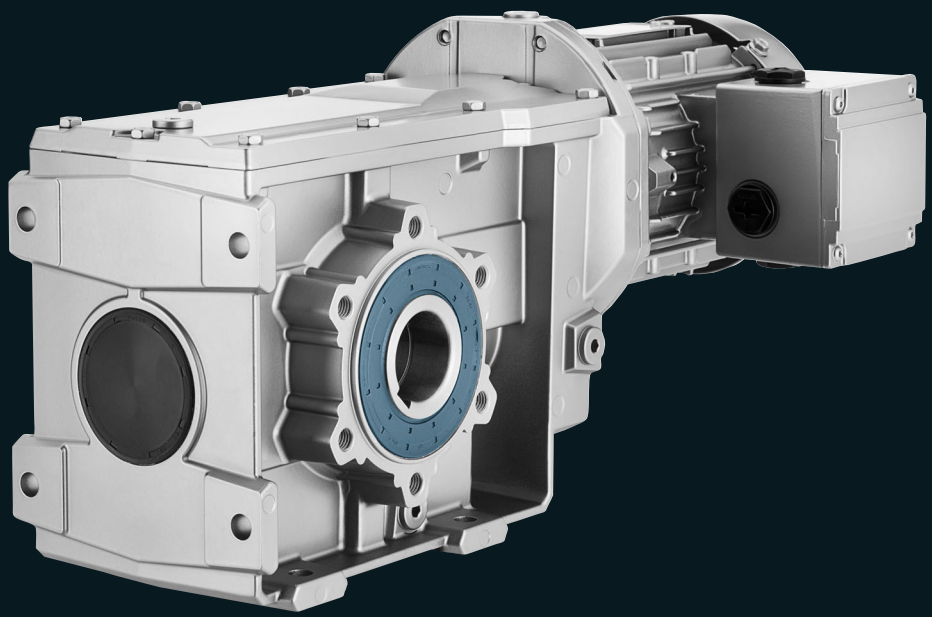

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Overview

General configuring notes are provided for the standard versions in this catalog.

Innomotics SG geared motors permit individual solutions to be created for a wide range of drive applications. In order to select the correct drive, specific data for the application must initially be known or determined.

For drives operating under special conditions, e.g. frequent reversing, short-time or intermittent duty, abnormal temperatures, reversal braking, extreme cantilever forces at the gearbox output shaft, etc. please contact your Innomotics contact person with all of your technical questions.

More information is available on the internet at:
www.innomotics.com/geared-motors

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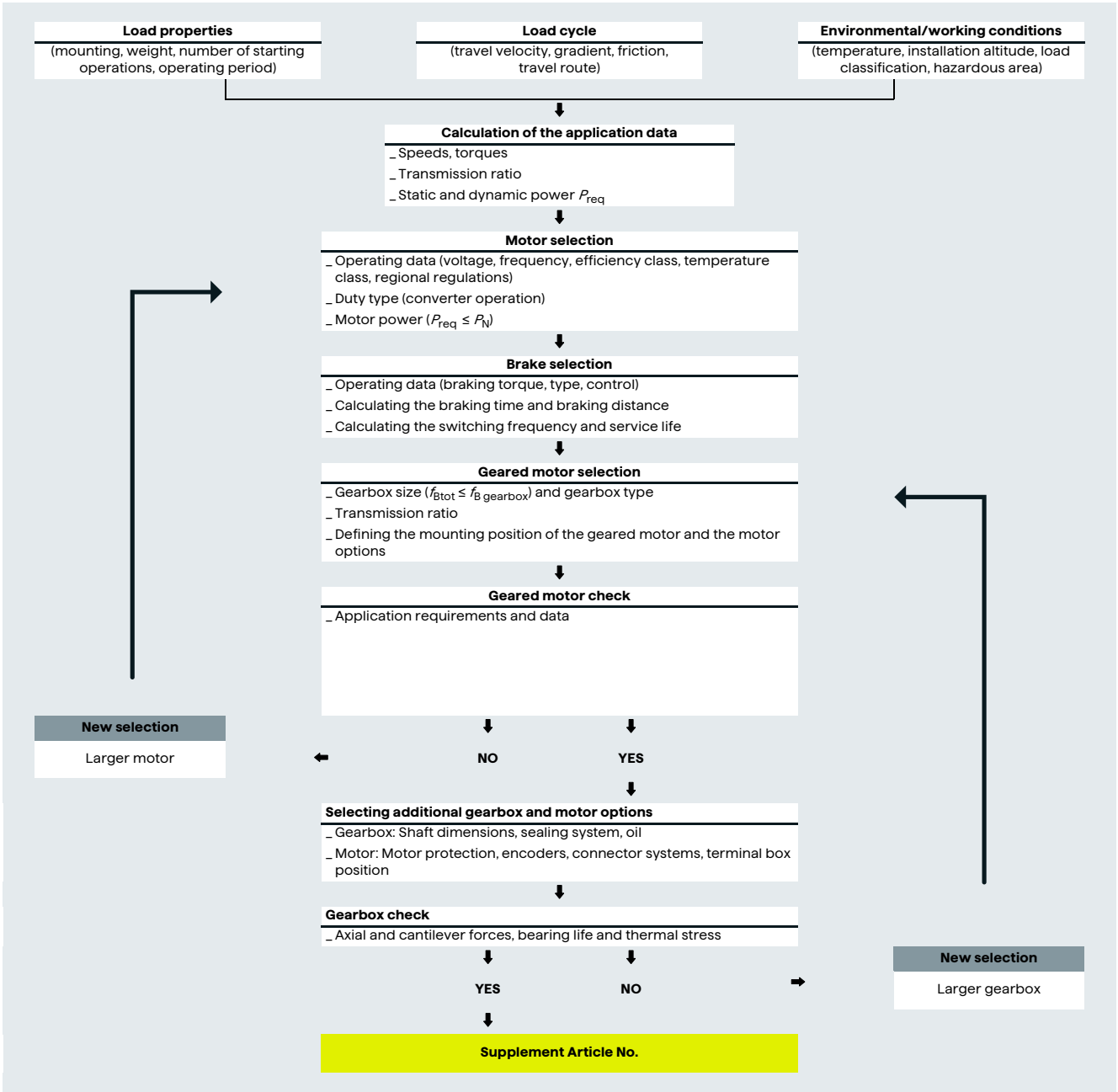
The flow diagram illustrates the process for selecting and dimensioning a geared motor using a traction drive as an example. However, the specific requirements and constraints associated with the application in question must always be taken into account.



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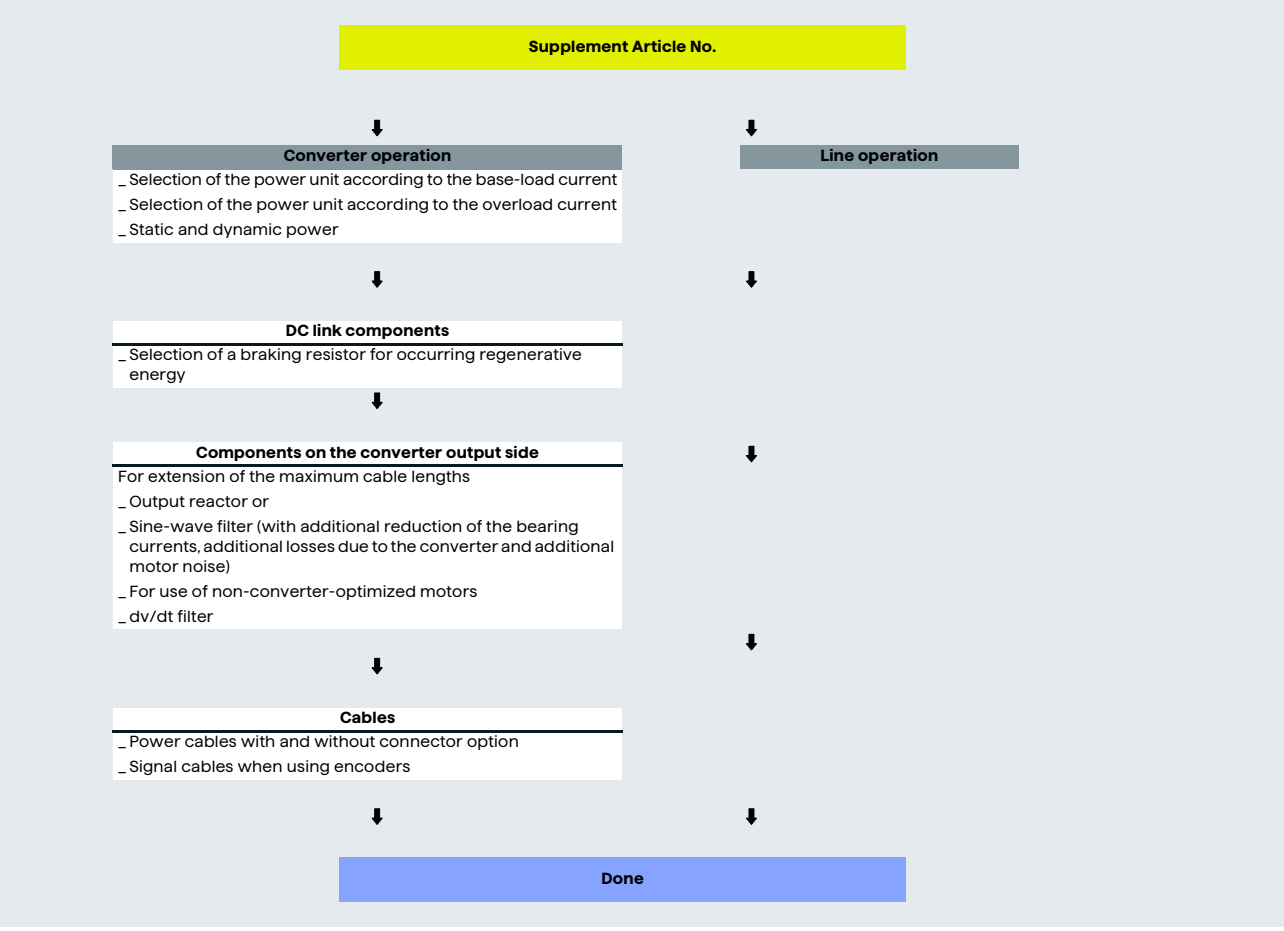
Overview



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Configuring guide

Checklist

General

Basic version and load data

Gearbox type: ☐ Helical gearbox ☐ Parallel shaft gearbox ☐ Bevel gearbox ☐ Helical worm gearbox ☐ Worm gearbox

Power rating: _____ kW

Max. output speed: _____ rpm **Output torque:** _____ Nm

Service factor: _____

Starting operations/ hour: _____ s/h

Line voltage: _____ V

Line frequency: ☐ 50 Hz ☐ 60 Hz ☐ For converter operation ☐ Maximum frequency _____ Hz

Operating period/day: ☐ 8 hours ☐ 16 hours ☐ 24 hours

Environmental conditions

Explosion protection: ☐ EU directive 2014/34/EU (ATEX) ☐ Ex atmosphere gas ☐ Ex atmosphere dust
☐ Category 2 ☐ IIB / ☐ IIC explosion group ☐ IIIB / ☐ IIIC explosion group
☐ Category 3 Temperature class T_____ Max. surface temperature _____ °C

Installation altitude: _____ m

Air humidity: _____ % ☐ Outdoor operation ☐ Increased environmental stress

Temperature: from _____ to _____ °C ☐ Normal environmental stress ☐ Aggressive environmental stress

Brief description of the system: (e.g. sector, conveyor system, etc.)

Gearbox

Mounting and mounting position

Mounting position: ☐ M1 ☐ M2 ☐ M3 ☐ M4 ☐ M5 ☐ M6 Terminal box position: _____
☐ Special mounting position Rotation angle: _____

Mounting type: ☐ Foot-mounted design ☐ Flange-mounted design ☐ Housing flange design ☐ Shaft-mounted design ☐ Foot/flange-mounted design

Shafts

Design: ☐ Solid shaft with/without feather key ☐ Hollow shaft with feather key ☐ Hollow shaft with shrink disk
☐ Hollow shaft with splines ☐ ShaftMount assembly system

Shaft dimensions: (d x l) _____ x _____ mm

Other options: (e.g. axial/radial force)

Motor

Electrical version

Motor protection: ☐ PTC thermistor ☐ Winding thermostat ☐ Pt1000 resistance thermometer

Mechanical version

Degree of protection: ☐ IP55 ☐ IP65 ☐ IP56 **Connection type:** ☐ Star ☐ Delta

Cooling & ventilation: ☐ Self ventilation ☐ Forced ventilation

Motor plugs: ☐ HAN 10E ☐ HAN K4/4 ☐ Others _____
☐ HAN Q8 ☐ HAN Q12

Mounted components

Brake: ☐ Brake ☐ Safety-related brake ☐ Manual brake release Voltage: _____ V

Encoder: ☐ Incremental encoder ☐ Absolute encoder ☐ Prepared for encoder mounting
☐ Functionally safe rotary encoder

Other options:

General options

Surface treatment

Surface protection: ☐ C1 ☐ C2 ☐ C3 ☐ C4 ☐ C5
☐ unpainted ☐ C2 primed ☐ C4 primed ☐ RAL color: _____

Other options:

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Additional information for electric-monorail geared motors

Basic version

Power rating:

Number of starts/hour: ____ s/h

Line voltage: ____ V

Line frequency: ☐ 50 Hz ☐ 60 Hz ☐ 87 Hz ☐ **Maximum frequency:** ____ Hz

Brief description of the system:

Environmental conditions

Installation altitude: ____ m ☐ Outdoor operation ☐ Increased environmental stress

Air humidity: ____ % ☐ Normal environmental stress ☐ Aggressive environmental stress

Temperature: from ____ to ____ °C

Trolley

Type of trolley: ☐ Trolley type 1 ☐ Trolley type 2: ☐ Trolley type 3

☐ Front running wheel, driven

☐ Rear running wheel, driven

Dimensions:

H	mm	(Vertical distance between running wheel axis and center of gravity)
L1	mm	(Distance between running wheels)
L2	mm	(Horizontal distance between running wheel and center of gravity)
L3	mm	(Distance between swivel joints)
S	mm	(Center of gravity)

Track

Max. upward gradient: ____ ° **Height difference upward gradient:** ____ mm

Max. downward gradient: ____ ° **Height difference downward gradient:** ____ mm

Min. curve radius: ____ mm

Design data

Weight of trolley: ____ kg **Weight of load:** ____ kg

Wheel load (of driving wheel on rail): ____ N

Distance from shaft shoulder to force application point x ____ mm

Running wheel diameter: ____ mm **Running wheel material:** ☐ Polyurethane

☐ Other ____

Cyclic duration factor: ____ %

Deceleration:	____	m/sec²	Upward gradient	m/sec²	Downward gradient	m/sec²
Acceleration:	____	m/sec²	Upward gradient	m/sec²	Downward gradient	m/sec²
Travel velocity:	min. ____	m/sec	max.	m/sec	Upward/downward gradient	m/sec

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Standards

DIN/ISO	
DIN 743	Output shafts
ISO 281, ISO 76	Bearings
DIN 7190	Interference fits
DIN 6892	Parallel key connection
DIN 3990	Cylindrical gear toothing
DIN 3991	Bevel gear toothing
DIN 3996	Worm gear toothing

Calculation to AGMA available on request.

Gearbox efficiency

The efficiency of the gearbox is determined in part by the gear teeth, the rolling-contact bearing friction and the shaft sealing ring friction.

Helical, parallel shaft and bevel gearboxes

Innomotics SG helical, parallel shaft, and bevel geared motors have a very high efficiency. Generally, efficiencies of 96 % (2-stage) and 94 % (3-stage) can be assumed. These gearbox types can be operated with energy-efficient motors to create an excellent solution.

Helical worm and worm gearboxes

The first stage of the helical worm gearbox is designed as a helical stage. With the optimally tuned transmission ratios of the worm stage, the best possible overall efficiency is achieved, which is considerably higher than that of worm gearboxes alone.

Precise efficiency data can be found in the tables in chapter "Helical worm gearboxes".

Owing to the high degrees of efficiency, the Innomotics SG helical worm gearboxes are not self-locking.

Run-in period

The tooth flanks on new helical worm and worm gearboxes will not yet be fully smoothed, meaning that the friction angle will be greater and efficiency lower during the run-in period. The higher the transmission ratio, the more pronounced the effect.

The running-in process should take approximately 24 hours of operation at full load. In most cases, the catalog values will then be reached.

Self-locking with worm gearboxes

In respect of restoring torques on worm gearboxes, the efficiency is considerably reduced in comparison to standard efficiency. The restoring efficiency can be calculated as follows: $\eta' = 2 - 1/\eta$. At a standard efficiency of $\eta \leq 0.5$, worm gearboxes are usually self-locking, which is determined by the particular lead angle of the worm gear teeth.
Self-locking only occurs with certain combinations of Innomotics SG gearboxes and is not always of benefit, as the associated loss of efficiency is then relatively high, which in turn requires increased motor power.

A worm gearbox is "self-locking while stationary" (static self-locking), if it is not possible to start from stationary when the worm wheel is driving.
A worm gearbox is "self-braking while running" (dynamic self-locking), if it is not possible to continue running when the worm wheel is driving while the gearbox is running – that is, if the running gearbox comes to a stop while the worm wheel is driving.

Shocks can neutralize self-locking.
A self-locking gearbox is therefore no substitute for a brake or backstop. If you want to use the self-locking braking effect for a technical purpose, please contact us.

Efficiency optimization

As a result of the large range of transmission ratios, in many cases, instead of a 3-stage gearbox, a 2-stage gearbox can be used.

This means that the efficiency is improved by approximately 2 % when compared to conventional drives.

Further, the efficiency can be improved by optimizing the mounting position and the input speed.

Splashing losses

For certain gearbox types of construction, the first stage can be completely immersed in the gearbox oil. In the case of large gearboxes with a high input speed, particularly with vertical mounting positions, this may lead to increased splashing losses, which cannot be neglected.

If you wish to use gearboxes such as these, then please contact Innomotics. If at all possible, you should choose horizontal types of construction in order to keep splashing losses to a minimum.

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Service factor

The service factor f_B is a safety factor for the gearboxes that takes the operating conditions of the drive into account.

The following applies to selecting a suitable drive:

$f_B \geq f_{Breq}$

The gearbox size or rated gearbox torque and the resulting service factor are not standardized and depend on the manufacturer.

Service factor (f_B)

The service factor is calculated from the drive data you selected and can be obtained from the SPC.

Determining the required service factor (f_{Breq})

In normal operation, i.e. with a uniform load provided by the driven machine, small masses to be accelerated, and a low number of switching operations, the service factor of $f_{Breq} = 1$ can be selected.

For operating conditions that deviate from this, the required service factor must be calculated using the following formulas.

For helical, parallel shaft and bevel gearboxes

$f_{Breq} = f_{B1} \cdot f_{BT}$

For helical worm and worm gearboxes

$f_{Breq} = f_{B1} \cdot f_{B2} \cdot f_{BT}$

Determining the service factor driven machine (f_{B1})

The service factor of the driven machine f_{B1} is determined from the load classification, switching frequency, and operating period per day.

Load groups of driven machines

Load classification	**Mass acceleration factor (m_{BF})**	**Driven machine** (examples)
I Almost shock-free	≤ 0.3	Electric generators, belt conveyors, apron conveyors, screw conveyors, lightweight elevators, electric hoists, machine tool feed drives, turbo blowers, centrifugal compressors, mixers and agitators when mixing materials with uniform density
II Moderate shock loads	≤ 3	Machine tool main drives, heavy elevators, slewing gear, cranes, shaft ventilators, mixers and agitators when mixing materials with non-uniform densities, reciprocating pumps with multiple cylinders, metering pumps
III Heavy shock loads	≤ 10	Punching presses, shears, rubber kneaders, machinery used in rolling mills and the iron and steel industry, mechanical shovels, heavy centrifuges, heavyweight metering pumps, rotary drilling rigs, briquetting presses, pug mills

Mass acceleration factor (m_{AF})

The mass acceleration factor m_{AF} is calculated as follows:

$$m_{AF} = \frac{J_x}{(J_{mot} + J_B + J_Z)}$$

All external moments of inertia are moments of inertia of the driven machine and the gearbox, which are to be reduced to the motor speed.

The conversion is made using the following formula:

$$J_X = J_2 \cdot \left(\frac{n_2}{n_1}\right)^2 = \frac{J_2}{(i)^2}$$

In most cases the relatively insignificant moment of inertia of the gearbox can be ignored.
The mass acceleration factor m_{AF} is calculated as follows with reference to the gearbox and the adapter:

$$m_{AF} = \frac{J_x + J_G + J_{AD}}{(J_{mot} + J_B + J_Z)}$$

Code	Description	Unit
f_B	Service factor	–
f_{B1}	Service factor driven machine	–
f_{B2}	Service factor short-time duty	–
f_{Breq}	Required service factor	–
f_{BT}	Service factor ambient temperature	–
i	Transmission ratio	–
J_2	Moment of inertia of the load referred to the output speed of the gearbox	kgm²
J_{AD}	Moment of inertia of the adapter referred to the input speed	kgm²
J_B	Moment of inertia of the brake	kgm²
J_G	Moment of inertia of the gearbox referred to the input speed	kgm²
J_{mot}	Moment of inertia of the motor	kgm²
J_X	Moment of inertia of the load referred to the input speed	kgm²
J_Z	Additional moment of inertia of a high inertia fan	kgm²
m_{AF}	Mass acceleration factor	–
n_1	Input speed of the gearbox	rpm
n_2	Output speed of the gearbox	rpm

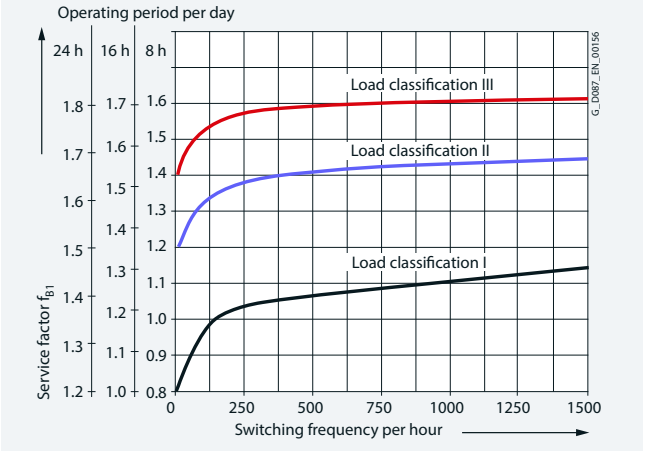

Fig. 2-1 Service factor f_{B1}

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Service factor

Determining the service factor ambient temperature (f_{BT})

If the drive warms up to an operating temperature above –20 °C at max. 70 % load, f_{BT} = 1 can be set.

For helical, parallel shaft and bevel gearboxes

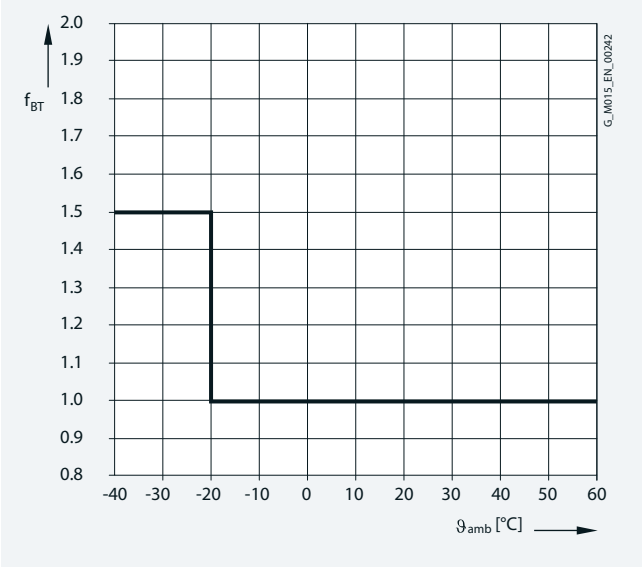

Fig. 2-2 Service factor ambient temperature

For helical worm and worm gearboxes

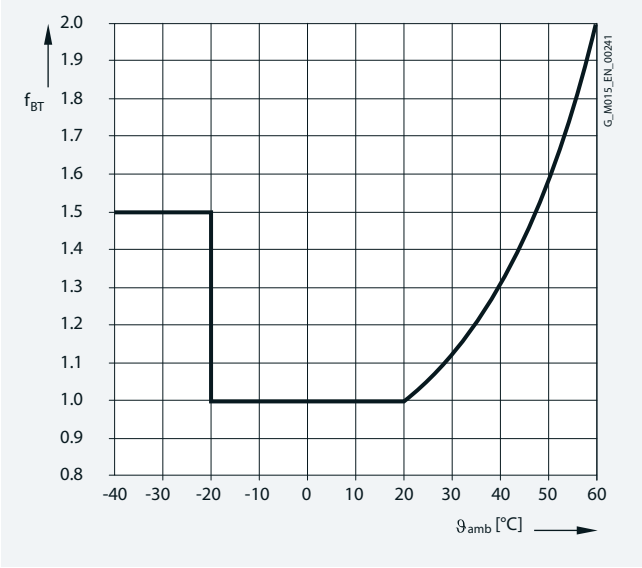

Fig. 2-3 Service factor ambient temperature for worm gearboxes

Determining the service factor short-time duty (f_{B2})

For helical worm and worm gearboxes

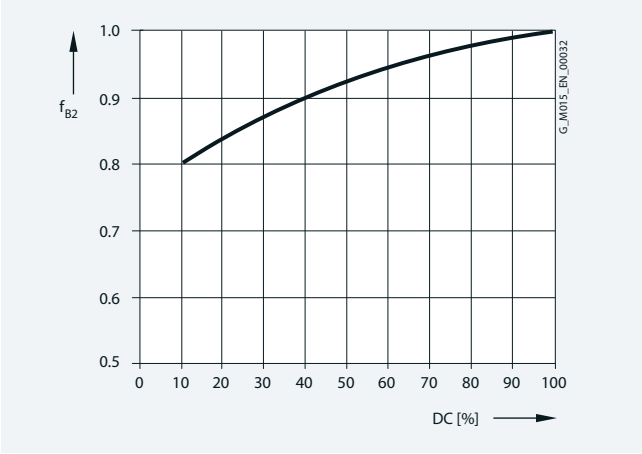

Fig. 2-4 Service factor short-time duty

Note:
When selecting and dimensioning drives with the following special application conditions, please contact Innomotics:

- Frequent reversing
- Short-time and intermittent operation
- Abnormal temperatures
- Reversal braking
- Extreme and/or circulating radial forces at the gearbox output shaft
- Fluctuating loads

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Torque

Required torque

Once the load situation (drive data) and the service factor have been clarified, then the required output torque can be determined.

$$T_2 = \frac{P_{mot} \cdot 9550}{n_1 / (i \cdot \eta)} = \frac{P_{mot} \cdot 9550}{n_2} \cdot \eta$$

Maximum motor torque

The maximum output torque T_{2N} of the gearbox must not be exceeded. For this purpose, it must be checked that the maximum motor torque T_{1max} is below the resulting output torque of the gearbox:

$$T_{1max} \leq \frac{T_{2N}}{i \cdot \eta}$$

This test is particularly important for small service factors $f_B < 1$, gearboxes with high transmission rations and tandem gearboxes.

Code	Description	Unit
η	Gearbox efficiency	%
i	Transmission ratio	–
n_1	Input speed of the gearbox	rpm
n_2	Output speed of the gearbox	rpm
P_{mot}	Motor power	kW
T_{1max}	Maximum permissible motor torque	Nm
T_2	Required output torque of the driven machine	Nm
T_{2N}	Maximum output torque of the gearbox	Nm

Input speed

For an identical power and output speed, in the selection tables 4-pole geared motors have priority over 6-pole motors.

As result of the very wide range of transmission ratios of Innomotics SG gearboxes, it is hardly necessary to use motors with other pole numbers. In addition to good availability worldwide, 4-pole motors generally offer the optimum solution regarding price, length, noise level and service life.

Further, from the modular system, motors with other pole numbers can be mounted. As a consequence, the following special combinations can be implemented:

- Extremely high output speeds (2-pole motors)
- Extremely low output speeds (8-pole motors)
- Lower noise solutions (6-pole or 8-pole motors)

For converter operation, the gearboxes are driven at variable speeds.
When configuring the system, we recommend that the maximum input speed in continuous operation is maintained, wherever possible, at 1500 rpm.

At higher motor speeds above 1500 rpm you will generally experience higher noise levels and a lower bearing service life. This depends to a large extent on the transmission ratio and gearbox size in question. Furthermore, higher speeds additionally influence the thermal properties, the service life of the shaft sealing rings and the service intervals of the gearbox.

Tandem gearboxes

An additional helical gearbox is mounted in front of the main gearbox on tandem gearboxes, allowing the gear to generate very low output speeds.

The Innomotics SG product portfolio includes four-stage, five-stage and six-stage gearboxes.

When a gearbox version with low output speeds is selected, additional checks may need to be carried out when the gearbox is configured.

Checking the maximum motor power

The maximum motor power P_N connected to the gearbox must be reduced according to the maximum output torque at the gearbox T_{2N}. For this purpose, the maximum permissible motor torque T_{1max} must be calculated and the relevant motor current value then determined.

Protective measures

The following precautions must be taken in order to ensure that the continuous current consumption of the motor never exceeds the calculated maximum motor torque T_{1max}:

- Line operation:
  Set the tripping current of the motor circuit breaker to this current value.
- Converter operation:
  Limit the output current of the converter according to the calculated motor current.

Brake motors

The braking torque T_{br} must be limited according to the maximum permissible motor torque T_{1max} for tandem geared motors with a brake.

In this case, the maximum permissible braking torque corresponds to twice the value of the motor torque. Please contact Innomotics for advice about higher switching frequencies.

$T_{brmax} = 2 \times T_{1max}$

Preventing gearbox blockage

Tandem gearboxes must be protected against blockage at the output end. Blockage can result in indeterminable torques and shaft loads and cause irreparable damage to the gearbox.
If the risk of blockage cannot be eliminated, you can install friction clutches, for example.

Code	Description	Unit
P_N	Rated motor power	kW
T_{1max}	Maximum permissible motor torque	Nm
T_{2N}	Maximum output torque of the gearbox	Nm
T_{brmax}	Maximum braking torque	Nm

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Gearbox fastening

Gearboxes and geared motors are normally secured by bolts of property 8.8.

When the largest possible motor frame size is attached to the gearbox and with a higher load classification, elevated levels of vibration and/or smaller service factors, further measures need to be taken for flange-mounted designs of gearboxes and geared motors.

We recommend that you consider the following possibilities:

- Selection of a larger output flange
- Use of bolts of property class 10.9
- Use of an anaerobic adhesive to improve the friction lock between the gearbox and the mounting surface

Recommended bolt property class for DZ/ZZ and DF/ZF:

Helical gearboxes DZ/ZZ and DF/ZF with the smallest available output flanges must be bolted to the mounting surface with bolts of grade 10.9 (see table).

Gearbox type		Flange	Property class of bolt/nut
DZ/ZZ29	DF/ZF29	A120	10.9 [1]
DZ/ZZ39	DF/ZF39	A120	10.9 [1]
DZ/ZZ49	DF/ZF49	A140	10.9
DZ/ZZ59	DF/ZF59	A160	10.9
DZ/ZZ69	DF/ZF69	A200	10.9
DZ/ZZ79	DF/ZF79	A250	10.9
DZ/ZZ89	DF/ZF89	A300	10.9
DZ/ZZ109	DF/ZF109	A350	10.9
DZ/ZZ129	DF/ZF129	A350	10.9
DZ/ZZ149	DF/ZF149	A450	10.9
DZ/ZZ169	DF/ZF169	A450	10.9
DZ/ZZ189	DF/ZF189	A550	10.9

[1] Use suitable washers underneath the bolt head

Recommended bolt quality for FF/FAF and KF/KAF:

Parallel shaft gearboxes FF/FAF and bevel gearboxes KF/KAF in combination with larger motors must be bolted to the mounting surface with bolts of grade 10.9 (see table).

Gearbox type		Flange	Motor frame size											
			63	71	80	90	100	112	132	160	180	200	225	250
FF/FAF39	KF/KAF39	A160	8.8	8.8	8.8	10.9	10.9							
FF/FAF49	KF/KAF49	A200	8.8	8.8	8.8	8.8	10.9	10.9						
FF/FAF69	KF/KAF69	A250	8.8	8.8	8.8	8.8	8.8	8.8	10.9					
FF/FAF79	KF/KAF79	A250	8.8	8.8	8.8	8.8	8.8	8.8	10.9					
FF/FAF89	KF/KAF89	A300		8.8	8.8	8.8	8.8	10.9	10.9	10.9				
FF/FAF109	KF/KAF109	A350			8.8	8.8	8.8	8.8	8.8	10.9	10.9			
FF/FAF129	KF/KAF129	A450				8.8	8.8	8.8	8.8	8.8	8.8	8.8		
FF/FAF149	KF/KAF149	A450				8.8	8.8	8.8	8.8	8.8	8.8	10.9	10.9	10.9
FF/FAF169	KF/KAF169	A550					8.8	8.8	8.8	8.8	10.9	10.9	10.9	10.9
FF/FAF189	KF/KAF189	A660						8.8	8.8	8.8	8.8	8.8	8.8	10.9

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Shaft load and bearing service life

Available radial force

The radial forces either come from the driven machine (mixer, hoisting gear) or they are caused by the transmission elements.

The available radial force F_{Ravail} at the output shaft is obtained as follows:

- The required geared motor output torque T_2
- Average diameter of the mounted transmission elements d_0
- Transmission element type, e.g. sprocket wheel
- Ambient temperature

The transmission element type determines the additional factor C (see table).

The ambient temperature determines the additional factor T.

$$F_{Ravail} = 2000 \cdot \frac{T_2}{d_0} \cdot C \cdot T$$

Additional factor C for the transmission element type

Transmission element	Explanation	Additional factor C
Gear wheel	> 17 teeth	1.00
	≤ 17 teeth	1.15
Sprocket wheel	≥ 20 teeth	1.00
	14 ... 19 teeth	1.25
	≤ 13 teeth	1.40
Toothed belts	Preloading force	1.50
V-belts	Preloading force	2.00
Flat belts	Preloading force	2.50
Agitator/mixer	Rotating radial force	2.50

Additional factor T for ambient temperature

Temperature range	Low-temperature factor T
−20 °C ... +60 °C	1.0
−21 °C ... −40 °C	1.5

Permissible radial force

The permissible radial force F_{R2} is determined by the required bearing service life, among other things. The nominal service life L_{h10} is determined in accordance with ISO 281. Normally, calculating the nominal bearing service life is completely adequate.

The bearing service life can be calculated for special operating conditions and in special cases on request, based on the modified service life L_{na}.

The selection tables specify the permissible radial force F_{R2} for the output shafts of the foot-mounted design with solid shaft "1" (see shaft designs from page 10/46). These table values refer to the force application point at the center of the shaft extension and are minimum values, which apply under the most unfavorable conditions (force application angle, mounting position, direction of rotation).

If the values in the table are not sufficient, or if other gearbox designs are being used, then please contact Innomotics.

Permissible axial force

If no radial force is present, then max. 50 % of the permissible radial force can be applied as a permissible axial force F_{ax} (tension or compression).

Higher permissible radial and axial forces

The permissible radial force load can be increased, taking the force application angle α and the direction of rotation into account. Installing reinforced bearings also means that higher loads are permitted on the output shaft.

If higher radial or axial forces or combined loads comprising radial and axial forces occur, then please contact Innomotics.

Note:
Bevel gearboxes B and K and helical worm gearboxes C in type of construction M1 with foot mounting on the face side: A maximum of 50 % of the radial force F_{R2} specified in the tables is permissible.

Note:
Helical geared motors ZB and DB in foot/flange-mounted designs:
When transmitting torque through the flange surface, a maximum of 50 % of the radial force F_{R2} specified in the tables is permissible.

Variables for defining shaft load and bearing service life

Code	Description	Unit
α	Force application angle	°
a	Gearbox constant	kNmm
b, d, l, y, z	Gearbox constants	mm
C	Additional factor to calculate the radial force	–
d_0	Average diameter of the mounted transmission element	mm
F_{ax}	Permissible axial force	N
F_x	Permissible radial force from out of center force application point	N
F_{xzul1}	Permissible radial force, limited by the bearing service life, at a distance of x from the shaft shoulder	N
F_{xzul2}	Permissible radial force, limited by the shaft strength, at a distance of x from the shaft shoulder	N
F_{Rvorh}	Available radial force from the mounted transmission element	N
F_{R2}	Permissible radial force at the center of shaft extension (l/2)	N
L_{h10}	Nominal bearing service life	h
L_{na}	Modified bearing service life	h
T	Additional factor for ambient temperature	–
T_2	Geared motor output torque	Nm
x	Distance from the shaft shoulder up to the point where force is applied	mm

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Shaft load and bearing service life

Definition of the point of application of radial and axial forces

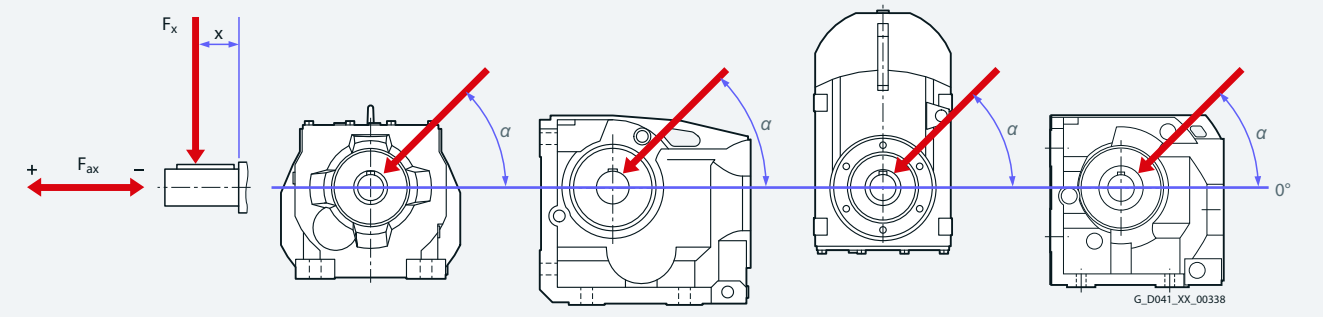

Fig. 2-5 Diagram showing force application point

Radial force conversion for out-of-center force application point

If the force is not applied at the center of the shaft extension, the permissible radial force must be calculated using the following formula.

The lower value of F_{xperm1} (bearing service life) and F_{xperm2} (strength) is the permissible radial force. The calculation is applicable without axial force.

Permissible radial force according to the bearing service life

$$F_{xperm1} = F_{R2} \cdot \frac{y}{(z + x)}$$

Permissible radial force according to the shaft strength

$$F_{xperm2} = \frac{a}{(b + x)}$$

Gearbox constants for calculating the radial force

Gearbox size	Constants					
	y mm	z mm	a kNmm	b mm	d mm	l mm
Helical gearboxes Z and D						
19	91	71	52.8	12	20	40
29	104	79	137	12	25	50
39	116	91	109	0	25	50
49	138	108	260	15	30	60
59	143.5	108.5	414	19	35	70
69	169	134	385	0	35	70
79	172.5	132.5	536	0	40	80
89	212.5	162.5	929	0	50	100
109	250	190	1212	0	60	120
129	297	227	2051	0	70	140
149	319	234	4930	0	90	170
169	398	293	7350	0	110	210
189	469	364	11235	0	120	210
Helical gearboxes E						
39	99.5	79.5	60	0	20	40
49	119.0	94.0	100	0	25	50
69	139.6	109.6	183	0	30	60
89	154.4	114.4	320	0	40	80
109	183.4	133.4	525	0	50	100
129	189.4	129.4	810	0	60	120
149	213.6	143.6	1120	0	70	140
Parallel shaft gearboxes F						
29	108.5	83.5	159	0	25	50
39	123.5	98.5	146	0	25	50
49	154.5	124.5	239	0	30	60
69	175	140	378	0	35	70
79	191	151	544	0	40	80
89	226	176	884	0	50	100
109	256	196	1500	0	60	120
129	324	254	2625	0	70	140
149	385	300	5525	0	90	170
169	460	355	7728	0	110	210
189	538	433	11655	0	120	210

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Shaft load and bearing service life

Gearbox constants for calculating the radial force

Gearbox size	Constants					
	y	z	a	b	d	l
	mm	mm	kNmm	mm	mm	mm
Bevel gearboxes B						
19	97.5	77.5	38	0	20	40
29	117	97	83	0	20	40
39	143.5	113.5	209	0	30	60
49	175	140	392	0	35	70
Bevel gearboxes K						
39	123.5	98.5	152	0	25	50
49	154.5	124.5	235	0	30	60
69	175	140	378	0	35	70
79	191	151	556	0	40	80
89	226	176	916	0	50	100
109	256	196	1470	0	60	120
129	324	254	2800	0	70	140
149	385	300	5525	0	90	170
169	459.5	354.5	7350	0	110	210
189	538	433	10920	0	120	210
Helical worm gearboxes C						
29	117.5	97.5	84	0	20	40
39	123.5	98.5	157	0	25	50
49	154.5	124.5	236	0	30	60
69	171.5	136.5	410	0	35	70
89	220.0	175.0	736	0	45	90
Worm gearboxes S						
09	83.5	63.5	36	0	16	40
19	98.0	78.0	76	0	20	40
29	120.5	100.5	72	0	20	40

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Shaft load and bearing service life for electric-monorail gearboxes EHB

Available radial force EHB

The total available radial force comprises the force due to weight on the running wheel and the tangential force exerted by the torque. The weight distribution depends on the relevant trolley type and on the number of drives and running wheels. Forces are also exerted as a result of weight transfer during startup, braking and ascending travel. These forces must be taken into account in the available radial force calculation.

Your Innomotics contact person will be pleased to provide configuring advice. In order to dimension the drive, we will need the completed checklist on 2/5.

Variables for defining shaft load and bearing service life

Code	Description	Unit
H	Vertical distance between running axis and center of gravity	mm
L1	Distance between running wheels	mm
L2	Horizontal distance between running wheel and center of gravity	mm
L3	Distance between swivel joints	mm
S	Center of gravity	mm

Trolley type 1

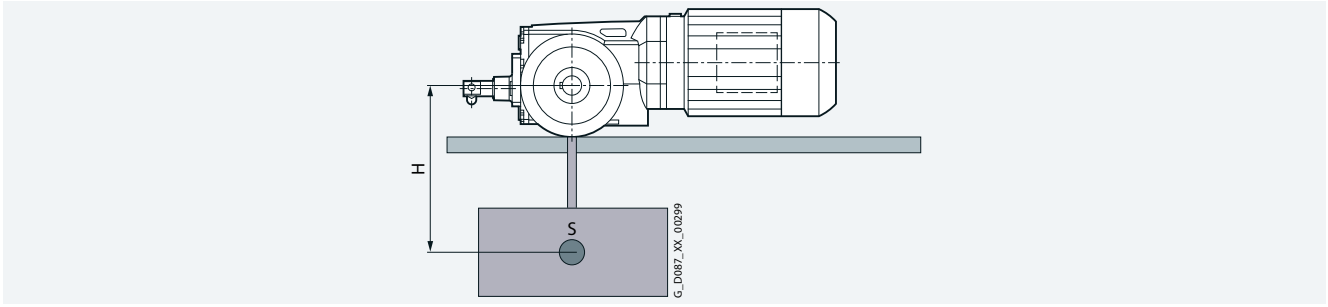

Fig. 2-6 Trolley type 1: 1 running wheel, one wheel is driven

Trolley type 2

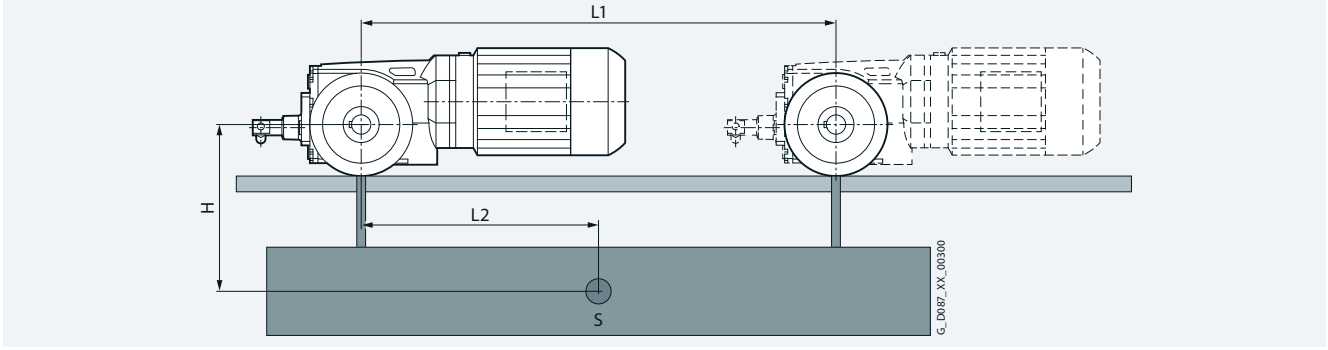

Fig. 2-7 Trolley type 2: 2 running wheels, one wheel at the front or rear is driven

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Trolley type 3

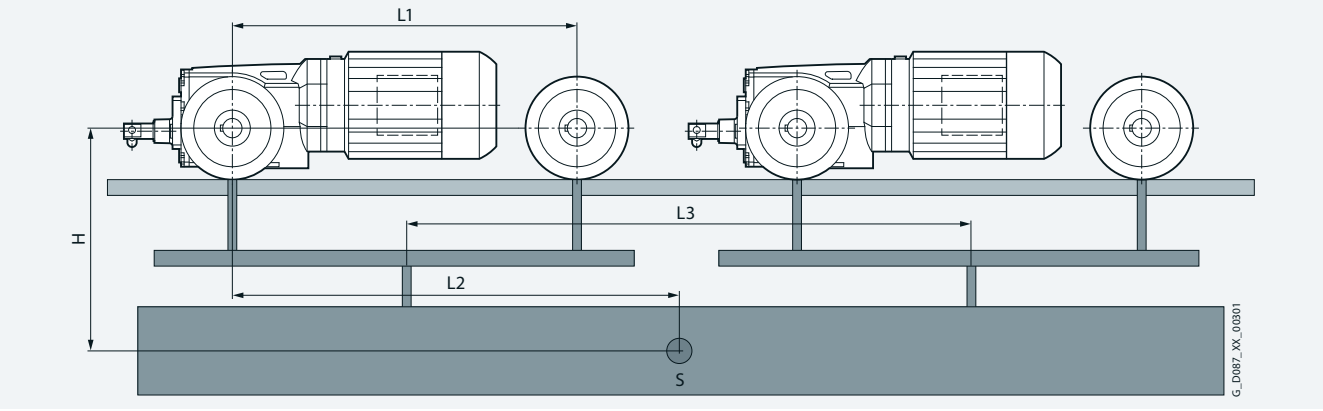

Fig. 2-8 Trolley type 3: 4 running wheels, 2 wheels are driven

Shaft load and bearing service life for electric-monorail gearboxes EHB

Permissible radial force EHB

The selection tables specify the permissible radial force F_{R2}. The table values refer to the force application point x, see table "Gearbox constants for calculating the radial force beginning on page 2/12.

Note:
For BH.39 with 25 x 35 solid shaft, the permissible radial force F_x must always be calculated using the conversion below (even when x = 18 mm), because the table values apply to a 30 x 50 solid shaft.

Radial force conversion for force application at distance other than x

When the distance x to the shaft shoulder is other than the value stated in the table, use the following formulas to convert the permissible radial force.

The lowest value of F_{xperm1} (bearing service life), F_{xperm2} (strength) and F_{Rmax} is the permissible radial force F_x. The calculation is applicable without axial force.

Permissible radial force according to the bearing service life

$$F_{xperm1} = F_{R2} \cdot \frac{y}{(z + x1)}$$

Permissible radial force according to the shaft strength

$$F_{xperm2} = \frac{a}{(b + x1)}$$

Permissible radial force for force application at distance other than x

$F_x \leq F_{xperm1}$; F_{xperm2}; F_{R2max}

Condition: Available radial force ≤ permissible radial force

Variables for defining shaft load and bearing service life

Code	Description	Unit
α	Force application angle	°
a, b, d, l, y, z	Gearbox constants	Nmm / mm
d_0	Average diameter of the mounted transmission element	mm
F_G	Force due to weight	N
F_{R2}	Permissible radial force (from power table)	N
F_{R2max}	Maximum permissible radial force according to table 2/12	N
F_{Ravail}	Available radial force	N
F_x	Permissible radial force from out of center force application point	N
F_{xperm1}	Permissible radial force, limited by the bearing service life, at a distance of x from the shaft shoulder	N
F_{xperm2}	Permissible radial force, limited by the shaft strength, at a distance of x from the shaft shoulder	N
RWC	Running wheel center	–
x	Distance from the shaft shoulder up to the force application point at running wheel center for F_{R2} according to table 2/12	mm
x1	Distance from the shaft shoulder up to the force application point at running wheel center for F_x	mm

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Definition of the force application point EHB

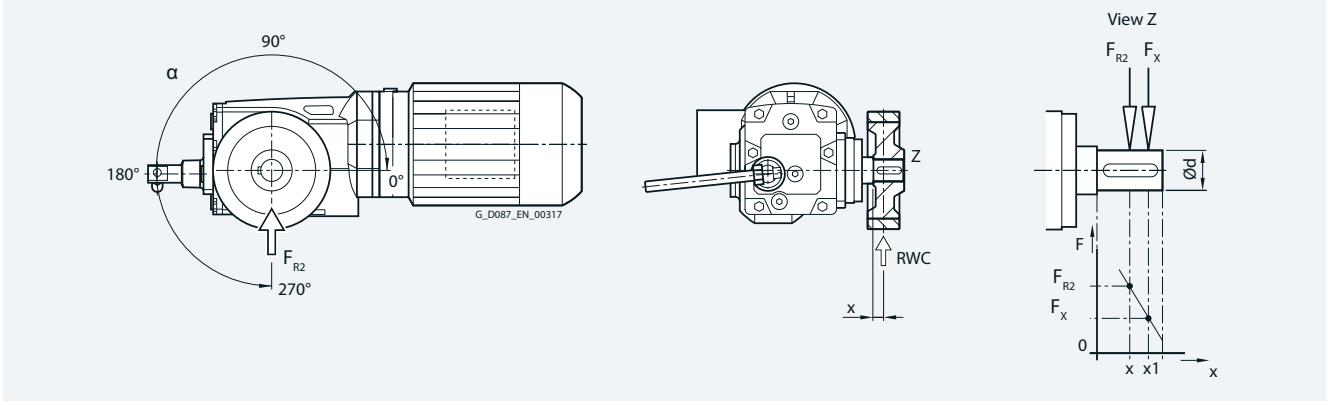

Fig. 2-9 Force application point

Gearbox constants for calculating the radial force

Gearbox size	Constants								
	y mm	z mm	a Nmm	b mm	d mm	l mm	T_2 Nm	F_{R2max} N	Force application x mm
Light-load applications									
BH.29	158	145	97500	0	25	35	90	7500	13
BH.39	170	162	216000	0	25	35	200	12000	18
BH.39	170	152	270000	0	30	50	200	15000	18
Heavy-load applications									
KH.49	199	171	333000	0	30	60	420	18500	18
KH.49	199	171	518000	0	35	70	420	18500	28
KH.69	239	211	700000	0	45	90	600	25000	28
KH.79	257	225	1280000	0	55	110	820	40000	32

Permissible torque for the ShaftMount assembly system

It is important to note that the maximum permissible torque is dependent on the selected machine shaft diameter.

Diameter of customer's shaft	Max. permissible torque T2 Nm					
	29	**39**	**49**	**69**	**79**	**89**
Metric shafts						
20	115					
25	150	205				
30		290	375			
35			480	460	840	
40				600	1000	1110
50						1750
Imperial shafts						
0.75“	100					
1“	150	205				
1.1875“		290	375			
1.25“		290	415			
1.375“			480	460	840	
1.4375“			480	500	915	
1.5“				545	1000	
1.625“				600	1000	1180
1.75“						1375
1.9375“						1680
2“						1750

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Determining the duty type

The power ratings for continuous duty with constant load (duty type S1) are listed in the power tables. The motor power ratings listed in the catalog can be converted to the lower duty cycle using the corresponding k_{DC} factors for S1, S2, and S3 duty types.

$P_{ED} = P_N \cdot k_{ED}$

Code	Description	Unit
P_{ED}	Power for the new duty cycle	kW
P_N	Rated motor power	kW
k_{ED}	Factor for increased power	–

For increased power, you should note that the breakdown torque ratio must not fall below 1.6. This same regulation applies when differentiating between the following groups of duty types.

Duty types according to EN 60034-1 (IEC 60034-1)

Duty type	Description	Information required		Factor for increased power k_{ED}
S1	Continuous duty Cyclic duration factor = 100 %	–	–	–
S2	Constant load for a brief time, e.g. S2 – 30 min	Load duration	60 min	1.10
			30 min	1.20
			10 min	1.40
S3	Intermittent periodic duty, where starting has no significant influence (cyclic operation), e.g. S3 – 40 %	Cyclic duration factor in % (referred to 10 min)	60 %	1.10
			40 %	1.15
			25 %	1.30
			15 %	1.40
S4 ... S10	Intermittent periodic duty with the influence of starting	Cyclic duration factor in % (referred to 10 min), starts per hour, load torque and moment of inertia The duty type and motor power can be determined if the number of starting operations per hour, starting time, load duration, type of braking, braking time, idle time, cycle time, standstill time and required power are specified.	On request	–

Duty types

S1

Continuous duty with constant load

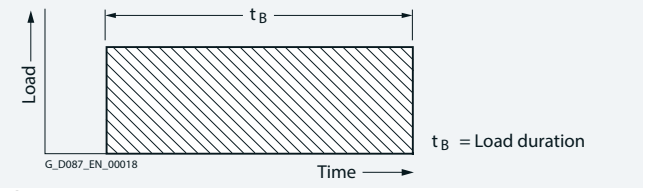

Fig. 2-10 Duty type S1

Where starting and electrical braking do not affect the motor stator winding temperature rise:

S2

Short-time duty
Recommendation: Operating times 10, 30, 60 and 90 minutes
After each period of duty the motor remains at zero current until the winding has cooled down to the coolant temperature.

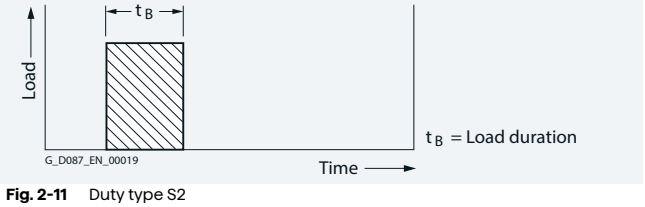

Fig. 2-11 Duty type S2

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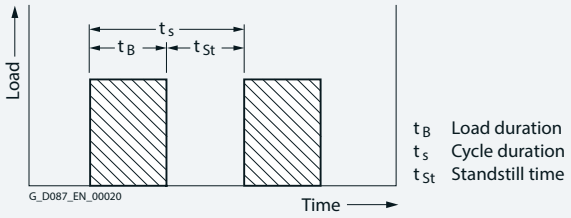
Determining the duty type

Duty types

Where starting and electrical braking do not affect the motor stator winding temperature rise:

S3

Intermittent duty
Where starting does not affect the temperature. Unless specified otherwise, the cycle duration is 10 minutes. Values of 15 %, 25 %, 40 % and 60 % are recommended for the cyclic duration factor.



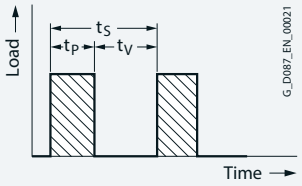
t_B Load duration
t_S Cycle duration
t_{St} Standstill time

Cyclic duration factor based on 10 min $= \frac{t_B}{t_B + t_{St}} \cdot 100\%$

Fig. 2-12 Duty type S3

S6

Continuous duty with intermittent load
The cycle duration, if nothing else has been agreed, is 10 minutes. Values of 15 %, 25 %, 40 % and 60 % are recommended for the load duration factor.



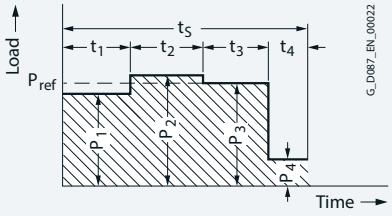
t_S Cycle duration
t_P Operating time with constant load
t_V Idle time

Cyclic duration factor $= \frac{t_P}{t_S}$

Fig. 2-13 Duty type S6

S10

Operation with discrete constant loads
In this case, a maximum of four discrete loads are available, where each load results in the thermal steady state. For this duty type, a load of the same value as the one used for the S1 duty type should be selected.



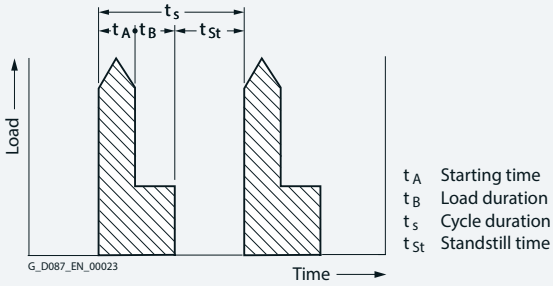
P_i Constant load within one load cycle
P_{ref} Reference load
t_S Cycle duration

Fig. 2-14 Duty type S10

Starting and braking influence the temperature rise of the stator winding and the rotor cage:

S4

Intermittent duty where starting influences the temperature



t_A Starting time
t_B Load duration
t_S Cycle duration
t_{St} Standstill time

Cyclic duration factor based on 10 min $= \frac{t_A + t_B}{t_A + t_B + t_{St}} \cdot 100\%$

Fig. 2-15 Duty type S4

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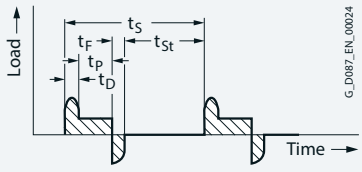
Determining the duty type

Duty types

Starting and braking influence the temperature rise of the stator winding and the rotor cage:

S5

Intermittent duty where starting and braking influence the temperature
For the **S4** and **S5 duty types**, this code should be followed by the cyclic duration factor, the moment of inertia of the motor (J_{mot}), and the moment of inertia of the load (J_x), both referred to the motor shaft.
The cycle duration, if nothing else has been agreed, is 10 minutes. Values of 15 %, 25 %, 40 %, and 60 % are recommended for the cyclic duration factor.



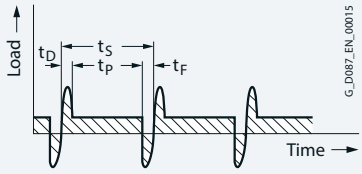
t_S Cycle duration
t_D Starting time
t_P Operating time with constant load
t_F Time with electrical braking
t_{St} Standstill time with windings at zero current

$$\text{Cyclic duration factor} = \frac{t_D + t_P + t_F}{t_S}$$

Fig. 2-16 Duty type S5

S7

Continuous duty with starting and braking
For S7 and S8 duty types, the moment of inertia of the load (J_x) referred to the motor shaft must be known.



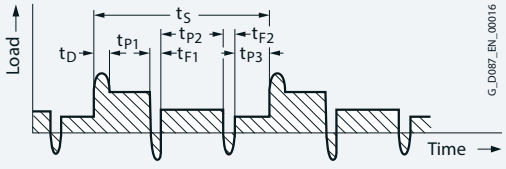
t_S Cycle duration
t_D Starting time
t_P Operating time with constant load
t_F Time with electrical braking

Cyclic duration factor = 1

Fig. 2-17 Duty type S7

S8

Continuous duty with non-periodic load and speed changes (converter operation)
Most of the intermittent operating conditions occurring in practice are a combination of the above mentioned duty types. All of the operating conditions must be known in order to precisely determine a suitable motor.



t_S Cycle duration
t_D Starting time
t_P Operating time with constant load (P1, P2, P3)
t_F Time with electrical braking (F1, F2)

$$\text{Cyclic duration factor} = \frac{t_D + t_{P1}}{t_S} \cdot \frac{t_{F1} + t_{P2}}{t_S} \cdot \frac{t_{F2} + t_{P3}}{t_S}$$

Fig. 2-18 Duty type S8

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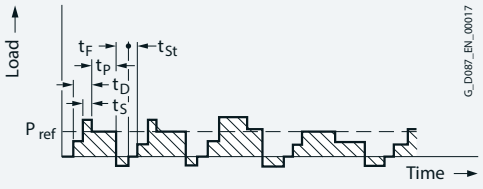
Duty types
S9
Continuous duty with non-periodic load and speed changes (converter operation) Most of the intermittent operating conditions occurring in practice are a combination of the above mentioned duty types. All of the operating conditions must be known in order to precisely determine a suitable motor.



t_D Starting time
t_P Operating time with constant load
t_F Time with electrical braking
t_{St} Standstill time with windings at zero current
t_S Time with overload

Fig. 2-19 Duty type S9

Switching frequency

A higher switching frequency means that there is a higher number of starting operations per hour. This leads to a higher thermal load on the motor winding.

The permissible switching frequency Z_{perm} has to be determined for different operating cases.

This value is influenced by the corresponding load torque, the additional moment of inertia, the power requirement, and the cyclic duration factor. These can be evaluated using the factors k_M, k_{FI} and k_P.

For 60 Hz operation, the calculated permissible switching frequency Z_{perm} must be reduced by 25 %. See the technical specifications for brakes in chapter 11 for the permissible switching frequency for operation with function rectifiers.

The permissible no-load switching frequency Z_A for motors with brake L must be obtained from table "No-load switching frequency for brakes L/LS" on page 11/51.

$Z_{perm} = Z_A \cdot k_M \cdot k_{FI} \cdot k_P$

The permissible no-load switching frequency Z_0 for motors without brakes must be obtained from the Selection and ordering data in chapter 9.

$Z_{perm} = Z_0 \cdot k_M \cdot k_{FI} \cdot k_P$

Code	Description	Unit
DC	Cyclic duration factor	%
J_{mot}	Moment of inertia of motor and brake	kgm²
J_Z	Additional moment of inertia of a high inertia fan	kgm²
J_X	Reduced moment of inertia on motor shaft	kgm²
J_{add}	Additional moment of inertia	kgm²
k_{FI}	Factor for taking into account the additional moment of inertia	–
k_M	Factor for taking into account the load torque while accelerating	–
k_P	Factor for taking into account the required power and duty cycle	–
P_S	Actual steady-state power of the motor	kW
P_N	Rated motor power	kW
T_H	Acceleration torque of the motor	Nm
T_N	Rated motor torque	Nm
T_x	Reduced load torque on motor shaft	Nm
t_R	Cyclic duration factor (decimal)	
Z_0	No-load switching frequency, motor without brake	1/h
Z_A	No-load switching frequency, motor with brake	1/h
Z_{perm}	Permissible switching frequency	1/h

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Switching frequency

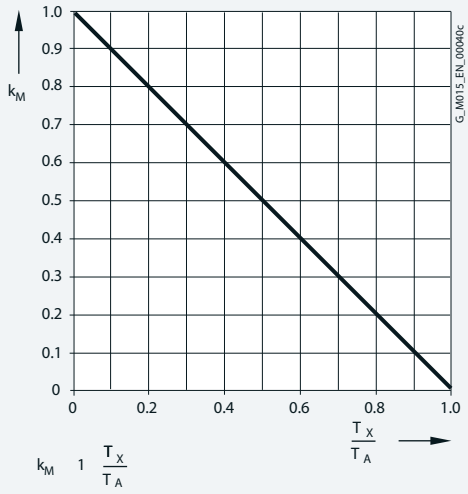

Fig. 2-20 Torque when accelerating

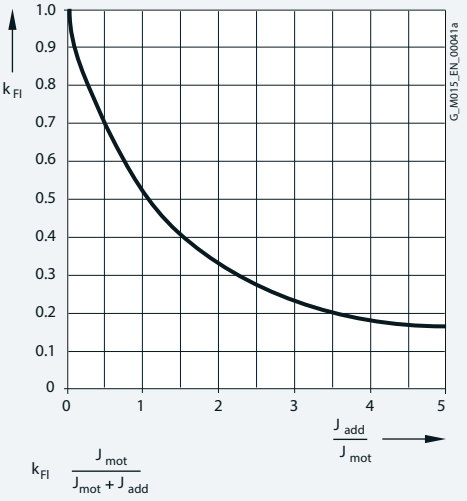

Fig. 2-21 Additional moment of inertia

$J_{add} = J_x + J_z$

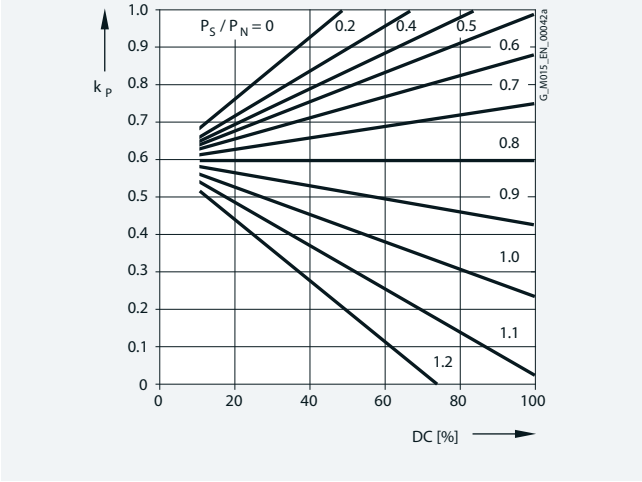

Fig. 2-22 Power requirement and duty cycle

$K_P = t_R \cdot (1 - (P_S / P_N)^2) + 0.6 \cdot (1 - t_R) + 0.24 \cdot t_R$

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Additional moments of inertia

The motor moment of inertia with standard fan is specified in the motor selection lists. The higher moment of inertia should be used for metal or high-inertia fans. This is also valid for mounted brakes, backstops and encoder systems.

Line feeder cables

Line feeder cables must be adequately dimensioned.
The number of required parallel (if applicable) feeder cables is determined by the maximum connectable conductor cross-section, the type of cable, the cable installation, the ambient temperature and the permissible current. In Germany, DIN VDE 0298 must be applied when dimensioning cables.

Undervoltage

For an undervoltage condition as a result of weak line supplies, catalog values such as motor power, torque and speed are not reached. This is especially important when considering motor starting.

Motor protection

A distinction is made between current-dependent and temperature-dependent protective devices for motors.

Current-dependent protective devices

Fuses are only used to protect line cables in the event of a shortcircuit. They are not suitable for overload protection of the motor. The motors are usually protected by thermally delayed overload protection devices (circuit breakers for motor protection or overload relays).

This protection is current-dependent and is particularly effective in the case of a locked rotor. For normal operation with short starting operations, starting currents that are not excessive and for a low switching frequency, motor circuit breakers provide adequate protection. Motor circuit breakers are not suitable for heavy starting duty or high switching frequencies. Differences in the thermal time constants for the protective devices and the motor result in unnecessary early tripping when the circuit breaker is set to the rated current.

Temperature-dependent protective devices

Temperature-dependent protective devices are integrated in the motor winding and can be implemented as **temperature sensors** and **temperature switches**.

The number of temperature-dependent protective devices depends on the number of windings and their function.

The alarm is normally set to 10 K below the switch-off temperature. The rated response temperatures (NAT) of the protective devices depend on the thermal class of the motors.

In order to achieve full thermal protection, it is necessary to combine a thermally delayed overcurrent release and a PTC thermistor.

Coolant temperature and installation altitude

The rated power specified in the selection and ordering data in chapter 9 is valid for a coolant temperature of +40 °C and an installation altitude of 1000 m above sea level.

Please contact Innomotics for higher coolant temperatures.

The table with correction factors provides a rough estimate of the power reduction for deviating conditions and operating points.

If used in other ambient conditions, further restrictions may apply to motor attachments such as encoders and brakes.

In the case of drives with pre-configured, specified ambient conditions, this is stamped on the nameplate, where the factor KHT is specifically defined and may deviate from what is listed in the table.

This results in a permissible motor power of:

$$P_{perm} = P_N \cdot k_{HT}$$

Code	Description	Unit
P_{perm}	Permissible motor power	kW
P_N	Rated motor power	kW
k_{HT}	Factor for abnormal coolant temperature and installation altitude	–

Factor k_{HT} for different installation altitude and coolant temperature

Installation altitude	**Coolant temperature**					
SA	**CT**					
m	< +30 °C	+30 ... +40 °C	+45 °C	+50 °C	+55 °C	+60 °C
1000	1.07	1.00	1.00	0.92	0.87	0.82
1500	1.04	0.97	0.93	0.89	0.84	0.79
2000	1.00	0.94	0.90	0.86	0.82	0.77
2500	0.96	0.90	0.86	0.83	0.78	0.74
3000	0.92	0.86	0.82	0.79	0.75	0.70
3500	0.88	0.82	0.79	0.75	0.71	0.67
4000	0.82	0.77	0.74	0.71	0.67	0.63

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Degrees of protection

The motors are supplied in IP55 to standard IEC 60034-5. They can be installed in dusty or humid environments. The motors are suitable for operation in tropical climates. Guide value below 60 % relative atmospheric humidity for a coolant temperature +40 °C.

Other requirements on request.

First code number	Brief description	Second code number	Brief description
4	The motor is protected against solid objects greater than 1 mm.	**4**	The motor is protected against water splashed from all sides.
5	The motor is protected against dust.	**5**	The motor is protected against jets of water.
6	The machine is dusttight.	**6**	The motor is protected against "heavy seas" or powerful jets of water.
		7	The motor is protected against immersion.
		8	The motor is protected against long periods of immersion under pressure.

The first code number of the degree of protection indicates the degree to which an enclosure provides protection against contact and the ingress of foreign bodies.

The second code number indicates the protection that an enclosure offers regarding the ingress of water.

Increased corrosion protection as well as additional protective measures for the winding (protection against moisture and acid, corrosion protection in the motor) can support the selected degree of protection.

The degree of protection only refers to the motor. When selecting higher degrees of protection, the equipment on the gearbox side should be taken into account (seals, vents).

Cooling and ventilation

When the geared motor is mounted and the air intake is restricted, you must ensure that a minimum clearance is maintained between the fan cover and the wall and that the cooling air is not immediately drawn in again.

Further, it must be guaranteed that the cooling air flow to the gearbox is not obstructed. As a consequence, the gearbox operating temperature can be further reduced.

Forced ventilation

The use of a separately driven fan is recommended to increase motor utilization at low speeds and to limit noise generation at speeds significantly higher than the synchronous speed. Both are mainly used in conjunction with converter operation.

Typical areas of application for forced ventilation:

_ High switching frequency
_ Converter drives with a control range > 1:20
_ Converter drives with rated torque at low speeds
_ Noise reduction
_ At high speeds

Bearing system

The bearing service life of motors with horizontal mounting is 40000 hours if there is no additional axial loading at the coupling output and 20000 hours when utilized according to the maximum admissible load. This assumes that the motor is operated at 50 Hz. The nominal bearing service life is reduced for converter operation at higher frequencies.

In order to achieve the calculated lifetime in continuous operation, the admissible vibration values (measured at the end shield) must be determined according to evaluation zones A and B stipulated in ISO 10816. If higher vibration velocities occur in operation, special measures must be taken.

Please contact Innomotics in this regard.

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Overview

The brakes can be used as working brakes or holding brakes. A holding brake is suitable for holding masses and loads at a fixed position. A working brake is also capable of decelerating masses and loads.

The brakes are designed as spring-loaded brakes. When the brake is mounted, it increases the length of the motor. The dimensions are shown in the dimensional drawings. The spring-loaded brakes are suitable for a standard ambient temperature range of –20 to +45 °C.

Operation at ambient temperatures above 45 °C requires a reduction in the switch-on duration of the brake.

Variables

Code	Description	Unit
f_{br}	Braking torque correction factor	–
J_{AD}	Moment of inertia of the adapter	kgm²
J_B	Moment of inertia of the brake	kgm²
J_G	Moment of inertia of the gearbox	kgm²
J_{mot}	Moment of inertia of the motor	kgm²
J_X	Moment of inertia of the load referred to the motor shaft	kgm²
J_Z	Additional moment of inertia of a high inertia fan	kgm²
k	Factor for taking into account operating conditions	–
L_N	Service life of the brake lining until readjustment	h
L_{nmax}	Service life of the brake lining until replacement	h
M_2	Rated braking torque of the brake, characteristic value at a relative speed of 100 rpm	Nm
M_4	Minimum holding torque of the brake without slippage (DIN VDE 0580)	Nm
n_{br}	Braking speed	rpm
η	Efficiency (drive)	%
Q_{perm}	Maximum permissible friction energy during cyclic switching, as a function of the switching frequency	J
s_{br}	Braking distance	m
t_1	Application time of the brake	ms
t_{br}	Braking time	s
T_{br}	Rated braking torque (rated torque M_2)	Nm
T_x	Reduced load torque on the motor shaft	Nm
v	Travel velocity	m/s
W_1	Friction energy per braking operation	J
W_{1max}	Maximum permissible friction energy with a single switching, thermal characteristic value of the brake	J
W_{tot}	Friction energy until the brake lining is replaced	MJ
W_V	Friction energy until the brake is readjusted	MJ
Z	Switching frequency	1/h

Determining the braking torque

The braking torque must be selected in accordance with the particular drive application.
The following criteria are decisive when it comes to making the selection:

- Intended use: Working brake or holding brake
- Static safety
- Required braking time
- Permissible brake delay
- Possible braking distance
- Brake wear

The braking torque is determined using the safety factor k, which can be selected in the range from 1.0 to 2.5. As a general rule of thumb, the factor for horizontal motion is approx. 1.0 to 1.5 and for vertical motion approx. 2.0 to 2.5. However, the precise braking torque depends to a large extent on the particular operating conditions.

The rated braking torque M_2 is based on a speed of n = 100 rpm and decreases with increasing motor speed. When calculating the braking torque, this is taken into account using the correction factor f_{br}. This means that the rated braking torque is applicable for most braking operations for converter operation.

For line operation, braking is directly from the motor speed. In addition, for vertical conveyors, the increased speed when moving downwards must be taken into account.

$$T_{br} > T_x \cdot k \cdot f_{br}$$

Braking torques as a function of the speed and permissible speed limits

The braking torque available decreases with increasing motor speed.

The maximum permissible speeds from which emergency stops can be made are listed in the table on page 11/46. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum permissible friction energy depends on the switching frequency and is shown for individual brakes in the diagram "Permissible operating energy" on page 11/45. Increased wear can be expected when the brakes are used for emergency stops.

Several braking torques are available for the L-brakes. These are set in the factory. In the case of holding brakes with set braking torques of ≤ 50 % of the nominal braking torque, permissible operating energy (Q_{perm}) of up to 140 % of the rated data can be achieved under certain conditions.

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Braking energy per braking operation

The braking energy W per braking operation comprises the energy of the moments of inertia to be braked and the energy which must be applied in order to brake against a load torque.

T_x is positive if the load torque is directed against the direction of motion, and thus has a decelerating effect (horizontal motion, upward vertical motion).

T_x is negative if the load torque is directed in the same direction as the motion, and thus has an accelerating effect (downward vertical motion).

The permissible operating energy Q_{perm} must be checked against the relevant switching frequency using the diagram "Permissible operating energy" on page 11/45. This is of particular importance for emergency stop circuits.

$$W_1 = \frac{T_{br}}{T_{br} \pm T_x \cdot \eta} \cdot \frac{(J_G + J_{AD} + J_{mot} + J_z + J_x + J_B \cdot \eta) \cdot n_{br}^2}{182.5}$$

$$W_1 < Q_{perm}$$

In applications with holding brakes, which require low braking torques but release very high braking energies in the event of an emergency stop due to high flywheel masses, higher permissible friction work (W_{1max}) of up to 140 % compared to the values in the table "Working capacity for L/LS brakes" on page 11/50 can also be released under certain conditions.

Permissible friction work (W_{1max}) of up to 140 % applies to:

- Brakes with order codes **B31, B32, B34, B43, B44 B45, B46** (for a selection of brakes, see page 11/34)
- Max. speed of brakes:
  Order codes **B31, B32, B34, B43, B44** = 3000 rpm
  Order codes **B45, B46** = 2500 rpm
- Individual Emergency Stops with intervals >10 min between braking operations
- Brakes with standard friction lining

Note:
Not suitable for applications with potential energy and vertical loads, as well as the options Functional Safe Brake (order code **C09**) and low-wear friction lining (order code **C06**).

The increased friction energy results in increased brake wear. This means that the brake has to be inspected and maintained more frequently. This must also be considered when calculating the wear and planning maintenance activities.

Service life of the brake lining

The service life of the brake lining L_N until the air gap has to be readjusted depends on various factors. The main influencing factors include the masses to be braked, the motor speed, the switching frequency, and, therefore, the temperature at the friction surfaces.

This means it is not possible to specify a value for the friction energy until readjustment that is valid for all operating conditions.
However, a wear calculation can be made according to the friction energy, so that the service life can be defined in normal operation.

Brake service life

The brake lining is subject to wear as a result of friction. As a consequence, the air gap increases and the brake application time lengthens. The air gap can be readjusted. The friction lining should be replaced after a certain number of readjustments.

Service life of the brake lining until readjustment

$$L_N = \frac{W_V}{W_1 \cdot Z}$$

Service life of the brake lining until replacement

$$L_{nmax} = \frac{W_{tot}}{W_1 \cdot Z}$$

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Brake control

Definition of switching times (VDI 2241)

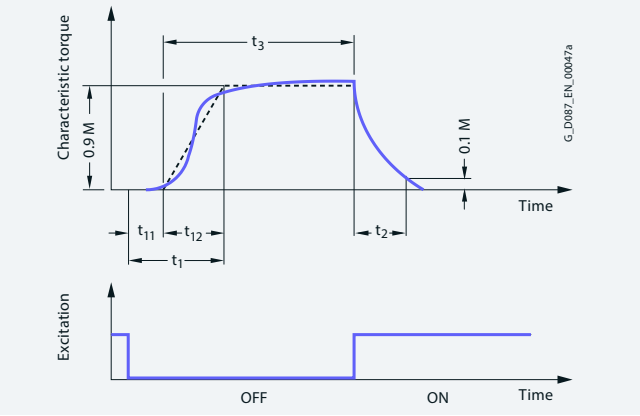

Fig. 2-23 Brake switching times

Switching times:

t_1	Application time of the brake
t_2	Disconnection time
t_3	Slipping time
t_{11}	Response time
t_{12}	Rise time

Fast brake application

Disconnection on the AC side

If the brake is disconnected from the power supply, the magnetic field that keeps the brake open against the force of the springs is dissipated. The springs push the armature plate in the direction of the counter-friction surface, clamping the rotor. The resulting friction slows down the drive.

If only the AC power supply is disconnected prior to the rectifier, this results in a time delay in the braking operation. The reason for this is a slow reduction of the magnetic field in the brake solenoid. This can be particularly problematic for vertical applications. In order to accelerate the closing of the brake, the power supply of the brake must (also) be disconnected on the DC side.

Rectifier for disconnection on the DC side

Electromagnetically released spring-loaded brakes can be disconnected on the AC side and the DC side. Disconnection on the DC side means that the inductance and thus the magnetic field in the brake solenoid are reduced very quickly.

For disconnection on the DC side, a wire jumper can be removed from the rectifier and replaced by the contacts of an external switch. This enables significantly shorter application times to be achieved than those achieved for disconnection on the AC side.

Function rectifiers for fast brake application

If function rectifiers are used for fast brake application, then there is no need for an external switch and therefore less wiring is required.

Disconnection on the DC side using current sensing

One option of disconnecting on the DC side is to sense the motor current. If the motor current falls below the rectifier's sensor current when disconnected from the three-phase line supply, the brake solenoid is disconnected from the DC voltage electronically without any contacts.

Used in conjunction with disconnection on the DC side by means of current sensing, rectifiers are generally suitable for being connected in parallel with the motor connection, even in applications involving moving loads or large moments of inertia.

Brakes controlled in this way are completely wired to the motor terminal board. Converter operation is not permissible.

Disconnection on the DC side using voltage sensing

Another option of disconnecting on the DC side is by sensing the rectifier supply voltage.

An integrated switching transistor switches off the load if the input voltage falls below a specified switching threshold. Used in conjunction with disconnection on the DC side using voltage sensing, rectifiers are generally suitable for operation with separate AC-side brake control using an additional switching contact.

Connection in parallel with the motor connection is also possible, but it is not recommended, as the rectifier disconnection response will be impaired by the influence of the motor winding. In addition, many applications involve driving loads or large moments of inertia. This can cause the no-load voltage generated when the motor coasts down to considerably delay brake application if the switching threshold for voltage sensing is not fallen below.

If connection in parallel with the motor connection is nevertheless desired or required, disconnection on the DC side using current sensing is recommended.

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Brake control

Fast brake release

Function rectifiers for fast brake release

Rectifiers with overexcitation (high-speed excitation)

Rectifiers with overexcitation operate for approximately 300 ms ± 15 % with bridge rectification, i.e. when being released, the brakes are supplied with twice the rated solenoid voltage.
After this time the rectifiers automatically switch from bridge to half-wave rectification and the brakes are operated with the rated solenoid voltage. This results in shorter release times and higher brake switching frequencies. The friction lining wear is also reduced, the permissible friction energy until the air gap is readjusted increases, and starting losses are reduced.

Rectifiers with overexcitation are generally suitable for being connected in parallel to the motor connection or for a separate circuit in the case of converter operation (note connection information for disconnection on the DC side).

Brake switching time

The total time it takes the motor to come to a standstill comprises the following times:

- Brake application time t_1
- Braking time t_{br}

The first is the time it takes the brake to reach 90 % of its braking torque. This time may be circuit- and control-dependent.
The braking time is determined as follows:

$$t_{br} = \frac{(J_G + J_{AD} + J_{mot} + J_B + J_Z + J_X \cdot \eta) \cdot n_{br}}{9.55 \cdot (T_{br} \pm T_x \cdot \eta)}$$

If T_x supports the braking operation, T_x is positive; otherwise it is negative.

Braking distance and positioning accuracy

Braking distance s_{br} is the distance traveled by the driven machine during braking time t_{br} and application time t_1.

With linear motion, a positioning accuracy of between ± 12 % and ± 15 % can be assumed. However, this can be heavily influenced by the condition of the brake.

The formula below applies to horizontal motion and upward vertical motion.

$$s_{br} = v \cdot \left(\frac{t_1}{1000} + 0{,}5 \cdot t_{br}\right)$$

Cyclic duration factor

The cyclic duration factor *DC* is the ratio between the load duration and the cyclic duration. The cyclic duration is the sum of the ON times (operational periods) and the no-voltage periods.

$$DC = \frac{t_s}{t_s + t_O} \cdot 100$$

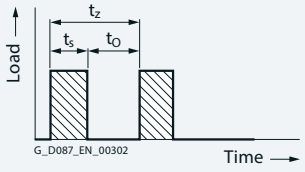

Fig. 2-24 Cyclic duration factor

Code	Description	Unit
DC	Cyclic duration factor	%
t_s	Close time (on-load factor)	s
t_O	Open time (off-load factor)	s
t_z	Cycle time (duty cycle time)	s

Rated torque and holding torque

Rated torque

The rated torque M_2 is the switching torque assigned by the manufacturer of the brake for identification. This is indicated on the rating plate when selecting a working brake.

Holding torque

The holding torque M_4 is the highest torque with which the closed brake can be loaded without causing a slip. With the functionally safe holding brake, the holding torque M_4 is indicated on the rating plate.

In the case of functionally safe attachments (Functionally Safe Brake and Functionally Safe Rotary Encoder), the M_4 torque is specified on the rating plate, as the brake may only be used as a holding brake with an Emergency Stop function.

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Incremental encoders

Incremental encoders are used to determine the position of rotor shafts and are used to approach a precisely defined angular position. This is achieved by photoelectrically scanning the graduation on an indexing disk. With incremental measuring methods, the graduation consists of a regular grid structure. The position information is obtained by counting the individual increments (measuring steps) from a set zero point. Since an absolute reference is required to determine positions, the indexing disks are provided with an additional track that has a reference mark. The absolute position determined by the reference mark is assigned exactly one measuring step. The reference mark must, therefore, be scanned before an absolute reference can be established or the last selected reference point found.

The incremental signals are transmitted as square-wave pulse train sequences U_{a1} (A) and U_{a2} (B), phase-shifted through 90° elec. The reference mark signal consists of a reference pulse $U_{a0\,(N)}$, which is gated with the incremental signals.

In addition, the integrated electronics generate inverse signals $\overline{U_{a1}}$ (A), $\overline{U_{a2}}$ (B) and $\overline{U_{a0}}$ (N) for noise-proof transmission.

The illustrated sequence of output signals – with U_{a2} lagging behind U_{a1} – applies for clockwise rotation of the motor.

The fault-detection signal $\overline{U_{aS}}$ indicates fault conditions such as breakage of the supply cables or failure of the light source, etc.
It can be used to shut down machines in automated production environments.

The distance between two successive edges of the incremental signals U_{a1} and U_{a2} using 1-fold, 2-fold, or 4-fold evaluation is one measuring step.

The maximum permissible speed or travel velocity must never be exceeded, not even for a short time.

Incremental encoders are used with applications which require a precisely defined position to be approached/found again. In the case of incremental encoders, the machine must travel to a reference point after each power-off state, as the position is not usually stored in the controller, and movements of the machine while the power is off are not recorded.

For the technical specifications of the incremental encoder, please refer to chapter "Motor options" on page 11/57.

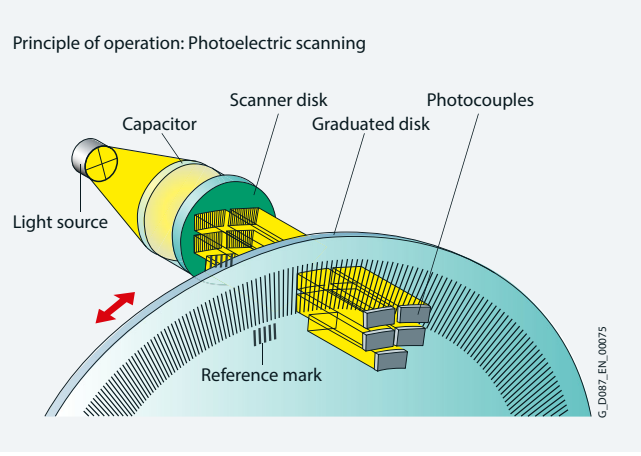

Fig. 2-25 Principle of operation, photoelectric scanning

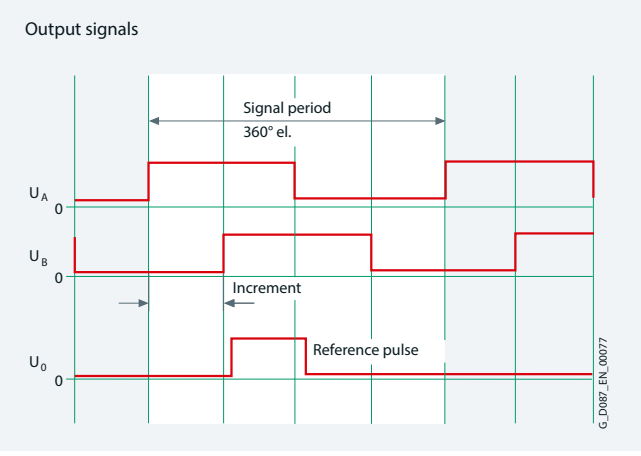

Fig. 2-26 Output signals

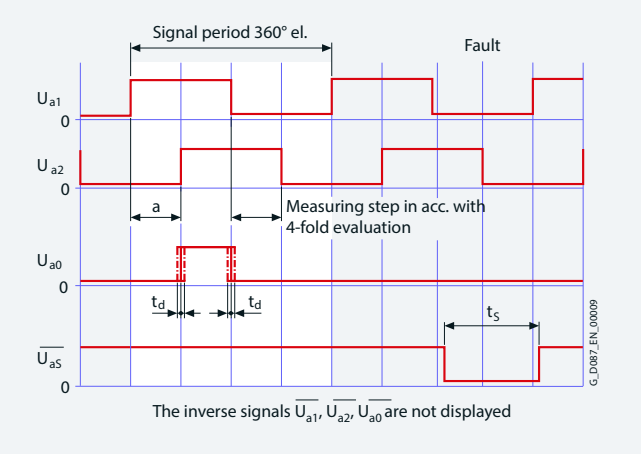

Fig. 2-27 Inverse output signals

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Absolute encoders

Absolute encoders are used to determine the position of rotor shafts and to approach a precisely defined angular position.

With the absolute measuring method, the position value is available from the encoder immediately after switch-on and can be called at any time by the subsequent electronics. There is no need to move the axes to find the reference position. The absolute position information is read from the graduation on the indexing disk, which consists of several parallel indexing tracks. The track with the finest scale division is interpolated for the position value and is used to generate an optional incremental signal at the same time. The indexing disks are photoelectrically scanned.

With singleturn rotary encoders, the absolute position information is repeated at each revolution. Multiturn rotary encoders can also differentiate between revolutions.

Absolute encoders are used with applications which require a precisely defined position to be approached/found again.

For the technical specifications of the absolute encoder, please refer to chapter "Motor options" on page 11/58.

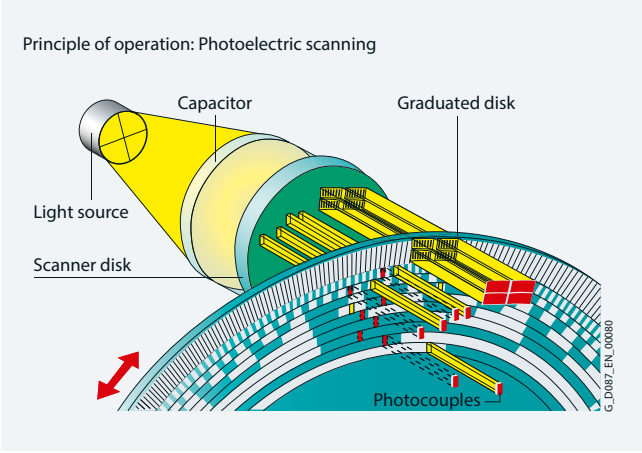

Fig. 2-28 Principle of operation, photoelectric scanning

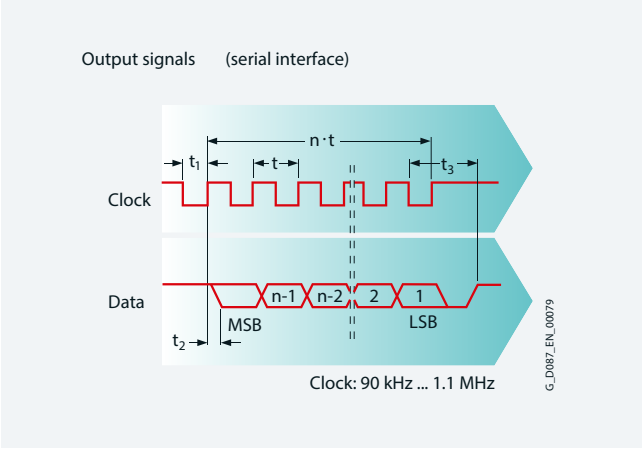

Fig. 2-29 Output signals

Encoder systems with DRIVE-CLiQ interface

Motors with DRIVE-CLiQ encoder interface are provided for the SINAMICS S120 converter system. The signal transmission to the converter is digital. The DRIVE-CLiQ rotary encoder has an electronic nameplate that simplifies commissioning and diagnostics. Motor and encoder system are automatically identified and all motor parameters are set automatically, see SINAMICS Equipment Manual.

DRIVE-CLiQ rotary encoders for the SINAMICS drive system are equipped with an internal module that includes an electronic nameplate. The DRIVE-CLiQ rotary encoder is equipped with a cable with a length of 1 m with flange socket. The flange socket has a SPEED-CONNECT-READY M17 male thread with O-ring. This is called the DIRVE-CLiQ interface.

The technical data for the DRIVE-CliQ rotary encoder can be found in the chapter "Motor options" on page 11/54.

The signal connection between motor and Motor Module takes place via a pre-assembled MOTION-CONNECT DRIVE-CLiQ cable.

More information on the signal cables can be found in the chapter "Motor options" on page 11/54.

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Overview

Legal framework

The purpose of the Machinery Directive 2006/42/EC and "Supply of Machinery (Safety) Regulations 2008" is to ensure that all machines placed on the market within the European Economic Area meet common minimum safety requirements.

Functional safety – electric drives

The standards listed under the machinery directive define appropriate safety functions that must be implemented for electric, variable-speed drive systems. When viewed in this context, a drive train essentially comprises the elements "sensor – controller – actuator" which interact with one another to ensure functional safety.

The distributor or operator of the machine/installation bears responsibility for the required safety functions and their properties.

In cases where Innomotics provides support with the definition of safety-relevant components at the project planning stage, Innomotics shall not accept any responsibility for the selection of components or the implementation of safety functions.

Trend toward integrated safety systems

The trend toward greater complexity and higher modularity of machines has seen a shift in safety functions away from the classical central safety functions (for example, shutdown of the complete machine using a main disconnecting means) and into the machine control system and the drives. Frequently, this also significantly increases the productivity. This is because, for instance, equipping times can be reduced and during these setup times, depending on the machine type, other parts can still continue to produce.

Installation of Innomotics SG geared motors

Geared motors must be installed such that the drive fastening elements in the machine are aligned uniformly and precisely. Vibration and resonance with rotational frequency and with multiples of the line frequency must be prevented. Care must be taken to ensure unobstructed ventilation (flow of cooling air and exhaust air must not be hindered).

Electrical connection of motors

The electrical connection of the motors must conform to the tolerance limits defined by EN 60034-1 for zone A (voltage ±5 %, frequency ±2 %).

Environmental conditions

The functionally safe components are suitable for typical industrial environments, not for harsh industrial environments such as offshore or chemical industry.

When operating on a frequency converter and comparable power control devices, resonances must be avoided.

With respect to mechanical environmental conditions, the motors are approved for vibration and shock in accordance with EN 60721-3-3:1995 Class 3M3.

Functionally safe brake

The following must be observed for the use of the functionally safe brake:

- The functionally safe brake can only be used as a holding brake with emergency stop function (max. 2000 emergency stops over the entire service life). The switching operations in normal operation must take place when the drive is at a standstill. A brake design must be carried out, the permissible limit values must be observed.
- For the design of the brakes, the holding torque of the brake (M_4 torque) must be used.
- The safety characteristic values of the safe brake apply to system designs in which 80 % of the characteristic torque of the brake are sufficient for the safety function. This must be ensured when designing the brake.
- The use of the geared motor with functionally safe brake is approved for an ambient temperature of –20 °C to +40 °C.
- The motors must be designed in temperature class 155 (F) and equipped with thermal motor protection and a corresponding evaluation unit as standard.
- The maximum input speed can be found in the technical specifications, see table "Braking torques as a function of speed and permissible speed limits with operating brake" on page 11/45.
- The functionally safe brakes must be operated with appropriate safe brake relays. Therefore, only DC voltage variants can be selected for the safe brakes.
- The function rectifiers (order codes **C59** and **C60**) are not possible in combination with the functionally safe brake.
- In safety-relevant applications, the rotors must always be replaced after 10 years at the latest.
- When configuring the brake, the wear of the friction lining (e.g. due to emergency stops) must be taken into account.
- All specified restrictions apply to friction linings (permissible switching frequency, permissible friction energy, reactivation during operation as a holding brake, break loose torque after a prolonged idle time, temperature range, etc.).
- Increased corrosion protection (order code **C10**) must not be used in conjunction with the functionally safe brake.
- Not all torque variants of the standard version are also suitable for the safe brake.

Note:
Before you commission Innomotics SG geared motors with the functionally safe brake, please read the information in the operating instructions BA 2332.

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Functionally safe rotary encoders

Fig. 2-30 Functionally safe rotary encoder IN 8.5834FS2

Please note the following with respect to functionally safe rotary encoders:

- Functional safety can be ensured only if the functionally safe rotary encoder is evaluated by a suitable control and evaluation unit.
- The motors must be designed with temperature class 155 (F) and equipped as standard with thermal motor protection and a suitable evaluation unit.
- The maximum permissible air gaps for brake motors with functionally safe rotary encoder are different, see table "Technical specifications of brake with functionally safe rotary encoder" on page 11/66.
- The motors are supplied as standard with the option "Encoder under cover" (order code **Q95**) as mechanical protection.
- The option "Manual brake release lever with locking mechanism" (order code **C03**) cannot be selected for the brake motors with the functionally safe rotary encoder IN 8.5834 (order codes **Q42** and **Q43**) and IA 8.5883 (order codes **Q77** and **Q78**).
- The function rectifiers (order codes **C59** and **C60**) cannot be combined with the functionally safe rotary encoder.
- The use of the geared motor with the functionally safe rotary encoder is approved for an ambient temperature of –30 °C to +50 °C.

Environmental conditions

With respect to mechanical environmental conditions, the motors are approved for vibration and shock in accordance with EN 60721-3-3:1995 Class 3M3.

Encoder connections

When connecting the encoders, care must be taken to ensure that suitable connecting cables are used:

- Incremental encoder IN 8.5834 (order codes **Q42** and **Q43**) and absolute encoder IA 8.5883 (order codes **Q77** and **Q78**), max. cable length of 50 m
- DRIVE-CLiQ encoder, max. cable length of 100 m

The shield of the connecting cables must be bonded over a large area/grounded at both ends (at the encoder and at the controller).

Further information on the signal cables can be found in the chapter "Motor options" on page 11/69.

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Operation of geared motors on a converter

It is possible in principle to operate the geared motors on a frequency converter. The Converter World Motor is optimized and designed for operation on the frequency converter.

Please note the following supplementary conditions:

- Converter motors are not subject to the Regulation (EU) 2019/1781 or "Ecodesign for Energy-Related Products and Energy Information Regulations 2021 (UK)" because they are not intended for direct operation on the three-phase network.
- Maximum speed of the geared motor in the field-weakening range
- Maximum speed of the brake, see page 11/45
- Speed limits of the backstop, see page 11/74

Motor characteristic

During the acceleration process, converters shift the speedtorque characteristic of the three-phase asynchronous motor over the traversing range to enable jerk-free acceleration.
This enables the motor to be operated at different speeds (e.g. rapid traverse/creep speed), but also protects the mechanical components of the plant and gearbox.

Two main motor operating ranges are applicable for converter operation:

Constant flux (constant torque)

For converters with an unregulated DC link (e.g. Innomotics SG G115D) the output voltage can be as high as the line-side input voltage minus any voltage drops in the converter (for example, for Innomotics SG G115D: U_{Output} = 0.87 x U_{Input}).
If the maximum output voltage has not yet been reached, the converter output voltage can be increased as the motor speed increases until **V/f = constant** applies.
As a consequence, the magnetic flux, the motor current and therefore the transferred **continuous torque are constant** (provided that the motor is adequately cooled –> in the case of self-cooling, the torque must be reduced in accordance with the motor characteristic at low speeds due to the reduced cooling). Alternatively, if a separately driven fan is used, the full motor torque can be utilized.

Field-weakening range

If the speed increases further when the maximum output voltage has been reached, then V/f does not remain constant. The magnetic flux reduces with increasing motor speed, the motor current and therefore the transferred continuous torque reduces with respect to 1/n, and the breakdown torque reduces according to $1/n^2$ (see motor characteristic). The motor can be operated in the field-weakening range at constant power as far as the limit of stability (see point "Mechanical load, grease service life").

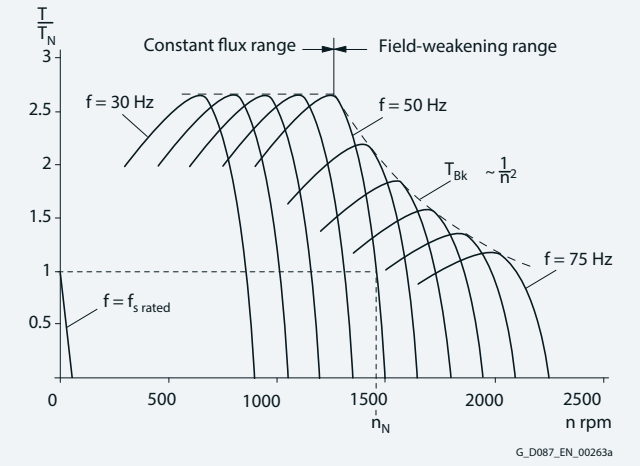

Fig. 2-31 Example for a 4-pole, three-phase asynchronous motor

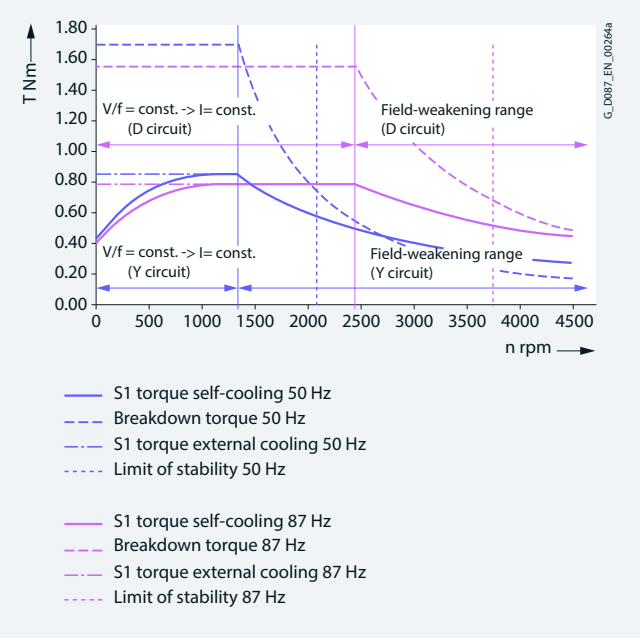

Fig. 2-32 Example of torque-speed characteristic of a 4-pole asynchronous motor

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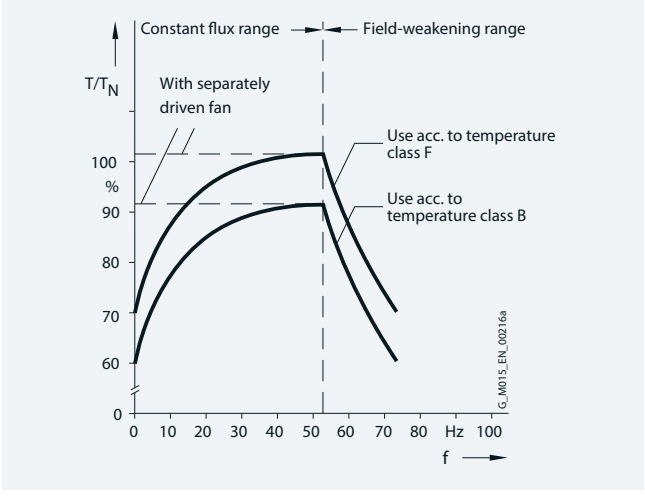
Utilization in accordance with temperature class F

For rated power and line operation, the motor is utilized in accordance with temperature class B (130 °C maximum permissible constant temperature referred to a maximum cooling air temperature of 40 °C).
Innomotics Low voltage motors are designed as standard to temperature class F (155 °C maximum permissible constant temperature referred to a maximum cooling air temperature of 40 °C).

For converter operation at reduced output voltage, the power reserve of the motor can be used to achieve the rated power.

In this case, the rated torque is applied to the motor and the converter outputs a frequency at which the motor achieves rated speed.

At this operating point the slip and current consumption are higher than under line operation, so that the constant motor temperature increases accordingly. Prerequisite for utilizing the motor in accordance with temperature class F is that the converter is capable of providing a sufficiently high current:
$I_{FUoutRated} \geq I_{Motor\ Rated\ inc}$



Peak load / acceleration torque

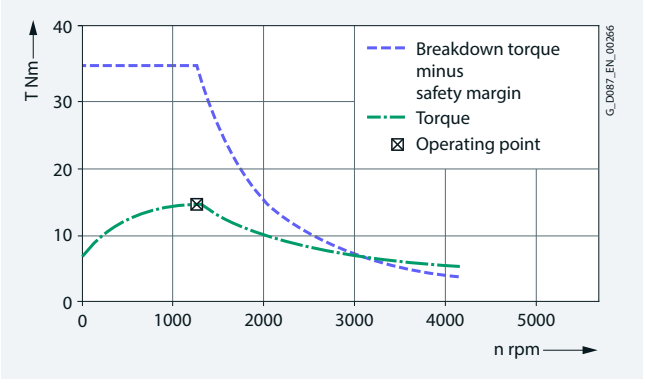
Based on experience, a safety margin of 30 % must be maintained from the breakdown torque:

$T_{max.} = 0.7 \times T_{Bk}$

The engineering software in the TIA Selection Tool incorporates a safety margin for the actual breakdown torque when the breakdown torque characteristic is displayed.

At a sufficiently high level of converter output current, the motor can therefore be accelerated with approximately 0.7 times its breakdown torque.

When operating with a high switching frequency, the motor's acceleration torque may have to be limited to its rated torque. As a general rule, the rms current must not exceed the rated motor current. It is recommended that the respective traversing cycle is entered in the engineering software in TIA Selection Tool, because the rms values will then be calculated automatically and represented in combination with the respective motor characteristic.



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Permissible voltage stress

More stress is placed on the insulation of the motor winding with converter operation than with line operation. The voltage stress also depends on the type of converter used. The converter subjects the motor winding to stress specially as voltage pulses are quickly switched.

The maximum voltage is influenced by the rise time of the pulses, the cable length and the type of cable used between motor and converter.

Output filters at the converter can reduce the maximum motor voltage to uncritical values. When using output filters, the control type, pulse frequency, output frequency, and limit torque that can be realized need to be observed, among other factors.

With converters without output filters, impermissible voltage peaks can occur even with a relatively short motor cable. Regenerative operation, in particular, can stress the motor insulation. This stress occurs predominantly during vertical motion and is dependent on the line voltage, converter type, cable length, and cable type.

For further details, see chapter "Motor options" on page 11/11.

Bearing currents

Additional bearing currents can flow when motors are operated from converters. They are mainly caused by the steep voltage rises which occur during switching. Without output filters, significant voltage variations can occur at the winding terminals. This phenomenon mainly occurs for larger machines.

EMC-compliant installation of the drive system is a basic prerequisite for preventing premature bearing damage as a result of bearing currents.

Important measures for reducing bearing currents are:

- Using cables with a symmetrical cable cross-section.
- Using grounding cables with low impedance over a wide frequency range (0 Hz up to approximately 70 MHz), e.g. braided copper straps, HF finely-stranded conductors.
- Separate HF equipotential-bonding cable between motor housing and driven machine.
- Separate HF equipotential-bonding cable between motor housing and converter PE busbar.
- 360° HF contact of the cable shield at the motor housing and the converter PE busbar. This can be achieved using EMC glands at the motor and EMC shield clips at the converter, for example.
- Use of motor reactors.
- Common-mode filters at the converter output.
- Insulated motor bearing at the non-drive end (NDE).

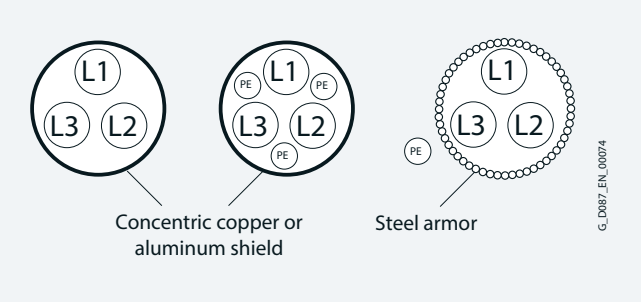

Fig. 2-33 Motors connected to a converter

Mechanical load and grease service life

High speeds that exceed the rated speed and the resulting increased vibration alter the mechanical smooth running operation and the bearings are subject to increased mechanical stress. This reduces the grease service life and the bearing service life.

More detailed information on request.

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Explosion-protected motors

In many industrial and public sectors, explosion protection and risk of explosion are ever-present, e.g. in the chemical industry, in refineries, on drilling platforms, at gas stations, in the production of animal feed and in sewage treatment plants.

The risk of explosion is always present when gases, fumes, mist or dust are mixed with oxygen in the air in an explosive ratio close to sources of ignition that are able to release the minimum ignition energy.

In the chemical and petrochemical industries in particular, when crude oil and natural gas are transported, or in mining, milling (e.g. grain and solids), this can result in serious injury and material damage.

To ensure maximum safety in these areas, legislators in most countries have implemented appropriate stipulations in the form of laws and regulations based on national and international standards.

Explosion-protected equipment is designed such that an explosion can be prevented when it is used properly.

The explosion-protected equipment can be designed in accordance with various types of protection.

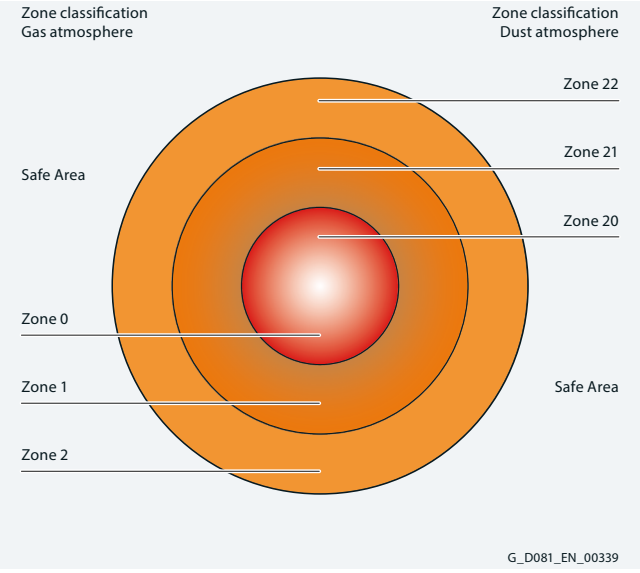
The local conditions must be subdivided into specified zones by the user with the assistance of the responsible authorities in accordance with the frequency of occurrence of an explosion hazard. Device (equipment) categories are assigned to these zones. The zones are then subdivided into possible types of protection and therefore into possible equipment (product) types.

Classification of zones

Explosive atmospheres are classified according to zones. Division into zones depends on the temporal and local probability of the presence of a hazardous, potentially explosive atmosphere. Information and specifications for classification of the zones are laid down in the following standards:

- IEC/EN 60079-10-1 for gas atmospheres
- IEC/EN 60079-10-2 for dust atmospheres

Further, a distinction is made between various explosion groups as well as temperature classes and these are included in the hazard assessment.



Depending on the particular zone and therefore the associated hazard, operating equipment must comply with defined minimum requirements regarding the type of protection. The different types of protection require corresponding measures to prevent ignition that should be implemented at the motor in order to prevent a surrounding explosive atmosphere from being ignited.

Zone Gas [1) 2)]	Dust [1) 2)]	Zone definition according to IEC/EN 60079-10-1 for gas atmospheres IEC/EN 60079-10-2 for dust atmospheres	Assigned types of protection	Category acc. to 2014/34/EU	Equipment protection level acc. to IEC/EN 60079-0 of low-voltage motors
0	–	An area in which an explosive gas atmosphere is present **continuously**, **over a long period** or **frequently**.	Low-voltage motors and Innomotics SG geared motors not permitted	1	Ga
1	–	An area in which it is expected that an explosive gas atmosphere will be present **occasionally** during normal operation.	Ex db eb, Ex db, h	2	Gb
2	–	An area in which it is expected that an explosive gas atmosphere will be present only **rarely** and then only **for a short period** during normal operation.	Ex ec, h	3	Gc
–	20	An area in which there is an explosive atmosphere comprising a dust-air mixture **continuously**, **over long periods** or **frequently**.	Low-voltage motors and Innomotics SG geared motors not permitted	1	Da
–	21	An area in which it is expected that an explosive atmosphere comprising a dust-air mixture will be present **occasionally** during normal operation.	Ex tb, h	2	Db
–	22	An area in which it is expected that an explosive atmosphere in the form of a cloud of combustible dust in air will be present only **rarely** and then only **for a short period** during normal operation.	Ex tc [3)], h	3	Dc

1) Motors of
Zone 1 can also be used in Zone 2
Zone 21 can also be used in Zone 22

2) Motors that are certified for gas or dust protection must not be used in hybrid mixtures! Hybrid mixtures: Explosive gas and dust atmospheres are present simultaneously.

3) Ex tc motors are not approved for operation in environments containing conductive dust.

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Explosion-protected motors

Types of protection

Type of protection "non-sparking" Ex ec acc. to IEC/EN 60079-7

Type of protection **Ex ec** ensures that a motor in normal operation as well as when operated under deviating conditions as specified in the standard is not able to ignite a surrounding explosive gas atmosphere.

MB motors are available in an **Ex ec** version.

Type of protection "dust explosion protection" **Ex tc** acc. to IEC/EN 60079-31

This type of protection applies for electrical equipment protected using a housing and with limited surface temperature
for use in areas in which combustible dust can occur in concentration levels that could cause a fire or an explosion.

MB motors are available in an **Ex tc** version.

Explosion-protected motors for converter operation

In principle, explosion-protected motors (except for Ex eb) can be fed from converters. Particular attention must be paid to the interaction between the motor and converter in the overall system, especially with regard to the following aspects:

- The harmonic content of the supply voltage increases the motor temperature, so the motor power must be reduced.
- Less cooling of the motor at speeds below the rated speed
- Voltage stress on the motor winding
- Bearing currents

Device marking

The equipment group and category are specified in the device marking.

The device marking is defined as follows:

e.g. CE 0158 ⟨Ex⟩ II 2G Ex eb IIC T3 Gb

- **CE** conformity marking
  CE stands for "Communautés Européennes" (European Communities)
  The manufacturer of the explosion-protected devices declares by means of CE marking that the relevant product has been manufactured in accordance with all applicable regulations and requirements of the EU and the requirements laid down in directive 2014/34/EU and the product has been subjected to the relevant conformity evaluation process.
- **0158** identification number of the inspecting authority (DEKRA)
- ⟨Ex⟩ Marking for prevention of explosions in accordance with directive 2014/34/EU

Example "increased safety":	**CE**	**0158**	⟨Ex⟩	**II**	**3**	**G**	**Ex**	**ec**	**IIC**	**T3**	**Gc**
CE marking											
Number of the certifying "notified" body (0158 = DEKRA)											
Explosion protection marking											
Equipment group: I = Underground II = All other areas											
Category: 2 (Zone 1/21) 3 (Zone 2/22)											
Ex atmosphere G = Gas D = Dust											
Explosion-protected equipment											
Type of protection Ex db, db eb, eb, ec, tb or tc (db eb = motor housing Ex db with terminal box Ex eb)											
Explosion group and explosion subgroup II = Gas (IIA, IIB or IIC) III = Dust (IIIA, IIIB or IIIC)											
Temperature class with max. surface temperature T1 = 450 °C T4 = 135 °C T2 = 300 °C T5 = 100 °C T3 = 200 °C T6 = 85 °C											
Equipment protection level (G = Gas; D = Dust): Ga = Very high protection, Da = Very high protection, Gb = High protection, Db = High protection, Gc = Increased protection, Dc = Increased protection											

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Explosion-protected motors

Technical specifications

General information on explosion-protected motors

Explosion-protected motors (MB motors) are suitable for operation in electrical power systems with a voltage tolerance of ± 10 %. In a vertical type of construction where the shaft extension points downward, motors must be equipped with a canopy. Operating instructions are supplied as standard with explosion-protected geared motors in English and German.

Motor connection

Certified metric cable glands/sealing plugs are included in the scope of supply of MB motors.

Certified circuit breakers / tripping units must always be used for motor protection.

Type of protection Ex tc IIIB for use in Zone 22

- Ex tc IIIB according to IEC/EN 60079-31
- Version for Zone 22 for non-conductive dust (IP55) and line operation.

The surface temperature is ≤ 120 °C for rated operation.
The motors are equipped with an external grounding terminal, a metal fan cover and a metal external fan.

Ambient temperature

Standard: −20 to +40 °C

Marking on the rating plate

Zone 22: II 3D Ex tc IIIB T120 °C Dc

Type of protection Ex ec for use in Zone 2

"Non-sparking" MB motors are suitable for use in hazardous areas of Zone 2 for temperature classes T1 to T3. The maximum surface temperature that can occur under normal operating conditions must lie below the temperature limit of the respective temperature class. The ventilation system must be in accordance with IEC/EN 60079-0. The motors are equipped with an external grounding terminal.

Ambient temperature

Standard: −20 to +40 °C

Marking on the rating plate

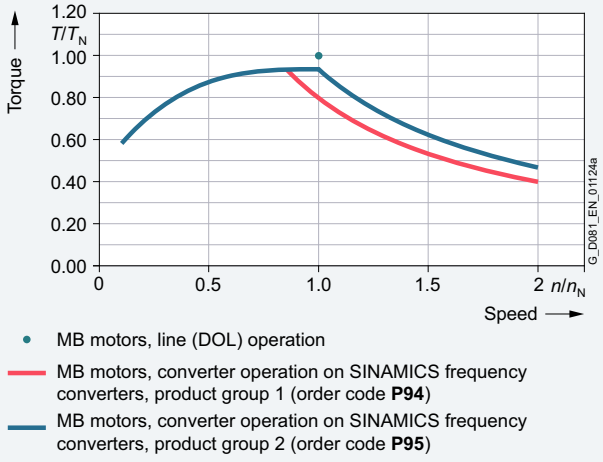
Zone 2: II 3G Ex ec IIC T3 Gc

Converter operation

General information

All the data listed in Catalog D 50.1 is applicable for a 50 Hz line supply. For converter operation, the reduced torques for constant torque and drives for fans, pumps and compressors must be observed due to the harmonic content of the supply.

This data is available in the SPC:
configurator.innomotics.com



Higher noise levels must be expected than for 50 Hz line operation for motors operating with converters due to the harmonic content of the supply. The frequency limit of MB motors, frame sizes 71 to 180, is f_{max}=100 Hz.

Maximum voltage stress on the motor winding in converter operation

Motor frame sizes 71 to 180:

- $\hat{U}_{phase\text{-}phase}$: ≤ 1500 V (3000 V peak-peak values $V_{pk/pk}$)
- $\hat{U}_{phase\text{-}ground}$: ≤ 1100 V (2200 V peak-peak values $V_{pk/pk}$)

The following generally applies to Siemens converters (SINAMICS):

- U_{line}: = 480 V ± 10 % (BLM = Basic Line Module; DFE = Direct Front End)
- U_{line}: ≤ 480 V ± 10 % (ALM = Active Line Module; AFE = Active Front End); U_{dc} <720 V

Additional configuration notes are documented in the declaration of compliance with the order 2.1 and in the EU type-examination certificates.

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Explosion-protected motors

Order administration for explosion-protected motors (MB motors) for converter operation

PTC thermistor

For converter operation, MB motors must always be equipped with PTC thermistors (order code **M10**). Certified tripping units are required for this purpose.

2

Selection of the converters

SINAMICS converters are categorized into 4 product groups. Each product group is a data set with motor operating data each assigned to one converter. The converter type is stamped on the additional rating plate.

- **Product group 1** – Order code **P94**
  Design for converter operation in the basic version with operating data
- **Product group 2** – Order code **P95**
  Design for converter operation in the basic version with operating data SINAMICS S120 (ALM)
- **Product group 3** – Order code **P96**
  Design for converter operation in the basic version with operating data SINAMICS G120D PM250
- **Product group 4** – Order code **P97**
  Design for converter operation with performance data at the PWM converter

Note:
To comply with the admissible temperature class 130 (B), the power must be reduced (derating) for converter operation in Zones 2 and 22! The operating data for SINAMICS converters from Siemens are on the rating plate – the torque is reduced when compared to line operation. The motor operating data for converter operation is available in the SPC. For converter operation, voltage codes/order codes are only admissible with one voltage only. When used in hazardous zones, a certified tripping unit is recommended for motors operated with converters, equipment Category 3 (Zones 2 and 22). Alternatively, an external, certified tripping unit can be used.

Rating plate

The operating data for line operation is specified on the rating plate – on an additional rating plate, according to the selected product, 4 rated operating points are possible in the following variants:

- 50 Hz field weakening range with rated operating points 5, 25, 50 and 100 Hz
- 60 Hz field weakening range with rated operating points 5, 30, 60 and 100 Hz
- 87 Hz characteristic with rated operating points 5, 25, 87 and 100 Hz; 87 Hz at 400 V△

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Helical geared motors

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3

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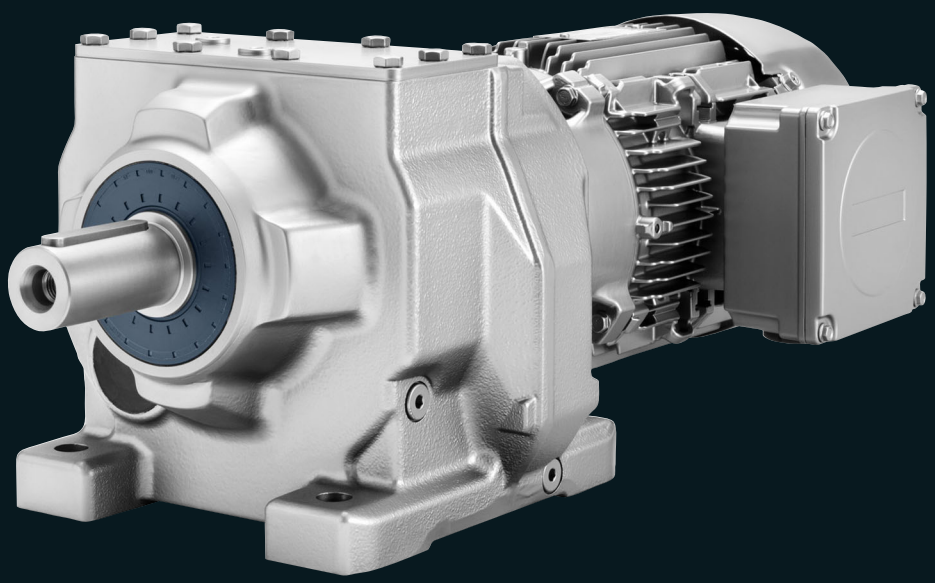

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3 Helical geared motors

3/2 Orientation

3/3 Geared motors up to 55 kW

3/3 Selection and ordering data

3/68 Transmission ratios and torques

3/68 Selection and ordering data

3/81 Transmission ratios and torques for high speed

3/81 Selection and ordering data

3/85 Transmission ratios and torques for very low speed

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3/100 Helical geared motors Z./D.19
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3/128 Helical geared motors Z./D.109
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3/138 Helical geared motors Z./D.149
3/142 Helical geared motors Z./D.169
3/146 Helical geared motors Z./D.189
3/148 Helical geared motors E.39
3/151 Helical geared motors E.49
3/154 Helical geared motors E.69
3/157 Helical geared motors E.89
3/160 Helical geared motors E.109
3/163 Helical geared motors E.129
3/166 Helical geared motors E.149
3/169 Cooling tower geared motors ZKF
3/175 Cooling tower geared motors EKF
3/179 Helical tandem geared motors
3/181 Inner contour of the flange-mounted design

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Helical geared motors

Helical geared motors 2- or 3-stages
Helical tandem geared motors 4 to 6-stage for especially low output speeds

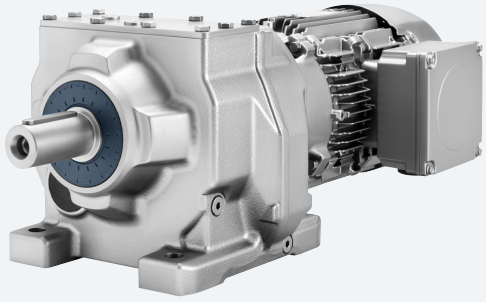

Fig. 3-1 Helical geared motor Z/D

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power [1] P_1 kW	Supported motors
_ Foot-mounted design _ Flange-mounted design with or without VLplus and XLplus reinforced bearing systems _ Design with integrated housing flange _ Combined foot/flange-mounted design	Solid shaft design with and without feather key	Z19 ... Z189 D19 ... D189	100 ... 19000 100 ... 19000	3.4 ... 62.48 36 ... 328	55	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
_ Cooling tower design		ZK89 ... ZK189	1060 ... 19000	3.85 ... 62.48		
_ Tandem geared motors		D29-Z19 ... D189-D69	140 ... 19000	325 ... 27816	7.5	

Helical geared motors 1-stage for high output speeds

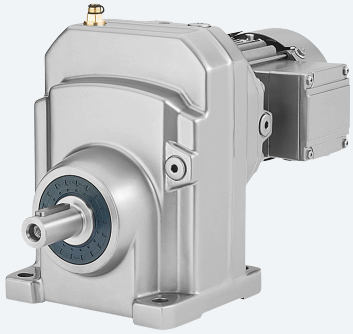

Fig. 3-2 Helical geared motor E

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power [1] P_1 kW	Supported motors
_ Foot-mounted design _ Flange-mounted design _ Design with integrated housing flange	Solid shaft design with and without feather key	E39 ... E149	30 ... 1490	1.29 ... 9.79	55	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors
_ Cooling tower design		EK89 ... EK149	280 ... 1490	1.3 ... 9.79		_ VSD10 line motors _ Explosion-protected motors

[1] With 4-pole motor up to 55 kW for a 50 Hz line frequency in integral type of construction. An adapter must be mounted for a motor power > 55 kW.

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.09	**D.69-LE63MEB6**							
	2.7	315	328.49	11400	1.9	27	**2KJ3206- ■ BD21- ■ ■ S1 -Z**	**P01**
	D.59-LE63MEB6							
	2.9	295	307.02	7910	1.5	22	**2KJ3205- ■ BD21- ■ ■ S1 -Z**	**P01**
	3.3	260	272.99	7970	1.7	22	**2KJ3205- ■ BD21- ■ ■ R1 -Z**	**P01**
	3.7	230	239.70	8020	2	22	**2KJ3205- ■ BD21- ■ ■ Q1 -Z**	**P01**
	D.49-LE63MEB6							
	3.2	270	280.89	6000	1.2	20	**2KJ3204- ■ BD21- ■ ■ S1 -Z**	**P01**
	3.6	240	249.76	6060	1.3	20	**2KJ3204- ■ BD21- ■ ■ R1 -Z**	**P01**
	4.1	210	219.30	6120	1.5	20	**2KJ3204- ■ BD21- ■ ■ Q1 -Z**	**P01**
	4.5	191	199.36	6160	1.7	20	**2KJ3204- ■ BD21- ■ ■ P1 -Z**	**P01**
	D.49-LE63MCA4							
	5.0	171	280.89	6200	1.9	19	**2KJ3204- ■ BB21- ■ ■ S1 -Z**	**–**
	5.6	152	249.76	6240	2.1	19	**2KJ3204- ■ BB21- ■ ■ R1 -Z**	**–**
	D.39-LE63MEB6							
	3.8	225	235.29	3740	0.89	10	**2KJ3203- ■ BD21- ■ ■ R1 -Z**	**P01**
	4.3	200	208.69	4370	1	10	**2KJ3203- ■ BD21- ■ ■ Q1 -Z**	**P01**
	4.9	174	181.07	5010	1.2	10	**2KJ3203- ■ BD21- ■ ■ P1 -Z**	**P01**
	5.4	158	164.61	5410	1.3	10	**2KJ3203- ■ BD21- ■ ■ N1 -Z**	**P01**
	D.39-LE63MCA4							
	6.0	143	235.29	5790	1.4	10	**2KJ3203- ■ BB21- ■ ■ R1 -Z**	**–**
	6.8	127	208.69	5800	1.6	10	**2KJ3203- ■ BB21- ■ ■ Q1 -Z**	**–**
	7.8	110	181.07	5800	1.8	10	**2KJ3203- ■ BB21- ■ ■ P1 -Z**	**–**
	8.6	100	164.61	5800	2	10	**2KJ3203- ■ BB21- ■ ■ N1 -Z**	**–**
	D.29-LE63MEB6							
	5.3	161	167.63	3150	0.87	8	**2KJ3202- ■ BD21- ■ ■ N1 -Z**	**P01**
	5.9	146	152.39	3550	0.96	8	**2KJ3202- ■ BD21- ■ ■ M1 -Z**	**P01**
	D.29-LE63MCA4							
	6.5	133	217.89	3890	1.1	8	**2KJ3202- ■ BB21- ■ ■ Q1 -Z**	**–**
	7.3	118	192.93	4060	1.2	8	**2KJ3202- ■ BB21- ■ ■ P1 -Z**	**–**
	8.4	102	167.63	4060	1.4	8	**2KJ3202- ■ BB21- ■ ■ N1 -Z**	**–**
	9.3	93	152.39	4060	1.5	8	**2KJ3202- ■ BB21- ■ ■ M1 -Z**	**–**
	11	79	129.68	4060	1.8	8	**2KJ3202- ■ BB21- ■ ■ L1 -Z**	**–**
	12	72	117.89	4060	1.9	8	**2KJ3202- ■ BB21- ■ ■ K1 -Z**	**–**
	14	63	102.79	4060	2.2	8	**2KJ3202- ■ BB21- ■ ■ J1 -Z**	**–**
	15	56	92.01	4060	2.5	8	**2KJ3202- ■ BB21- ■ ■ H1 -Z**	**–**
	17	50	81.71	4060	2.8	8	**2KJ3202- ■ BB21- ■ ■ G1 -Z**	**–**
	19	46	75.42	4060	3.0	8	**2KJ3202- ■ BB21- ■ ■ F1 -Z**	**–**
	22	40	65.52	4060	3.5	8	**2KJ3202- ■ BB21- ■ ■ E1 -Z**	**–**
	25	35	56.93	4060	4.0	8	**2KJ3202- ■ BB21- ■ ■ D1 -Z**	**–**
	27	31	51.40	4060	4.5	8	**2KJ3202- ■ BB21- ■ ■ C1 -Z**	**–**
	29	30	48.37	4060	4.7	8	**2KJ3202- ■ BB21- ■ ■ B1 -Z**	**–**
	Z.29-LE63MCA4							
	34	25	41.40	4060	5.5	8	**2KJ3102- ■ BB21- ■ ■ A2 -Z**	**–**
	38	22	36.72	4060	6.3	8	**2KJ3102- ■ BB21- ■ ■ X1 -Z**	**–**
	44	19	31.86	4060	7.2	8	**2KJ3102- ■ BB21- ■ ■ W1 -Z**	**–**
	49	18	28.96	4060	7.9	8	**2KJ3102- ■ BB21- ■ ■ V1 -Z**	**–**
	57	15	24.84	4060	9.2	8	**2KJ3102- ■ BB21- ■ ■ U1 -Z**	**–**
	62	14	22.58	4010	10	8	**2KJ3102- ■ BB21- ■ ■ T1 -Z**	**–**
	71	12	19.80	3840	12	8	**2KJ3102- ■ BB21- ■ ■ S1 -Z**	**–**
	80	11	17.67	3700	13	8	**2KJ3102- ■ BB21- ■ ■ R1 -Z**	**–**
	90	9.6	15.75	3570	15	8	**2KJ3102- ■ BB21- ■ ■ Q1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code -Z with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.09	**Z.29-LE63MCA4**							
	97	8.9	14.54	3480	14	8	**2KJ3102- ■ BB21- ■ ■ P1 -Z**	**–**
	D.19-LE63MEB6							
	6.9	124	129.30	1160	0.81	7	**2KJ3201- ■ BD21- ■ ■ M1 -Z**	**P01**
	D.19-LE63MCA4							
	7.6	113	184.86	1390	0.89	7	**2KJ3201- ■ BB21- ■ ■ Q1 -Z**	**–**
	8.6	100	163.69	1650	1.0	7	**2KJ3201- ■ BB21- ■ ■ P1 -Z**	**–**
	9.9	87	142.23	1920	1.2	7	**2KJ3201- ■ BB21- ■ ■ N1 -Z**	**–**
	11	79	129.30	2080	1.3	7	**2KJ3201- ■ BB21- ■ ■ M1 -Z**	**–**
	13	67	110.02	2300	1.5	7	**2KJ3201- ■ BB21- ■ ■ L1 -Z**	**–**
	14	61	100.02	2330	1.6	7	**2KJ3201- ■ BB21- ■ ■ K1 -Z**	**–**
	16	53	87.21	2370	1.9	7	**2KJ3201- ■ BB21- ■ ■ J1 -Z**	**–**
	18	48	78.07	2390	2.1	7	**2KJ3201- ■ BB21- ■ ■ H1 -Z**	**–**
	20	42	69.32	2420	2.4	7	**2KJ3201- ■ BB21- ■ ■ G1 -Z**	**–**
	22	39	63.99	2440	2.6	7	**2KJ3201- ■ BB21- ■ ■ F1 -Z**	**–**
	25	34	55.59	2460	3.0	7	**2KJ3201- ■ BB21- ■ ■ E1 -Z**	**–**
	29	29	48.30	2490	3.4	7	**2KJ3201- ■ BB21- ■ ■ D1 -Z**	**–**
	32	27	43.61	2500	3.8	7	**2KJ3201- ■ BB21- ■ ■ C1 -Z**	**–**
	34	25	41.04	2510	4.0	7	**2KJ3201- ■ BB21- ■ ■ B1 -Z**	**–**
	Z.19-LE63MCA4							
	40	21	34.97	2530	4.7	6	**2KJ3101- ■ BB21- ■ ■ W1 -Z**	**–**
	46	19	30.97	2540	5.3	6	**2KJ3101- ■ BB21- ■ ■ V1 -Z**	**–**
	52	16	26.91	2550	6.1	6	**2KJ3101- ■ BB21- ■ ■ U1 -Z**	**–**
	58	15	24.46	2560	6.7	6	**2KJ3101- ■ BB21- ■ ■ T1 -Z**	**–**
	68	13	20.82	2570	7.9	6	**2KJ3101- ■ BB21- ■ ■ S1 -Z**	**–**
	75	12	18.92	2520	8.7	6	**2KJ3101- ■ BB21- ■ ■ R1 -Z**	**–**
	85	10	16.50	2420	9.8	6	**2KJ3101- ■ BB21- ■ ■ Q1 -Z**	**–**
	95	9.0	14.77	2340	11	6	**2KJ3101- ■ BB21- ■ ■ P1 -Z**	**–**
	107	8.0	13.12	2250	11	6	**2KJ3101- ■ BB21- ■ ■ N1 -Z**	**–**
	116	7.4	12.11	2190	12	6	**2KJ3101- ■ BB21- ■ ■ M1 -Z**	**–**
	134	6.4	10.52	2100	13	6	**2KJ3101- ■ BB21- ■ ■ L1 -Z**	**–**
	154	5.6	9.14	2000	14	6	**2KJ3101- ■ BB21- ■ ■ K1 -Z**	**–**
	171	5.0	8.25	1940	15	6	**2KJ3101- ■ BB21- ■ ■ J1 -Z**	**–**
	182	4.7	7.76	1900	15	6	**2KJ3101- ■ BB21- ■ ■ H1 -Z**	**–**
	226	3.8	6.25	1760	15	6	**2KJ3101- ■ BB21- ■ ■ F1 -Z**	**–**
0.12	**D.59-LE63ZMH4P**							
	4.5	250	307.02	7990	1.8	24	**2KJ3205- ■ BD23- ■ ■ S1 -Z**	**–**
	5.1	225	272.99	8030	2.0	24	**2KJ3205- ■ BD23- ■ ■ R1 -Z**	**–**
	D.49-LE63ZMH4P							
	4.9	230	280.89	6080	1.4	21	**2KJ3204- ■ BD23- ■ ■ S1 -Z**	**–**
	5.6	205	249.76	6140	1.6	21	**2KJ3204- ■ BD23- ■ ■ R1 -Z**	**–**
	6.3	181	219.30	6180	1.8	21	**2KJ3204- ■ BD23- ■ ■ Q1 -Z**	**–**
	7.0	164	199.36	6220	1.9	21	**2KJ3204- ■ BD23- ■ ■ P1 -Z**	**–**
	D.39-LE63ZMH4P							
	5.9	194	235.29	4520	1.0	12	**2KJ3203- ■ BD23- ■ ■ R1 -Z**	**–**
	6.7	172	208.69	5060	1.2	12	**2KJ3203- ■ BD23- ■ ■ Q1 -Z**	**–**
	7.7	149	181.07	5640	1.3	12	**2KJ3203- ■ BD23- ■ ■ P1 -Z**	**–**
	8.4	136	164.61	5800	1.5	12	**2KJ3203- ■ BD23- ■ ■ N1 -Z**	**–**
	9.8	116	141.17	5800	1.7	12	**2KJ3203- ■ BD23- ■ ■ M1 -Z**	**–**
	11	106	128.34	5800	1.9	12	**2KJ3203- ■ BD23- ■ ■ L1 -Z**	**–**
	12	93	112.53	5800	2.2	12	**2KJ3203- ■ BD23- ■ ■ K1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.12	**D.29-LE63ZMH4P**							
	7.2	159	192.93	3200	0.88	10	**2KJ3202- ■ BD23- ■ ■ P1 -Z**	–
	8.3	138	167.63	3760	1.0	10	**2KJ3202- ■ BD23- ■ ■ N1 -Z**	–
	9.1	126	152.39	4060	1.1	10	**2KJ3202- ■ BD23- ■ ■ M1 -Z**	–
	11	107	129.68	4060	1.3	10	**2KJ3202- ■ BD23- ■ ■ L1 -Z**	–
	12	97	117.89	4060	1.4	10	**2KJ3202- ■ BD23- ■ ■ K1 -Z**	–
	14	85	102.79	4060	1.7	10	**2KJ3202- ■ BD23- ■ ■ J1 -Z**	–
	15	76	92.01	4060	1.8	10	**2KJ3202- ■ BD23- ■ ■ H1 -Z**	–
	17	67	81.71	4060	2.1	10	**2KJ3202- ■ BD23- ■ ■ G1 -Z**	–
	18	62	75.42	4060	2.3	10	**2KJ3202- ■ BD23- ■ ■ F1 -Z**	–
	21	54	65.52	4060	2.6	10	**2KJ3202- ■ BD23- ■ ■ E1 -Z**	–
	24	47	56.93	4060	3	10	**2KJ3202- ■ BD23- ■ ■ D1 -Z**	–
	27	42	51.40	4060	3.3	10	**2KJ3202- ■ BD23- ■ ■ C1 -Z**	–
	29	40	48.37	4060	3.5	10	**2KJ3202- ■ BD23- ■ ■ B1 -Z**	–
	Z.29-LE63ZMH4P							
	34	34	41.40	4060	4.1	10	**2KJ3102- ■ BD23- ■ ■ A2 -Z**	–
	38	30	36.72	4060	4.6	10	**2KJ3102- ■ BD23- ■ ■ X1 -Z**	–
	44	26	31.86	4060	5.3	10	**2KJ3102- ■ BD23- ■ ■ W1 -Z**	–
	48	24	28.96	4060	5.9	10	**2KJ3102- ■ BD23- ■ ■ V1 -Z**	–
	56	20	24.84	4060	6.8	10	**2KJ3102- ■ BD23- ■ ■ U1 -Z**	–
	62	19	22.58	4000	7.5	10	**2KJ3102- ■ BD23- ■ ■ T1 -Z**	–
	70	16	19.80	3840	8.6	10	**2KJ3102- ■ BD23- ■ ■ S1 -Z**	–
	79	15	17.67	3700	9.6	10	**2KJ3102- ■ BD23- ■ ■ R1 -Z**	–
	88	13	15.75	3570	11	10	**2KJ3102- ■ BD23- ■ ■ Q1 -Z**	–
	96	12	14.54	3480	10	10	**2KJ3102- ■ BD23- ■ ■ P1 -Z**	–
	109	10	12.73	3340	13	10	**2KJ3102- ■ BD23- ■ ■ N1 -Z**	–
	125	9.2	11.16	3190	15	10	**2KJ3102- ■ BD23- ■ ■ M1 -Z**	–
	201	5.7	6.92	2730	13	10	**2KJ3102- ■ BD23- ■ ■ G1 -Z**	–
	D.19-LE63ZMH4P							
	9.8	117	142.23	1310	0.85	9	**2KJ3201- ■ BD23- ■ ■ N1 -Z**	–
	11	107	129.30	1510	0.94	9	**2KJ3201- ■ BD23- ■ ■ M1 -Z**	–
	13	91	110.02	1840	1.1	9	**2KJ3201- ■ BD23- ■ ■ L1 -Z**	–
	14	82	100.02	2020	1.2	9	**2KJ3201- ■ BD23- ■ ■ K1 -Z**	–
	16	72	87.21	2230	1.4	9	**2KJ3201- ■ BD23- ■ ■ J1 -Z**	–
	18	64	78.07	2310	1.6	9	**2KJ3201- ■ BD23- ■ ■ H1 -Z**	–
	20	57	69.32	2350	1.7	9	**2KJ3201- ■ BD23- ■ ■ G1 -Z**	–
	22	53	63.99	2370	1.9	9	**2KJ3201- ■ BD23- ■ ■ F1 -Z**	–
	25	46	55.59	2400	2.2	9	**2KJ3201- ■ BD23- ■ ■ E1 -Z**	–
	29	40	48.30	2430	2.5	9	**2KJ3201- ■ BD23- ■ ■ D1 -Z**	–
	32	36	43.61	2450	2.8	9	**2KJ3201- ■ BD23- ■ ■ C1 -Z**	–
	34	34	41.04	2460	3.0	9	**2KJ3201- ■ BD23- ■ ■ B1 -Z**	–
	Z.19-LE63ZMH4P							
	40	29	34.97	2490	3.5	8	**2KJ3101- ■ BD23- ■ ■ W1 -Z**	–
	45	26	30.97	2500	3.9	8	**2KJ3101- ■ BD23- ■ ■ V1 -Z**	–
	52	22	26.91	2520	4.5	8	**2KJ3101- ■ BD23- ■ ■ U1 -Z**	–
	57	20	24.46	2530	5.0	8	**2KJ3101- ■ BD23- ■ ■ T1 -Z**	–
	67	17	20.82	2550	5.8	8	**2KJ3101- ■ BD23- ■ ■ S1 -Z**	–
	73	16	18.92	2510	6.4	8	**2KJ3101- ■ BD23- ■ ■ R1 -Z**	–
	84	14	16.50	2400	7.3	8	**2KJ3101- ■ BD23- ■ ■ Q1 -Z**	–
	94	12	14.77	2330	7.8	8	**2KJ3101- ■ BD23- ■ ■ P1 -Z**	–
	106	11	13.12	2240	8.4	8	**2KJ3101- ■ BD23- ■ ■ N1 -Z**	–
	115	10	12.11	2180	8.8	8	**2KJ3101- ■ BD23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.12	**Z.19-LE63ZMH4P**							
	132	8.7	10.52	2090	9.6	8	**2KJ3101- ■ BD23- ■ ■ L1 -Z**	–
	152	7.5	9.14	2000	10	8	**2KJ3101- ■ BD23- ■ ■ K1 -Z**	–
	168	6.8	8.25	1940	11	8	**2KJ3101- ■ BD23- ■ ■ J1 -Z**	–
	179	6.4	7.76	1900	11	8	**2KJ3101- ■ BD23- ■ ■ H1 -Z**	–
	205	5.6	6.77	1820	12	8	**2KJ3101- ■ BD23- ■ ■ G1 -Z**	–
	222	5.2	6.25	1750	11	8	**2KJ3101- ■ BD23- ■ ■ F1 -Z**	–
	256	4.5	5.43	1680	12	8	**2KJ3101- ■ BD23- ■ ■ E1 -Z**	–
	295	3.9	4.71	1600	13	8	**2KJ3101- ■ BD23- ■ ■ D1 -Z**	–
	326	3.5	4.26	1550	13	8	**2KJ3101- ■ BD23- ■ ■ C1 -Z**	–
	347	3.3	4.01	1520	14	8	**2KJ3101- ■ BD23- ■ ■ B1 -Z**	–
	E.39-LE63ZMH4P							
	151	7.6	9.22	3000	3.9	11	**2KJ3001- ■ BD23- ■ ■ S1 -Z**	–
0.18	**D.79-LE71ZMK6P**							
	2.6	645	330.23	13600	1.3	39	**2KJ3207- ■ CC23- ■ ■ S1 -Z**	P01
	2.9	590	300.21	13700	1.4	39	**2KJ3207- ■ CC23- ■ ■ R1 -Z**	P01
	3.4	500	255.33	13800	1.7	39	**2KJ3207- ■ CC23- ■ ■ Q1 -Z**	P01
	3.8	455	232.12	13900	1.8	39	**2KJ3207- ■ CC23- ■ ■ P1 -Z**	P01
	D.69-LE71ZMK6P							
	2.7	645	328.49	10900	0.93	29	**2KJ3206- ■ CC23- ■ ■ S1 -Z**	P01
	3.0	570	292.08	11000	1.0	29	**2KJ3206- ■ CC23- ■ ■ R1 -Z**	P01
	3.4	500	256.46	11100	1.2	29	**2KJ3206- ■ CC23- ■ ■ Q1 -Z**	P01
	3.8	455	233.14	11200	1.3	29	**2KJ3206- ■ CC23- ■ ■ P1 -Z**	P01
	D.69-LE63ZMK4P							
	4.2	405	328.49	11300	1.5	28	**2KJ3206- ■ BE23- ■ ■ S1 -Z**	–
	4.7	360	292.08	11300	1.7	28	**2KJ3206- ■ BE23- ■ ■ R1 -Z**	–
	5.4	315	256.46	11400	1.9	28	**2KJ3206- ■ BE23- ■ ■ Q1 -Z**	–
	5.9	285	233.14	11400	2.1	28	**2KJ3206- ■ BE23- ■ ■ P1 -Z**	–
	D.59-LE71ZMK6P							
	3.2	535	272.99	6580	0.84	24	**2KJ3205- ■ CC23- ■ ■ R1 -Z**	P01
	3.7	470	239.70	7630	0.96	24	**2KJ3205- ■ CC23- ■ ■ Q1 -Z**	P01
	4	425	217.91	7700	1.1	24	**2KJ3205- ■ CC23- ■ ■ P1 -Z**	P01
	D.59-LE63ZMK4P							
	4.5	380	307.02	7780	1.2	24	**2KJ3205- ■ BE23- ■ ■ S1 -Z**	–
	5.1	335	272.99	7850	1.3	24	**2KJ3205- ■ BE23- ■ ■ R1 -Z**	–
	5.8	295	239.70	7910	1.5	24	**2KJ3205- ■ BE23- ■ ■ Q1 -Z**	–
	6.4	270	217.91	7950	1.7	24	**2KJ3205- ■ BE23- ■ ■ P1 -Z**	–
	7.4	230	186.43	8020	1.9	24	**2KJ3205- ■ BE23- ■ ■ N1 -Z**	–
	8.2	210	169.48	8050	2.1	24	**2KJ3205- ■ BE23- ■ ■ M1 -Z**	–
	D.49-LE71ZMK6P							
	4.4	390	199.36	4010	0.82	22	**2KJ3204- ■ CC23- ■ ■ P1 -Z**	P01
	D.49-LE63ZMK4P							
	4.9	345	280.89	5150	0.92	21	**2KJ3204- ■ BE23- ■ ■ S1 -Z**	–
	5.5	310	249.76	5920	1	21	**2KJ3204- ■ BE23- ■ ■ R1 -Z**	–
	6.3	270	219.30	6000	1.2	21	**2KJ3204- ■ BE23- ■ ■ Q1 -Z**	–
	6.9	245	199.36	6050	1.3	21	**2KJ3204- ■ BE23- ■ ■ P1 -Z**	–
	8.1	210	170.57	6120	1.5	21	**2KJ3204- ■ BE23- ■ ■ N1 -Z**	–
	8.9	192	155.06	6160	1.7	21	**2KJ3204- ■ BE23- ■ ■ M1 -Z**	–
	10	170	137.06	6210	1.9	21	**2KJ3204- ■ BE23- ■ ■ L1 -Z**	–
	11	155	124.60	6240	2.1	21	**2KJ3204- ■ BE23- ■ ■ K1 -Z**	–
	D.39-LE63ZMK4P							
	7.6	225	181.07	3740	0.89	12	**2KJ3203- ■ BE23- ■ ■ P1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.18	**D.39-LE63ZMK4P**							
	8.4	200	164.61	4370	0.98	12	**2KJ3203- ■ BE23- ■ ■ N1 -Z**	–
	9.8	175	141.17	4990	1.1	12	**2KJ3203- ■ BE23- ■ ■ M1 -Z**	–
	11	159	128.34	5390	1.3	12	**2KJ3203- ■ BE23- ■ ■ L1 -Z**	–
	12	140	112.53	5800	1.4	12	**2KJ3203- ■ BE23- ■ ■ K1 -Z**	–
	14	125	100.44	5800	1.6	12	**2KJ3203- ■ BE23- ■ ■ J1 -Z**	–
	15	111	89.51	5800	1.8	12	**2KJ3203- ■ BE23- ■ ■ H1 -Z**	–
	17	103	82.63	5800	2	12	**2KJ3203- ■ BE23- ■ ■ G1 -Z**	–
	19	90	72.34	5800	2.2	12	**2KJ3203- ■ BE23- ■ ■ F1 -Z**	–
	D.29-LE63ZMK4P							
	11	161	129.68	3150	0.87	10	**2KJ3202- ■ BE23- ■ ■ L1 -Z**	–
	12	146	117.89	3550	0.96	10	**2KJ3202- ■ BE23- ■ ■ K1 -Z**	–
	13	128	102.79	4030	1.1	10	**2KJ3202- ■ BE23- ■ ■ J1 -Z**	–
	15	114	92.01	4060	1.2	10	**2KJ3202- ■ BE23- ■ ■ H1 -Z**	–
	17	101	81.71	4060	1.4	10	**2KJ3202- ■ BE23- ■ ■ G1 -Z**	–
	18	94	75.42	4060	1.5	10	**2KJ3202- ■ BE23- ■ ■ F1 -Z**	–
	21	81	65.52	4060	1.7	10	**2KJ3202- ■ BE23- ■ ■ E1 -Z**	–
	24	71	56.93	4060	2	10	**2KJ3202- ■ BE23- ■ ■ D1 -Z**	–
	27	64	51.40	4060	2.2	10	**2KJ3202- ■ BE23- ■ ■ C1 -Z**	–
	29	60	48.37	4060	2.3	10	**2KJ3202- ■ BE23- ■ ■ B1 -Z**	–
	Z.29-LE63ZMK4P							
	33	51	41.40	4060	2.7	10	**2KJ3102- ■ BE23- ■ ■ A2 -Z**	–
	38	46	36.72	4060	3.1	10	**2KJ3102- ■ BE23- ■ ■ X1 -Z**	–
	43	40	31.86	4060	3.5	10	**2KJ3102- ■ BE23- ■ ■ W1 -Z**	–
	48	36	28.96	4060	3.9	10	**2KJ3102- ■ BE23- ■ ■ V1 -Z**	–
	56	31	24.84	4060	4.5	10	**2KJ3102- ■ BE23- ■ ■ U1 -Z**	–
	61	28	22.58	3950	5	10	**2KJ3102- ■ BE23- ■ ■ T1 -Z**	–
	70	25	19.80	3790	5.7	10	**2KJ3102- ■ BE23- ■ ■ S1 -Z**	–
	78	22	17.67	3660	6.4	10	**2KJ3102- ■ BE23- ■ ■ R1 -Z**	–
	88	20	15.75	3530	7.2	10	**2KJ3102- ■ BE23- ■ ■ Q1 -Z**	–
	95	18	14.54	3450	6.6	10	**2KJ3102- ■ BE23- ■ ■ P1 -Z**	–
	109	16	12.73	3310	8.9	10	**2KJ3102- ■ BE23- ■ ■ N1 -Z**	–
	124	14	11.16	3170	10	10	**2KJ3102- ■ BE23- ■ ■ M1 -Z**	–
	137	13	10.12	3070	11	10	**2KJ3102- ■ BE23- ■ ■ L1 -Z**	–
	145	12	9.53	3020	12	10	**2KJ3102- ■ BE23- ■ ■ K1 -Z**	–
	165	10	8.40	2900	13	10	**2KJ3102- ■ BE23- ■ ■ J1 -Z**	–
	190	9	7.29	2770	14	10	**2KJ3102- ■ BE23- ■ ■ H1 -Z**	–
	200	8.6	6.92	2710	8.7	10	**2KJ3102- ■ BE23- ■ ■ G1 -Z**	–
	229	7.5	6.06	2600	13	10	**2KJ3102- ■ BE23- ■ ■ F1 -Z**	–
	261	6.6	5.31	2490	14	10	**2KJ3102- ■ BE23- ■ ■ E1 -Z**	–
	287	6	4.82	2410	14	10	**2KJ3102- ■ BE23- ■ ■ D1 -Z**	–
	305	5.6	4.54	2370	15	10	**2KJ3102- ■ BE23- ■ ■ C1 -Z**	–
	346	5	4.00	2270	15	10	**2KJ3102- ■ BE23- ■ ■ B1 -Z**	–
	Z.29-LE63MEB2P							
	161	11	17.67	2920	13	8	**2KJ3102- ■ BC23- ■ ■ R1 -Z**	**P00**
	181	9.5	15.75	2810	15	8	**2KJ3102- ■ BC23- ■ ■ Q1 -Z**	**P00**
	196	8.8	14.54	2740	14	8	**2KJ3102- ■ BC23- ■ ■ P1 -Z**	**P00**
	D.19-LE63ZMK4P							
	14	124	100.02	1160	0.81	9	**2KJ3201- ■ BE23- ■ ■ K1 -Z**	–
	16	108	87.21	1490	0.92	9	**2KJ3201- ■ BE23- ■ ■ J1 -Z**	–
	18	97	78.07	1710	1.0	9	**2KJ3201- ■ BE23- ■ ■ H1 -Z**	–
	20	86	69.32	1940	1.2	9	**2KJ3201- ■ BE23- ■ ■ G1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.18	**D.19-LE63ZMK4P**							
	22	79	63.99	2080	1.3	9	**2KJ3201- ■ BE23- ■ ■ F1 -Z**	–
	25	69	55.59	2290	1.4	9	**2KJ3201- ■ BE23- ■ ■ E1 -Z**	–
	29	60	48.30	2330	1.7	9	**2KJ3201- ■ BE23- ■ ■ D1 -Z**	–
	32	54	43.61	2360	1.8	9	**2KJ3201- ■ BE23- ■ ■ C1 -Z**	–
	34	51	41.04	2380	2.0	9	**2KJ3201- ■ BE23- ■ ■ B1 -Z**	–
	Z.19-LE63ZMK4P							
	40	43	34.97	2420	2.3	8	**2KJ3101- ■ BE23- ■ ■ W1 -Z**	–
	45	38	30.97	2440	2.6	8	**2KJ3101- ■ BE23- ■ ■ V1 -Z**	–
	51	33	26.91	2470	3	8	**2KJ3101- ■ BE23- ■ ■ U1 -Z**	–
	57	30	24.46	2480	3.3	8	**2KJ3101- ■ BE23- ■ ■ T1 -Z**	–
	67	26	20.82	2500	3.9	8	**2KJ3101- ■ BE23- ■ ■ S1 -Z**	–
	73	24	18.92	2450	4.3	8	**2KJ3101- ■ BE23- ■ ■ R1 -Z**	–
	84	20	16.50	2360	4.8	8	**2KJ3101- ■ BE23- ■ ■ Q1 -Z**	–
	94	18	14.77	2290	5.2	8	**2KJ3101- ■ BE23- ■ ■ P1 -Z**	–
	106	16	13.12	2210	5.6	8	**2KJ3101- ■ BE23- ■ ■ N1 -Z**	–
	114	15	12.11	2150	5.9	8	**2KJ3101- ■ BE23- ■ ■ M1 -Z**	–
	132	13	10.52	2060	6.4	8	**2KJ3101- ■ BE23- ■ ■ L1 -Z**	–
	152	11	9.14	1980	6.9	8	**2KJ3101- ■ BE23- ■ ■ K1 -Z**	–
	168	10	8.25	1920	7.2	8	**2KJ3101- ■ BE23- ■ ■ J1 -Z**	–
	178	9.6	7.76	1880	7.6	8	**2KJ3101- ■ BE23- ■ ■ H1 -Z**	–
	205	8.4	6.77	1800	8.1	8	**2KJ3101- ■ BE23- ■ ■ G1 -Z**	–
	222	7.8	6.25	1730	7.2	8	**2KJ3101- ■ BE23- ■ ■ F1 -Z**	–
	255	6.7	5.43	1660	7.9	8	**2KJ3101- ■ BE23- ■ ■ E1 -Z**	–
	294	5.8	4.71	1590	8.4	8	**2KJ3101- ■ BE23- ■ ■ D1 -Z**	–
	325	5.3	4.26	1540	8.9	8	**2KJ3101- ■ BE23- ■ ■ C1 -Z**	–
	345	5	4.01	1510	9.2	8	**2KJ3101- ■ BE23- ■ ■ B1 -Z**	–
	Z.19-LE63MEB2P							
	151	11	18.92	1980	8.8	7	**2KJ3101- ■ BC23- ■ ■ R1 -Z**	**P00**
	173	10	16.50	1900	9.9	7	**2KJ3101- ■ BC23- ■ ■ Q1 -Z**	**P00**
	193	8.9	14.77	1830	11	7	**2KJ3101- ■ BC23- ■ ■ P1 -Z**	**P00**
	217	7.9	13.12	1770	12	7	**2KJ3101- ■ BC23- ■ ■ N1 -Z**	**P00**
	235	7.3	12.11	1720	12	7	**2KJ3101- ■ BC23- ■ ■ M1 -Z**	**P00**
	271	6.3	10.52	1650	13	7	**2KJ3101- ■ BC23- ■ ■ L1 -Z**	**P00**
	312	5.5	9.14	1580	14	7	**2KJ3101- ■ BC23- ■ ■ K1 -Z**	**P00**
	345	5.0	8.25	1530	15	7	**2KJ3101- ■ BC23- ■ ■ J1 -Z**	**P00**
	456	3.8	6.25	1380	15	7	**2KJ3101- ■ BC23- ■ ■ F1 -Z**	**P00**
	E.39-LE63ZMK4P							
	150	11	9.22	3000	2.6	12	**2KJ3001- ■ BE23- ■ ■ S1 -Z**	–
	169	10	8.20	3000	3.3	12	**2KJ3001- ■ BE23- ■ ■ R1 -Z**	–
0.25	**D.79-LE71YMS6P**							
	2.6	905	330.23	12900	0.93	40	**2KJ3207- ■ CE23- ■ ■ S1 -Z**	**P01**
	2.9	820	300.21	13400	1	40	**2KJ3207- ■ CE23- ■ ■ R1 -Z**	**P01**
	3.4	700	255.33	13600	1.2	40	**2KJ3207- ■ CE23- ■ ■ Q1 -Z**	**P01**
	3.7	635	232.12	13600	1.3	40	**2KJ3207- ■ CE23- ■ ■ P1 -Z**	**P01**
	D.79-LE71ZMK4P							
	4.2	565	330.23	13700	1.5	39	**2KJ3207- ■ CC23- ■ ■ S1 -Z**	–
	4.6	510	300.21	13800	1.6	39	**2KJ3207- ■ CC23- ■ ■ R1 -Z**	–
	5.5	435	255.33	13900	1.9	39	**2KJ3207- ■ CC23- ■ ■ Q1 -Z**	–
	6	395	232.12	14000	2.1	39	**2KJ3207- ■ CC23- ■ ■ P1 -Z**	–
	D.69-LE71YMS6P							
	3.4	700	256.46	10700	0.85	30	**2KJ3206- ■ CE23- ■ ■ Q1 -Z**	**P01**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.25	**D.69-LE71YMS6P**							
	3.7	640	233.14	10900	0.94	30	**2KJ3206- ■ CE23- ■ ■ P1 -Z**	**P01**
	D.69-LE71ZMK4P							
	4.2	560	328.49	11000	1.1	29	**2KJ3206- ■ CC23- ■ ■ S1 -Z**	**–**
	4.8	500	292.08	11100	1.2	29	**2KJ3206- ■ CC23- ■ ■ R1 -Z**	**–**
	5.4	435	256.46	11200	1.4	29	**2KJ3206- ■ CC23- ■ ■ Q1 -Z**	**–**
	6	395	233.14	11300	1.5	29	**2KJ3206- ■ CC23- ■ ■ P1 -Z**	**–**
	7	340	199.47	11400	1.8	29	**2KJ3206- ■ CC23- ■ ■ N1 -Z**	**–**
	7.7	310	181.33	11400	1.9	29	**2KJ3206- ■ CC23- ■ ■ M1 -Z**	**–**
	D.59-LE71ZMK4P							
	4.5	525	307.02	6760	0.86	24	**2KJ3205- ■ CC23- ■ ■ S1 -Z**	**–**
	5.1	465	272.99	7640	0.96	24	**2KJ3205- ■ CC23- ■ ■ R1 -Z**	**–**
	5.8	410	239.70	7730	1.1	24	**2KJ3205- ■ CC23- ■ ■ Q1 -Z**	**–**
	6.4	370	217.91	7790	1.2	24	**2KJ3205- ■ CC23- ■ ■ P1 -Z**	**–**
	7.5	315	186.43	7880	1.4	24	**2KJ3205- ■ CC23- ■ ■ N1 -Z**	**–**
	8.2	290	169.48	7920	1.6	24	**2KJ3205- ■ CC23- ■ ■ M1 -Z**	**–**
	9.3	255	149.81	7980	1.8	24	**2KJ3205- ■ CC23- ■ ■ L1 -Z**	**–**
	10	230	136.19	8020	1.9	24	**2KJ3205- ■ CC23- ■ ■ K1 -Z**	**–**
	12	200	119.30	8070	2.2	24	**2KJ3205- ■ CC23- ■ ■ J1 -Z**	**–**
	D.49-LE71ZMK4P							
	6.4	375	219.30	4390	0.85	22	**2KJ3204- ■ CC23- ■ ■ Q1 -Z**	**–**
	7	340	199.36	5270	0.94	22	**2KJ3204- ■ CC23- ■ ■ P1 -Z**	**–**
	8.2	290	170.57	5960	1.1	22	**2KJ3204- ■ CC23- ■ ■ N1 -Z**	**–**
	9	265	155.06	6010	1.2	22	**2KJ3204- ■ CC23- ■ ■ M1 -Z**	**–**
	10	235	137.06	6070	1.4	22	**2KJ3204- ■ CC23- ■ ■ L1 -Z**	**–**
	11	210	124.60	6120	1.5	22	**2KJ3204- ■ CC23- ■ ■ K1 -Z**	**–**
	13	187	109.14	6170	1.7	22	**2KJ3204- ■ CC23- ■ ■ J1 -Z**	**–**
	14	172	100.75	6200	1.9	22	**2KJ3204- ■ CC23- ■ ■ H1 -Z**	**–**
	16	153	89.20	6240	2.1	22	**2KJ3204- ■ CC23- ■ ■ G1 -Z**	**–**
	D.39-LE71ZMK4P							
	9.9	240	141.17	3360	0.83	12	**2KJ3203- ■ CC23- ■ ■ M1 -Z**	**–**
	11	220	128.34	3870	0.91	12	**2KJ3203- ■ CC23- ■ ■ L1 -Z**	**–**
	12	193	112.53	4540	1	12	**2KJ3203- ■ CC23- ■ ■ K1 -Z**	**–**
	14	172	100.44	5060	1.2	12	**2KJ3203- ■ CC23- ■ ■ J1 -Z**	**–**
	16	153	89.51	5540	1.3	12	**2KJ3203- ■ CC23- ■ ■ H1 -Z**	**–**
	17	141	82.63	5800	1.4	12	**2KJ3203- ■ CC23- ■ ■ G1 -Z**	**–**
	19	124	72.34	5800	1.6	12	**2KJ3203- ■ CC23- ■ ■ F1 -Z**	**–**
	22	109	63.43	5800	1.8	12	**2KJ3203- ■ CC23- ■ ■ E1 -Z**	**–**
	Z.39-LE71ZMK4P							
	25	96	55.95	5800	2.1	12	**2KJ3103- ■ CC23- ■ ■ A2 -Z**	**–**
	28	85	49.75	5800	2.3	12	**2KJ3103- ■ CC23- ■ ■ X1 -Z**	**–**
	D.29-LE71ZMK4P							
	14	176	102.79	2750	0.8	10	**2KJ3202- ■ CC23- ■ ■ J1 -Z**	**–**
	15	157	92.01	3260	0.89	10	**2KJ3202- ■ CC23- ■ ■ H1 -Z**	**–**
	17	140	81.71	3710	1	10	**2KJ3202- ■ CC23- ■ ■ G1 -Z**	**–**
	18	129	75.42	4000	1.1	10	**2KJ3202- ■ CC23- ■ ■ F1 -Z**	**–**
	21	112	65.52	4060	1.2	10	**2KJ3202- ■ CC23- ■ ■ E1 -Z**	**–**
	25	97	56.93	4060	1.4	10	**2KJ3202- ■ CC23- ■ ■ D1 -Z**	**–**
	27	88	51.40	4060	1.6	10	**2KJ3202- ■ CC23- ■ ■ C1 -Z**	**–**
	29	83	48.37	4060	1.7	10	**2KJ3202- ■ CC23- ■ ■ B1 -Z**	**–**
	Z.29-LE71ZMK4P							
	34	71	41.40	4060	2	10	**2KJ3102- ■ CC23- ■ ■ A2 -Z**	**–**
	38	63	36.72	4060	2.2	10	**2KJ3102- ■ CC23- ■ ■ X1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.25	**Z.29-LE71ZMK4P**							
	44	54	31.86	4060	2.6	10	**2KJ3102- ■ CC23- ■ ■ W1 -Z**	–
	48	50	28.96	4060	2.8	10	**2KJ3102- ■ CC23- ■ ■ V1 -Z**	–
	56	42	24.84	4000	3.3	10	**2KJ3102- ■ CC23- ■ ■ U1 -Z**	–
	62	39	22.58	3880	3.6	10	**2KJ3102- ■ CC23- ■ ■ T1 -Z**	–
	70	34	19.80	3730	4.1	10	**2KJ3102- ■ CC23- ■ ■ S1 -Z**	–
	79	30	17.67	3610	4.6	10	**2KJ3102- ■ CC23- ■ ■ R1 -Z**	–
	89	27	15.75	3480	5.2	10	**2KJ3102- ■ CC23- ■ ■ Q1 -Z**	–
	96	25	14.54	3400	4.8	10	**2KJ3102- ■ CC23- ■ ■ P1 -Z**	–
	110	22	12.73	3260	6.4	10	**2KJ3102- ■ CC23- ■ ■ N1 -Z**	–
	125	19	11.16	3130	7.3	10	**2KJ3102- ■ CC23- ■ ■ M1 -Z**	–
	138	17	10.12	3040	8.1	10	**2KJ3102- ■ CC23- ■ ■ L1 -Z**	–
	146	16	9.53	2990	8.6	10	**2KJ3102- ■ CC23- ■ ■ K1 -Z**	–
	166	14	8.40	2870	9.6	10	**2KJ3102- ■ CC23- ■ ■ J1 -Z**	–
	191	12	7.29	2740	10	10	**2KJ3102- ■ CC23- ■ ■ H1 -Z**	–
	202	12	6.92	2680	6.3	10	**2KJ3102- ■ CC23- ■ ■ G1 -Z**	–
	230	10	6.06	2570	9.6	10	**2KJ3102- ■ CC23- ■ ■ F1 -Z**	–
	263	9.1	5.31	2470	10	10	**2KJ3102- ■ CC23- ■ ■ E1 -Z**	–
	289	8.2	4.82	2390	10	10	**2KJ3102- ■ CC23- ■ ■ D1 -Z**	–
	307	7.8	4.54	2350	11	10	**2KJ3102- ■ CC23- ■ ■ C1 -Z**	–
	349	6.8	4.00	2250	11	10	**2KJ3102- ■ CC23- ■ ■ B1 -Z**	–
	402	5.9	3.47	2150	12	10	**2KJ3102- ■ CC23- ■ ■ A1 -Z**	–
	Z.29-LE63ZMH2P							
	160	15	17.67	2900	9.4	10	**2KJ3102- ■ BD23- ■ ■ R1 -Z**	**P00**
	180	13	15.75	2800	11	10	**2KJ3102- ■ BD23- ■ ■ Q1 -Z**	**P00**
	195	12	14.54	2730	9.8	10	**2KJ3102- ■ BD23- ■ ■ P1 -Z**	**P00**
	223	11	12.73	2610	13	10	**2KJ3102- ■ BD23- ■ ■ N1 -Z**	**P00**
	254	9.4	11.16	2510	15	10	**2KJ3102- ■ BD23- ■ ■ M1 -Z**	**P00**
	410	5.8	6.92	2140	13	10	**2KJ3102- ■ BD23- ■ ■ G1 -Z**	**P00**
	D.19-LE71ZMK4P							
	20	119	69.32	1260	0.84	9	**2KJ3201- ■ CC23- ■ ■ G1 -Z**	–
	22	110	63.99	1450	0.91	9	**2KJ3201- ■ CC23- ■ ■ F1 -Z**	–
	25	95	55.59	1760	1.1	9	**2KJ3201- ■ CC23- ■ ■ E1 -Z**	–
	29	83	48.30	2000	1.2	9	**2KJ3201- ■ CC23- ■ ■ D1 -Z**	–
	32	75	43.61	2160	1.3	9	**2KJ3201- ■ CC23- ■ ■ C1 -Z**	–
	34	70	41.04	2270	1.4	9	**2KJ3201- ■ CC23- ■ ■ B1 -Z**	–
	Z.19-LE71ZMK4P							
	40	60	34.97	2330	1.7	9	**2KJ3101- ■ CC23- ■ ■ W1 -Z**	–
	45	53	30.97	2370	1.9	9	**2KJ3101- ■ CC23- ■ ■ V1 -Z**	–
	52	46	26.91	2400	2.2	9	**2KJ3101- ■ CC23- ■ ■ U1 -Z**	–
	57	42	24.46	2420	2.4	9	**2KJ3101- ■ CC23- ■ ■ T1 -Z**	–
	67	36	20.82	2450	2.8	9	**2KJ3101- ■ CC23- ■ ■ S1 -Z**	–
	74	32	18.92	2390	3.1	9	**2KJ3101- ■ CC23- ■ ■ R1 -Z**	–
	85	28	16.50	2300	3.5	9	**2KJ3101- ■ CC23- ■ ■ Q1 -Z**	–
	94	25	14.77	2230	3.8	9	**2KJ3101- ■ CC23- ■ ■ P1 -Z**	–
	106	22	13.12	2160	4.1	9	**2KJ3101- ■ CC23- ■ ■ N1 -Z**	–
	115	21	12.11	2110	4.2	9	**2KJ3101- ■ CC23- ■ ■ M1 -Z**	–
	133	18	10.52	2020	4.6	9	**2KJ3101- ■ CC23- ■ ■ L1 -Z**	–
	153	16	9.14	1940	5	9	**2KJ3101- ■ CC23- ■ ■ K1 -Z**	–
	169	14	8.25	1880	5.2	9	**2KJ3101- ■ CC23- ■ ■ J1 -Z**	–
	180	13	7.76	1850	5.5	9	**2KJ3101- ■ CC23- ■ ■ H1 -Z**	–
	206	12	6.77	1770	5.9	9	**2KJ3101- ■ CC23- ■ ■ G1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.25	**Z.19-LE71ZMK4P**							
	223	11	6.25	1690	5.2	9	**2KJ3101- ■ CC23- ■ ■ F1 -Z**	–
	257	9.3	5.43	1620	5.7	9	**2KJ3101- ■ CC23- ■ ■ E1 -Z**	–
	296	8.1	4.71	1560	6.1	9	**2KJ3101- ■ CC23- ■ ■ D1 -Z**	–
	327	7.3	4.26	1510	6.4	9	**2KJ3101- ■ CC23- ■ ■ C1 -Z**	–
	348	6.9	4.01	1480	6.7	9	**2KJ3101- ■ CC23- ■ ■ B1 -Z**	–
	Z.19-LE63ZMH2P							
	150	16	18.92	1950	6.3	8	**2KJ3101- ■ BD23- ■ ■ R1 -Z**	**P00**
	172	14	16.50	1870	7.1	8	**2KJ3101- ■ BD23- ■ ■ Q1 -Z**	**P00**
	192	12	14.77	1820	7.6	8	**2KJ3101- ■ BD23- ■ ■ P1 -Z**	**P00**
	216	11	13.12	1750	8.2	8	**2KJ3101- ■ BD23- ■ ■ N1 -Z**	**P00**
	234	10	12.11	1710	8.6	8	**2KJ3101- ■ BD23- ■ ■ M1 -Z**	**P00**
	269	8.9	10.52	1630	9.4	8	**2KJ3101- ■ BD23- ■ ■ L1 -Z**	**P00**
	310	7.7	9.14	1560	10	8	**2KJ3101- ■ BD23- ■ ■ K1 -Z**	**P00**
	344	6.9	8.25	1510	11	8	**2KJ3101- ■ BD23- ■ ■ J1 -Z**	**P00**
	365	6.5	7.76	1490	11	8	**2KJ3101- ■ BD23- ■ ■ H1 -Z**	**P00**
	419	5.7	6.77	1420	12	8	**2KJ3101- ■ BD23- ■ ■ G1 -Z**	**P00**
	454	5.3	6.25	1370	11	8	**2KJ3101- ■ BD23- ■ ■ F1 -Z**	**P00**
	522	4.6	5.43	1310	12	8	**2KJ3101- ■ BD23- ■ ■ E1 -Z**	**P00**
	602	4	4.71	1250	12	8	**2KJ3101- ■ BD23- ■ ■ D1 -Z**	**P00**
	665	3.6	4.26	1210	13	8	**2KJ3101- ■ BD23- ■ ■ C1 -Z**	**P00**
	707	3.4	4.01	1190	14	8	**2KJ3101- ■ BD23- ■ ■ B1 -Z**	**P00**
	E.39-LE71ZMK4P							
	151	16	9.22	3000	1.9	12	**2KJ3001- ■ CC23- ■ ■ S1 -Z**	–
	170	14	8.20	3000	2.4	12	**2KJ3001- ■ CC23- ■ ■ R1 -Z**	–
	194	12	7.20	3000	3.2	12	**2KJ3001- ■ CC23- ■ ■ Q1 -Z**	–
	213	11	6.55	3000	3.6	12	**2KJ3001- ■ CC23- ■ ■ P1 -Z**	–
	249	9.6	5.60	3000	4.2	12	**2KJ3001- ■ CC23- ■ ■ N1 -Z**	–
	274	8.7	5.09	3000	4.6	12	**2KJ3001- ■ CC23- ■ ■ M1 -Z**	–
0.37	**D.89-LE80MK6P**							
	3	1190	311.60	18500	1.4	67	**2KJ3208- ■ DE23- ■ ■ S1 -Z**	**P01**
	3.3	1080	283.28	18500	1.6	67	**2KJ3208- ■ DE23- ■ ■ R1 -Z**	**P01**
	3.6	970	254.09	18500	1.7	67	**2KJ3208- ■ DE23- ■ ■ Q1 -Z**	**P01**
	4	870	228.45	18500	1.9	67	**2KJ3208- ■ DE23- ■ ■ P1 -Z**	**P01**
	D.79-LE80MK6P							
	3.6	975	255.33	11900	0.86	44	**2KJ3207- ■ DE23- ■ ■ Q1 -Z**	**P01**
	4	885	232.12	13200	0.95	44	**2KJ3207- ■ DE23- ■ ■ P1 -Z**	**P01**
	D.79-LE71YMS4P							
	4.2	845	330.23	13400	0.99	40	**2KJ3207- ■ CE23- ■ ■ S1 -Z**	–
	4.6	765	300.21	13500	1.1	40	**2KJ3207- ■ CE23- ■ ■ R1 -Z**	–
	5.4	650	255.33	13600	1.3	40	**2KJ3207- ■ CE23- ■ ■ Q1 -Z**	–
	5.9	590	232.12	13700	1.4	40	**2KJ3207- ■ CE23- ■ ■ P1 -Z**	–
	6.7	530	207.10	13800	1.6	40	**2KJ3207- ■ CE23- ■ ■ N1 -Z**	–
	7.4	475	185.70	13900	1.8	40	**2KJ3207- ■ CE23- ■ ■ M1 -Z**	–
	8.2	425	167.39	13900	2	40	**2KJ3207- ■ CE23- ■ ■ L1 -Z**	–
	8.9	395	154.51	14000	2.1	40	**2KJ3207- ■ CE23- ■ ■ K1 -Z**	–
	D.69-LE71YMS4P							
	4.7	745	292.08	10600	0.8	30	**2KJ3206- ■ CE23- ■ ■ R1 -Z**	–
	5.4	655	256.46	10900	0.91	30	**2KJ3206- ■ CE23- ■ ■ Q1 -Z**	–
	5.9	595	233.14	11000	1	30	**2KJ3206- ■ CE23- ■ ■ P1 -Z**	–
	6.9	510	199.47	11100	1.2	30	**2KJ3206- ■ CE23- ■ ■ N1 -Z**	–
	7.6	460	181.33	11200	1.3	30	**2KJ3206- ■ CE23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.37	**D.69-LE71YMS4P**							
	8.6	410	160.29	11300	1.5	30	**2KJ3206- ■ CE23- ■ ■ L1 -Z**	–
	9.5	370	145.71	11300	1.6	30	**2KJ3206- ■ CE23- ■ ■ K1 -Z**	–
	11	325	127.63	11400	1.8	30	**2KJ3206- ■ CE23- ■ ■ J1 -Z**	–
	12	300	117.82	11400	2	30	**2KJ3206- ■ CE23- ■ ■ H1 -Z**	–
	13	265	104.31	11500	2.2	30	**2KJ3206- ■ CE23- ■ ■ G1 -Z**	–
	D.59-LE71YMS4P							
	6.3	555	217.91	6220	0.81	26	**2KJ3205- ■ CE23- ■ ■ P1 -Z**	–
	7.4	475	186.43	7620	0.94	26	**2KJ3205- ■ CE23- ■ ■ N1 -Z**	–
	8.1	430	169.48	7700	1	26	**2KJ3205- ■ CE23- ■ ■ M1 -Z**	–
	9.2	380	149.81	7780	1.2	26	**2KJ3205- ■ CE23- ■ ■ L1 -Z**	–
	10	345	136.19	7830	1.3	26	**2KJ3205- ■ CE23- ■ ■ K1 -Z**	–
	12	305	119.30	7900	1.5	26	**2KJ3205- ■ CE23- ■ ■ J1 -Z**	–
	13	280	110.12	7940	1.6	26	**2KJ3205- ■ CE23- ■ ■ H1 -Z**	–
	14	250	97.50	7990	1.8	26	**2KJ3205- ■ CE23- ■ ■ G1 -Z**	–
	17	205	81.15	8060	2.2	26	**2KJ3205- ■ CE23- ■ ■ F1 -Z**	–
	18	196	76.38	8070	2.3	26	**2KJ3205- ■ CE23- ■ ■ E1 -Z**	–
	D.49-LE71YMS4P							
	8.9	395	155.06	3880	0.81	23	**2KJ3204- ■ CE23- ■ ■ M1 -Z**	–
	10	350	137.06	5020	0.91	23	**2KJ3204- ■ CE23- ■ ■ L1 -Z**	–
	11	315	124.60	5910	1	23	**2KJ3204- ■ CE23- ■ ■ K1 -Z**	–
	13	275	109.14	5990	1.1	23	**2KJ3204- ■ CE23- ■ ■ J1 -Z**	–
	14	255	100.75	6030	1.2	23	**2KJ3204- ■ CE23- ■ ■ H1 -Z**	–
	15	225	89.20	6090	1.4	23	**2KJ3204- ■ CE23- ■ ■ G1 -Z**	–
	19	190	74.24	6170	1.7	23	**2KJ3204- ■ CE23- ■ ■ F1 -Z**	–
	20	179	69.88	6190	1.8	23	**2KJ3204- ■ CE23- ■ ■ E1 -Z**	–
	22	160	62.61	6230	2	23	**2KJ3204- ■ CE23- ■ ■ D1 -Z**	–
	Z.49-LE71YMS4P							
	26	134	52.14	6280	2.4	23	**2KJ3104- ■ CE23- ■ ■ B2 -Z**	–
	D.39-LE71YMS4P							
	15	225	89.51	3740	0.87	13	**2KJ3203- ■ CE23- ■ ■ H1 -Z**	–
	17	210	82.63	4120	0.95	13	**2KJ3203- ■ CE23- ■ ■ G1 -Z**	–
	19	185	72.34	4740	1.1	13	**2KJ3203- ■ CE23- ■ ■ F1 -Z**	–
	22	162	63.43	5320	1.2	13	**2KJ3203- ■ CE23- ■ ■ E1 -Z**	–
	Z.39-LE71YMS4P							
	25	143	55.95	5790	1.4	13	**2KJ3103- ■ CE23- ■ ■ A2 -Z**	–
	28	127	49.75	5800	1.6	13	**2KJ3103- ■ CE23- ■ ■ X1 -Z**	–
	32	112	43.68	5800	1.8	13	**2KJ3103- ■ CE23- ■ ■ W1 -Z**	–
	35	102	39.71	5800	2	13	**2KJ3103- ■ CE23- ■ ■ V1 -Z**	–
	41	87	33.97	5800	2.3	13	**2KJ3103- ■ CE23- ■ ■ U1 -Z**	–
	45	79	30.88	5800	2.5	13	**2KJ3103- ■ CE23- ■ ■ T1 -Z**	–
	D.29-LE71YMS4P							
	21	168	65.52	2960	0.83	12	**2KJ3202- ■ CE23- ■ ■ E1 -Z**	–
	24	146	56.93	3550	0.96	12	**2KJ3202- ■ CE23- ■ ■ D1 -Z**	–
	27	132	51.40	3920	1.1	12	**2KJ3202- ■ CE23- ■ ■ C1 -Z**	–
	29	124	48.37	4060	1.1	12	**2KJ3202- ■ CE23- ■ ■ B1 -Z**	–
	Z.29-LE71YMS4P							
	33	106	41.40	4060	1.3	12	**2KJ3102- ■ CE23- ■ ■ A2 -Z**	–
	38	94	36.72	4060	1.5	12	**2KJ3102- ■ CE23- ■ ■ X1 -Z**	–
	43	82	31.86	4060	1.7	12	**2KJ3102- ■ CE23- ■ ■ W1 -Z**	–
	48	74	28.96	4050	1.9	12	**2KJ3102- ■ CE23- ■ ■ V1 -Z**	–
	56	64	24.84	3890	2.2	12	**2KJ3102- ■ CE23- ■ ■ U1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.37	**Z.29-LE71YMS4P**							
	61	58	22.58	3790	2.4	12	**2KJ3102- ■ CE23- ■ ■ T1 -Z**	–
	70	51	19.80	3650	2.8	12	**2KJ3102- ■ CE23- ■ ■ S1 -Z**	–
	78	45	17.67	3540	3.1	12	**2KJ3102- ■ CE23- ■ ■ R1 -Z**	–
	88	40	15.75	3420	3.5	12	**2KJ3102- ■ CE23- ■ ■ Q1 -Z**	–
	95	37	14.54	3340	3.2	12	**2KJ3102- ■ CE23- ■ ■ P1 -Z**	–
	108	33	12.73	3210	4.3	12	**2KJ3102- ■ CE23- ■ ■ N1 -Z**	–
	124	29	11.16	3090	4.9	12	**2KJ3102- ■ CE23- ■ ■ M1 -Z**	–
	136	26	10.12	3000	5.4	12	**2KJ3102- ■ CE23- ■ ■ L1 -Z**	–
	145	24	9.53	2950	5.7	12	**2KJ3102- ■ CE23- ■ ■ K1 -Z**	–
	164	22	8.40	2830	6.4	12	**2KJ3102- ■ CE23- ■ ■ J1 -Z**	–
	189	19	7.29	2720	7	12	**2KJ3102- ■ CE23- ■ ■ H1 -Z**	–
	199	18	6.92	2650	4.2	12	**2KJ3102- ■ CE23- ■ ■ G1 -Z**	–
	228	16	6.06	2540	6.4	12	**2KJ3102- ■ CE23- ■ ■ F1 -Z**	–
	260	14	5.31	2440	6.7	12	**2KJ3102- ■ CE23- ■ ■ E1 -Z**	–
	286	12	4.82	2370	7	12	**2KJ3102- ■ CE23- ■ ■ D1 -Z**	–
	304	12	4.54	2330	7.2	12	**2KJ3102- ■ CE23- ■ ■ C1 -Z**	–
	345	10	4.00	2240	7.4	12	**2KJ3102- ■ CE23- ■ ■ B1 -Z**	–
	398	8.9	3.47	2140	7.9	12	**2KJ3102- ■ CE23- ■ ■ A1 -Z**	–
	Z.29-LE71ZMH2P							
	157	22	17.67	2880	6.2	9	**2KJ3102- ■ CB23- ■ ■ R1 -Z**	**P00**
	176	20	15.75	2780	7	9	**2KJ3102- ■ CB23- ■ ■ Q1 -Z**	**P00**
	191	18	14.54	2710	6.5	9	**2KJ3102- ■ CB23- ■ ■ P1 -Z**	**P00**
	218	16	12.73	2600	8.6	9	**2KJ3102- ■ CB23- ■ ■ N1 -Z**	**P00**
	248	14	11.16	2500	9.8	9	**2KJ3102- ■ CB23- ■ ■ M1 -Z**	**P00**
	274	13	10.12	2420	11	9	**2KJ3102- ■ CB23- ■ ■ L1 -Z**	**P00**
	291	12	9.53	2380	12	9	**2KJ3102- ■ CB23- ■ ■ K1 -Z**	**P00**
	330	11	8.40	2280	13	9	**2KJ3102- ■ CB23- ■ ■ J1 -Z**	**P00**
	380	9.3	7.29	2180	14	9	**2KJ3102- ■ CB23- ■ ■ H1 -Z**	**P00**
	400	8.8	6.92	2140	8.5	9	**2KJ3102- ■ CB23- ■ ■ G1 -Z**	**P00**
	457	7.7	6.06	2050	13	9	**2KJ3102- ■ CB23- ■ ■ F1 -Z**	**P00**
	522	6.8	5.31	1970	13	9	**2KJ3102- ■ CB23- ■ ■ E1 -Z**	**P00**
	575	6.1	4.82	1910	14	9	**2KJ3102- ■ CB23- ■ ■ D1 -Z**	**P00**
	610	5.8	4.54	1870	14	9	**2KJ3102- ■ CB23- ■ ■ C1 -Z**	**P00**
	692	5.1	4.00	1790	15	9	**2KJ3102- ■ CB23- ■ ■ B1 -Z**	**P00**
	D.19-LE71YMS4P							
	29	124	48.30	1160	0.81	10	**2KJ3201- ■ CE23- ■ ■ D1 -Z**	–
	32	112	43.61	1410	0.9	10	**2KJ3201- ■ CE23- ■ ■ C1 -Z**	–
	34	105	41.04	1550	0.95	10	**2KJ3201- ■ CE23- ■ ■ B1 -Z**	–
	Z.19-LE71YMS4P							
	39	90	34.97	1860	1.1	10	**2KJ3101- ■ CE23- ■ ■ W1 -Z**	–
	45	79	30.97	2080	1.3	10	**2KJ3101- ■ CE23- ■ ■ V1 -Z**	–
	51	69	26.91	2290	1.5	10	**2KJ3101- ■ CE23- ■ ■ U1 -Z**	–
	56	63	24.46	2320	1.6	10	**2KJ3101- ■ CE23- ■ ■ T1 -Z**	–
	66	53	20.82	2340	1.9	10	**2KJ3101- ■ CE23- ■ ■ S1 -Z**	–
	73	48	18.92	2290	2.1	10	**2KJ3101- ■ CE23- ■ ■ R1 -Z**	–
	84	42	16.50	2210	2.3	10	**2KJ3101- ■ CE23- ■ ■ Q1 -Z**	–
	93	38	14.77	2150	2.5	10	**2KJ3101- ■ CE23- ■ ■ P1 -Z**	–
	105	34	13.12	2080	2.7	10	**2KJ3101- ■ CE23- ■ ■ N1 -Z**	–
	114	31	12.11	2040	2.8	10	**2KJ3101- ■ CE23- ■ ■ M1 -Z**	–
	131	27	10.52	1970	3.1	10	**2KJ3101- ■ CE23- ■ ■ L1 -Z**	–
	151	23	9.14	1900	3.3	10	**2KJ3101- ■ CE23- ■ ■ K1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.37	**Z.19-LE71YMS4P**							
	167	21	8.25	1840	3.5	10	**2KJ3101- ■ CE23- ■ ■ J1 -Z**	–
	178	20	7.76	1810	3.7	10	**2KJ3101- ■ CE23- ■ ■ H1 -Z**	–
	204	17	6.77	1740	3.9	10	**2KJ3101- ■ CE23- ■ ■ G1 -Z**	–
	221	16	6.25	1640	3.5	10	**2KJ3101- ■ CE23- ■ ■ F1 -Z**	–
	254	14	5.43	1580	3.8	10	**2KJ3101- ■ CE23- ■ ■ E1 -Z**	–
	293	12	4.71	1520	4.1	10	**2KJ3101- ■ CE23- ■ ■ D1 -Z**	–
	324	11	4.26	1480	4.3	10	**2KJ3101- ■ CE23- ■ ■ C1 -Z**	–
	344	10	4.01	1460	4.5	10	**2KJ3101- ■ CE23- ■ ■ B1 -Z**	–
	Z.19-LE71ZMH2P							
	168	21	16.50	1840	4.7	8	**2KJ3101- ■ CB23- ■ ■ Q1 -Z**	P00
	188	19	14.77	1780	5	8	**2KJ3101- ■ CB23- ■ ■ P1 -Z**	P00
	211	17	13.12	1720	5.4	8	**2KJ3101- ■ CB23- ■ ■ N1 -Z**	P00
	229	15	12.11	1690	5.7	8	**2KJ3101- ■ CB23- ■ ■ M1 -Z**	P00
	263	13	10.52	1620	6.2	8	**2KJ3101- ■ CB23- ■ ■ L1 -Z**	P00
	303	12	9.14	1550	6.7	8	**2KJ3101- ■ CB23- ■ ■ K1 -Z**	P00
	336	10	8.25	1510	7	8	**2KJ3101- ■ CB23- ■ ■ J1 -Z**	P00
	357	9.9	7.76	1470	7.4	8	**2KJ3101- ■ CB23- ■ ■ H1 -Z**	P00
	409	8.6	6.77	1410	7.9	8	**2KJ3101- ■ CB23- ■ ■ G1 -Z**	P00
	443	8	6.25	1350	7	8	**2KJ3101- ■ CB23- ■ ■ F1 -Z**	P00
	510	6.9	5.43	1300	7.7	8	**2KJ3101- ■ CB23- ■ ■ E1 -Z**	P00
	588	6	4.71	1240	8.2	8	**2KJ3101- ■ CB23- ■ ■ D1 -Z**	P00
	650	5.4	4.26	1210	8.6	8	**2KJ3101- ■ CB23- ■ ■ C1 -Z**	P00
	691	5.1	4.01	1180	9	8	**2KJ3101- ■ CB23- ■ ■ B1 -Z**	P00
	E.49-LE71YMS4P							
	142	25	9.70	4000	3.5	19	**2KJ3002- ■ CE23- ■ ■ S1 -Z**	–
	E.39-LE71YMS4P							
	150	24	9.22	3000	1.3	14	**2KJ3001- ■ CE23- ■ ■ S1 -Z**	–
	168	21	8.20	3000	1.6	14	**2KJ3001- ■ CE23- ■ ■ R1 -Z**	–
	192	18	7.20	3000	2.2	14	**2KJ3001- ■ CE23- ■ ■ Q1 -Z**	–
	211	17	6.55	3000	2.4	14	**2KJ3001- ■ CE23- ■ ■ P1 -Z**	–
	246	14	5.60	3000	2.8	14	**2KJ3001- ■ CE23- ■ ■ N1 -Z**	–
	271	13	5.09	3000	3.1	14	**2KJ3001- ■ CE23- ■ ■ M1 -Z**	–
	307	12	4.50	3000	4.2	14	**2KJ3001- ■ CE23- ■ ■ L1 -Z**	–
	337	10	4.09	3000	4.6	14	**2KJ3001- ■ CE23- ■ ■ K1 -Z**	–
0.55	**D.89-LE80ZMQ6P**							
	3	1750	311.60	18500	0.96	67	**2KJ3208- ■ DF23- ■ ■ S1 -Z**	P01
	3.3	1590	283.28	18500	1.1	67	**2KJ3208- ■ DF23- ■ ■ R1 -Z**	P01
	3.7	1420	254.09	18500	1.2	67	**2KJ3208- ■ DF23- ■ ■ Q1 -Z**	P01
	4.1	1280	228.45	18500	1.3	67	**2KJ3208- ■ DF23- ■ ■ P1 -Z**	P01
	D.89-LE80MH4P							
	4.6	1130	311.60	18500	1.5	68	**2KJ3208- ■ DC23- ■ ■ S1 -Z**	–
	5.1	1030	283.28	18500	1.6	68	**2KJ3208- ■ DC23- ■ ■ R1 -Z**	–
	5.7	925	254.09	18500	1.8	68	**2KJ3208- ■ DC23- ■ ■ Q1 -Z**	–
	6.3	830	228.45	18500	2	68	**2KJ3208- ■ DC23- ■ ■ P1 -Z**	–
	D.79-LE80MH4P							
	5.6	930	255.33	12600	0.9	45	**2KJ3207- ■ DC23- ■ ■ Q1 -Z**	–
	6.2	845	232.12	13400	0.99	45	**2KJ3207- ■ DC23- ■ ■ P1 -Z**	–
	7	755	207.10	13500	1.1	45	**2KJ3207- ■ DC23- ■ ■ N1 -Z**	–
	7.8	675	185.70	13600	1.2	45	**2KJ3207- ■ DC23- ■ ■ M1 -Z**	–
	8.6	610	167.39	13700	1.4	45	**2KJ3207- ■ DC23- ■ ■ L1 -Z**	–
	9.3	560	154.51	13700	1.5	45	**2KJ3207- ■ DC23- ■ ■ K1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.55	**D.79-LE80MH4P**							
	10	510	141.04	13800	1.6	45	**2KJ3207- ■ DC23- ■ ■ J1 -Z**	–
	12	425	117.03	13900	2	45	**2KJ3207- ■ DC23- ■ ■ H1 -Z**	–
	13	400	110.14	13900	2.1	45	**2KJ3207- ■ DC23- ■ ■ G1 -Z**	–
	14	375	104.03	14000	2.2	45	**2KJ3207- ■ DC23- ■ ■ F1 -Z**	–
	D.69-LE80MH4P							
	7.2	725	199.47	10700	0.82	35	**2KJ3206- ■ DC23- ■ ■ N1 -Z**	–
	7.9	660	181.33	10800	0.91	35	**2KJ3206- ■ DC23- ■ ■ M1 -Z**	–
	9	585	160.29	11000	1	35	**2KJ3206- ■ DC23- ■ ■ L1 -Z**	–
	9.9	530	145.71	11100	1.1	35	**2KJ3206- ■ DC23- ■ ■ K1 -Z**	–
	11	465	127.63	11200	1.3	35	**2KJ3206- ■ DC23- ■ ■ J1 -Z**	–
	12	430	117.82	11200	1.4	35	**2KJ3206- ■ DC23- ■ ■ H1 -Z**	–
	14	380	104.31	11300	1.6	35	**2KJ3206- ■ DC23- ■ ■ G1 -Z**	–
	17	315	86.82	11400	1.9	35	**2KJ3206- ■ DC23- ■ ■ F1 -Z**	–
	18	295	81.71	11400	2	35	**2KJ3206- ■ DC23- ■ ■ E1 -Z**	–
	20	265	73.22	11500	2.2	35	**2KJ3206- ■ DC23- ■ ■ D1 -Z**	–
	D.59-LE80MH4P							
	9.6	545	149.81	6400	0.82	30	**2KJ3205- ■ DC23- ■ ■ L1 -Z**	–
	11	495	136.19	7300	0.91	30	**2KJ3205- ■ DC23- ■ ■ K1 -Z**	–
	12	435	119.30	7690	1	30	**2KJ3205- ■ DC23- ■ ■ J1 -Z**	–
	13	400	110.12	7740	1.1	30	**2KJ3205- ■ DC23- ■ ■ H1 -Z**	–
	15	355	97.50	7820	1.3	30	**2KJ3205- ■ DC23- ■ ■ G1 -Z**	–
	18	295	81.15	7910	1.5	30	**2KJ3205- ■ DC23- ■ ■ F1 -Z**	–
	19	275	76.38	7950	1.6	30	**2KJ3205- ■ DC23- ■ ■ E1 -Z**	–
	21	250	68.43	7990	1.8	30	**2KJ3205- ■ DC23- ■ ■ D1 -Z**	–
	Z.59-LE80MH4P							
	25	205	56.99	8060	2.2	30	**2KJ3105- ■ DC23- ■ ■ A2 -Z**	–
	28	189	51.81	8080	2.4	30	**2KJ3105- ■ DC23- ■ ■ X1 -Z**	–
	D.49-LE80MH4P							
	13	395	109.14	3880	0.8	28	**2KJ3204- ■ DC23- ■ ■ J1 -Z**	–
	14	365	100.75	4640	0.87	28	**2KJ3204- ■ DC23- ■ ■ H1 -Z**	–
	16	325	89.20	5660	0.98	28	**2KJ3204- ■ DC23- ■ ■ G1 -Z**	–
	19	270	74.24	6000	1.2	28	**2KJ3204- ■ DC23- ■ ■ F1 -Z**	–
	21	255	69.88	6030	1.3	28	**2KJ3204- ■ DC23- ■ ■ E1 -Z**	–
	23	225	62.61	6090	1.4	28	**2KJ3204- ■ DC23- ■ ■ D1 -Z**	–
	Z.49-LE80MH4P							
	28	190	52.14	6170	1.7	28	**2KJ3104- ■ DC23- ■ ■ B2 -Z**	–
	30	173	47.40	6200	1.9	28	**2KJ3104- ■ DC23- ■ ■ A2 -Z**	–
	36	147	40.31	6250	2.2	28	**2KJ3104- ■ DC23- ■ ■ X1 -Z**	–
	39	134	36.65	6280	2.4	28	**2KJ3104- ■ DC23- ■ ■ W1 -Z**	–
	44	119	32.70	6310	2.7	28	**2KJ3104- ■ DC23- ■ ■ V1 -Z**	–
	D.39-LE80MH4P							
	23	230	63.43	3610	0.86	18	**2KJ3203- ■ DC23- ■ ■ E1 -Z**	–
	25	210	57.54	4120	0.95	18	**2KJ3203- ■ DC23- ■ ■ D1 -Z**	–
	Z.39-LE80MH4P							
	29	181	49.75	4840	1.1	17	**2KJ3103- ■ DC23- ■ ■ X1 -Z**	–
	33	159	43.68	5140	1.3	17	**2KJ3103- ■ DC23- ■ ■ W1 -Z**	–
	36	145	39.71	5200	1.4	17	**2KJ3103- ■ DC23- ■ ■ V1 -Z**	–
	42	124	33.97	5280	1.6	17	**2KJ3103- ■ DC23- ■ ■ U1 -Z**	–
	47	113	30.88	5300	1.8	17	**2KJ3103- ■ DC23- ■ ■ T1 -Z**	–
	53	100	27.30	5290	2	17	**2KJ3103- ■ DC23- ■ ■ S1 -Z**	–
	58	90	24.82	5300	2.2	17	**2KJ3103- ■ DC23- ■ ■ R1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.55	**Z.39-LE80MH4P**							
	66	79	21.74	5250	2.5	17	**2KJ3103- ■ DC23- ■ ■ Q1 -Z**	**–**
	72	73	20.07	5180	2.7	17	**2KJ3103- ■ DC23- ■ ■ P1 -Z**	**–**
	81	65	17.77	5000	3.1	17	**2KJ3103- ■ DC23- ■ ■ N1 -Z**	**–**
	D.29-LE80MH4P							
	34	154	42.17	3340	0.91	16	**2KJ3202- ■ DC23- ■ ■ A1 -Z**	**–**
	Z.29-LE80MH4P							
	39	134	36.72	3860	1	16	**2KJ3102- ■ DC23- ■ ■ X1 -Z**	**–**
	45	116	31.86	3900	1.2	16	**2KJ3102- ■ DC23- ■ ■ W1 -Z**	**–**
	50	106	28.96	3810	1.3	16	**2KJ3102- ■ DC23- ■ ■ V1 -Z**	**–**
	58	91	24.84	3670	1.5	16	**2KJ3102- ■ DC23- ■ ■ U1 -Z**	**–**
	64	82	22.58	3590	1.7	16	**2KJ3102- ■ DC23- ■ ■ T1 -Z**	**–**
	73	72	19.80	3480	1.9	16	**2KJ3102- ■ DC23- ■ ■ S1 -Z**	**–**
	81	64	17.67	3380	2.2	16	**2KJ3102- ■ DC23- ■ ■ R1 -Z**	**–**
	91	57	15.75	3280	2.4	16	**2KJ3102- ■ DC23- ■ ■ Q1 -Z**	**–**
	99	53	14.54	3200	2.3	16	**2KJ3102- ■ DC23- ■ ■ P1 -Z**	**–**
	113	46	12.73	3090	3	16	**2KJ3102- ■ DC23- ■ ■ N1 -Z**	**–**
	129	41	11.16	2980	3.4	16	**2KJ3102- ■ DC23- ■ ■ M1 -Z**	**–**
	142	37	10.12	2900	3.8	16	**2KJ3102- ■ DC23- ■ ■ L1 -Z**	**–**
	151	35	9.53	2850	4	16	**2KJ3102- ■ DC23- ■ ■ K1 -Z**	**–**
	208	25	6.92	2560	3	16	**2KJ3102- ■ DC23- ■ ■ G1 -Z**	**–**
	238	22	6.06	2460	4.5	16	**2KJ3102- ■ DC23- ■ ■ F1 -Z**	**–**
	271	19	5.31	2370	4.7	16	**2KJ3102- ■ DC23- ■ ■ E1 -Z**	**–**
	299	18	4.82	2300	4.9	16	**2KJ3102- ■ DC23- ■ ■ D1 -Z**	**–**
	317	17	4.54	2260	5.1	16	**2KJ3102- ■ DC23- ■ ■ C1 -Z**	**–**
	360	15	4.00	2170	5.2	16	**2KJ3102- ■ DC23- ■ ■ B1 -Z**	**–**
	415	13	3.47	2080	5.5	16	**2KJ3102- ■ DC23- ■ ■ A1 -Z**	**–**
	Z.19-LE80MH4P							
	46	113	30.97	1390	0.89	14	**2KJ3101- ■ DC23- ■ ■ V1 -Z**	**–**
	54	98	26.91	1690	1	14	**2KJ3101- ■ DC23- ■ ■ U1 -Z**	**–**
	59	89	24.46	1880	1.1	14	**2KJ3101- ■ DC23- ■ ■ T1 -Z**	**–**
	69	76	20.82	2140	1.3	14	**2KJ3101- ■ DC23- ■ ■ S1 -Z**	**–**
	76	69	18.92	2110	1.4	14	**2KJ3101- ■ DC23- ■ ■ R1 -Z**	**–**
	87	60	16.50	2050	1.6	14	**2KJ3101- ■ DC23- ■ ■ Q1 -Z**	**–**
	97	54	14.77	2010	1.8	14	**2KJ3101- ■ DC23- ■ ■ P1 -Z**	**–**
	110	48	13.12	1950	1.9	14	**2KJ3101- ■ DC23- ■ ■ N1 -Z**	**–**
	119	44	12.11	1920	2	14	**2KJ3101- ■ DC23- ■ ■ M1 -Z**	**–**
	137	38	10.52	1860	2.2	14	**2KJ3101- ■ DC23- ■ ■ L1 -Z**	**–**
	158	33	9.14	1800	2.3	14	**2KJ3101- ■ DC23- ■ ■ K1 -Z**	**–**
	175	30	8.25	1750	2.5	14	**2KJ3101- ■ DC23- ■ ■ J1 -Z**	**–**
	186	28	7.76	1730	2.6	14	**2KJ3101- ■ DC23- ■ ■ H1 -Z**	**–**
	213	25	6.77	1660	2.8	14	**2KJ3101- ■ DC23- ■ ■ G1 -Z**	**–**
	230	23	6.25	1540	2.5	14	**2KJ3101- ■ DC23- ■ ■ F1 -Z**	**–**
	265	20	5.43	1490	2.7	14	**2KJ3101- ■ DC23- ■ ■ E1 -Z**	**–**
	306	17	4.71	1450	2.9	14	**2KJ3101- ■ DC23- ■ ■ D1 -Z**	**–**
	338	16	4.26	1400	3	14	**2KJ3101- ■ DC23- ■ ■ C1 -Z**	**–**
	359	15	4.01	1380	3.1	14	**2KJ3101- ■ DC23- ■ ■ B1 -Z**	**–**
	413	13	3.49	1330	3.4	14	**2KJ3101- ■ DC23- ■ ■ A1 -Z**	**–**
	Z.19-LE71ZMM2P							
	168	31	16.50	1770	3.2	10	**2KJ3101- ■ CD23- ■ ■ Q1 -Z**	**P00**
	188	28	14.77	1720	3.4	10	**2KJ3101- ■ CD23- ■ ■ P1 -Z**	**P00**
	212	25	13.12	1660	3.7	10	**2KJ3101- ■ CD23- ■ ■ N1 -Z**	**P00**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.55	**Z.19-LE71ZMM2P**							
	230	23	12.11	1630	3.8	10	**2KJ3101- ■ CD23- ■ ■ M1 -Z**	**P00**
	264	20	10.52	1570	4.2	10	**2KJ3101- ■ CD23- ■ ■ L1 -Z**	**P00**
	304	17	9.14	1510	4.5	10	**2KJ3101- ■ CD23- ■ ■ K1 -Z**	**P00**
	337	16	8.25	1460	4.7	10	**2KJ3101- ■ CD23- ■ ■ J1 -Z**	**P00**
	358	15	7.76	1440	5	10	**2KJ3101- ■ CD23- ■ ■ H1 -Z**	**P00**
	411	13	6.77	1380	5.3	10	**2KJ3101- ■ CD23- ■ ■ G1 -Z**	**P00**
	445	12	6.25	1310	4.7	10	**2KJ3101- ■ CD23- ■ ■ F1 -Z**	**P00**
	512	10	5.43	1260	5.2	10	**2KJ3101- ■ CD23- ■ ■ E1 -Z**	**P00**
	590	8.9	4.71	1210	5.5	10	**2KJ3101- ■ CD23- ■ ■ D1 -Z**	**P00**
	653	8	4.26	1180	5.8	10	**2KJ3101- ■ CD23- ■ ■ C1 -Z**	**P00**
	693	7.6	4.01	1160	6.1	10	**2KJ3101- ■ CD23- ■ ■ B1 -Z**	**P00**
	E.69-LE80MH4P							
	155	34	9.30	6100	3.5	31	**2KJ3003- ■ DC23- ■ ■ S1 -Z**	**–**
	170	31	8.45	6100	3.4	31	**2KJ3003- ■ DC23- ■ ■ R1 -Z**	**–**
	E.49-LE80MH4P							
	148	35	9.70	4000	2.4	24	**2KJ3002- ■ DC23- ■ ■ S1 -Z**	**–**
	163	32	8.82	4000	3.4	24	**2KJ3002- ■ DC23- ■ ■ R1 -Z**	**–**
	192	27	7.50	4000	3.9	24	**2KJ3002- ■ DC23- ■ ■ Q1 -Z**	**–**
	211	25	6.82	4000	4.2	24	**2KJ3002- ■ DC23- ■ ■ P1 -Z**	**–**
	E.39-LE80MH4P							
	176	30	8.20	3000	1.1	18	**2KJ3001- ■ DC23- ■ ■ R1 -Z**	**–**
	200	26	7.20	3000	1.5	18	**2KJ3001- ■ DC23- ■ ■ Q1 -Z**	**–**
	220	24	6.55	3000	1.7	18	**2KJ3001- ■ DC23- ■ ■ P1 -Z**	**–**
	257	20	5.60	3000	2	18	**2KJ3001- ■ DC23- ■ ■ N1 -Z**	**–**
	283	19	5.09	3000	2.2	18	**2KJ3001- ■ DC23- ■ ■ M1 -Z**	**–**
	320	16	4.50	3000	2.9	18	**2KJ3001- ■ DC23- ■ ■ L1 -Z**	**–**
	352	15	4.09	3000	3.2	18	**2KJ3001- ■ DC23- ■ ■ K1 -Z**	**–**
	402	13	3.58	3000	4.4	18	**2KJ3001- ■ DC23- ■ ■ J1 -Z**	**–**
	435	12	3.31	3000	4.8	18	**2KJ3001- ■ DC23- ■ ■ H1 -Z**	**–**
0.75	**D.129-LE90SQ6P**							
	2.5	2820	373.00	28300	1.8	174	**2KJ3211- ■ EC23- ■ ■ S1 -Z**	**P01**
	2.7	2600	344.17	28400	1.9	174	**2KJ3211- ■ EC23- ■ ■ R1 -Z**	**P01**
	D.109-LE90SQ6P							
	2.7	2640	348.88	20200	1.2	111	**2KJ3210- ■ EC23- ■ ■ T1 -Z**	**P01**
	3	2380	314.98	20200	1.3	111	**2KJ3210- ■ EC23- ■ ■ S1 -Z**	**P01**
	3.3	2160	285.72	20200	1.4	111	**2KJ3210- ■ EC23- ■ ■ R1 -Z**	**P01**
	3.6	1990	263.74	20200	1.6	111	**2KJ3210- ■ EC23- ■ ■ Q1 -Z**	**P01**
	3.9	1810	239.75	20200	1.7	111	**2KJ3210- ■ EC23- ■ ■ P1 -Z**	**P01**
	D.89-LE90SQ6P							
	3.7	1920	254.09	18500	0.87	69	**2KJ3208- ■ EC23- ■ ■ Q1 -Z**	**P01**
	4.1	1730	228.45	18500	0.97	69	**2KJ3208- ■ EC23- ■ ■ P1 -Z**	**P01**
	D.89-LE80ZMQ4P							
	4.7	1530	311.60	18500	1.1	67	**2KJ3208- ■ DF23- ■ ■ S1 -Z**	**–**
	5.1	1390	283.28	18500	1.2	67	**2KJ3208- ■ DF23- ■ ■ R1 -Z**	**–**
	5.7	1250	254.09	18500	1.3	67	**2KJ3208- ■ DF23- ■ ■ Q1 -Z**	**–**
	6.3	1120	228.45	18500	1.5	67	**2KJ3208- ■ DF23- ■ ■ P1 -Z**	**–**
	7	1020	206.62	18500	1.6	67	**2KJ3208- ■ DF23- ■ ■ N1 -Z**	**–**
	7.6	940	190.73	18500	1.8	67	**2KJ3208- ■ DF23- ■ ■ M1 -Z**	**–**
	8.3	860	174.71	18500	1.9	67	**2KJ3208- ■ DF23- ■ ■ L1 -Z**	**–**
	D.79-LE80ZMQ4P							
	7	1020	207.10	11200	0.82	44	**2KJ3207- ■ DF23- ■ ■ N1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**D.79-LE80ZMQ4P**							
	7.8	915	185.70	12800	0.92	44	**2KJ3207- ■ DF23- ■ ■ M1 -Z**	–
	8.7	825	167.39	13400	1	44	**2KJ3207- ■ DF23- ■ ■ L1 -Z**	–
	9.4	760	154.51	13500	1.1	44	**2KJ3207- ■ DF23- ■ ■ K1 -Z**	–
	10	695	141.04	13600	1.2	44	**2KJ3207- ■ DF23- ■ ■ J1 -Z**	–
	12	575	117.03	13700	1.5	44	**2KJ3207- ■ DF23- ■ ■ H1 -Z**	–
	13	540	110.14	13800	1.5	44	**2KJ3207- ■ DF23- ■ ■ G1 -Z**	–
	14	510	104.03	13800	1.6	44	**2KJ3207- ■ DF23- ■ ■ F1 -Z**	–
	16	435	88.52	13900	1.9	44	**2KJ3207- ■ DF23- ■ ■ E1 -Z**	–
	19	375	75.83	14000	2.2	44	**2KJ3207- ■ DF23- ■ ■ D1 -Z**	–
	D.69-LE80ZMQ4P							
	10	720	145.71	10700	0.83	34	**2KJ3206- ■ DF23- ■ ■ K1 -Z**	–
	11	630	127.63	10900	0.95	34	**2KJ3206- ■ DF23- ■ ■ J1 -Z**	–
	12	580	117.82	11000	1	34	**2KJ3206- ■ DF23- ■ ■ H1 -Z**	–
	14	515	104.31	11100	1.2	34	**2KJ3206- ■ DF23- ■ ■ G1 -Z**	–
	17	425	86.82	11200	1.4	34	**2KJ3206- ■ DF23- ■ ■ F1 -Z**	–
	18	400	81.71	11300	1.5	34	**2KJ3206- ■ DF23- ■ ■ E1 -Z**	–
	20	360	73.22	11300	1.7	34	**2KJ3206- ■ DF23- ■ ■ D1 -Z**	–
	Z.69-LE80ZMQ4P							
	24	300	60.97	11400	2	33	**2KJ3106- ■ DF23- ■ ■ A2 -Z**	–
	26	270	55.43	11500	2.2	33	**2KJ3106- ■ DF23- ■ ■ X1 -Z**	–
	D.59-LE80ZMQ4P							
	13	540	110.12	6490	0.83	29	**2KJ3205- ■ DF23- ■ ■ H1 -Z**	–
	15	480	97.50	7560	0.93	29	**2KJ3205- ■ DF23- ■ ■ G1 -Z**	–
	18	400	81.15	7740	1.1	29	**2KJ3205- ■ DF23- ■ ■ F1 -Z**	–
	19	375	76.38	7780	1.2	29	**2KJ3205- ■ DF23- ■ ■ E1 -Z**	–
	21	335	68.43	7850	1.3	29	**2KJ3205- ■ DF23- ■ ■ D1 -Z**	–
	Z.59-LE80ZMQ4P							
	25	280	56.99	7940	1.6	29	**2KJ3105- ■ DF23- ■ ■ A2 -Z**	–
	28	255	51.81	7980	1.8	29	**2KJ3105- ■ DF23- ■ ■ X1 -Z**	–
	33	215	44.06	8040	2.1	29	**2KJ3105- ■ DF23- ■ ■ W1 -Z**	–
	36	198	40.06	8040	2.3	29	**2KJ3105- ■ DF23- ■ ■ V1 -Z**	–
	41	177	35.74	7790	2.5	29	**2KJ3105- ■ DF23- ■ ■ U1 -Z**	–
	45	158	32.05	7560	2.8	29	**2KJ3105- ■ DF23- ■ ■ T1 -Z**	–
	D.49-LE80ZMQ4P							
	20	365	74.24	4640	0.87	27	**2KJ3204- ■ DF23- ■ ■ F1 -Z**	–
	21	345	69.88	5150	0.93	27	**2KJ3204- ■ DF23- ■ ■ E1 -Z**	–
	23	305	62.61	5930	1	27	**2KJ3204- ■ DF23- ■ ■ D1 -Z**	–
	Z.49-LE80ZMQ4P							
	28	255	52.14	6030	1.2	27	**2KJ3104- ■ DF23- ■ ■ B2 -Z**	–
	31	230	47.40	6080	1.4	27	**2KJ3104- ■ DF23- ■ ■ A2 -Z**	–
	36	199	40.31	6150	1.6	27	**2KJ3104- ■ DF23- ■ ■ X1 -Z**	–
	40	181	36.65	6180	1.8	27	**2KJ3104- ■ DF23- ■ ■ W1 -Z**	–
	44	162	32.70	6160	2	27	**2KJ3104- ■ DF23- ■ ■ V1 -Z**	–
	49	145	29.32	5990	2.2	27	**2KJ3104- ■ DF23- ■ ■ U1 -Z**	–
	55	131	26.43	5820	2.5	27	**2KJ3104- ■ DF23- ■ ■ T1 -Z**	–
	59	120	24.39	5700	2.7	27	**2KJ3104- ■ DF23- ■ ■ S1 -Z**	–
	65	110	22.27	5550	2.9	27	**2KJ3104- ■ DF23- ■ ■ R1 -Z**	–
	Z.39-LE80ZMQ4P							
	29	245	49.75	3240	0.81	16	**2KJ3103- ■ DF23- ■ ■ X1 -Z**	–
	33	215	43.68	3720	0.93	16	**2KJ3103- ■ DF23- ■ ■ W1 -Z**	–
	37	196	39.71	3910	1	16	**2KJ3103- ■ DF23- ■ ■ V1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**Z.39-LE80ZMQ4P**							
	43	168	33.97	4160	1.2	16	**2KJ3103- ■ DF23- ■ ■ U1 -Z**	–
	47	153	30.88	4280	1.3	16	**2KJ3103- ■ DF23- ■ ■ T1 -Z**	–
	53	135	27.30	4400	1.5	16	**2KJ3103- ■ DF23- ■ ■ S1 -Z**	–
	58	123	24.82	4460	1.6	16	**2KJ3103- ■ DF23- ■ ■ R1 -Z**	–
	67	107	21.74	4530	1.9	16	**2KJ3103- ■ DF23- ■ ■ Q1 -Z**	–
	72	99	20.07	4540	2	16	**2KJ3103- ■ DF23- ■ ■ P1 -Z**	–
	82	88	17.77	4540	2.3	16	**2KJ3103- ■ DF23- ■ ■ N1 -Z**	–
	98	73	14.79	4510	2.6	16	**2KJ3103- ■ DF23- ■ ■ M1 -Z**	–
	104	69	13.92	4480	2.7	16	**2KJ3103- ■ DF23- ■ ■ L1 -Z**	–
	116	62	12.47	4410	2.9	16	**2KJ3103- ■ DF23- ■ ■ K1 -Z**	–
	137	52	10.62	4210	3.2	16	**2KJ3103- ■ DF23- ■ ■ J1 -Z**	–
	159	45	9.10	4020	3.5	16	**2KJ3103- ■ DF23- ■ ■ H1 -Z**	–
	185	39	7.84	3850	3.8	16	**2KJ3103- ■ DF23- ■ ■ G1 -Z**	–
	224	32	6.46	3630	4.6	16	**2KJ3103- ■ DF23- ■ ■ F1 -Z**	–
	Z.29-LE80ZMQ4P							
	46	157	31.86	2890	0.89	15	**2KJ3102- ■ DF23- ■ ■ W1 -Z**	–
	50	143	28.96	3050	0.98	15	**2KJ3102- ■ DF23- ■ ■ V1 -Z**	–
	58	123	24.84	3230	1.1	15	**2KJ3102- ■ DF23- ■ ■ U1 -Z**	–
	64	112	22.58	3320	1.3	15	**2KJ3102- ■ DF23- ■ ■ T1 -Z**	–
	73	98	19.80	3320	1.4	15	**2KJ3102- ■ DF23- ■ ■ S1 -Z**	–
	82	87	17.67	3240	1.6	15	**2KJ3102- ■ DF23- ■ ■ R1 -Z**	–
	92	78	15.75	3150	1.8	15	**2KJ3102- ■ DF23- ■ ■ Q1 -Z**	–
	100	72	14.54	3090	1.7	15	**2KJ3102- ■ DF23- ■ ■ P1 -Z**	–
	114	63	12.73	2990	2.2	15	**2KJ3102- ■ DF23- ■ ■ N1 -Z**	–
	130	55	11.16	2890	2.5	15	**2KJ3102- ■ DF23- ■ ■ M1 -Z**	–
	143	50	10.12	2810	2.8	15	**2KJ3102- ■ DF23- ■ ■ L1 -Z**	–
	152	47	9.53	2770	3	15	**2KJ3102- ■ DF23- ■ ■ K1 -Z**	–
	173	42	8.40	2670	3.3	15	**2KJ3102- ■ DF23- ■ ■ J1 -Z**	–
	199	36	7.29	2570	3.6	15	**2KJ3102- ■ DF23- ■ ■ H1 -Z**	–
	210	34	6.92	2490	2.2	15	**2KJ3102- ■ DF23- ■ ■ G1 -Z**	–
	239	30	6.06	2400	3.3	15	**2KJ3102- ■ DF23- ■ ■ F1 -Z**	–
	273	26	5.31	2320	3.5	15	**2KJ3102- ■ DF23- ■ ■ E1 -Z**	–
	301	24	4.82	2250	3.6	15	**2KJ3102- ■ DF23- ■ ■ D1 -Z**	–
	319	22	4.54	2220	3.7	15	**2KJ3102- ■ DF23- ■ ■ C1 -Z**	–
	362	20	4.00	2130	3.8	15	**2KJ3102- ■ DF23- ■ ■ B1 -Z**	–
	418	17	3.47	2050	4.1	15	**2KJ3102- ■ DF23- ■ ■ A1 -Z**	–
	Z.29-LE80ME2P							
	161	44	17.67	2730	3.2	14	**2KJ3102- ■ DB23- ■ ■ R1 -Z**	**P00**
	181	40	15.75	2640	3.5	14	**2KJ3102- ■ DB23- ■ ■ Q1 -Z**	**P00**
	196	36	14.54	2590	3.3	14	**2KJ3102- ■ DB23- ■ ■ P1 -Z**	**P00**
	224	32	12.73	2490	4.4	14	**2KJ3102- ■ DB23- ■ ■ N1 -Z**	**P00**
	412	17	6.92	2060	4.3	14	**2KJ3102- ■ DB23- ■ ■ G1 -Z**	**P00**
	Z.19-LE80ZMQ4P							
	59	121	24.46	1220	0.83	13	**2KJ3101- ■ DF23- ■ ■ T1 -Z**	–
	70	103	20.82	1590	0.97	13	**2KJ3101- ■ DF23- ■ ■ S1 -Z**	–
	77	94	18.92	1770	1.1	13	**2KJ3101- ■ DF23- ■ ■ R1 -Z**	–
	88	82	16.50	1900	1.2	13	**2KJ3101- ■ DF23- ■ ■ Q1 -Z**	–
	98	73	14.77	1870	1.3	13	**2KJ3101- ■ DF23- ■ ■ P1 -Z**	–
	111	65	13.12	1830	1.4	13	**2KJ3101- ■ DF23- ■ ■ N1 -Z**	–
	120	60	12.11	1810	1.5	13	**2KJ3101- ■ DF23- ■ ■ M1 -Z**	–
	138	52	10.52	1760	1.6	13	**2KJ3101- ■ DF23- ■ ■ L1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**Z.19-LE80ZMQ4P**							
	159	45	9.14	1710	1.7	13	**2KJ3101- ■ DF23- ■ ■ K1 -Z**	**–**
	176	41	8.25	1670	1.8	13	**2KJ3101- ■ DF23- ■ ■ J1 -Z**	**–**
	187	38	7.76	1650	1.9	13	**2KJ3101- ■ DF23- ■ ■ H1 -Z**	**–**
	214	33	6.77	1600	2	13	**2KJ3101- ■ DF23- ■ ■ G1 -Z**	**–**
	232	31	6.25	1460	1.8	13	**2KJ3101- ■ DF23- ■ ■ F1 -Z**	**–**
	267	27	5.43	1420	2	13	**2KJ3101- ■ DF23- ■ ■ E1 -Z**	**–**
	308	23	4.71	1380	2.1	13	**2KJ3101- ■ DF23- ■ ■ D1 -Z**	**–**
	340	21	4.26	1350	2.2	13	**2KJ3101- ■ DF23- ■ ■ C1 -Z**	**–**
	362	20	4.01	1330	2.3	13	**2KJ3101- ■ DF23- ■ ■ B1 -Z**	**–**
	415	17	3.49	1290	2.5	13	**2KJ3101- ■ DF23- ■ ■ A1 -Z**	**–**
	Z.19-LE80ME2P							
	151	48	18.92	1730	2.1	13	**2KJ3101- ■ DB23- ■ ■ R1 -Z**	**P00**
	173	42	16.50	1680	2.4	13	**2KJ3101- ■ DB23- ■ ■ Q1 -Z**	**P00**
	193	37	14.77	1640	2.6	13	**2KJ3101- ■ DB23- ■ ■ P1 -Z**	**P00**
	217	33	13.12	1590	2.8	13	**2KJ3101- ■ DB23- ■ ■ N1 -Z**	**P00**
	235	30	12.11	1560	2.9	13	**2KJ3101- ■ DB23- ■ ■ M1 -Z**	**P00**
	271	26	10.52	1510	3.1	13	**2KJ3101- ■ DB23- ■ ■ L1 -Z**	**P00**
	312	23	9.14	1450	3.4	13	**2KJ3101- ■ DB23- ■ ■ K1 -Z**	**P00**
	345	21	8.25	1410	3.6	13	**2KJ3101- ■ DB23- ■ ■ J1 -Z**	**P00**
	367	20	7.76	1390	3.7	13	**2KJ3101- ■ DB23- ■ ■ H1 -Z**	**P00**
	421	17	6.77	1340	4	13	**2KJ3101- ■ DB23- ■ ■ G1 -Z**	**P00**
	456	16	6.25	1250	3.6	13	**2KJ3101- ■ DB23- ■ ■ F1 -Z**	**P00**
	525	14	5.43	1210	3.9	13	**2KJ3101- ■ DB23- ■ ■ E1 -Z**	**P00**
	605	12	4.71	1170	4.1	13	**2KJ3101- ■ DB23- ■ ■ D1 -Z**	**P00**
	669	11	4.26	1130	4.4	13	**2KJ3101- ■ DB23- ■ ■ C1 -Z**	**P00**
	711	10	4.01	1120	4.6	13	**2KJ3101- ■ DB23- ■ ■ B1 -Z**	**P00**
	817	8.8	3.49	1080	4.9	13	**2KJ3101- ■ DB23- ■ ■ A1 -Z**	**P00**
	E.69-LE80ZMQ4P							
	156	46	9.30	6100	2.6	30	**2KJ3003- ■ DF23- ■ ■ S1 -Z**	**–**
	172	42	8.45	6100	2.5	30	**2KJ3003- ■ DF23- ■ ■ R1 -Z**	**–**
	E.49-LE80ZMQ4P							
	149	48	9.70	4000	1.8	23	**2KJ3002- ■ DF23- ■ ■ S1 -Z**	**–**
	164	44	8.82	4000	2.5	23	**2KJ3002- ■ DF23- ■ ■ R1 -Z**	**–**
	193	37	7.50	4000	2.9	23	**2KJ3002- ■ DF23- ■ ■ Q1 -Z**	**–**
	213	34	6.82	4000	3.1	23	**2KJ3002- ■ DF23- ■ ■ P1 -Z**	**–**
	238	30	6.08	4000	3.5	23	**2KJ3002- ■ DF23- ■ ■ N1 -Z**	**–**
	266	27	5.45	4000	3.8	23	**2KJ3002- ■ DF23- ■ ■ M1 -Z**	**–**
	295	24	4.92	4000	4.2	23	**2KJ3002- ■ DF23- ■ ■ L1 -Z**	**–**
	319	22	4.54	4000	4.5	23	**2KJ3002- ■ DF23- ■ ■ K1 -Z**	**–**
	350	20	4.14	4000	5	23	**2KJ3002- ■ DF23- ■ ■ J1 -Z**	**–**
	E.39-LE80ZMQ4P							
	177	40	8.20	3000	0.84	17	**2KJ3001- ■ DF23- ■ ■ R1 -Z**	**–**
	201	36	7.20	3000	1.1	17	**2KJ3001- ■ DF23- ■ ■ Q1 -Z**	**–**
	221	32	6.55	3000	1.2	17	**2KJ3001- ■ DF23- ■ ■ P1 -Z**	**–**
	259	28	5.60	3000	1.4	17	**2KJ3001- ■ DF23- ■ ■ N1 -Z**	**–**
	285	25	5.09	3000	1.6	17	**2KJ3001- ■ DF23- ■ ■ M1 -Z**	**–**
	322	22	4.50	3000	2.2	17	**2KJ3001- ■ DF23- ■ ■ L1 -Z**	**–**
	355	20	4.09	3000	2.4	17	**2KJ3001- ■ DF23- ■ ■ K1 -Z**	**–**
	405	18	3.58	3000	3.3	17	**2KJ3001- ■ DF23- ■ ■ J1 -Z**	**–**
	438	16	3.31	3000	3.5	17	**2KJ3001- ■ DF23- ■ ■ H1 -Z**	**–**
	495	14	2.93	3000	4.5	17	**2KJ3001- ■ DF23- ■ ■ G1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**E.39-LE80ZMQ4P**							
	594	12	2.44	2980	5.4	17	**2KJ3001- ■ DF23- ■ ■ F1 -Z**	–
	633	11	2.29	2920	5.8	17	**2KJ3001- ■ DF23- ■ ■ E1 -Z**	–
1.1	**D.129-LE100ZLSA6P**							
	2.5	4120	373.00	27500	1.2	194	**2KJ3211- ■ FN23- ■ ■ S1 -Z**	**P01**
	2.8	3800	344.17	27700	1.3	194	**2KJ3211- ■ FN23- ■ ■ R1 -Z**	**P01**
	3	3500	316.90	27900	1.4	194	**2KJ3211- ■ FN23- ■ ■ Q1 -Z**	**P01**
	3.5	2980	270.24	28200	1.7	194	**2KJ3211- ■ FN23- ■ ■ P1 -Z**	**P01**
	3.7	2810	254.34	28300	1.8	194	**2KJ3211- ■ FN23- ■ ■ N1 -Z**	**P01**
	D.129-LE90SM4P							
	3.9	2720	373.00	28400	1.8	174	**2KJ3211- ■ EK23- ■ ■ S1 -Z**	–
	4.2	2510	344.17	28500	2	174	**2KJ3211- ■ EK23- ■ ■ R1 -Z**	–
	D.109-LE100ZLSA6P							
	2.7	3850	348.88	20000	0.8	130	**2KJ3210- ■ FN23- ■ ■ T1 -Z**	**P01**
	3	3480	314.98	20200	0.89	130	**2KJ3210- ■ FN23- ■ ■ S1 -Z**	**P01**
	3.3	3150	285.72	20200	0.98	130	**2KJ3210- ■ FN23- ■ ■ R1 -Z**	**P01**
	3.6	2910	263.74	20200	1.1	130	**2KJ3210- ■ FN23- ■ ■ Q1 -Z**	**P01**
	D.109-LE90SM4P							
	4.1	2540	348.88	20200	1.2	111	**2KJ3210- ■ EK23- ■ ■ T1 -Z**	–
	4.6	2290	314.98	20200	1.3	111	**2KJ3210- ■ EK23- ■ ■ S1 -Z**	–
	5	2080	285.72	20200	1.5	111	**2KJ3210- ■ EK23- ■ ■ R1 -Z**	–
	5.5	1920	263.74	20200	1.6	111	**2KJ3210- ■ EK23- ■ ■ Q1 -Z**	–
	6	1740	239.75	20200	1.8	111	**2KJ3210- ■ EK23- ■ ■ P1 -Z**	–
	7.1	1480	203.01	20200	2.1	111	**2KJ3210- ■ EK23- ■ ■ N1 -Z**	–
	D.89-LE90SM4P							
	5.1	2060	283.28	18100	0.81	69	**2KJ3208- ■ EK23- ■ ■ R1 -Z**	–
	5.7	1850	254.09	18500	0.91	69	**2KJ3208- ■ EK23- ■ ■ Q1 -Z**	–
	6.3	1660	228.45	18500	1	69	**2KJ3208- ■ EK23- ■ ■ P1 -Z**	–
	7	1500	206.62	18500	1.1	69	**2KJ3208- ■ EK23- ■ ■ N1 -Z**	–
	7.5	1390	190.73	18500	1.2	69	**2KJ3208- ■ EK23- ■ ■ M1 -Z**	–
	8.2	1270	174.71	18500	1.3	69	**2KJ3208- ■ EK23- ■ ■ L1 -Z**	–
	9.8	1060	146.59	18500	1.6	69	**2KJ3208- ■ EK23- ■ ■ K1 -Z**	–
	10	1000	137.97	18500	1.7	69	**2KJ3208- ■ EK23- ■ ■ J1 -Z**	–
	11	920	126.58	18500	1.8	69	**2KJ3208- ■ EK23- ■ ■ H1 -Z**	–
	13	805	110.57	18500	2.1	69	**2KJ3208- ■ EK23- ■ ■ G1 -Z**	–
	D.79-LE90SM4P							
	10	1020	141.04	11200	0.82	46	**2KJ3207- ■ EK23- ■ ■ J1 -Z**	–
	12	850	117.03	13400	0.98	46	**2KJ3207- ■ EK23- ■ ■ H1 -Z**	–
	13	800	110.14	13400	1	46	**2KJ3207- ■ EK23- ■ ■ G1 -Z**	–
	14	755	104.03	13500	1.1	46	**2KJ3207- ■ EK23- ■ ■ F1 -Z**	–
	16	645	88.52	13600	1.3	46	**2KJ3207- ■ EK23- ■ ■ E1 -Z**	–
	19	550	75.83	13800	1.5	46	**2KJ3207- ■ EK23- ■ ■ D1 -Z**	–
	22	485	66.67	13800	1.7	46	**2KJ3207- ■ EK23- ■ ■ C1 -Z**	–
	Z.79-LE90SM4P							
	26	395	54.47	14000	2.1	45	**2KJ3107- ■ EK23- ■ ■ A2 -Z**	–
	29	360	49.52	14000	2.3	45	**2KJ3107- ■ EK23- ■ ■ X1 -Z**	–
	D.69-LE90SM4P							
	17	630	86.82	10900	0.95	34	**2KJ3206- ■ EK23- ■ ■ F1 -Z**	–
	18	595	81.71	11000	1	34	**2KJ3206- ■ EK23- ■ ■ E1 -Z**	–
	20	530	73.22	11100	1.1	34	**2KJ3206- ■ EK23- ■ ■ D1 -Z**	–
	Z.69-LE90SM4P							
	24	445	60.97	11200	1.3	34	**2KJ3106- ■ EK23- ■ ■ A2 -Z**	–
	26	400	55.43	11300	1.5	34	**2KJ3106- ■ EK23- ■ ■ X1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**Z.69-LE90SM4P**							
	31	340	47.14	11400	1.7	34	**2KJ3106- ■ EK23- ■ ■ W1 -Z**	–
	34	310	42.86	11400	1.9	34	**2KJ3106- ■ EK23- ■ ■ V1 -Z**	–
	38	275	38.24	11500	2.2	34	**2KJ3106- ■ EK23- ■ ■ U1 -Z**	–
	42	250	34.29	11500	2.4	34	**2KJ3106- ■ EK23- ■ ■ T1 -Z**	–
	47	225	30.90	11500	2.7	34	**2KJ3106- ■ EK23- ■ ■ S1 -Z**	–
	D.59-LE90SM4P							
	19	555	76.38	6220	0.81	30	**2KJ3205- ■ EK23- ■ ■ E1 -Z**	–
	21	495	68.43	7300	0.9	30	**2KJ3205- ■ EK23- ■ ■ D1 -Z**	–
	Z.59-LE90SM4P							
	25	415	56.99	7720	1.1	29	**2KJ3105- ■ EK23- ■ ■ A2 -Z**	–
	28	375	51.81	7780	1.2	29	**2KJ3105- ■ EK23- ■ ■ X1 -Z**	–
	33	320	44.06	7860	1.4	29	**2KJ3105- ■ EK23- ■ ■ W1 -Z**	–
	36	290	40.06	7690	1.5	29	**2KJ3105- ■ EK23- ■ ■ V1 -Z**	–
	40	260	35.74	7480	1.7	29	**2KJ3105- ■ EK23- ■ ■ U1 -Z**	–
	45	230	32.05	7300	1.9	29	**2KJ3105- ■ EK23- ■ ■ T1 -Z**	–
	50	210	28.89	7100	2.1	29	**2KJ3105- ■ EK23- ■ ■ S1 -Z**	–
	54	194	26.66	6950	2.3	29	**2KJ3105- ■ EK23- ■ ■ R1 -Z**	–
	59	178	24.34	6780	2.5	29	**2KJ3105- ■ EK23- ■ ■ Q1 -Z**	–
	71	147	20.20	6450	3.1	29	**2KJ3105- ■ EK23- ■ ■ P1 -Z**	–
	76	139	19.01	6340	3.2	29	**2KJ3105- ■ EK23- ■ ■ N1 -Z**	–
	Z.49-LE90SM4P							
	28	380	52.14	5630	0.84	27	**2KJ3104- ■ EK23- ■ ■ B2 -Z**	–
	30	345	47.40	5850	0.93	27	**2KJ3104- ■ EK23- ■ ■ A2 -Z**	–
	36	290	40.31	5960	1.1	27	**2KJ3104- ■ EK23- ■ ■ X1 -Z**	–
	39	265	36.65	6010	1.2	27	**2KJ3104- ■ EK23- ■ ■ W1 -Z**	–
	44	235	32.70	5890	1.3	27	**2KJ3104- ■ EK23- ■ ■ V1 -Z**	–
	49	210	29.32	5750	1.5	27	**2KJ3104- ■ EK23- ■ ■ U1 -Z**	–
	54	193	26.43	5590	1.7	27	**2KJ3104- ■ EK23- ■ ■ T1 -Z**	–
	59	178	24.39	5480	1.8	27	**2KJ3104- ■ EK23- ■ ■ S1 -Z**	–
	65	162	22.27	5360	2	27	**2KJ3104- ■ EK23- ■ ■ R1 -Z**	–
	78	135	18.48	5100	2.4	27	**2KJ3104- ■ EK23- ■ ■ Q1 -Z**	–
	83	127	17.39	5020	2.5	27	**2KJ3104- ■ EK23- ■ ■ P1 -Z**	–
	88	120	16.42	4950	2.7	27	**2KJ3104- ■ EK23- ■ ■ N1 -Z**	–
	103	102	13.98	4730	3.1	27	**2KJ3104- ■ EK23- ■ ■ M1 -Z**	–
	120	87	11.97	4530	3.7	27	**2KJ3104- ■ EK23- ■ ■ L1 -Z**	–
	Z.39-LE90SM4P							
	42	245	33.97	2260	0.81	18	**2KJ3103- ■ EK23- ■ ■ U1 -Z**	–
	47	225	30.88	2500	0.89	18	**2KJ3103- ■ EK23- ■ ■ T1 -Z**	–
	53	199	27.30	2820	1	18	**2KJ3103- ■ EK23- ■ ■ S1 -Z**	–
	58	181	24.82	3020	1.1	18	**2KJ3103- ■ EK23- ■ ■ R1 -Z**	–
	66	159	21.74	3250	1.3	18	**2KJ3103- ■ EK23- ■ ■ Q1 -Z**	–
	72	146	20.07	3380	1.4	18	**2KJ3103- ■ EK23- ■ ■ P1 -Z**	–
	81	130	17.77	3500	1.5	18	**2KJ3103- ■ EK23- ■ ■ N1 -Z**	–
	97	108	14.79	3650	1.8	18	**2KJ3103- ■ EK23- ■ ■ M1 -Z**	–
	103	102	13.92	3670	1.9	18	**2KJ3103- ■ EK23- ■ ■ L1 -Z**	–
	115	91	12.47	3730	2	18	**2KJ3103- ■ EK23- ■ ■ K1 -Z**	–
	136	78	10.62	3740	2.2	18	**2KJ3103- ■ EK23- ■ ■ J1 -Z**	–
	158	66	9.10	3750	2.4	18	**2KJ3103- ■ EK23- ■ ■ H1 -Z**	–
	184	57	7.84	3710	2.6	18	**2KJ3103- ■ EK23- ■ ■ G1 -Z**	–
	223	47	6.46	3350	3.1	18	**2KJ3103- ■ EK23- ■ ■ F1 -Z**	–
	237	44	6.08	3340	3.3	18	**2KJ3103- ■ EK23- ■ ■ E1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**Z.39-LE90SM4P**							
	264	40	5.45	3300	3.5	18	**2KJ3103- ■ EK23- ■ ■ D1 -Z**	**–**
	310	34	4.64	3230	3.8	18	**2KJ3103- ■ EK23- ■ ■ C1 -Z**	**–**
	362	29	3.98	3090	4.2	18	**2KJ3103- ■ EK23- ■ ■ B1 -Z**	**–**
	420	25	3.43	2950	4.5	18	**2KJ3103- ■ EK23- ■ ■ A1 -Z**	**–**
	Z.39-LE80ZMJ2P							
	162	65	17.77	3730	3.1	16	**2KJ3103- ■ DM23- ■ ■ N1 -Z**	**P00**
	195	54	14.79	3690	3.6	16	**2KJ3103- ■ DM23- ■ ■ M1 -Z**	**P00**
	207	51	13.92	3630	3.7	16	**2KJ3103- ■ DM23- ■ ■ L1 -Z**	**P00**
	231	45	12.47	3530	4	16	**2KJ3103- ■ DM23- ■ ■ K1 -Z**	**P00**
	272	39	10.62	3360	4.4	16	**2KJ3103- ■ DM23- ■ ■ J1 -Z**	**P00**
	317	33	9.10	3210	4.8	16	**2KJ3103- ■ DM23- ■ ■ H1 -Z**	**P00**
	368	28	7.84	3070	5.2	16	**2KJ3103- ■ DM23- ■ ■ G1 -Z**	**P00**
	Z.29-LE90SM4P							
	64	165	22.58	1930	0.85	17	**2KJ3102- ■ EK23- ■ ■ T1 -Z**	**–**
	73	144	19.80	2220	0.97	17	**2KJ3102- ■ EK23- ■ ■ S1 -Z**	**–**
	81	129	17.67	2390	1.1	17	**2KJ3102- ■ EK23- ■ ■ R1 -Z**	**–**
	91	115	15.75	2540	1.2	17	**2KJ3102- ■ EK23- ■ ■ Q1 -Z**	**–**
	99	106	14.54	2630	1.1	17	**2KJ3102- ■ EK23- ■ ■ P1 -Z**	**–**
	113	93	12.73	2740	1.5	17	**2KJ3102- ■ EK23- ■ ■ N1 -Z**	**–**
	129	81	11.16	2750	1.7	17	**2KJ3102- ■ EK23- ■ ■ M1 -Z**	**–**
	142	74	10.12	2690	1.9	17	**2KJ3102- ■ EK23- ■ ■ L1 -Z**	**–**
	151	70	9.53	2650	2	17	**2KJ3102- ■ EK23- ■ ■ K1 -Z**	**–**
	171	61	8.40	2570	2.3	17	**2KJ3102- ■ EK23- ■ ■ J1 -Z**	**–**
	198	53	7.29	2480	2.4	17	**2KJ3102- ■ EK23- ■ ■ H1 -Z**	**–**
	208	50	6.92	2390	1.5	17	**2KJ3102- ■ EK23- ■ ■ G1 -Z**	**–**
	238	44	6.06	2310	2.3	17	**2KJ3102- ■ EK23- ■ ■ F1 -Z**	**–**
	271	39	5.31	2230	2.3	17	**2KJ3102- ■ EK23- ■ ■ E1 -Z**	**–**
	299	35	4.82	2180	2.4	17	**2KJ3102- ■ EK23- ■ ■ D1 -Z**	**–**
	317	33	4.54	2140	2.5	17	**2KJ3102- ■ EK23- ■ ■ C1 -Z**	**–**
	360	29	4.00	2070	2.6	17	**2KJ3102- ■ EK23- ■ ■ B1 -Z**	**–**
	415	25	3.47	2000	2.8	17	**2KJ3102- ■ EK23- ■ ■ A1 -Z**	**–**
	Z.29-LE80ZMJ2P							
	163	64	17.67	2600	2.2	15	**2KJ3102- ■ DM23- ■ ■ R1 -Z**	**P00**
	183	57	15.75	2530	2.4	15	**2KJ3102- ■ DM23- ■ ■ Q1 -Z**	**P00**
	198	53	14.54	2480	2.3	15	**2KJ3102- ■ DM23- ■ ■ P1 -Z**	**P00**
	227	46	12.73	2400	3	15	**2KJ3102- ■ DM23- ■ ■ N1 -Z**	**P00**
	259	41	11.16	2310	3.4	15	**2KJ3102- ■ DM23- ■ ■ M1 -Z**	**P00**
	285	37	10.12	2250	3.8	15	**2KJ3102- ■ DM23- ■ ■ L1 -Z**	**P00**
	303	35	9.53	2210	4	15	**2KJ3102- ■ DM23- ■ ■ K1 -Z**	**P00**
	Z.29-LE80ZMJ2P							
	343	31	8.40	2140	4.5	15	**2KJ3102- ■ DM23- ■ ■ J1 -Z**	**P00**
	396	26	7.29	2060	4.9	15	**2KJ3102- ■ DM23- ■ ■ H1 -Z**	**P00**
	417	25	6.92	1990	3	15	**2KJ3102- ■ DM23- ■ ■ G1 -Z**	**P00**
	476	22	6.06	1920	4.5	15	**2KJ3102- ■ DM23- ■ ■ F1 -Z**	**P00**
	543	19	5.31	1850	4.7	15	**2KJ3102- ■ DM23- ■ ■ E1 -Z**	**P00**
	599	18	4.82	1800	4.9	15	**2KJ3102- ■ DM23- ■ ■ D1 -Z**	**P00**
	635	16	4.54	1770	5.1	15	**2KJ3102- ■ DM23- ■ ■ C1 -Z**	**P00**
	721	15	4.00	1700	5.2	15	**2KJ3102- ■ DM23- ■ ■ B1 -Z**	**P00**
	831	13	3.47	1630	5.5	15	**2KJ3102- ■ DM23- ■ ■ A1 -Z**	**P00**
	Z.19-LE80ZMJ2P							
	152	69	18.92	1570	1.5	13	**2KJ3101- ■ DM23- ■ ■ R1 -Z**	**P00**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**Z.19-LE80ZMJ2P**							
	175	60	16.50	1540	1.6	13	**2KJ3101- ■ DM23- ■ ■ Q1 -Z**	**P00**
	195	54	14.77	1510	1.8	13	**2KJ3101- ■ DM23- ■ ■ P1 -Z**	**P00**
	220	48	13.12	1480	1.9	13	**2KJ3101- ■ DM23- ■ ■ N1 -Z**	**P00**
	238	44	12.11	1460	2	13	**2KJ3101- ■ DM23- ■ ■ M1 -Z**	**P00**
	274	38	10.52	1420	2.2	13	**2KJ3101- ■ DM23- ■ ■ L1 -Z**	**P00**
	316	33	9.14	1380	2.3	13	**2KJ3101- ■ DM23- ■ ■ K1 -Z**	**P00**
	350	30	8.25	1350	2.5	13	**2KJ3101- ■ DM23- ■ ■ J1 -Z**	**P00**
	372	28	7.76	1330	2.6	13	**2KJ3101- ■ DM23- ■ ■ H1 -Z**	**P00**
	426	25	6.77	1280	2.8	13	**2KJ3101- ■ DM23- ■ ■ G1 -Z**	**P00**
	462	23	6.25	1170	2.5	13	**2KJ3101- ■ DM23- ■ ■ F1 -Z**	**P00**
	531	20	5.43	1140	2.7	13	**2KJ3101- ■ DM23- ■ ■ E1 -Z**	**P00**
	613	17	4.71	1110	2.9	13	**2KJ3101- ■ DM23- ■ ■ D1 -Z**	**P00**
	677	16	4.26	1080	3	13	**2KJ3101- ■ DM23- ■ ■ C1 -Z**	**P00**
	719	15	4.01	1060	3.2	13	**2KJ3101- ■ DM23- ■ ■ B1 -Z**	**P00**
	827	13	3.49	1030	3.4	13	**2KJ3101- ■ DM23- ■ ■ A1 -Z**	**P00**
	E.89-LE90SM4P							
	149	70	9.67	8000	4	46	**2KJ3004- ■ EK23- ■ ■ T1 -Z**	**–**
	E.69-LE90SM4P							
	155	68	9.30	6100	1.8	30	**2KJ3003- ■ EK23- ■ ■ S1 -Z**	**–**
	170	62	8.45	6100	1.7	30	**2KJ3003- ■ EK23- ■ ■ R1 -Z**	**–**
	190	55	7.58	6100	3.7	30	**2KJ3003- ■ EK23- ■ ■ Q1 -Z**	**–**
	211	50	6.82	6100	3.4	30	**2KJ3003- ■ EK23- ■ ■ P1 -Z**	**–**
	233	45	6.17	6100	4.6	30	**2KJ3003- ■ EK23- ■ ■ N1 -Z**	**–**
	253	42	5.69	6100	4	30	**2KJ3003- ■ EK23- ■ ■ M1 -Z**	**–**
	E.49-LE90SM4P							
	148	71	9.70	4000	1.2	23	**2KJ3002- ■ EK23- ■ ■ S1 -Z**	**–**
	163	64	8.82	4000	1.7	23	**2KJ3002- ■ EK23- ■ ■ R1 -Z**	**–**
	192	55	7.50	4000	2	23	**2KJ3002- ■ EK23- ■ ■ Q1 -Z**	**–**
	211	50	6.82	4000	2.1	23	**2KJ3002- ■ EK23- ■ ■ P1 -Z**	**–**
	237	44	6.08	4000	2.3	23	**2KJ3002- ■ EK23- ■ ■ N1 -Z**	**–**
	264	40	5.45	4000	2.6	23	**2KJ3002- ■ EK23- ■ ■ M1 -Z**	**–**
	293	36	4.92	4000	2.8	23	**2KJ3002- ■ EK23- ■ ■ L1 -Z**	**–**
	317	33	4.54	4000	3.1	23	**2KJ3002- ■ EK23- ■ ■ K1 -Z**	**–**
	348	30	4.14	4000	3.4	23	**2KJ3002- ■ EK23- ■ ■ J1 -Z**	**–**
	419	25	3.44	4000	4	23	**2KJ3002- ■ EK23- ■ ■ H1 -Z**	**–**
	444	24	3.24	4000	4.3	23	**2KJ3002- ■ EK23- ■ ■ G1 -Z**	**–**
	471	22	3.06	4000	4.5	23	**2KJ3002- ■ EK23- ■ ■ F1 -Z**	**–**
	554	19	2.60	3920	5.4	23	**2KJ3002- ■ EK23- ■ ■ E1 -Z**	**–**
	E.39-LE90SM4P							
	220	48	6.55	3000	0.84	19	**2KJ3001- ■ EK23- ■ ■ P1 -Z**	**–**
	257	41	5.60	3000	0.98	19	**2KJ3001- ■ EK23- ■ ■ N1 -Z**	**–**
	283	37	5.09	3000	1.1	19	**2KJ3001- ■ EK23- ■ ■ M1 -Z**	**–**
	320	33	4.50	3000	1.5	19	**2KJ3001- ■ EK23- ■ ■ L1 -Z**	**–**
	352	30	4.09	3000	1.6	19	**2KJ3001- ■ EK23- ■ ■ K1 -Z**	**–**
	402	26	3.58	3000	2.2	19	**2KJ3001- ■ EK23- ■ ■ J1 -Z**	**–**
	435	24	3.31	3000	2.4	19	**2KJ3001- ■ EK23- ■ ■ H1 -Z**	**–**
	491	21	2.93	3000	3	19	**2KJ3001- ■ EK23- ■ ■ G1 -Z**	**–**
	590	18	2.44	2930	3.7	19	**2KJ3001- ■ EK23- ■ ■ F1 -Z**	**–**
	629	17	2.29	2880	4	19	**2KJ3001- ■ EK23- ■ ■ E1 -Z**	**–**
	699	15	2.06	2780	4.4	19	**2KJ3001- ■ EK23- ■ ■ D1 -Z**	**–**
	823	13	1.75	2640	5.2	19	**2KJ3001- ■ EK23- ■ ■ C1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**E.39-LE90SM4P**							
	960	11	1.50	2520	5.6	19	**2KJ3001- ■ EK23- ■ ■ B1 -Z**	**–**
	1116	9.4	1.29	2410	5.7	19	**2KJ3001- ■ EK23- ■ ■ A1 -Z**	**–**
1.5	**D.149-LE112ZMKA6P**							
	3	4820	328.38	52700	1.7	280	**2KJ3212- ■ GH23- ■ ■ W1 -Z**	**P01**
	3.5	4120	281.04	53000	1.9	280	**2KJ3212- ■ GH23- ■ ■ V1 -Z**	**P01**
	D.129-LE112ZMKA6P							
	2.6	5480	373.00	26700	0.91	194	**2KJ3211- ■ GH23- ■ ■ S1 -Z**	**P01**
	2.8	5050	344.17	27000	0.99	194	**2KJ3211- ■ GH23- ■ ■ R1 -Z**	**P01**
	3.1	4650	316.90	27200	1.1	194	**2KJ3211- ■ GH23- ■ ■ Q1 -Z**	**P01**
	3.6	3970	270.24	27600	1.3	194	**2KJ3211- ■ GH23- ■ ■ P1 -Z**	**P01**
	D.129-LE90ZLR4P							
	3.9	3690	373.00	27800	1.4	177	**2KJ3211- ■ EM23- ■ ■ S1 -Z**	**–**
	4.2	3410	344.17	28000	1.5	177	**2KJ3211- ■ EM23- ■ ■ R1 -Z**	**–**
	4.6	3140	316.90	28100	1.6	177	**2KJ3211- ■ EM23- ■ ■ Q1 -Z**	**–**
	5.3	2670	270.24	28400	1.9	177	**2KJ3211- ■ EM23- ■ ■ P1 -Z**	**–**
	5.7	2520	254.34	28500	2	177	**2KJ3211- ■ EM23- ■ ■ N1 -Z**	**–**
	6.1	2340	236.03	28600	2.1	177	**2KJ3211- ■ EM23- ■ ■ M1 -Z**	**–**
	D.109-LE112ZMKA6P							
	3.7	3870	263.74	20000	0.8	130	**2KJ3210- ■ GH23- ■ ■ Q1 -Z**	**P01**
	D.109-LE90ZLR4P							
	4.1	3450	348.88	20200	0.9	114	**2KJ3210- ■ EM23- ■ ■ T1 -Z**	**–**
	4.6	3120	314.98	20200	0.99	114	**2KJ3210- ■ EM23- ■ ■ S1 -Z**	**–**
	5.1	2830	285.72	20200	1.1	114	**2KJ3210- ■ EM23- ■ ■ R1 -Z**	**–**
	5.5	2610	263.74	20200	1.2	114	**2KJ3210- ■ EM23- ■ ■ Q1 -Z**	**–**
	6	2370	239.75	20200	1.3	114	**2KJ3210- ■ EM23- ■ ■ P1 -Z**	**–**
	7.1	2010	203.01	20200	1.5	114	**2KJ3210- ■ EM23- ■ ■ N1 -Z**	**–**
	7.6	1890	191.07	20200	1.6	114	**2KJ3210- ■ EM23- ■ ■ M1 -Z**	**–**
	8.2	1740	176.45	20200	1.8	114	**2KJ3210- ■ EM23- ■ ■ L1 -Z**	**–**
	9.2	1550	157.00	20200	2	114	**2KJ3210- ■ EM23- ■ ■ K1 -Z**	**–**
	10	1380	139.44	20200	2.2	114	**2KJ3210- ■ EM23- ■ ■ J1 -Z**	**–**
	D.89-LE90ZLR4P							
	7	2040	206.62	18300	0.82	72	**2KJ3208- ■ EM23- ■ ■ N1 -Z**	**–**
	7.6	1890	190.73	18500	0.89	72	**2KJ3208- ■ EM23- ■ ■ M1 -Z**	**–**
	8.3	1730	174.71	18500	0.97	72	**2KJ3208- ■ EM23- ■ ■ L1 -Z**	**–**
	9.9	1450	146.59	18500	1.2	72	**2KJ3208- ■ EM23- ■ ■ K1 -Z**	**–**
	10	1360	137.97	18500	1.2	72	**2KJ3208- ■ EM23- ■ ■ J1 -Z**	**–**
	11	1250	126.58	18500	1.3	72	**2KJ3208- ■ EM23- ■ ■ H1 -Z**	**–**
	13	1090	110.57	18500	1.5	72	**2KJ3208- ■ EM23- ■ ■ G1 -Z**	**–**
	15	980	98.99	18500	1.7	72	**2KJ3208- ■ EM23- ■ ■ F1 -Z**	**–**
	17	855	86.56	18500	2	72	**2KJ3208- ■ EM23- ■ ■ E1 -Z**	**–**
	19	735	74.30	18500	2.3	72	**2KJ3208- ■ EM23- ■ ■ D1 -Z**	**–**
	D.79-LE90ZLR4P							
	14	1030	104.03	11000	0.81	49	**2KJ3207- ■ EM23- ■ ■ F1 -Z**	**–**
	16	875	88.52	13300	0.96	49	**2KJ3207- ■ EM23- ■ ■ E1 -Z**	**–**
	19	750	75.83	13500	1.1	49	**2KJ3207- ■ EM23- ■ ■ D1 -Z**	**–**
	22	660	66.67	13600	1.3	49	**2KJ3207- ■ EM23- ■ ■ C1 -Z**	**–**
	Z.79-LE90ZLR4P							
	27	540	54.47	13800	1.6	48	**2KJ3107- ■ EM23- ■ ■ A2 -Z**	**–**
	29	490	49.52	13800	1.7	48	**2KJ3107- ■ EM23- ■ ■ X1 -Z**	**–**
	33	440	44.42	13900	1.9	48	**2KJ3107- ■ EM23- ■ ■ W1 -Z**	**–**
	36	395	39.94	14000	2.1	48	**2KJ3107- ■ EM23- ■ ■ V1 -Z**	**–**
	40	355	36.12	14000	2.3	48	**2KJ3107- ■ EM23- ■ ■ U1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**Z.79-LE90ZLR4P**							
	43	330	33.34	14000	2.5	48	**2KJ3107- ■ EM23- ■ ■ T1 -Z**	–
	47	300	30.54	14100	2.8	48	**2KJ3107- ■ EM23- ■ ■ S1 -Z**	–
	D.69-LE90ZLR4P							
	20	725	73.22	10700	0.83	37	**2KJ3206- ■ EM23- ■ ■ D1 -Z**	–
	Z.69-LE90ZLR4P							
	24	600	60.97	11000	0.99	37	**2KJ3106- ■ EM23- ■ ■ A2 -Z**	–
	26	550	55.43	11000	1.1	37	**2KJ3106- ■ EM23- ■ ■ X1 -Z**	–
	31	465	47.14	11200	1.3	37	**2KJ3106- ■ EM23- ■ ■ W1 -Z**	–
	34	425	42.86	11200	1.4	37	**2KJ3106- ■ EM23- ■ ■ V1 -Z**	–
	38	375	38.24	11300	1.6	37	**2KJ3106- ■ EM23- ■ ■ U1 -Z**	–
	42	340	34.29	11400	1.8	37	**2KJ3106- ■ EM23- ■ ■ T1 -Z**	–
	47	305	30.90	11400	2	37	**2KJ3106- ■ EM23- ■ ■ S1 -Z**	–
	51	280	28.53	11500	2.1	37	**2KJ3106- ■ EM23- ■ ■ R1 -Z**	–
	55	255	26.04	11500	2.3	37	**2KJ3106- ■ EM23- ■ ■ Q1 -Z**	–
	67	210	21.61	11600	2.8	37	**2KJ3106- ■ EM23- ■ ■ P1 -Z**	–
	71	200	20.34	11600	3	37	**2KJ3106- ■ EM23- ■ ■ N1 -Z**	–
	75	190	19.21	11600	3.2	37	**2KJ3106- ■ EM23- ■ ■ M1 -Z**	–
	Z.59-LE90ZLR4P							
	25	565	56.99	7210	0.8	32	**2KJ3105- ■ EM23- ■ ■ A2 -Z**	–
	28	510	51.81	7570	0.88	32	**2KJ3105- ■ EM23- ■ ■ X1 -Z**	–
	33	435	44.06	7400	1	32	**2KJ3105- ■ EM23- ■ ■ W1 -Z**	–
	36	395	40.06	7270	1.1	32	**2KJ3105- ■ EM23- ■ ■ V1 -Z**	–
	40	350	35.74	7120	1.3	32	**2KJ3105- ■ EM23- ■ ■ U1 -Z**	–
	45	315	32.05	6950	1.4	32	**2KJ3105- ■ EM23- ■ ■ T1 -Z**	–
	50	285	28.89	6790	1.6	32	**2KJ3105- ■ EM23- ■ ■ S1 -Z**	–
	54	260	26.66	6680	1.7	32	**2KJ3105- ■ EM23- ■ ■ R1 -Z**	–
	59	240	24.34	6530	1.9	32	**2KJ3105- ■ EM23- ■ ■ Q1 -Z**	–
	72	200	20.20	6240	2.2	32	**2KJ3105- ■ EM23- ■ ■ P1 -Z**	–
	76	188	19.01	6140	2.4	32	**2KJ3105- ■ EM23- ■ ■ N1 -Z**	–
	81	178	17.95	6050	2.5	32	**2KJ3105- ■ EM23- ■ ■ M1 -Z**	–
	95	151	15.27	5800	3	32	**2KJ3105- ■ EM23- ■ ■ L1 -Z**	–
	110	130	13.09	5560	3.5	32	**2KJ3105- ■ EM23- ■ ■ K1 -Z**	–
	Z.49-LE90ZLR4P							
	36	400	40.31	5300	0.8	30	**2KJ3104- ■ EM23- ■ ■ X1 -Z**	–
	39	360	36.65	5650	0.88	30	**2KJ3104- ■ EM23- ■ ■ W1 -Z**	–
	44	320	32.70	5550	0.99	30	**2KJ3104- ■ EM23- ■ ■ V1 -Z**	–
	49	290	29.32	5070	1.1	30	**2KJ3104- ■ EM23- ■ ■ U1 -Z**	–
	55	260	26.43	5320	1.2	30	**2KJ3104- ■ EM23- ■ ■ T1 -Z**	–
	59	240	24.39	5230	1.3	30	**2KJ3104- ■ EM23- ■ ■ S1 -Z**	–
	65	220	22.27	5120	1.4	30	**2KJ3104- ■ EM23- ■ ■ R1 -Z**	–
	78	183	18.48	4910	1.7	30	**2KJ3104- ■ EM23- ■ ■ Q1 -Z**	–
	83	172	17.39	4840	1.9	30	**2KJ3104- ■ EM23- ■ ■ P1 -Z**	–
	88	163	16.42	4770	2	30	**2KJ3104- ■ EM23- ■ ■ N1 -Z**	–
	103	139	13.98	4580	2.3	30	**2KJ3104- ■ EM23- ■ ■ M1 -Z**	–
	121	119	11.97	4400	2.7	30	**2KJ3104- ■ EM23- ■ ■ L1 -Z**	–
	137	104	10.53	4260	3.1	30	**2KJ3104- ■ EM23- ■ ■ K1 -Z**	–
	163	88	8.88	4060	3.6	30	**2KJ3104- ■ EM23- ■ ■ J1 -Z**	–
	187	77	7.74	3910	4.2	30	**2KJ3104- ■ EM23- ■ ■ H1 -Z**	–
	189	76	7.64	3870	3.9	30	**2KJ3104- ■ EM23- ■ ■ G1 -Z**	–
	200	72	7.21	3800	4.1	30	**2KJ3104- ■ EM23- ■ ■ F1 -Z**	–
	235	61	6.14	3640	4.4	30	**2KJ3104- ■ EM23- ■ ■ E1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**Z.49-LE90ZLR4P**							
	275	52	5.26	3480	4.7	30	**2KJ3104- ■ EM23- ■ ■ D1 -Z**	**–**
	313	46	4.62	3350	4.9	30	**2KJ3104- ■ EM23- ■ ■ C1 -Z**	**–**
	371	39	3.90	3180	5.3	30	**2KJ3104- ■ EM23- ■ ■ B1 -Z**	**–**
	Z.49-LE90SM2P							
	157	91	18.48	4100	3.5	27	**2KJ3104- ■ EK23- ■ ■ Q1 -Z**	**P00**
	167	86	17.39	4030	3.7	27	**2KJ3104- ■ EK23- ■ ■ P1 -Z**	**P00**
	177	81	16.42	3970	4	27	**2KJ3104- ■ EK23- ■ ■ N1 -Z**	**P00**
	Z.39-LE90ZLR4P							
	58	245	24.82	1420	0.81	21	**2KJ3103- ■ EM23- ■ ■ R1 -Z**	**–**
	66	215	21.74	1840	0.93	21	**2KJ3103- ■ EM23- ■ ■ Q1 -Z**	**–**
	72	199	20.07	2050	1	21	**2KJ3103- ■ EM23- ■ ■ P1 -Z**	**–**
	81	176	17.77	2350	1.1	21	**2KJ3103- ■ EM23- ■ ■ N1 -Z**	**–**
	98	147	14.79	2670	1.3	21	**2KJ3103- ■ EM23- ■ ■ M1 -Z**	**–**
	104	138	13.92	2770	1.4	21	**2KJ3103- ■ EM23- ■ ■ L1 -Z**	**–**
	116	124	12.47	2890	1.5	21	**2KJ3103- ■ EM23- ■ ■ K1 -Z**	**–**
	136	105	10.62	3060	1.6	21	**2KJ3103- ■ EM23- ■ ■ J1 -Z**	**–**
	159	90	9.10	3150	1.8	21	**2KJ3103- ■ EM23- ■ ■ H1 -Z**	**–**
	184	78	7.84	3180	1.9	21	**2KJ3103- ■ EM23- ■ ■ G1 -Z**	**–**
	224	64	6.46	2810	2.3	21	**2KJ3103- ■ EM23- ■ ■ F1 -Z**	**–**
	238	60	6.08	2840	2.4	21	**2KJ3103- ■ EM23- ■ ■ E1 -Z**	**–**
	265	54	5.45	2850	2.6	21	**2KJ3103- ■ EM23- ■ ■ D1 -Z**	**–**
	311	46	4.64	2870	2.8	21	**2KJ3103- ■ EM23- ■ ■ C1 -Z**	**–**
	363	40	3.98	2840	3.1	21	**2KJ3103- ■ EM23- ■ ■ B1 -Z**	**–**
	421	34	3.43	2830	3.3	21	**2KJ3103- ■ EM23- ■ ■ A1 -Z**	**–**
	Z.39-LE90SM2P							
	164	88	17.77	3140	2.3	18	**2KJ3103- ■ EK23- ■ ■ N1 -Z**	**P00**
	197	73	14.79	3200	2.7	18	**2KJ3103- ■ EK23- ■ ■ M1 -Z**	**P00**
	209	68	13.92	3220	2.8	18	**2KJ3103- ■ EK23- ■ ■ L1 -Z**	**P00**
	233	61	12.47	3220	2.9	18	**2KJ3103- ■ EK23- ■ ■ K1 -Z**	**P00**
	274	52	10.62	3200	3.2	18	**2KJ3103- ■ EK23- ■ ■ J1 -Z**	**P00**
	320	45	9.10	3140	3.5	18	**2KJ3103- ■ EK23- ■ ■ H1 -Z**	**P00**
	371	39	7.84	3010	3.8	18	**2KJ3103- ■ EK23- ■ ■ G1 -Z**	**P00**
	450	32	6.46	2810	4.6	18	**2KJ3103- ■ EK23- ■ ■ F1 -Z**	**P00**
	479	30	6.08	2790	4.9	18	**2KJ3103- ■ EK23- ■ ■ E1 -Z**	**P00**
	534	27	5.45	2700	5.2	18	**2KJ3103- ■ EK23- ■ ■ D1 -Z**	**P00**
	627	23	4.64	2580	5.7	18	**2KJ3103- ■ EK23- ■ ■ C1 -Z**	**P00**
	731	20	3.98	2460	6.2	18	**2KJ3103- ■ EK23- ■ ■ B1 -Z**	**P00**
	Z.29-LE90ZLR4P							
	82	175	17.67	1170	0.8	20	**2KJ3102- ■ EM23- ■ ■ R1 -Z**	**–**
	92	156	15.75	1450	0.9	20	**2KJ3102- ■ EM23- ■ ■ Q1 -Z**	**–**
	99	144	14.54	1620	0.83	20	**2KJ3102- ■ EM23- ■ ■ P1 -Z**	**–**
	114	126	12.73	1860	1.1	20	**2KJ3102- ■ EM23- ■ ■ N1 -Z**	**–**
	129	111	11.16	2040	1.3	20	**2KJ3102- ■ EM23- ■ ■ M1 -Z**	**–**
	143	100	10.12	2170	1.4	20	**2KJ3102- ■ EM23- ■ ■ L1 -Z**	**–**
	152	94	9.53	2230	1.5	20	**2KJ3102- ■ EM23- ■ ■ K1 -Z**	**–**
	172	83	8.40	2330	1.7	20	**2KJ3102- ■ EM23- ■ ■ J1 -Z**	**–**
	198	72	7.29	2370	1.8	20	**2KJ3102- ■ EM23- ■ ■ H1 -Z**	**–**
	209	69	6.92	2100	1.1	20	**2KJ3102- ■ EM23- ■ ■ G1 -Z**	**–**
	238	60	6.06	2190	1.7	20	**2KJ3102- ■ EM23- ■ ■ F1 -Z**	**–**
	272	53	5.31	2130	1.7	20	**2KJ3102- ■ EM23- ■ ■ E1 -Z**	**–**
	300	48	4.82	2090	1.8	20	**2KJ3102- ■ EM23- ■ ■ D1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**Z.29-LE90ZLR4P**							
	318	45	4.54	2060	1.9	20	**2KJ3102- ■ EM23- ■ ■ C1 -Z**	–
	361	40	4.00	1990	1.9	20	**2KJ3102- ■ EM23- ■ ■ B1 -Z**	–
	416	34	3.47	1930	2	20	**2KJ3102- ■ EM23- ■ ■ A1 -Z**	–
	Z.29-LE90SM2P							
	165	87	17.67	2290	1.6	17	**2KJ3102- ■ EK23- ■ ■ R1 -Z**	P00
	185	78	15.75	2350	1.8	17	**2KJ3102- ■ EK23- ■ ■ Q1 -Z**	P00
	200	72	14.54	2360	1.7	17	**2KJ3102- ■ EK23- ■ ■ P1 -Z**	P00
	229	63	12.73	2290	2.2	17	**2KJ3102- ■ EK23- ■ ■ N1 -Z**	P00
	261	55	11.16	2220	2.5	17	**2KJ3102- ■ EK23- ■ ■ M1 -Z**	P00
	288	50	10.12	2170	2.8	17	**2KJ3102- ■ EK23- ■ ■ L1 -Z**	P00
	305	47	9.53	2140	3	17	**2KJ3102- ■ EK23- ■ ■ K1 -Z**	P00
	346	41	8.40	2070	3.3	17	**2KJ3102- ■ EK23- ■ ■ J1 -Z**	P00
	399	36	7.29	2000	3.6	17	**2KJ3102- ■ EK23- ■ ■ H1 -Z**	P00
	421	34	6.92	1920	2.2	17	**2KJ3102- ■ EK23- ■ ■ G1 -Z**	P00
	480	30	6.06	1860	3.4	17	**2KJ3102- ■ EK23- ■ ■ F1 -Z**	P00
	548	26	5.31	1800	3.5	17	**2KJ3102- ■ EK23- ■ ■ E1 -Z**	P00
	604	24	4.82	1750	3.6	17	**2KJ3102- ■ EK23- ■ ■ D1 -Z**	P00
	641	22	4.54	1720	3.8	17	**2KJ3102- ■ EK23- ■ ■ C1 -Z**	P00
	728	20	4.00	1660	3.9	17	**2KJ3102- ■ EK23- ■ ■ B1 -Z**	P00
	839	17	3.47	1600	4.1	17	**2KJ3102- ■ EK23- ■ ■ A1 -Z**	P00
	E.89-LE90ZLR4P							
	149	96	9.67	8000	2.9	49	**2KJ3004- ■ EM23- ■ ■ T1 -Z**	–
	166	86	8.73	8000	3.2	49	**2KJ3004- ■ EM23- ■ ■ S1 -Z**	–
	182	78	7.92	8000	3.6	49	**2KJ3004- ■ EM23- ■ ■ R1 -Z**	–
	198	72	7.31	8000	3.6	49	**2KJ3004- ■ EM23- ■ ■ Q1 -Z**	–
	218	66	6.64	8000	3.9	49	**2KJ3004- ■ EM23- ■ ■ P1 -Z**	–
	273	52	5.29	8000	4	49	**2KJ3004- ■ EM23- ■ ■ M1 -Z**	–
	E.69-LE90ZLR4P							
	155	92	9.30	6100	1.3	33	**2KJ3003- ■ EM23- ■ ■ S1 -Z**	–
	171	84	8.45	6100	1.3	33	**2KJ3003- ■ EM23- ■ ■ R1 -Z**	–
	191	75	7.58	6100	2.7	33	**2KJ3003- ■ EM23- ■ ■ Q1 -Z**	–
	212	68	6.82	6100	2.5	33	**2KJ3003- ■ EM23- ■ ■ P1 -Z**	–
	234	61	6.17	6100	3.4	33	**2KJ3003- ■ EM23- ■ ■ N1 -Z**	–
	254	56	5.69	6100	2.9	33	**2KJ3003- ■ EM23- ■ ■ M1 -Z**	–
	277	52	5.21	6100	3.9	33	**2KJ3003- ■ EM23- ■ ■ L1 -Z**	–
	330	43	4.38	6100	4.6	33	**2KJ3003- ■ EM23- ■ ■ K1 -Z**	–
	351	41	4.12	6100	4	33	**2KJ3003- ■ EM23- ■ ■ J1 -Z**	–
	382	38	3.78	6100	5.3	33	**2KJ3003- ■ EM23- ■ ■ H1 -Z**	–
	E.49-LE90ZLR4P							
	149	96	9.70	4000	0.89	26	**2KJ3002- ■ EM23- ■ ■ S1 -Z**	–
	164	87	8.82	4000	1.2	26	**2KJ3002- ■ EM23- ■ ■ R1 -Z**	–
	193	74	7.50	4000	1.4	26	**2KJ3002- ■ EM23- ■ ■ Q1 -Z**	–
	212	68	6.82	4000	1.5	26	**2KJ3002- ■ EM23- ■ ■ P1 -Z**	–
	238	60	6.08	4000	1.7	26	**2KJ3002- ■ EM23- ■ ■ N1 -Z**	–
	265	54	5.45	4000	1.9	26	**2KJ3002- ■ EM23- ■ ■ M1 -Z**	–
	294	49	4.92	4000	2.1	26	**2KJ3002- ■ EM23- ■ ■ L1 -Z**	–
	318	45	4.54	4000	2.3	26	**2KJ3002- ■ EM23- ■ ■ K1 -Z**	–
	349	41	4.14	4000	2.5	26	**2KJ3002- ■ EM23- ■ ■ J1 -Z**	–
	420	34	3.44	4000	3	26	**2KJ3002- ■ EM23- ■ ■ H1 -Z**	–
	446	32	3.24	4000	3.1	26	**2KJ3002- ■ EM23- ■ ■ G1 -Z**	–
	472	30	3.06	4000	3.3	26	**2KJ3002- ■ EM23- ■ ■ F1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**E.49-LE90ZLR4P**							
	556	26	2.60	3860	4	26	**2KJ3002- ■ EM23- ■ ■ E1 -Z**	–
	648	22	2.23	3690	4.6	26	**2KJ3002- ■ EM23- ■ ■ D1 -Z**	–
	737	19	1.96	3540	5.3	26	**2KJ3002- ■ EM23- ■ ■ C1 -Z**	–
	876	16	1.65	3360	6.3	26	**2KJ3002- ■ EM23- ■ ■ B1 -Z**	–
	E.39-LE90ZLR4P							
	321	45	4.50	3000	1.1	22	**2KJ3001- ■ EM23- ■ ■ L1 -Z**	–
	353	40	4.09	3000	1.2	22	**2KJ3001- ■ EM23- ■ ■ K1 -Z**	–
	404	36	3.58	3000	1.6	22	**2KJ3001- ■ EM23- ■ ■ J1 -Z**	–
	437	33	3.31	3000	1.8	22	**2KJ3001- ■ EM23- ■ ■ H1 -Z**	–
	493	29	2.93	3000	2.2	22	**2KJ3001- ■ EM23- ■ ■ G1 -Z**	–
	592	24	2.44	2870	2.7	22	**2KJ3001- ■ EM23- ■ ■ F1 -Z**	–
	631	23	2.29	2820	2.9	22	**2KJ3001- ■ EM23- ■ ■ E1 -Z**	–
	701	20	2.06	2730	3.2	22	**2KJ3001- ■ EM23- ■ ■ D1 -Z**	–
	826	17	1.75	2600	3.8	22	**2KJ3001- ■ EM23- ■ ■ C1 -Z**	–
	963	15	1.50	2480	4.1	22	**2KJ3001- ■ EM23- ■ ■ B1 -Z**	–
	1120	13	1.29	2370	4.2	22	**2KJ3001- ■ EM23- ■ ■ A1 -Z**	–
2.2	**D.169-LE132SQA6P**							
	3	7050	327.18	72700	2	487	**2KJ3213- ■ HG23- ■ ■ V1 -Z**	**P01**
	D.149-LE132SQA6P							
	3	7070	328.38	51600	1.1	309	**2KJ3212- ■ HG23- ■ ■ W1 -Z**	**P01**
	3.5	6050	281.04	52100	1.3	309	**2KJ3212- ■ HG23- ■ ■ V1 -Z**	**P01**
	3.7	5700	264.51	52300	1.4	309	**2KJ3212- ■ HG23- ■ ■ U1 -Z**	**P01**
	3.9	5340	247.95	52400	1.5	309	**2KJ3212- ■ HG23- ■ ■ T1 -Z**	**P01**
	D.149-LE100ZLSA4P							
	4.5	4700	328.38	52700	1.7	278	**2KJ3212- ■ FN23- ■ ■ W1 -Z**	–
	5.2	4030	281.04	53100	2	278	**2KJ3212- ■ FN23- ■ ■ V1 -Z**	–
	5.5	3790	264.51	53200	2.1	278	**2KJ3212- ■ FN23- ■ ■ U1 -Z**	–
	D.129-LE132SQA6P							
	3.6	5820	270.24	26500	0.86	224	**2KJ3211- ■ HG23- ■ ■ P1 -Z**	**P01**
	D.129-LE100ZLSA4P							
	3.9	5340	373.00	26800	0.93	194	**2KJ3211- ■ FN23- ■ ■ S1 -Z**	–
	4.3	4930	344.17	27100	1	194	**2KJ3211- ■ FN23- ■ ■ R1 -Z**	–
	4.6	4540	316.90	27300	1.1	194	**2KJ3211- ■ FN23- ■ ■ Q1 -Z**	–
	5.4	3870	270.24	27700	1.3	194	**2KJ3211- ■ FN23- ■ ■ P1 -Z**	–
	5.8	3640	254.34	27800	1.4	194	**2KJ3211- ■ FN23- ■ ■ N1 -Z**	–
	6.2	3380	236.03	28000	1.5	194	**2KJ3211- ■ FN23- ■ ■ M1 -Z**	–
	7	2990	208.67	28200	1.7	194	**2KJ3211- ■ FN23- ■ ■ L1 -Z**	–
	7.9	2670	186.28	28400	1.9	194	**2KJ3211- ■ FN23- ■ ■ K1 -Z**	–
	8.7	2400	167.63	28500	2.1	194	**2KJ3211- ■ FN23- ■ ■ J1 -Z**	–
	D.109-LE100ZLSA4P							
	5.6	3780	263.74	20100	0.82	130	**2KJ3210- ■ FN23- ■ ■ Q1 -Z**	–
	6.1	3430	239.75	20200	0.9	130	**2KJ3210- ■ FN23- ■ ■ P1 -Z**	–
	7.2	2910	203.01	20200	1.1	130	**2KJ3210- ■ FN23- ■ ■ N1 -Z**	–
	7.7	2740	191.07	20200	1.1	130	**2KJ3210- ■ FN23- ■ ■ M1 -Z**	–
	8.3	2530	176.45	20200	1.2	130	**2KJ3210- ■ FN23- ■ ■ L1 -Z**	–
	9.3	2250	157.00	20200	1.4	130	**2KJ3210- ■ FN23- ■ ■ K1 -Z**	–
	11	2000	139.44	20200	1.6	130	**2KJ3210- ■ FN23- ■ ■ J1 -Z**	–
	12	1790	124.82	20200	1.7	130	**2KJ3210- ■ FN23- ■ ■ H1 -Z**	–
	14	1530	106.70	20200	2	130	**2KJ3210- ■ FN23- ■ ■ G1 -Z**	–
	D.89-LE100ZLSA4P							
	10	2100	146.59	17900	0.8	88	**2KJ3208- ■ FN23- ■ ■ K1 -Z**	–
	11	1970	137.97	18500	0.85	88	**2KJ3208- ■ FN23- ■ ■ J1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**D.89-LE100ZLSA4P**							
	12	1810	126.58	18500	0.93	88	**2KJ3208- ■ FN23- ■ ■ H1 -Z**	–
	13	1580	110.57	18500	1.1	88	**2KJ3208- ■ FN23- ■ ■ G1 -Z**	–
	15	1420	98.99	18500	1.2	88	**2KJ3208- ■ FN23- ■ ■ F1 -Z**	–
	17	1240	86.56	18500	1.4	88	**2KJ3208- ■ FN23- ■ ■ E1 -Z**	–
	20	1060	74.30	18500	1.6	88	**2KJ3208- ■ FN23- ■ ■ D1 -Z**	–
	22	940	65.67	18500	1.8	88	**2KJ3208- ■ FN23- ■ ■ C1 -Z**	–
	Z.89-LE100ZLSA4P							
	26	820	57.36	18500	2	87	**2KJ3108- ■ FN23- ■ ■ A2 -Z**	–
	28	740	51.78	18500	2.3	87	**2KJ3108- ■ FN23- ■ ■ X1 -Z**	–
	31	670	46.97	18500	2.5	87	**2KJ3108- ■ FN23- ■ ■ W1 -Z**	–
	D.79-LE100ZLSA4P							
	22	955	66.67	12200	0.88	65	**2KJ3207- ■ FN23- ■ ■ C1 -Z**	–
	26	805	56.25	13400	1	65	**2KJ3207- ■ FN23- ■ ■ B1 -Z**	–
	30	700	49.02	13600	1.2	65	**2KJ3207- ■ FN23- ■ ■ A1 -Z**	–
	Z.79-LE100ZLSA4P							
	33	635	44.42	13600	1.3	64	**2KJ3107- ■ FN23- ■ ■ W1 -Z**	–
	37	570	39.94	13700	1.5	64	**2KJ3107- ■ FN23- ■ ■ V1 -Z**	–
	41	515	36.12	13800	1.6	64	**2KJ3107- ■ FN23- ■ ■ U1 -Z**	–
	44	475	33.34	13900	1.8	64	**2KJ3107- ■ FN23- ■ ■ T1 -Z**	–
	48	435	30.54	13900	1.9	64	**2KJ3107- ■ FN23- ■ ■ S1 -Z**	–
	57	365	25.62	14000	2.3	64	**2KJ3107- ■ FN23- ■ ■ R1 -Z**	–
	61	345	24.12	14000	2.4	64	**2KJ3107- ■ FN23- ■ ■ Q1 -Z**	–
	66	315	22.13	14100	2.6	64	**2KJ3107- ■ FN23- ■ ■ P1 -Z**	–
	76	275	19.33	13600	3	64	**2KJ3107- ■ FN23- ■ ■ N1 -Z**	–
	D.69-LE100ZLSA4P							
	32	660	46.01	10800	0.91	55	**2KJ3206- ■ FN23- ■ ■ A1 -Z**	–
	Z.69-LE100ZLSA4P							
	38	545	38.24	11100	1.1	55	**2KJ3106- ■ FN23- ■ ■ U1 -Z**	–
	43	490	34.29	11100	1.2	55	**2KJ3106- ■ FN23- ■ ■ T1 -Z**	–
	47	440	30.90	11200	1.4	55	**2KJ3106- ■ FN23- ■ ■ S1 -Z**	–
	51	405	28.53	11300	1.5	55	**2KJ3106- ■ FN23- ■ ■ R1 -Z**	–
	56	370	26.04	11300	1.6	55	**2KJ3106- ■ FN23- ■ ■ Q1 -Z**	–
	68	310	21.61	11400	1.9	55	**2KJ3106- ■ FN23- ■ ■ P1 -Z**	–
	72	290	20.34	11400	2.1	55	**2KJ3106- ■ FN23- ■ ■ N1 -Z**	–
	76	275	19.21	11500	2.2	55	**2KJ3106- ■ FN23- ■ ■ M1 -Z**	–
	90	230	16.34	11000	2.6	55	**2KJ3106- ■ FN23- ■ ■ L1 -Z**	–
	105	200	14.00	10500	3	55	**2KJ3106- ■ FN23- ■ ■ K1 -Z**	–
	119	177	12.31	10100	3.4	55	**2KJ3106- ■ FN23- ■ ■ J1 -Z**	–
	172	122	8.50	9070	3.7	55	**2KJ3106- ■ FN23- ■ ■ F1 -Z**	–
	203	104	7.23	8630	4.3	55	**2KJ3106- ■ FN23- ■ ■ E1 -Z**	–
	Z.59-LE100ZLSA4P							
	41	510	35.74	6450	0.88	50	**2KJ3105- ■ FN23- ■ ■ U1 -Z**	–
	46	460	32.05	5980	0.98	50	**2KJ3105- ■ FN23- ■ ■ T1 -Z**	–
	51	410	28.89	6260	1.1	50	**2KJ3105- ■ FN23- ■ ■ S1 -Z**	–
	55	380	26.66	6170	1.2	50	**2KJ3105- ■ FN23- ■ ■ R1 -Z**	–
	60	345	24.34	6080	1.3	50	**2KJ3105- ■ FN23- ■ ■ Q1 -Z**	–
	73	290	20.20	5850	1.6	50	**2KJ3105- ■ FN23- ■ ■ P1 -Z**	–
	77	270	19.01	5790	1.7	50	**2KJ3105- ■ FN23- ■ ■ N1 -Z**	–
	82	255	17.95	5720	1.7	50	**2KJ3105- ■ FN23- ■ ■ M1 -Z**	–
	96	215	15.27	5520	2.1	50	**2KJ3105- ■ FN23- ■ ■ L1 -Z**	–
	112	188	13.09	5310	2.4	50	**2KJ3105- ■ FN23- ■ ■ K1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**Z.59-LE100ZLSA4P**							
	127	165	11.51	5140	2.7	50	**2KJ3105- ■ FN23- ■ ■ J1 -Z**	–
	151	139	9.71	4930	3.2	50	**2KJ3105- ■ FN23- ■ ■ H1 -Z**	–
	173	121	8.46	4750	3.7	50	**2KJ3105- ■ FN23- ■ ■ G1 -Z**	–
	182	116	8.07	4660	3.5	50	**2KJ3105- ■ FN23- ■ ■ F1 -Z**	–
	214	98	6.86	4470	4.2	50	**2KJ3105- ■ FN23- ■ ■ E1 -Z**	–
	Z.59-LE90ZLR2P							
	153	137	19.01	4910	3.3	32	**2KJ3105- ■ EM23- ■ ■ N1 -Z**	**P00**
	162	130	17.95	4830	3.5	32	**2KJ3105- ■ EM23- ■ ■ M1 -Z**	**P00**
	191	110	15.27	4630	4.1	32	**2KJ3105- ■ EM23- ■ ■ L1 -Z**	**P00**
	Z.49-LE100ZLSA4P							
	55	375	26.43	4830	0.84	48	**2KJ3104- ■ FN23- ■ ■ T1 -Z**	–
	60	350	24.39	4770	0.91	48	**2KJ3104- ■ FN23- ■ ■ S1 -Z**	–
	66	315	22.27	4720	1	48	**2KJ3104- ■ FN23- ■ ■ R1 -Z**	–
	79	265	18.48	4560	1.2	48	**2KJ3104- ■ FN23- ■ ■ Q1 -Z**	–
	84	245	17.39	4170	1.3	48	**2KJ3104- ■ FN23- ■ ■ P1 -Z**	–
	89	235	16.42	4230	1.4	48	**2KJ3104- ■ FN23- ■ ■ N1 -Z**	–
	105	200	13.98	4320	1.6	48	**2KJ3104- ■ FN23- ■ ■ M1 -Z**	–
	122	172	11.97	4170	1.9	48	**2KJ3104- ■ FN23- ■ ■ L1 -Z**	–
	139	151	10.53	4050	2.1	48	**2KJ3104- ■ FN23- ■ ■ K1 -Z**	–
	165	127	8.88	3890	2.5	48	**2KJ3104- ■ FN23- ■ ■ J1 -Z**	–
	189	111	7.74	3750	2.9	48	**2KJ3104- ■ FN23- ■ ■ H1 -Z**	–
	192	110	7.64	3700	2.7	48	**2KJ3104- ■ FN23- ■ ■ G1 -Z**	–
	203	103	7.21	3650	2.8	48	**2KJ3104- ■ FN23- ■ ■ F1 -Z**	–
	239	88	6.14	3500	3	48	**2KJ3104- ■ FN23- ■ ■ E1 -Z**	–
	279	75	5.26	3360	3.2	48	**2KJ3104- ■ FN23- ■ ■ D1 -Z**	–
	317	66	4.62	3250	3.4	48	**2KJ3104- ■ FN23- ■ ■ C1 -Z**	–
	376	56	3.90	3090	3.7	48	**2KJ3104- ■ FN23- ■ ■ B1 -Z**	–
	431	49	3.40	2970	3.9	48	**2KJ3104- ■ FN23- ■ ■ A1 -Z**	–
	Z.49-LE90ZLR2P							
	157	133	18.48	3930	2.4	30	**2KJ3104- ■ EM23- ■ ■ Q1 -Z**	**P00**
	167	126	17.39	3870	2.5	30	**2KJ3104- ■ EM23- ■ ■ P1 -Z**	**P00**
	177	119	16.42	3820	2.7	30	**2KJ3104- ■ EM23- ■ ■ N1 -Z**	**P00**
	208	101	13.98	3660	3.2	30	**2KJ3104- ■ EM23- ■ ■ M1 -Z**	**P00**
	243	86	11.97	3520	3.7	30	**2KJ3104- ■ EM23- ■ ■ L1 -Z**	**P00**
	276	76	10.53	3390	4.2	30	**2KJ3104- ■ EM23- ■ ■ K1 -Z**	**P00**
	328	64	8.88	3240	5	30	**2KJ3104- ■ EM23- ■ ■ J1 -Z**	**P00**
	381	55	7.64	3080	5.3	30	**2KJ3104- ■ EM23- ■ ■ G1 -Z**	**P00**
	Z.39-LE100ZLSA4P							
	99	210	14.79	1070	0.91	36	**2KJ3103- ■ FN23- ■ ■ M1 -Z**	–
	105	200	13.92	1190	0.95	36	**2KJ3103- ■ FN23- ■ ■ L1 -Z**	–
	117	179	12.47	1490	1	36	**2KJ3103- ■ FN23- ■ ■ K1 -Z**	–
	138	152	10.62	1860	1.1	36	**2KJ3103- ■ FN23- ■ ■ J1 -Z**	–
	161	131	9.10	2100	1.2	36	**2KJ3103- ■ FN23- ■ ■ H1 -Z**	–
	187	112	7.84	2310	1.3	36	**2KJ3103- ■ FN23- ■ ■ G1 -Z**	–
	227	93	6.46	1880	1.6	36	**2KJ3103- ■ FN23- ■ ■ F1 -Z**	–
	241	87	6.08	1970	1.7	36	**2KJ3103- ■ FN23- ■ ■ E1 -Z**	–
	269	78	5.45	2080	1.8	36	**2KJ3103- ■ FN23- ■ ■ D1 -Z**	–
	316	66	4.64	2220	2	36	**2KJ3103- ■ FN23- ■ ■ C1 -Z**	–
	368	57	3.98	2290	2.1	36	**2KJ3103- ■ FN23- ■ ■ B1 -Z**	–
	427	49	3.43	2340	2.3	36	**2KJ3103- ■ FN23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code -Z with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**Z.39-LE90ZLR2P**							
	164	128	17.77	2140	1.6	21	**2KJ3103- ■ EM23- ■ ■ N1 -Z**	**P00**
	197	107	14.79	2350	1.8	21	**2KJ3103- ■ EM23- ■ ■ M1 -Z**	**P00**
	209	101	13.92	2400	1.9	21	**2KJ3103- ■ EM23- ■ ■ L1 -Z**	**P00**
	233	90	12.47	2500	2	21	**2KJ3103- ■ EM23- ■ ■ K1 -Z**	**P00**
	274	77	10.62	2570	2.2	21	**2KJ3103- ■ EM23- ■ ■ J1 -Z**	**P00**
	320	66	9.10	2620	2.4	21	**2KJ3103- ■ EM23- ■ ■ H1 -Z**	**P00**
	371	57	7.84	2640	2.6	21	**2KJ3103- ■ EM23- ■ ■ G1 -Z**	**P00**
	450	47	6.46	2340	3.1	21	**2KJ3103- ■ EM23- ■ ■ F1 -Z**	**P00**
	479	44	6.08	2350	3.3	21	**2KJ3103- ■ EM23- ■ ■ E1 -Z**	**P00**
	534	39	5.45	2380	3.6	21	**2KJ3103- ■ EM23- ■ ■ D1 -Z**	**P00**
	627	34	4.64	2350	3.9	21	**2KJ3103- ■ EM23- ■ ■ C1 -Z**	**P00**
	731	29	3.98	2330	4.2	21	**2KJ3103- ■ EM23- ■ ■ B1 -Z**	**P00**
	848	25	3.43	2300	4.5	21	**2KJ3103- ■ EM23- ■ ■ A1 -Z**	**P00**
	Z.29-LE100ZLSA4P							
	131	160	11.16	715	0.87	34	**2KJ3102- ■ FN23- ■ ■ M1 -Z**	**–**
	145	145	10.12	955	0.96	34	**2KJ3102- ■ FN23- ■ ■ L1 -Z**	**–**
	154	137	9.53	1070	1	34	**2KJ3102- ■ FN23- ■ ■ K1 -Z**	**–**
	174	120	8.40	1330	1.1	34	**2KJ3102- ■ FN23- ■ ■ J1 -Z**	**–**
	201	105	7.29	1520	1.2	34	**2KJ3102- ■ FN23- ■ ■ H1 -Z**	**–**
	242	87	6.06	1340	1.2	34	**2KJ3102- ■ FN23- ■ ■ F1 -Z**	**–**
	276	76	5.31	1510	1.2	34	**2KJ3102- ■ FN23- ■ ■ E1 -Z**	**–**
	304	69	4.82	1600	1.2	34	**2KJ3102- ■ FN23- ■ ■ D1 -Z**	**–**
	323	65	4.54	1650	1.3	34	**2KJ3102- ■ FN23- ■ ■ C1 -Z**	**–**
	366	57	4.00	1750	1.3	34	**2KJ3102- ■ FN23- ■ ■ B1 -Z**	**–**
	422	50	3.47	1800	1.4	34	**2KJ3102- ■ FN23- ■ ■ A1 -Z**	**–**
	Z.29-LE90ZLR2P							
	165	128	17.67	1200	1.1	20	**2KJ3102- ■ EM23- ■ ■ R1 -Z**	**P00**
	185	114	15.75	1400	1.2	20	**2KJ3102- ■ EM23- ■ ■ Q1 -Z**	**P00**
	200	105	14.54	1520	1.1	20	**2KJ3102- ■ EM23- ■ ■ P1 -Z**	**P00**
	229	92	12.73	1680	1.5	20	**2KJ3102- ■ EM23- ■ ■ N1 -Z**	**P00**
	261	81	11.16	1790	1.7	20	**2KJ3102- ■ EM23- ■ ■ M1 -Z**	**P00**
	288	73	10.12	1880	1.9	20	**2KJ3102- ■ EM23- ■ ■ L1 -Z**	**P00**
	305	69	9.53	1910	2	20	**2KJ3102- ■ EM23- ■ ■ K1 -Z**	**P00**
	346	61	8.40	1960	2.3	20	**2KJ3102- ■ EM23- ■ ■ J1 -Z**	**P00**
	399	53	7.29	1900	2.5	20	**2KJ3102- ■ EM23- ■ ■ H1 -Z**	**P00**
	421	50	6.92	1810	1.5	20	**2KJ3102- ■ EM23- ■ ■ G1 -Z**	**P00**
	480	44	6.06	1760	2.3	20	**2KJ3102- ■ EM23- ■ ■ F1 -Z**	**P00**
	548	38	5.31	1710	2.4	20	**2KJ3102- ■ EM23- ■ ■ E1 -Z**	**P00**
	604	35	4.82	1670	2.5	20	**2KJ3102- ■ EM23- ■ ■ D1 -Z**	**P00**
	641	33	4.54	1650	2.6	20	**2KJ3102- ■ EM23- ■ ■ C1 -Z**	**P00**
	728	29	4.00	1600	2.6	20	**2KJ3102- ■ EM23- ■ ■ B1 -Z**	**P00**
	839	25	3.47	1540	2.8	20	**2KJ3102- ■ EM23- ■ ■ A1 -Z**	**P00**
	E.89-LE100ZLSA4P							
	151	139	9.67	8000	2	65	**2KJ3004- ■ FN23- ■ ■ T1 -Z**	**–**
	168	125	8.73	8000	2.2	65	**2KJ3004- ■ FN23- ■ ■ S1 -Z**	**–**
	185	114	7.92	8000	2.5	65	**2KJ3004- ■ FN23- ■ ■ R1 -Z**	**–**
	200	105	7.31	8000	2.5	65	**2KJ3004- ■ FN23- ■ ■ Q1 -Z**	**–**
	221	95	6.64	8000	2.7	65	**2KJ3004- ■ FN23- ■ ■ P1 -Z**	**–**
	261	81	5.62	8000	4	65	**2KJ3004- ■ FN23- ■ ■ N1 -Z**	**–**
	277	76	5.29	8000	2.8	65	**2KJ3004- ■ FN23- ■ ■ M1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**E.69-LE100ZLSA4P**							
	193	109	7.58	6100	1.9	51	**2KJ3003- ■ FN23- ■ ■ Q1 -Z**	–
	215	98	6.82	6100	1.7	51	**2KJ3003- ■ FN23- ■ ■ P1 -Z**	–
	237	88	6.17	6100	2.3	51	**2KJ3003- ■ FN23- ■ ■ N1 -Z**	–
	257	82	5.69	6100	2	51	**2KJ3003- ■ FN23- ■ ■ M1 -Z**	–
	281	75	5.21	6100	2.7	51	**2KJ3003- ■ FN23- ■ ■ L1 -Z**	–
	334	63	4.38	6100	3.2	51	**2KJ3003- ■ FN23- ■ ■ K1 -Z**	–
	356	59	4.12	6100	2.8	51	**2KJ3003- ■ FN23- ■ ■ J1 -Z**	–
	388	54	3.78	6100	3.7	51	**2KJ3003- ■ FN23- ■ ■ H1 -Z**	–
	444	47	3.30	6100	4.2	51	**2KJ3003- ■ FN23- ■ ■ G1 -Z**	–
	497	42	2.95	6100	4.7	51	**2KJ3003- ■ FN23- ■ ■ F1 -Z**	–
	568	37	2.58	6100	5.3	51	**2KJ3003- ■ FN23- ■ ■ E1 -Z**	–
	E.49-LE100ZLSA4P							
	241	87	6.08	4000	1.2	44	**2KJ3002- ■ FN23- ■ ■ N1 -Z**	–
	269	78	5.45	4000	1.3	44	**2KJ3002- ■ FN23- ■ ■ M1 -Z**	–
	298	71	4.92	4000	1.4	44	**2KJ3002- ■ FN23- ■ ■ L1 -Z**	–
	323	65	4.54	4000	1.6	44	**2KJ3002- ■ FN23- ■ ■ K1 -Z**	–
	354	59	4.14	4000	1.7	44	**2KJ3002- ■ FN23- ■ ■ J1 -Z**	–
	426	49	3.44	4000	2	44	**2KJ3002- ■ FN23- ■ ■ H1 -Z**	–
	452	46	3.24	4000	2.2	44	**2KJ3002- ■ FN23- ■ ■ G1 -Z**	–
	479	44	3.06	3950	2.3	44	**2KJ3002- ■ FN23- ■ ■ F1 -Z**	–
	563	37	2.60	3770	2.7	44	**2KJ3002- ■ FN23- ■ ■ E1 -Z**	–
	657	32	2.23	3590	3.2	44	**2KJ3002- ■ FN23- ■ ■ D1 -Z**	–
	747	28	1.96	3460	3.7	44	**2KJ3002- ■ FN23- ■ ■ C1 -Z**	–
	888	24	1.65	3280	4.4	44	**2KJ3002- ■ FN23- ■ ■ B1 -Z**	–
	1017	21	1.44	3140	4.9	44	**2KJ3002- ■ FN23- ■ ■ A1 -Z**	–
	E.39-LE100ZLSA4P							
	358	59	4.09	2880	0.82	37	**2KJ3001- ■ FN23- ■ ■ K1 -Z**	–
	409	51	3.58	2950	1.1	37	**2KJ3001- ■ FN23- ■ ■ J1 -Z**	–
	443	48	3.31	2960	1.2	37	**2KJ3001- ■ FN23- ■ ■ H1 -Z**	–
	500	42	2.93	2890	1.5	37	**2KJ3001- ■ FN23- ■ ■ G1 -Z**	–
	600	35	2.44	2750	1.9	37	**2KJ3001- ■ FN23- ■ ■ F1 -Z**	–
	640	33	2.29	2710	2	37	**2KJ3001- ■ FN23- ■ ■ E1 -Z**	–
	711	30	2.06	2620	2.2	37	**2KJ3001- ■ FN23- ■ ■ D1 -Z**	–
	837	25	1.75	2510	2.6	37	**2KJ3001- ■ FN23- ■ ■ C1 -Z**	–
	977	22	1.50	2400	2.8	37	**2KJ3001- ■ FN23- ■ ■ B1 -Z**	–
	1136	18	1.29	2300	2.9	37	**2KJ3001- ■ FN23- ■ ■ A1 -Z**	–
3	**D.169-LE132SQB6P**							
	3	9610	327.18	71800	1.5	485	**2KJ3213- ■ HH23- ■ ■ V1 -Z**	**P01**
	3.2	8970	305.28	72000	1.6	485	**2KJ3213- ■ HH23- ■ ■ U1 -Z**	**P01**
	3.6	7970	271.40	72400	1.8	485	**2KJ3213- ■ HH23- ■ ■ T1 -Z**	**P01**
	4	7160	243.68	72700	2	485	**2KJ3213- ■ HH23- ■ ■ S1 -Z**	**P01**
	D.149-LE132SQB6P							
	3	9640	328.38	50400	0.83	307	**2KJ3212- ■ HH23- ■ ■ W1 -Z**	**P01**
	3.5	8250	281.04	51000	0.97	307	**2KJ3212- ■ HH23- ■ ■ V1 -Z**	**P01**
	3.7	7770	264.51	51300	1	307	**2KJ3212- ■ HH23- ■ ■ U1 -Z**	**P01**
	3.9	7280	247.95	51500	1.1	307	**2KJ3212- ■ HH23- ■ ■ T1 -Z**	**P01**
	D.149-LE100ZLSB4P							
	4.4	6440	328.38	51900	1.2	278	**2KJ3212- ■ FP23- ■ ■ W1 -Z**	–
	5.2	5510	281.04	52400	1.5	278	**2KJ3212- ■ FP23- ■ ■ V1 -Z**	–
	5.5	5190	264.51	52500	1.5	278	**2KJ3212- ■ FP23- ■ ■ U1 -Z**	–
	5.9	4860	247.95	52700	1.6	278	**2KJ3212- ■ FP23- ■ ■ T1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**D.149-LE100ZLSB4P**							
	6.6	4310	219.80	52900	1.9	278	**2KJ3212- ■ FP23- ■ ■ S1 -Z**	–
	7.5	3830	195.24	53100	2.1	278	**2KJ3212- ■ FP23- ■ ■ R1 -Z**	–
	D.129-LE100ZLSB4P							
	4.6	6210	316.90	26300	0.8	194	**2KJ3211- ■ FP23- ■ ■ Q1 -Z**	–
	5.4	5300	270.24	26800	0.94	194	**2KJ3211- ■ FP23- ■ ■ P1 -Z**	–
	5.7	4990	254.34	27000	1	194	**2KJ3211- ■ FP23- ■ ■ N1 -Z**	–
	6.2	4630	236.03	27200	1.1	194	**2KJ3211- ■ FP23- ■ ■ M1 -Z**	–
	7	4090	208.67	27600	1.2	194	**2KJ3211- ■ FP23- ■ ■ L1 -Z**	–
	7.8	3650	186.28	27800	1.4	194	**2KJ3211- ■ FP23- ■ ■ K1 -Z**	–
	8.7	3280	167.63	28000	1.5	194	**2KJ3211- ■ FP23- ■ ■ J1 -Z**	–
	10	2850	145.49	28300	1.8	194	**2KJ3211- ■ FP23- ■ ■ H1 -Z**	–
	11	2560	130.84	28400	1.9	194	**2KJ3211- ■ FP23- ■ ■ G1 -Z**	–
	13	2240	114.36	28600	2.2	194	**2KJ3211- ■ FP23- ■ ■ F1 -Z**	–
	D.109-LE100ZLSB4P							
	7.6	3740	191.07	20100	0.83	130	**2KJ3210- ■ FP23- ■ ■ M1 -Z**	–
	8.3	3460	176.45	20200	0.9	130	**2KJ3210- ■ FP23- ■ ■ L1 -Z**	–
	9.3	3080	157.00	20200	1	130	**2KJ3210- ■ FP23- ■ ■ K1 -Z**	–
	10	2730	139.44	20200	1.1	130	**2KJ3210- ■ FP23- ■ ■ J1 -Z**	–
	12	2440	124.82	20200	1.3	130	**2KJ3210- ■ FP23- ■ ■ H1 -Z**	–
	14	2090	106.70	20200	1.5	130	**2KJ3210- ■ FP23- ■ ■ G1 -Z**	–
	15	1870	95.28	20200	1.7	130	**2KJ3210- ■ FP23- ■ ■ F1 -Z**	–
	17	1650	84.21	20200	1.9	130	**2KJ3210- ■ FP23- ■ ■ E1 -Z**	–
	20	1450	73.90	20200	2.1	130	**2KJ3210- ■ FP23- ■ ■ D1 -Z**	–
	D.89-LE100ZLSB4P							
	15	1940	98.99	18500	0.86	88	**2KJ3208- ■ FP23- ■ ■ F1 -Z**	–
	17	1690	86.56	18500	0.99	88	**2KJ3208- ■ FP23- ■ ■ E1 -Z**	–
	20	1450	74.30	18500	1.2	88	**2KJ3208- ■ FP23- ■ ■ D1 -Z**	–
	22	1280	65.67	18500	1.3	88	**2KJ3208- ■ FP23- ■ ■ C1 -Z**	–
	Z.89-LE100ZLSB4P							
	25	1120	57.36	18500	1.5	87	**2KJ3108- ■ FP23- ■ ■ A2 -Z**	–
	28	1010	51.78	18500	1.7	87	**2KJ3108- ■ FP23- ■ ■ X1 -Z**	–
	31	920	46.97	18500	1.8	87	**2KJ3108- ■ FP23- ■ ■ W1 -Z**	–
	34	850	43.36	18500	2	87	**2KJ3108- ■ FP23- ■ ■ V1 -Z**	–
	37	770	39.41	18500	2.2	87	**2KJ3108- ■ FP23- ■ ■ U1 -Z**	–
	44	655	33.38	18500	2.6	87	**2KJ3108- ■ FP23- ■ ■ T1 -Z**	–
	46	615	31.41	18500	2.7	87	**2KJ3108- ■ FP23- ■ ■ S1 -Z**	–
	D.79-LE100ZLSB4P							
	30	960	49.02	10700	0.87	65	**2KJ3207- ■ FP23- ■ ■ A1 -Z**	–
	Z.79-LE100ZLSB4P							
	33	870	44.42	11300	0.96	64	**2KJ3107- ■ FP23- ■ ■ W1 -Z**	–
	37	780	39.94	11800	1.1	64	**2KJ3107- ■ FP23- ■ ■ V1 -Z**	–
	40	705	36.12	12100	1.2	64	**2KJ3107- ■ FP23- ■ ■ U1 -Z**	–
	44	650	33.34	12400	1.3	64	**2KJ3107- ■ FP23- ■ ■ T1 -Z**	–
	48	595	30.54	12600	1.4	64	**2KJ3107- ■ FP23- ■ ■ S1 -Z**	–
	57	500	25.62	12800	1.7	64	**2KJ3107- ■ FP23- ■ ■ R1 -Z**	–
	61	470	24.12	12800	1.8	64	**2KJ3107- ■ FP23- ■ ■ Q1 -Z**	–
	66	430	22.13	12800	1.9	64	**2KJ3107- ■ FP23- ■ ■ P1 -Z**	–
	76	375	19.33	12800	2.2	64	**2KJ3107- ■ FP23- ■ ■ N1 -Z**	–
	84	340	17.31	12700	2.5	64	**2KJ3107- ■ FP23- ■ ■ M1 -Z**	–
	96	295	15.13	12400	2.8	64	**2KJ3107- ■ FP23- ■ ■ L1 -Z**	–
	112	255	12.99	11900	3.3	64	**2KJ3107- ■ FP23- ■ ■ K1 -Z**	–
	127	225	11.48	11500	3.7	64	**2KJ3107- ■ FP23- ■ ■ J1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**Z.69-LE100ZLSB4P**							
	38	750	38.24	9080	0.8	55	**2KJ3106- ■ FP23- ■ ■ U1 -Z**	–
	43	670	34.29	9830	0.89	55	**2KJ3106- ■ FP23- ■ ■ T1 -Z**	–
	47	605	30.90	10300	0.99	55	**2KJ3106- ■ FP23- ■ ■ S1 -Z**	–
	51	560	28.53	10600	1.1	55	**2KJ3106- ■ FP23- ■ ■ R1 -Z**	–
	56	510	26.04	11000	1.2	55	**2KJ3106- ■ FP23- ■ ■ Q1 -Z**	–
	68	420	21.61	11200	1.4	55	**2KJ3106- ■ FP23- ■ ■ P1 -Z**	–
	72	395	20.34	11300	1.5	55	**2KJ3106- ■ FP23- ■ ■ N1 -Z**	–
	76	375	19.21	11200	1.6	55	**2KJ3106- ■ FP23- ■ ■ M1 -Z**	–
	89	320	16.34	10700	1.9	55	**2KJ3106- ■ FP23- ■ ■ L1 -Z**	–
	104	275	14.00	10300	2.2	55	**2KJ3106- ■ FP23- ■ ■ K1 -Z**	–
	119	240	12.31	9960	2.5	55	**2KJ3106- ■ FP23- ■ ■ J1 -Z**	–
	141	200	10.39	9490	2.9	55	**2KJ3106- ■ FP23- ■ ■ H1 -Z**	–
	161	178	9.05	9110	3.3	55	**2KJ3106- ■ FP23- ■ ■ G1 -Z**	–
	172	167	8.50	8930	2.7	55	**2KJ3106- ■ FP23- ■ ■ F1 -Z**	–
	202	142	7.23	8520	3.2	55	**2KJ3106- ■ FP23- ■ ■ E1 -Z**	–
	235	122	6.20	8130	3.7	55	**2KJ3106- ■ FP23- ■ ■ D1 -Z**	–
	268	107	5.45	7820	4	55	**2KJ3106- ■ FP23- ■ ■ C1 -Z**	–
	317	90	4.60	7430	4.9	55	**2KJ3106- ■ FP23- ■ ■ B1 -Z**	–
	Z.59-LE100ZLSB4P							
	55	520	26.66	5630	0.86	50	**2KJ3105- ■ FP23- ■ ■ R1 -Z**	–
	60	475	24.34	5580	0.94	50	**2KJ3105- ■ FP23- ■ ■ Q1 -Z**	–
	72	395	20.20	5130	1.1	50	**2KJ3105- ■ FP23- ■ ■ P1 -Z**	–
	77	370	19.01	5330	1.2	50	**2KJ3105- ■ FP23- ■ ■ N1 -Z**	–
	81	350	17.95	5350	1.3	50	**2KJ3105- ■ FP23- ■ ■ M1 -Z**	–
	96	300	15.27	5190	1.5	50	**2KJ3105- ■ FP23- ■ ■ L1 -Z**	–
	112	255	13.09	5050	1.8	50	**2KJ3105- ■ FP23- ■ ■ K1 -Z**	–
	127	225	11.51	4910	2	50	**2KJ3105- ■ FP23- ■ ■ J1 -Z**	–
	150	191	9.71	4730	2.4	50	**2KJ3105- ■ FP23- ■ ■ H1 -Z**	–
	173	166	8.46	4580	2.7	50	**2KJ3105- ■ FP23- ■ ■ G1 -Z**	–
	181	158	8.07	4500	2.6	50	**2KJ3105- ■ FP23- ■ ■ F1 -Z**	–
	213	135	6.86	4320	3	50	**2KJ3105- ■ FP23- ■ ■ E1 -Z**	–
	248	115	5.88	4160	3.6	50	**2KJ3105- ■ FP23- ■ ■ D1 -Z**	–
	282	101	5.17	4020	4	50	**2KJ3105- ■ FP23- ■ ■ C1 -Z**	–
	335	86	4.36	3840	4.7	50	**2KJ3105- ■ FP23- ■ ■ B1 -Z**	–
	384	75	3.80	3700	5.4	50	**2KJ3105- ■ FP23- ■ ■ A1 -Z**	–
	Z.49-LE100ZLSB4P							
	79	360	18.48	4190	0.88	48	**2KJ3104- ■ FP23- ■ ■ Q1 -Z**	–
	84	340	17.39	4160	0.94	48	**2KJ3104- ■ FP23- ■ ■ P1 -Z**	–
	89	320	16.42	4130	0.99	48	**2KJ3104- ■ FP23- ■ ■ N1 -Z**	–
	104	270	13.98	4050	1.2	48	**2KJ3104- ■ FP23- ■ ■ M1 -Z**	–
	122	235	11.97	3930	1.4	48	**2KJ3104- ■ FP23- ■ ■ L1 -Z**	–
	139	205	10.53	3600	1.5	48	**2KJ3104- ■ FP23- ■ ■ K1 -Z**	–
	164	174	8.88	3710	1.8	48	**2KJ3104- ■ FP23- ■ ■ J1 -Z**	–
	189	152	7.74	3600	2.1	48	**2KJ3104- ■ FP23- ■ ■ H1 -Z**	–
	191	150	7.64	3220	2	48	**2KJ3104- ■ FP23- ■ ■ G1 -Z**	–
	202	141	7.21	3350	2	48	**2KJ3104- ■ FP23- ■ ■ F1 -Z**	–
	238	120	6.14	3370	2.2	48	**2KJ3104- ■ FP23- ■ ■ E1 -Z**	–
	278	103	5.26	3250	2.4	48	**2KJ3104- ■ FP23- ■ ■ D1 -Z**	–
	316	91	4.62	3140	2.5	48	**2KJ3104- ■ FP23- ■ ■ C1 -Z**	–
	374	76	3.90	3010	2.7	48	**2KJ3104- ■ FP23- ■ ■ B1 -Z**	–
	429	67	3.40	2900	2.9	48	**2KJ3104- ■ FP23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**Z.39-LE100ZLSB4P**							
	137	205	10.62	540	0.81	36	**2KJ3103- ■ FP23- ■ ■ J1 -Z**	–
	160	179	9.10	905	0.88	36	**2KJ3103- ■ FP23- ■ ■ H1 -Z**	–
	186	154	7.84	1270	0.96	36	**2KJ3103- ■ FP23- ■ ■ G1 -Z**	–
	226	127	6.46	820	1.2	36	**2KJ3103- ■ FP23- ■ ■ F1 -Z**	–
	240	119	6.08	975	1.2	36	**2KJ3103- ■ FP23- ■ ■ E1 -Z**	–
	268	107	5.45	1180	1.3	36	**2KJ3103- ■ FP23- ■ ■ D1 -Z**	–
	315	91	4.64	1440	1.4	36	**2KJ3103- ■ FP23- ■ ■ C1 -Z**	–
	367	78	3.98	1630	1.5	36	**2KJ3103- ■ FP23- ■ ■ B1 -Z**	–
	426	67	3.43	1780	1.7	36	**2KJ3103- ■ FP23- ■ ■ A1 -Z**	–
	Z.29-LE100ZLSB4P							
	174	165	8.40	145	0.84	34	**2KJ3102- ■ FP23- ■ ■ J1 -Z**	–
	200	143	7.29	515	0.91	34	**2KJ3102- ■ FP23- ■ ■ H1 -Z**	–
	241	119	6.06	355	0.84	34	**2KJ3102- ■ FP23- ■ ■ F1 -Z**	–
	275	104	5.31	645	0.87	34	**2KJ3102- ■ FP23- ■ ■ E1 -Z**	–
	303	95	4.82	800	0.91	34	**2KJ3102- ■ FP23- ■ ■ D1 -Z**	–
	322	89	4.54	915	0.94	34	**2KJ3102- ■ FP23- ■ ■ C1 -Z**	–
	365	78	4.00	1100	0.97	34	**2KJ3102- ■ FP23- ■ ■ B1 -Z**	–
	421	68	3.47	1250	1	34	**2KJ3102- ■ FP23- ■ ■ A1 -Z**	–
	E.129-LE100ZLSB4P							
	149	192	9.79	13500	3.5	114	**2KJ3006- ■ FP23- ■ ■ T1 -Z**	–
	174	164	8.38	13500	4	114	**2KJ3006- ■ FP23- ■ ■ S1 -Z**	–
	185	155	7.88	13500	4.3	114	**2KJ3006- ■ FP23- ■ ■ R1 -Z**	–
	E.109-LE100ZLSB4P							
	203	141	7.19	10500	4	89	**2KJ3005- ■ FP23- ■ ■ Q1 -Z**	–
	216	133	6.76	10500	4.3	89	**2KJ3005- ■ FP23- ■ ■ P1 -Z**	–
	232	123	6.28	10500	4.6	89	**2KJ3005- ■ FP23- ■ ■ N1 -Z**	–
	E.89-LE100ZLSB4P							
	151	190	9.67	8000	1.5	65	**2KJ3004- ■ FP23- ■ ■ T1 -Z**	–
	167	171	8.73	8000	1.6	65	**2KJ3004- ■ FP23- ■ ■ S1 -Z**	–
	184	155	7.92	8000	1.8	65	**2KJ3004- ■ FP23- ■ ■ R1 -Z**	–
	200	143	7.31	8000	1.8	65	**2KJ3004- ■ FP23- ■ ■ Q1 -Z**	–
	220	130	6.64	8000	2	65	**2KJ3004- ■ FP23- ■ ■ P1 -Z**	–
	260	110	5.62	8000	2.9	65	**2KJ3004- ■ FP23- ■ ■ N1 -Z**	–
	276	104	5.29	8000	2	65	**2KJ3004- ■ FP23- ■ ■ M1 -Z**	–
	299	96	4.89	8000	3.8	65	**2KJ3004- ■ FP23- ■ ■ L1 -Z**	–
	336	85	4.35	8000	4.2	65	**2KJ3004- ■ FP23- ■ ■ K1 -Z**	–
	378	76	3.86	8000	4.8	65	**2KJ3004- ■ FP23- ■ ■ J1 -Z**	–
	422	68	3.46	8000	5.4	65	**2KJ3004- ■ FP23- ■ ■ H1 -Z**	–
	E.69-LE100ZLSB4P							
	193	149	7.58	6100	1.4	51	**2KJ3003- ■ FP23- ■ ■ Q1 -Z**	–
	214	134	6.82	6100	1.3	51	**2KJ3003- ■ FP23- ■ ■ P1 -Z**	–
	237	121	6.17	6100	1.7	51	**2KJ3003- ■ FP23- ■ ■ N1 -Z**	–
	257	112	5.69	6100	1.5	51	**2KJ3003- ■ FP23- ■ ■ M1 -Z**	–
	280	102	5.21	6100	2	51	**2KJ3003- ■ FP23- ■ ■ L1 -Z**	–
	333	86	4.38	6100	2.3	51	**2KJ3003- ■ FP23- ■ ■ K1 -Z**	–
	354	81	4.12	6100	2	51	**2KJ3003- ■ FP23- ■ ■ J1 -Z**	–
	386	74	3.78	6100	2.7	51	**2KJ3003- ■ FP23- ■ ■ H1 -Z**	–
	442	65	3.30	6100	3.1	51	**2KJ3003- ■ FP23- ■ ■ G1 -Z**	–
	495	58	2.95	6100	3.5	51	**2KJ3003- ■ FP23- ■ ■ F1 -Z**	–
	566	51	2.58	6100	3.9	51	**2KJ3003- ■ FP23- ■ ■ E1 -Z**	–
	658	44	2.22	6100	4.5	51	**2KJ3003- ■ FP23- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**E.69-LE100ZLSB4P**							
	745	38	1.96	6100	5.1	51	**2KJ3003- ■ FP23- ■ ■ C1 -Z**	–
	874	33	1.67	6100	6	51	**2KJ3003- ■ FP23- ■ ■ B1 -Z**	–
	E.49-LE100ZLSB4P							
	240	119	6.08	4000	0.87	44	**2KJ3002- ■ FP23- ■ ■ N1 -Z**	–
	268	107	5.45	4000	0.96	44	**2KJ3002- ■ FP23- ■ ■ M1 -Z**	–
	297	96	4.92	4000	1.1	44	**2KJ3002- ■ FP23- ■ ■ L1 -Z**	–
	322	89	4.54	4000	1.1	44	**2KJ3002- ■ FP23- ■ ■ K1 -Z**	–
	353	81	4.14	4000	1.3	44	**2KJ3002- ■ FP23- ■ ■ J1 -Z**	–
	424	68	3.44	3950	1.5	44	**2KJ3002- ■ FP23- ■ ■ H1 -Z**	–
	451	64	3.24	3890	1.6	44	**2KJ3002- ■ FP23- ■ ■ G1 -Z**	–
	477	60	3.06	3840	1.7	44	**2KJ3002- ■ FP23- ■ ■ F1 -Z**	–
	562	51	2.60	3670	2	44	**2KJ3002- ■ FP23- ■ ■ E1 -Z**	–
	655	44	2.23	3510	2.3	44	**2KJ3002- ■ FP23- ■ ■ D1 -Z**	–
	745	38	1.96	3390	2.7	44	**2KJ3002- ■ FP23- ■ ■ C1 -Z**	–
	885	32	1.65	3220	3.2	44	**2KJ3002- ■ FP23- ■ ■ B1 -Z**	–
	1014	28	1.44	3090	3.6	44	**2KJ3002- ■ FP23- ■ ■ A1 -Z**	–
	E.39-LE100ZLSB4P							
	408	70	3.58	1870	0.83	37	**2KJ3001- ■ FP23- ■ ■ J1 -Z**	–
	441	65	3.31	2000	0.89	37	**2KJ3001- ■ FP23- ■ ■ H1 -Z**	–
	498	58	2.93	2030	1.1	37	**2KJ3001- ■ FP23- ■ ■ G1 -Z**	–
	638	45	2.29	2260	1.5	37	**2KJ3001- ■ FP23- ■ ■ E1 -Z**	–
	709	40	2.06	2270	1.6	37	**2KJ3001- ■ FP23- ■ ■ D1 -Z**	–
	834	34	1.75	2290	1.9	37	**2KJ3001- ■ FP23- ■ ■ C1 -Z**	–
	973	29	1.50	2300	2.1	37	**2KJ3001- ■ FP23- ■ ■ B1 -Z**	–
	1132	25	1.29	2230	2.1	37	**2KJ3001- ■ FP23- ■ ■ A1 -Z**	–
4	**D.189-LE132MJ6P**							
	3.1	12200	313.63	107000	1.5	698	**2KJ3214- ■ HK23- ■ ■ T1 -Z**	**P01**
	3.5	10900	280.59	107000	1.7	698	**2KJ3214- ■ HK23- ■ ■ S1 -Z**	**P01**
	3.9	9910	253.06	107000	1.9	698	**2KJ3214- ■ HK23- ■ ■ R1 -Z**	**P01**
	D.169-LE132MJ6P							
	3	12800	327.18	70600	1.1	485	**2KJ3213- ■ HK23- ■ ■ V1 -Z**	**P01**
	3.2	11900	305.28	70900	1.2	485	**2KJ3213- ■ HK23- ■ ■ U1 -Z**	**P01**
	3.6	10600	271.40	71400	1.3	485	**2KJ3213- ■ HK23- ■ ■ T1 -Z**	**P01**
	4	9540	243.68	71800	1.5	485	**2KJ3213- ■ HK23- ■ ■ S1 -Z**	**P01**
	D.169-LE112ZMKB4P							
	4.5	8560	327.18	72200	1.6	458	**2KJ3213- ■ GJ23- ■ ■ V1 -Z**	–
	4.8	7980	305.28	72400	1.8	458	**2KJ3213- ■ GJ23- ■ ■ U1 -Z**	–
	5.4	7100	271.40	72700	2	458	**2KJ3213- ■ GJ23- ■ ■ T1 -Z**	–
	D.149-LE132MJ6P							
	3.9	9710	247.95	50300	0.82	307	**2KJ3212- ■ HK23- ■ ■ T1 -Z**	**P01**
	D.149-LE112ZMKB4P							
	4.4	8590	328.38	50900	0.93	280	**2KJ3212- ■ GJ23- ■ ■ W1 -Z**	–
	5.2	7350	281.04	51500	1.1	280	**2KJ3212- ■ GJ23- ■ ■ V1 -Z**	–
	5.5	6920	264.51	51700	1.2	280	**2KJ3212- ■ GJ23- ■ ■ U1 -Z**	–
	5.9	6480	247.95	51900	1.2	280	**2KJ3212- ■ GJ23- ■ ■ T1 -Z**	–
	6.6	5750	219.80	52200	1.4	280	**2KJ3212- ■ GJ23- ■ ■ S1 -Z**	–
	7.5	5100	195.24	52600	1.6	280	**2KJ3212- ■ GJ23- ■ ■ R1 -Z**	–
	8.3	4610	176.18	52800	1.7	280	**2KJ3212- ■ GJ23- ■ ■ Q1 -Z**	–
	9.4	4080	156.11	53000	2	280	**2KJ3212- ■ GJ23- ■ ■ P1 -Z**	–
	11	3610	138.26	53300	2.2	280	**2KJ3212- ■ GJ23- ■ ■ N1 -Z**	–
	D.129-LE112ZMKB4P							
	6.2	6170	236.03	26300	0.81	194	**2KJ3211- ■ GJ23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**D.129-LE112ZMKB4P**							
	7	5460	208.67	26700	0.92	194	**2KJ3211- ■ GJ23- ■ ■ L1 -Z**	–
	7.8	4870	186.28	27100	1	194	**2KJ3211- ■ GJ23- ■ ■ K1 -Z**	–
	8.7	4380	167.63	27400	1.1	194	**2KJ3211- ■ GJ23- ■ ■ J1 -Z**	–
	10	3800	145.49	27700	1.3	194	**2KJ3211- ■ GJ23- ■ ■ H1 -Z**	–
	11	3420	130.84	27900	1.5	194	**2KJ3211- ■ GJ23- ■ ■ G1 -Z**	–
	13	2990	114.36	28200	1.7	194	**2KJ3211- ■ GJ23- ■ ■ F1 -Z**	–
	14	2670	102.05	28400	1.9	194	**2KJ3211- ■ GJ23- ■ ■ E1 -Z**	–
	16	2350	89.91	28600	2.1	194	**2KJ3211- ■ GJ23- ■ ■ D1 -Z**	–
	D.109-LE112ZMKB4P							
	10	3640	139.44	20200	0.85	130	**2KJ3210- ■ GJ23- ■ ■ J1 -Z**	–
	12	3260	124.82	20200	0.95	130	**2KJ3210- ■ GJ23- ■ ■ H1 -Z**	–
	14	2790	106.70	20200	1.1	130	**2KJ3210- ■ GJ23- ■ ■ G1 -Z**	–
	15	2490	95.28	20200	1.2	130	**2KJ3210- ■ GJ23- ■ ■ F1 -Z**	–
	17	2200	84.21	20200	1.4	130	**2KJ3210- ■ GJ23- ■ ■ E1 -Z**	–
	20	1930	73.90	20200	1.6	130	**2KJ3210- ■ GJ23- ■ ■ D1 -Z**	–
	23	1680	64.34	20200	1.8	130	**2KJ3210- ■ GJ23- ■ ■ C1 -Z**	–
	Z.109-LE112ZMKB4P							
	29	1330	51.17	20200	2.3	128	**2KJ3110- ■ GJ23- ■ ■ X1 -Z**	–
	D.89-LE112ZMKB4P							
	20	1940	74.30	18500	0.86	88	**2KJ3208- ■ GJ23- ■ ■ D1 -Z**	–
	22	1710	65.67	18500	0.98	88	**2KJ3208- ■ GJ23- ■ ■ C1 -Z**	–
	Z.89-LE112ZMKB4P							
	25	1500	57.36	18500	1.1	87	**2KJ3108- ■ GJ23- ■ ■ A2 -Z**	–
	28	1350	51.78	18500	1.2	87	**2KJ3108- ■ GJ23- ■ ■ X1 -Z**	–
	31	1220	46.97	18500	1.4	87	**2KJ3108- ■ GJ23- ■ ■ W1 -Z**	–
	34	1130	43.36	18500	1.5	87	**2KJ3108- ■ GJ23- ■ ■ V1 -Z**	–
	37	1030	39.41	18500	1.6	87	**2KJ3108- ■ GJ23- ■ ■ U1 -Z**	–
	44	870	33.38	18500	1.9	87	**2KJ3108- ■ GJ23- ■ ■ T1 -Z**	–
	46	820	31.41	18500	2	87	**2KJ3108- ■ GJ23- ■ ■ S1 -Z**	–
	50	755	29.01	18500	2.2	87	**2KJ3108- ■ GJ23- ■ ■ R1 -Z**	–
	57	675	25.81	18500	2.5	87	**2KJ3108- ■ GJ23- ■ ■ Q1 -Z**	–
	64	600	22.92	18500	2.8	87	**2KJ3108- ■ GJ23- ■ ■ P1 -Z**	–
	71	535	20.52	18500	3.1	87	**2KJ3108- ■ GJ23- ■ ■ N1 -Z**	–
	Z.79-LE112ZMKB4P							
	37	1040	39.94	13100	0.8	65	**2KJ3107- ■ GJ23- ■ ■ V1 -Z**	–
	40	945	36.12	13200	0.89	65	**2KJ3107- ■ GJ23- ■ ■ U1 -Z**	–
	44	870	33.34	13300	0.96	65	**2KJ3107- ■ GJ23- ■ ■ T1 -Z**	–
	48	795	30.54	13400	1.1	65	**2KJ3107- ■ GJ23- ■ ■ S1 -Z**	–
	57	670	25.62	10200	1.3	65	**2KJ3107- ■ GJ23- ■ ■ R1 -Z**	–
	61	630	24.12	10400	1.3	65	**2KJ3107- ■ GJ23- ■ ■ Q1 -Z**	–
	66	575	22.13	10700	1.5	65	**2KJ3107- ■ GJ23- ■ ■ P1 -Z**	–
	76	505	19.33	10900	1.7	65	**2KJ3107- ■ GJ23- ■ ■ N1 -Z**	–
	84	450	17.31	11000	1.9	65	**2KJ3107- ■ GJ23- ■ ■ M1 -Z**	–
	96	395	15.13	11100	2.1	65	**2KJ3107- ■ GJ23- ■ ■ L1 -Z**	–
	112	340	12.99	11000	2.5	65	**2KJ3107- ■ GJ23- ■ ■ K1 -Z**	–
	127	300	11.48	11000	2.8	65	**2KJ3107- ■ GJ23- ■ ■ J1 -Z**	–
	150	255	9.76	10700	3.2	65	**2KJ3107- ■ GJ23- ■ ■ H1 -Z**	–
	174	215	8.37	10300	3.6	65	**2KJ3107- ■ GJ23- ■ ■ G1 -Z**	–
	178	210	8.19	10000	3.3	65	**2KJ3107- ■ GJ23- ■ ■ F1 -Z**	–
	204	187	7.16	9780	3.9	65	**2KJ3107- ■ GJ23- ■ ■ E1 -Z**	–
	237	161	6.15	9350	4.4	65	**2KJ3107- ■ GJ23- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**Z.79-LE112ZMKB4P**							
	269	142	5.43	9020	4.8	65	**2KJ3107- ■ GJ23- ■ ■ C1 -Z**	–
	Z.69-LE112ZMKB4P							
	51	745	28.53	10600	0.8	56	**2KJ3106- ■ GJ23- ■ ■ R1 -Z**	–
	56	680	26.04	7580	0.88	56	**2KJ3106- ■ GJ23- ■ ■ Q1 -Z**	–
	68	565	21.61	8620	1.1	56	**2KJ3106- ■ GJ23- ■ ■ P1 -Z**	–
	72	530	20.34	8930	1.1	56	**2KJ3106- ■ GJ23- ■ ■ N1 -Z**	–
	76	500	19.21	9160	1.2	56	**2KJ3106- ■ GJ23- ■ ■ M1 -Z**	–
	89	425	16.34	9670	1.4	56	**2KJ3106- ■ GJ23- ■ ■ L1 -Z**	–
	104	365	14.00	9960	1.6	56	**2KJ3106- ■ GJ23- ■ ■ K1 -Z**	–
	119	320	12.31	9700	1.9	56	**2KJ3106- ■ GJ23- ■ ■ J1 -Z**	–
	141	270	10.39	9270	2.2	56	**2KJ3106- ■ GJ23- ■ ■ H1 -Z**	–
	161	235	9.05	8930	2.5	56	**2KJ3106- ■ GJ23- ■ ■ G1 -Z**	–
	172	220	8.50	8750	2	56	**2KJ3106- ■ GJ23- ■ ■ F1 -Z**	–
	202	189	7.23	8360	2.4	56	**2KJ3106- ■ GJ23- ■ ■ E1 -Z**	–
	235	162	6.20	8000	2.7	56	**2KJ3106- ■ GJ23- ■ ■ D1 -Z**	–
	268	143	5.45	7700	3	56	**2KJ3106- ■ GJ23- ■ ■ C1 -Z**	–
	317	120	4.60	7330	3.7	56	**2KJ3106- ■ GJ23- ■ ■ B1 -Z**	–
	364	105	4.01	7030	4.2	56	**2KJ3106- ■ GJ23- ■ ■ A1 -Z**	–
	Z.59-LE112ZMKB4P							
	72	525	20.20	4930	0.85	51	**2KJ3105- ■ GJ23- ■ ■ P1 -Z**	–
	77	495	19.01	4910	0.9	51	**2KJ3105- ■ GJ23- ■ ■ N1 -Z**	–
	81	470	17.95	4880	0.96	51	**2KJ3105- ■ GJ23- ■ ■ M1 -Z**	–
	96	400	15.27	3960	1.1	51	**2KJ3105- ■ GJ23- ■ ■ L1 -Z**	–
	112	340	13.09	4470	1.3	51	**2KJ3105- ■ GJ23- ■ ■ K1 -Z**	–
	127	300	11.51	4620	1.5	51	**2KJ3105- ■ GJ23- ■ ■ J1 -Z**	–
	150	250	9.71	4500	1.8	51	**2KJ3105- ■ GJ23- ■ ■ H1 -Z**	–
	173	220	8.46	4370	2	51	**2KJ3105- ■ GJ23- ■ ■ G1 -Z**	–
	181	210	8.07	4280	1.9	51	**2KJ3105- ■ GJ23- ■ ■ F1 -Z**	–
	213	179	6.86	4140	2.3	51	**2KJ3105- ■ GJ23- ■ ■ E1 -Z**	–
	248	154	5.88	4000	2.7	51	**2KJ3105- ■ GJ23- ■ ■ D1 -Z**	–
	282	135	5.17	3880	3	51	**2KJ3105- ■ GJ23- ■ ■ C1 -Z**	–
	335	114	4.36	3720	3.6	51	**2KJ3105- ■ GJ23- ■ ■ B1 -Z**	–
	384	99	3.80	3600	4.1	51	**2KJ3105- ■ GJ23- ■ ■ A1 -Z**	–
	Z.49-LE112ZMKB4P							
	104	365	13.98	3670	0.87	49	**2KJ3104- ■ GJ23- ■ ■ M1 -Z**	–
	122	310	11.97	3630	1	49	**2KJ3104- ■ GJ23- ■ ■ L1 -Z**	–
	139	275	10.53	3560	1.2	49	**2KJ3104- ■ GJ23- ■ ■ K1 -Z**	–
	164	230	8.88	3490	1.4	49	**2KJ3104- ■ GJ23- ■ ■ J1 -Z**	–
	189	200	7.74	3410	1.6	49	**2KJ3104- ■ GJ23- ■ ■ H1 -Z**	–
	191	200	7.64	3320	1.5	49	**2KJ3104- ■ GJ23- ■ ■ G1 -Z**	–
	202	189	7.21	3290	1.5	49	**2KJ3104- ■ GJ23- ■ ■ F1 -Z**	–
	238	161	6.14	3190	1.6	49	**2KJ3104- ■ GJ23- ■ ■ E1 -Z**	–
	278	138	5.26	2670	1.8	49	**2KJ3104- ■ GJ23- ■ ■ D1 -Z**	–
	316	121	4.62	2900	1.9	49	**2KJ3104- ■ GJ23- ■ ■ C1 -Z**	–
	374	102	3.90	2900	2	49	**2KJ3104- ■ GJ23- ■ ■ B1 -Z**	–
	429	89	3.40	2810	2.1	49	**2KJ3104- ■ GJ23- ■ ■ A1 -Z**	–
	E.129-LE112ZMKB4P							
	149	255	9.79	13500	2.6	114	**2KJ3006- ■ GJ23- ■ ■ T1 -Z**	–
	174	215	8.38	13500	3	114	**2KJ3006- ■ GJ23- ■ ■ S1 -Z**	–
	185	205	7.88	13500	3.2	114	**2KJ3006- ■ GJ23- ■ ■ R1 -Z**	–
	198	193	7.39	13500	4.1	114	**2KJ3006- ■ GJ23- ■ ■ Q1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**E.109-LE112ZMKB4P**							
	203	188	7.19	10500	3	89	**2KJ3005- ■ GJ23- ■ ■ Q1 -Z**	–
	216	177	6.76	10500	3.2	89	**2KJ3005- ■ GJ23- ■ ■ P1 -Z**	–
	232	164	6.28	10500	3.4	89	**2KJ3005- ■ GJ23- ■ ■ N1 -Z**	–
	263	145	5.55	10500	3.9	89	**2KJ3005- ■ GJ23- ■ ■ M1 -Z**	–
	295	130	4.95	10500	4.3	89	**2KJ3005- ■ GJ23- ■ ■ L1 -Z**	–
	327	117	4.46	10500	4.8	89	**2KJ3005- ■ GJ23- ■ ■ K1 -Z**	–
	E.89-LE112ZMKB4P							
	151	250	9.67	8000	1.1	65	**2KJ3004- ■ GJ23- ■ ■ T1 -Z**	–
	167	225	8.73	8000	1.2	65	**2KJ3004- ■ GJ23- ■ ■ S1 -Z**	–
	184	205	7.92	8000	1.4	65	**2KJ3004- ■ GJ23- ■ ■ R1 -Z**	–
	200	191	7.31	8000	1.4	65	**2KJ3004- ■ GJ23- ■ ■ Q1 -Z**	–
	220	174	6.64	8000	1.5	65	**2KJ3004- ■ GJ23- ■ ■ P1 -Z**	–
	260	147	5.62	8000	2.2	65	**2KJ3004- ■ GJ23- ■ ■ N1 -Z**	–
	276	138	5.29	8000	1.5	65	**2KJ3004- ■ GJ23- ■ ■ M1 -Z**	–
	299	128	4.89	8000	2.8	65	**2KJ3004- ■ GJ23- ■ ■ L1 -Z**	–
	336	114	4.35	8000	3.2	65	**2KJ3004- ■ GJ23- ■ ■ K1 -Z**	–
	378	101	3.86	8000	3.6	65	**2KJ3004- ■ GJ23- ■ ■ J1 -Z**	–
	422	90	3.46	8000	4	65	**2KJ3004- ■ GJ23- ■ ■ H1 -Z**	–
	493	77	2.96	8000	4.6	65	**2KJ3004- ■ GJ23- ■ ■ G1 -Z**	–
	553	69	2.64	8000	5.2	65	**2KJ3004- ■ GJ23- ■ ■ F1 -Z**	–
	627	61	2.33	8000	5.9	65	**2KJ3004- ■ GJ23- ■ ■ E1 -Z**	–
	E.69-LE112ZMKB4P							
	193	198	7.58	6100	1	52	**2KJ3003- ■ GJ23- ■ ■ Q1 -Z**	–
	214	178	6.82	6100	0.95	52	**2KJ3003- ■ GJ23- ■ ■ P1 -Z**	–
	237	161	6.17	6100	1.3	52	**2KJ3003- ■ GJ23- ■ ■ N1 -Z**	–
	257	149	5.69	6100	1.1	52	**2KJ3003- ■ GJ23- ■ ■ M1 -Z**	–
	280	136	5.21	6100	1.5	52	**2KJ3003- ■ GJ23- ■ ■ L1 -Z**	–
	333	115	4.38	6100	1.7	52	**2KJ3003- ■ GJ23- ■ ■ K1 -Z**	–
	354	108	4.12	6100	1.5	52	**2KJ3003- ■ GJ23- ■ ■ J1 -Z**	–
	386	99	3.78	6100	2	52	**2KJ3003- ■ GJ23- ■ ■ H1 -Z**	–
	442	86	3.30	6100	2.3	52	**2KJ3003- ■ GJ23- ■ ■ G1 -Z**	–
	495	77	2.95	6100	2.6	52	**2KJ3003- ■ GJ23- ■ ■ F1 -Z**	–
	566	68	2.58	6100	2.9	52	**2KJ3003- ■ GJ23- ■ ■ E1 -Z**	–
	658	58	2.22	6100	3.4	52	**2KJ3003- ■ GJ23- ■ ■ D1 -Z**	–
	745	51	1.96	6100	3.8	52	**2KJ3003- ■ GJ23- ■ ■ C1 -Z**	–
	874	44	1.67	6100	4.5	52	**2KJ3003- ■ GJ23- ■ ■ B1 -Z**	–
	1021	37	1.43	6100	5.2	52	**2KJ3003- ■ GJ23- ■ ■ A1 -Z**	–
	E.49-LE112ZMKB4P							
	322	119	4.54	3790	0.86	45	**2KJ3002- ■ GJ23- ■ ■ K1 -Z**	–
	353	108	4.14	3920	0.94	45	**2KJ3002- ■ GJ23- ■ ■ J1 -Z**	–
	424	90	3.44	3800	1.1	45	**2KJ3002- ■ GJ23- ■ ■ H1 -Z**	–
	451	85	3.24	3750	1.2	45	**2KJ3002- ■ GJ23- ■ ■ G1 -Z**	–
	477	80	3.06	3700	1.3	45	**2KJ3002- ■ GJ23- ■ ■ F1 -Z**	–
	562	68	2.60	3550	1.5	45	**2KJ3002- ■ GJ23- ■ ■ E1 -Z**	–
	655	58	2.23	3410	1.7	45	**2KJ3002- ■ GJ23- ■ ■ D1 -Z**	–
	745	51	1.96	3290	2	45	**2KJ3002- ■ GJ23- ■ ■ C1 -Z**	–
	885	43	1.65	3140	2.4	45	**2KJ3002- ■ GJ23- ■ ■ B1 -Z**	–
	1014	38	1.44	3010	2.7	45	**2KJ3002- ■ GJ23- ■ ■ A1 -Z**	–
	E.39-LE112ZMKB4P							
	498	77	2.93	905	0.85	40	**2KJ3001- ■ GJ23- ■ ■ G1 -Z**	–
	973	39	1.50	1580	1.6	40	**2KJ3001- ■ GJ23- ■ ■ B1 -Z**	–
	1132	34	1.29	1580	1.6	40	**2KJ3001- ■ GJ23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
5.5	**D.189-LE132ZMS6P**							
	3.1	16800	313.63	107000	1.1	700	**2KJ3214- ■ HL23- ■ ■ T1 -Z**	**P01**
	3.5	15100	280.59	107000	1.3	700	**2KJ3214- ■ HL23- ■ ■ S1 -Z**	**P01**
	3.9	13600	253.06	107000	1.4	700	**2KJ3214- ■ HL23- ■ ■ R1 -Z**	**P01**
	4.4	12000	223.66	107000	1.6	700	**2KJ3214- ■ HL23- ■ ■ Q1 -Z**	**P01**
	D.189-LE132ZST4P							
	4.7	11200	313.63	107000	1.7	700	**2KJ3214- ■ HJ23- ■ ■ T1 -Z**	**–**
	5.2	10000	280.59	107000	1.9	700	**2KJ3214- ■ HJ23- ■ ■ S1 -Z**	**–**
	5.8	9040	253.06	107000	2.1	700	**2KJ3214- ■ HJ23- ■ ■ R1 -Z**	**–**
	D.169-LE132ZMS6P							
	3.2	16400	305.28	69200	0.85	487	**2KJ3213- ■ HL23- ■ ■ U1 -Z**	**P01**
	3.6	14600	271.40	69900	0.96	487	**2KJ3213- ■ HL23- ■ ■ T1 -Z**	**P01**
	4	13100	243.68	70500	1.1	487	**2KJ3213- ■ HL23- ■ ■ S1 -Z**	**P01**
	D.169-LE132ZST4P							
	4.5	11600	327.18	71000	1.2	487	**2KJ3213- ■ HJ23- ■ ■ V1 -Z**	**–**
	4.8	10900	305.28	71300	1.3	487	**2KJ3213- ■ HJ23- ■ ■ U1 -Z**	**–**
	5.4	9690	271.40	71700	1.4	487	**2KJ3213- ■ HJ23- ■ ■ T1 -Z**	**–**
	6	8700	243.68	72100	1.6	487	**2KJ3213- ■ HJ23- ■ ■ S1 -Z**	**–**
	6.7	7880	220.58	72400	1.8	487	**2KJ3213- ■ HJ23- ■ ■ R1 -Z**	**–**
	7.6	6920	193.75	72800	2	487	**2KJ3213- ■ HJ23- ■ ■ Q1 -Z**	**–**
	D.149-LE132ZST4P							
	5.2	10000	281.04	50200	0.8	309	**2KJ3212- ■ HJ23- ■ ■ V1 -Z**	**–**
	5.6	9450	264.51	50500	0.85	309	**2KJ3212- ■ HJ23- ■ ■ U1 -Z**	**–**
	5.9	8860	247.95	50800	0.9	309	**2KJ3212- ■ HJ23- ■ ■ T1 -Z**	**–**
	6.7	7850	219.80	51200	1	309	**2KJ3212- ■ HJ23- ■ ■ S1 -Z**	**–**
	7.5	6970	195.24	51600	1.1	309	**2KJ3212- ■ HJ23- ■ ■ R1 -Z**	**–**
	8.3	6290	176.18	52000	1.3	309	**2KJ3212- ■ HJ23- ■ ■ Q1 -Z**	**–**
	9.4	5570	156.11	52300	1.4	309	**2KJ3212- ■ HJ23- ■ ■ P1 -Z**	**–**
	11	4940	138.26	52600	1.6	309	**2KJ3212- ■ HJ23- ■ ■ N1 -Z**	**–**
	12	4390	123.04	52900	1.8	309	**2KJ3212- ■ HJ23- ■ ■ M1 -Z**	**–**
	13	3940	110.26	53100	2	309	**2KJ3212- ■ HJ23- ■ ■ L1 -Z**	**–**
	D.129-LE132ZST4P							
	8.8	5990	167.63	26400	0.83	224	**2KJ3211- ■ HJ23- ■ ■ J1 -Z**	**–**
	10	5190	145.49	26900	0.96	224	**2KJ3211- ■ HJ23- ■ ■ H1 -Z**	**–**
	11	4670	130.84	27200	1.1	224	**2KJ3211- ■ HJ23- ■ ■ G1 -Z**	**–**
	13	4080	114.36	27600	1.2	224	**2KJ3211- ■ HJ23- ■ ■ F1 -Z**	**–**
	14	3640	102.05	27800	1.4	224	**2KJ3211- ■ HJ23- ■ ■ E1 -Z**	**–**
	16	3210	89.91	28100	1.6	224	**2KJ3211- ■ HJ23- ■ ■ D1 -Z**	**–**
	19	2810	78.78	28300	1.8	224	**2KJ3211- ■ HJ23- ■ ■ C1 -Z**	**–**
	Z.129-LE132ZST4P							
	24	2230	62.48	28600	2.2	220	**2KJ3111- ■ HJ23- ■ ■ X1 -Z**	**–**
	D.109-LE132ZST4P							
	14	3810	106.70	20000	0.81	160	**2KJ3210- ■ HJ23- ■ ■ G1 -Z**	**–**
	15	3400	95.28	20200	0.91	160	**2KJ3210- ■ HJ23- ■ ■ F1 -Z**	**–**
	17	3000	84.21	20200	1	160	**2KJ3210- ■ HJ23- ■ ■ E1 -Z**	**–**
	20	2640	73.90	20200	1.2	160	**2KJ3210- ■ HJ23- ■ ■ D1 -Z**	**–**
	23	2290	64.34	20200	1.3	160	**2KJ3210- ■ HJ23- ■ ■ C1 -Z**	**–**
	Z.109-LE132ZST4P							
	29	1820	51.17	20200	1.7	158	**2KJ3110- ■ HJ23- ■ ■ X1 -Z**	**–**
	34	1550	43.64	20200	2	158	**2KJ3110- ■ HJ23- ■ ■ W1 -Z**	**–**
	36	1460	41.07	20200	2.1	158	**2KJ3110- ■ HJ23- ■ ■ V1 -Z**	**–**
	39	1360	38.12	20200	2.3	158	**2KJ3110- ■ HJ23- ■ ■ U1 -Z**	**–**
	44	1200	33.70	20200	2.6	158	**2KJ3110- ■ HJ23- ■ ■ T1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
5.5	**D.89-LE132ZST4P**							
	26	1990	55.84	18500	0.84	119	**2KJ3208- ■ HJ23- ■ ■ B1 -Z**	–
	31	1710	47.87	18500	0.98	119	**2KJ3208- ■ HJ23- ■ ■ A1 -Z**	–
	Z.89-LE132ZST4P							
	37	1400	39.41	18500	1.2	118	**2KJ3108- ■ HJ23- ■ ■ U1 -Z**	–
	44	1190	33.38	18500	1.4	118	**2KJ3108- ■ HJ23- ■ ■ T1 -Z**	–
	47	1120	31.41	18500	1.5	118	**2KJ3108- ■ HJ23- ■ ■ S1 -Z**	–
	51	1030	29.01	18500	1.6	118	**2KJ3108- ■ HJ23- ■ ■ R1 -Z**	–
	57	920	25.81	18500	1.8	118	**2KJ3108- ■ HJ23- ■ ■ Q1 -Z**	–
	64	815	22.92	18500	2.1	118	**2KJ3108- ■ HJ23- ■ ■ P1 -Z**	–
	72	730	20.52	18500	2.3	118	**2KJ3108- ■ HJ23- ■ ■ N1 -Z**	–
	84	625	17.54	18500	2.7	118	**2KJ3108- ■ HJ23- ■ ■ M1 -Z**	–
	94	560	15.66	18400	3	118	**2KJ3108- ■ HJ23- ■ ■ L1 -Z**	–
	106	495	13.84	17800	3.4	118	**2KJ3108- ■ HJ23- ■ ■ K1 -Z**	–
	213	245	6.89	14600	4.3	118	**2KJ3108- ■ HJ23- ■ ■ E1 -Z**	–
	Z.79-LE132ZST4P							
	57	915	25.62	13100	0.92	96	**2KJ3107- ■ HJ23- ■ ■ R1 -Z**	–
	61	860	24.12	12900	0.97	96	**2KJ3107- ■ HJ23- ■ ■ Q1 -Z**	–
	66	790	22.13	12700	1.1	96	**2KJ3107- ■ HJ23- ■ ■ P1 -Z**	–
	76	690	19.33	12300	1.2	96	**2KJ3107- ■ HJ23- ■ ■ N1 -Z**	–
	85	615	17.31	8540	1.4	96	**2KJ3107- ■ HJ23- ■ ■ M1 -Z**	–
	97	540	15.13	8890	1.6	96	**2KJ3107- ■ HJ23- ■ ■ L1 -Z**	–
	113	460	12.99	9250	1.8	96	**2KJ3107- ■ HJ23- ■ ■ K1 -Z**	–
	128	410	11.48	9350	2	96	**2KJ3107- ■ HJ23- ■ ■ J1 -Z**	–
	151	345	9.76	9510	2.3	96	**2KJ3107- ■ HJ23- ■ ■ H1 -Z**	–
	176	295	8.37	9530	2.6	96	**2KJ3107- ■ HJ23- ■ ■ G1 -Z**	–
	179	290	8.19	8510	2.4	96	**2KJ3107- ■ HJ23- ■ ■ F1 -Z**	–
	205	255	7.16	8550	2.9	96	**2KJ3107- ■ HJ23- ■ ■ E1 -Z**	–
	239	220	6.15	8540	3.3	96	**2KJ3107- ■ HJ23- ■ ■ D1 -Z**	–
	271	194	5.43	8510	3.5	96	**2KJ3107- ■ HJ23- ■ ■ C1 -Z**	–
	318	165	4.62	8410	4.7	96	**2KJ3107- ■ HJ23- ■ ■ B1 -Z**	–
	Z.69-LE132ZST4P							
	72	725	20.34	10300	0.83	86	**2KJ3106- ■ HJ23- ■ ■ N1 -Z**	–
	77	685	19.21	10200	0.87	86	**2KJ3106- ■ HJ23- ■ ■ M1 -Z**	–
	90	580	16.34	9890	1	86	**2KJ3106- ■ HJ23- ■ ■ L1 -Z**	–
	105	500	14.00	7190	1.2	86	**2KJ3106- ■ HJ23- ■ ■ K1 -Z**	–
	119	440	12.31	7680	1.4	86	**2KJ3106- ■ HJ23- ■ ■ J1 -Z**	–
	141	370	10.39	8180	1.6	86	**2KJ3106- ■ HJ23- ■ ■ H1 -Z**	–
	162	320	9.05	8490	1.8	86	**2KJ3106- ■ HJ23- ■ ■ G1 -Z**	–
	173	300	8.50	7200	1.5	86	**2KJ3106- ■ HJ23- ■ ■ F1 -Z**	–
	203	255	7.23	7550	1.7	86	**2KJ3106- ■ HJ23- ■ ■ E1 -Z**	–
	237	220	6.20	7720	2	86	**2KJ3106- ■ HJ23- ■ ■ D1 -Z**	–
	270	195	5.45	7510	2.2	86	**2KJ3106- ■ HJ23- ■ ■ C1 -Z**	–
	320	164	4.60	7160	2.7	86	**2KJ3106- ■ HJ23- ■ ■ B1 -Z**	–
	367	143	4.01	6890	3.1	86	**2KJ3106- ■ HJ23- ■ ■ A1 -Z**	–
	Z.59-LE132ZST4P							
	96	545	15.27	4210	0.82	81	**2KJ3105- ■ HJ23- ■ ■ L1 -Z**	–
	112	465	13.09	4210	0.96	81	**2KJ3105- ■ HJ23- ■ ■ K1 -Z**	–
	128	410	11.51	4170	1.1	81	**2KJ3105- ■ HJ23- ■ ■ J1 -Z**	–
	151	345	9.71	3360	1.3	81	**2KJ3105- ■ HJ23- ■ ■ H1 -Z**	–
	174	300	8.46	3740	1.5	81	**2KJ3105- ■ HJ23- ■ ■ G1 -Z**	–
	182	285	8.07	2740	1.4	81	**2KJ3105- ■ HJ23- ■ ■ F1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
5.5	**Z.59-LE132ZST4P**							
	214	245	6.86	3140	1.7	81	**2KJ3105- ■ HJ23- ■ ■ E1 -Z**	–
	250	210	5.88	3480	2	81	**2KJ3105- ■ HJ23- ■ ■ D1 -Z**	–
	284	185	5.17	3660	2.2	81	**2KJ3105- ■ HJ23- ■ ■ C1 -Z**	–
	337	156	4.36	3540	2.6	81	**2KJ3105- ■ HJ23- ■ ■ B1 -Z**	–
	387	136	3.80	3430	3	81	**2KJ3105- ■ HJ23- ■ ■ A1 -Z**	–
	Z.49-LE132ZST4P							
	140	375	10.53	3160	0.85	79	**2KJ3104- ■ HJ23- ■ ■ K1 -Z**	–
	166	315	8.88	3140	1	79	**2KJ3104- ■ HJ23- ■ ■ J1 -Z**	–
	190	275	7.74	3100	1.2	79	**2KJ3104- ■ HJ23- ■ ■ H1 -Z**	–
	192	270	7.64	3010	1.1	79	**2KJ3104- ■ HJ23- ■ ■ G1 -Z**	–
	204	255	7.21	2990	1.1	79	**2KJ3104- ■ HJ23- ■ ■ F1 -Z**	–
	239	215	6.14	2950	1.2	79	**2KJ3104- ■ HJ23- ■ ■ E1 -Z**	–
	279	188	5.26	2870	1.3	79	**2KJ3104- ■ HJ23- ■ ■ D1 -Z**	–
	318	165	4.62	2820	1.4	79	**2KJ3104- ■ HJ23- ■ ■ C1 -Z**	–
	377	139	3.90	2730	1.5	79	**2KJ3104- ■ HJ23- ■ ■ B1 -Z**	–
	432	121	3.40	2240	1.6	79	**2KJ3104- ■ HJ23- ■ ■ A1 -Z**	–
	E.149-LE132ZST4P							
	151	345	9.76	16000	3.4	182	**2KJ3007- ■ HJ23- ■ ■ S1 -Z**	–
	161	325	9.11	16000	3.9	182	**2KJ3007- ■ HJ23- ■ ■ R1 -Z**	–
	E.129-LE132ZST4P							
	150	350	9.79	13500	1.9	144	**2KJ3006- ■ HJ23- ■ ■ T1 -Z**	–
	175	295	8.38	13500	2.2	144	**2KJ3006- ■ HJ23- ■ ■ S1 -Z**	–
	187	280	7.88	13500	2.4	144	**2KJ3006- ■ HJ23- ■ ■ R1 -Z**	–
	199	260	7.39	13500	3	144	**2KJ3006- ■ HJ23- ■ ■ Q1 -Z**	–
	224	230	6.55	13500	3.4	144	**2KJ3006- ■ HJ23- ■ ■ P1 -Z**	–
	253	205	5.82	13500	3.8	144	**2KJ3006- ■ HJ23- ■ ■ N1 -Z**	–
	280	188	5.25	13500	4.2	144	**2KJ3006- ■ HJ23- ■ ■ M1 -Z**	–
	316	166	4.65	13500	4.8	144	**2KJ3006- ■ HJ23- ■ ■ L1 -Z**	–
	357	147	4.12	13500	5.3	144	**2KJ3006- ■ HJ23- ■ ■ K1 -Z**	–
	E.109-LE132ZST4P							
	204	255	7.19	10500	2.2	119	**2KJ3005- ■ HJ23- ■ ■ Q1 -Z**	–
	217	240	6.76	10500	2.3	119	**2KJ3005- ■ HJ23- ■ ■ P1 -Z**	–
	234	220	6.28	10500	2.5	119	**2KJ3005- ■ HJ23- ■ ■ N1 -Z**	–
	265	198	5.55	10500	2.8	119	**2KJ3005- ■ HJ23- ■ ■ M1 -Z**	–
	297	177	4.95	10500	3.2	119	**2KJ3005- ■ HJ23- ■ ■ L1 -Z**	–
	330	159	4.46	10500	3.5	119	**2KJ3005- ■ HJ23- ■ ■ K1 -Z**	–
	380	138	3.87	10500	4	119	**2KJ3005- ■ HJ23- ■ ■ J1 -Z**	–
	422	124	3.48	10500	4.4	119	**2KJ3005- ■ HJ23- ■ ■ H1 -Z**	–
	484	109	3.04	10500	5	119	**2KJ3005- ■ HJ23- ■ ■ G1 -Z**	–
	542	97	2.71	10500	5.6	119	**2KJ3005- ■ HJ23- ■ ■ F1 -Z**	–
	E.89-LE132ZST4P							
	221	235	6.64	8000	1.1	96	**2KJ3004- ■ HJ23- ■ ■ P1 -Z**	–
	262	200	5.62	8000	1.6	96	**2KJ3004- ■ HJ23- ■ ■ N1 -Z**	–
	278	189	5.29	8000	1.1	96	**2KJ3004- ■ HJ23- ■ ■ M1 -Z**	–
	301	175	4.89	8000	2.1	96	**2KJ3004- ■ HJ23- ■ ■ L1 -Z**	–
	338	155	4.35	8000	2.3	96	**2KJ3004- ■ HJ23- ■ ■ K1 -Z**	–
	381	138	3.86	8000	2.6	96	**2KJ3004- ■ HJ23- ■ ■ J1 -Z**	–
	425	124	3.46	8000	3	96	**2KJ3004- ■ HJ23- ■ ■ H1 -Z**	–
	497	106	2.96	8000	3.4	96	**2KJ3004- ■ HJ23- ■ ■ G1 -Z**	–
	557	94	2.64	8000	3.8	96	**2KJ3004- ■ HJ23- ■ ■ F1 -Z**	–
	631	83	2.33	8000	4.3	96	**2KJ3004- ■ HJ23- ■ ■ E1 -Z**	–
	717	73	2.05	7920	4.9	96	**2KJ3004- ■ HJ23- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
5.5	**E.89-LE132ZST4P**							
	826	64	1.78	7630	5.7	96	**2KJ3004- ■ HJ23- ■ ■ C1 -Z**	–
	967	54	1.52	7320	6.6	96	**2KJ3004- ■ HJ23- ■ ■ B1 -Z**	–
	E.69-LE132ZST4P							
	282	186	5.21	6100	1.1	82	**2KJ3003- ■ HJ23- ■ ■ L1 -Z**	–
	336	157	4.38	6100	1.3	82	**2KJ3003- ■ HJ23- ■ ■ K1 -Z**	–
	357	147	4.12	6100	1.1	82	**2KJ3003- ■ HJ23- ■ ■ J1 -Z**	–
	389	135	3.78	6100	1.5	82	**2KJ3003- ■ HJ23- ■ ■ H1 -Z**	–
	445	118	3.30	6100	1.7	82	**2KJ3003- ■ HJ23- ■ ■ G1 -Z**	–
	498	105	2.95	6100	1.9	82	**2KJ3003- ■ HJ23- ■ ■ F1 -Z**	–
	570	92	2.58	6100	2.1	82	**2KJ3003- ■ HJ23- ■ ■ E1 -Z**	–
	662	79	2.22	6100	2.5	82	**2KJ3003- ■ HJ23- ■ ■ D1 -Z**	–
	750	70	1.96	6100	2.8	82	**2KJ3003- ■ HJ23- ■ ■ C1 -Z**	–
	880	60	1.67	6100	3.3	82	**2KJ3003- ■ HJ23- ■ ■ B1 -Z**	–
	1028	51	1.43	6100	3.8	82	**2KJ3003- ■ HJ23- ■ ■ A1 -Z**	–
	E.49-LE132ZST4P							
	427	123	3.44	2530	0.82	75	**2KJ3002- ■ HJ23- ■ ■ H1 -Z**	–
	454	116	3.24	2680	0.87	75	**2KJ3002- ■ HJ23- ■ ■ G1 -Z**	–
	480	109	3.06	2840	0.92	75	**2KJ3002- ■ HJ23- ■ ■ F1 -Z**	–
	565	93	2.60	2940	1.1	75	**2KJ3002- ■ HJ23- ■ ■ E1 -Z**	–
	750	70	1.96	3050	1.5	75	**2KJ3002- ■ HJ23- ■ ■ C1 -Z**	–
	891	59	1.65	3010	1.7	75	**2KJ3002- ■ HJ23- ■ ■ B1 -Z**	–
	1021	52	1.44	2900	2	75	**2KJ3002- ■ HJ23- ■ ■ A1 -Z**	–
7.5	**D.189-LE132ZMS4P**							
	4.7	15300	313.63	107000	1.2	700	**2KJ3214- ■ HL23- ■ ■ T1 -Z**	–
	5.2	13700	280.59	107000	1.4	700	**2KJ3214- ■ HL23- ■ ■ S1 -Z**	–
	5.8	12300	253.06	107000	1.5	700	**2KJ3214- ■ HL23- ■ ■ R1 -Z**	–
	6.6	10900	223.66	107000	1.7	700	**2KJ3214- ■ HL23- ■ ■ Q1 -Z**	–
	7.2	9990	204.44	107000	1.9	700	**2KJ3214- ■ HL23- ■ ■ P1 -Z**	–
	8	8990	183.92	107000	2.1	700	**2KJ3214- ■ HL23- ■ ■ N1 -Z**	–
	D.169-LE132ZMS4P							
	4.5	15900	327.18	69400	0.88	487	**2KJ3213- ■ HL23- ■ ■ V1 -Z**	–
	4.8	14900	305.28	69800	0.94	487	**2KJ3213- ■ HL23- ■ ■ U1 -Z**	–
	5.4	13200	271.40	70400	1.1	487	**2KJ3213- ■ HL23- ■ ■ T1 -Z**	–
	6	11900	243.68	70900	1.2	487	**2KJ3213- ■ HL23- ■ ■ S1 -Z**	–
	6.6	10700	220.58	71300	1.3	487	**2KJ3213- ■ HL23- ■ ■ R1 -Z**	–
	7.6	9470	193.75	71800	1.5	487	**2KJ3213- ■ HL23- ■ ■ Q1 -Z**	–
	8.3	8580	175.57	72100	1.6	487	**2KJ3213- ■ HL23- ■ ■ P1 -Z**	–
	9.4	7640	156.36	72500	1.8	487	**2KJ3213- ■ HL23- ■ ■ N1 -Z**	–
	10	6860	140.41	72800	2	487	**2KJ3213- ■ HL23- ■ ■ M1 -Z**	–
	D.149-LE132ZMS4P							
	7.5	9540	195.24	50400	0.84	309	**2KJ3212- ■ HL23- ■ ■ R1 -Z**	–
	8.3	8610	176.18	50900	0.93	309	**2KJ3212- ■ HL23- ■ ■ Q1 -Z**	–
	9.4	7630	156.11	51300	1	309	**2KJ3212- ■ HL23- ■ ■ P1 -Z**	–
	11	6760	138.26	51700	1.2	309	**2KJ3212- ■ HL23- ■ ■ N1 -Z**	–
	12	6010	123.04	52100	1.3	309	**2KJ3212- ■ HL23- ■ ■ M1 -Z**	–
	13	5390	110.26	52400	1.5	309	**2KJ3212- ■ HL23- ■ ■ L1 -Z**	–
	15	4770	97.75	52700	1.7	309	**2KJ3212- ■ HL23- ■ ■ K1 -Z**	–
	17	4210	86.29	53000	1.9	309	**2KJ3212- ■ HL23- ■ ■ J1 -Z**	–
	19	3700	75.87	53200	2.2	309	**2KJ3212- ■ HL23- ■ ■ H1 -Z**	–
	21	3350	68.71	53400	2.4	309	**2KJ3212- ■ HL23- ■ ■ G1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
7.5	**D.129-LE132ZMS4P**							
	13	5590	114.36	26700	0.89	224	**2KJ3211- ■ HL23- ■ ■ F1 -Z**	–
	14	4980	102.05	27000	1	224	**2KJ3211- ■ HL23- ■ ■ E1 -Z**	–
	16	4390	89.91	27400	1.1	224	**2KJ3211- ■ HL23- ■ ■ D1 -Z**	–
	19	3850	78.78	27700	1.3	224	**2KJ3211- ■ HL23- ■ ■ C1 -Z**	–
	Z.129-LE132ZMS4P							
	23	3050	62.48	28200	1.6	220	**2KJ3111- ■ HL23- ■ ■ X1 -Z**	–
	27	2610	53.47	28400	1.9	220	**2KJ3111- ■ HL23- ■ ■ W1 -Z**	–
	29	2460	50.33	28500	2	220	**2KJ3111- ■ HL23- ■ ■ V1 -Z**	–
	31	2300	47.18	28600	2.2	220	**2KJ3111- ■ HL23- ■ ■ U1 -Z**	–
	35	2040	41.82	28800	2.4	220	**2KJ3111- ■ HL23- ■ ■ T1 -Z**	–
	D.109-LE132ZMS4P							
	20	3610	73.90	20200	0.86	160	**2KJ3210- ■ HL23- ■ ■ D1 -Z**	–
	23	3140	64.34	20200	0.99	160	**2KJ3210- ■ HL23- ■ ■ C1 -Z**	–
	Z.109-LE132ZMS4P							
	29	2500	51.17	20200	1.2	158	**2KJ3110- ■ HL23- ■ ■ X1 -Z**	–
	34	2130	43.64	20200	1.5	158	**2KJ3110- ■ HL23- ■ ■ W1 -Z**	–
	36	2000	41.07	20200	1.5	158	**2KJ3110- ■ HL23- ■ ■ V1 -Z**	–
	38	1860	38.12	20200	1.7	158	**2KJ3110- ■ HL23- ■ ■ U1 -Z**	–
	43	1640	33.70	20200	1.9	158	**2KJ3110- ■ HL23- ■ ■ T1 -Z**	–
	49	1470	30.08	20200	2.1	158	**2KJ3110- ■ HL23- ■ ■ S1 -Z**	–
	54	1320	27.07	20200	2.3	158	**2KJ3110- ■ HL23- ■ ■ R1 -Z**	–
	62	1140	23.49	20200	2.5	158	**2KJ3110- ■ HL23- ■ ■ Q1 -Z**	–
	69	1030	21.13	20200	2.7	158	**2KJ3110- ■ HL23- ■ ■ P1 -Z**	–
	79	900	18.47	20200	3	158	**2KJ3110- ■ HL23- ■ ■ N1 -Z**	–
	89	805	16.48	20200	3.3	158	**2KJ3110- ■ HL23- ■ ■ M1 -Z**	–
	Z.89-LE132ZMS4P							
	37	1920	39.41	18500	0.87	118	**2KJ3108- ■ HL23- ■ ■ U1 -Z**	–
	44	1630	33.38	18500	1	118	**2KJ3108- ■ HL23- ■ ■ T1 -Z**	–
	47	1530	31.41	18500	1.1	118	**2KJ3108- ■ HL23- ■ ■ S1 -Z**	–
	50	1410	29.01	18500	1.2	118	**2KJ3108- ■ HL23- ■ ■ R1 -Z**	–
	57	1260	25.81	18500	1.3	118	**2KJ3108- ■ HL23- ■ ■ Q1 -Z**	–
	64	1120	22.92	18500	1.5	118	**2KJ3108- ■ HL23- ■ ■ P1 -Z**	–
	71	1000	20.52	18500	1.7	118	**2KJ3108- ■ HL23- ■ ■ N1 -Z**	–
	84	855	17.54	18400	2	118	**2KJ3108- ■ HL23- ■ ■ M1 -Z**	–
	94	765	15.66	17800	2.2	118	**2KJ3108- ■ HL23- ■ ■ L1 -Z**	–
	106	675	13.84	17300	2.5	118	**2KJ3108- ■ HL23- ■ ■ K1 -Z**	–
	121	590	12.15	16700	2.7	118	**2KJ3108- ■ HL23- ■ ■ J1 -Z**	–
	138	515	10.58	16100	3.1	118	**2KJ3108- ■ HL23- ■ ■ H1 -Z**	–
	162	440	9.04	15400	3.5	118	**2KJ3108- ■ HL23- ■ ■ G1 -Z**	–
	189	375	7.74	14800	4	118	**2KJ3108- ■ HL23- ■ ■ F1 -Z**	–
	213	335	6.89	14400	3.1	118	**2KJ3108- ■ HL23- ■ ■ E1 -Z**	–
	242	295	6.05	13800	3.6	118	**2KJ3108- ■ HL23- ■ ■ D1 -Z**	–
	279	255	5.26	13200	4.1	118	**2KJ3108- ■ HL23- ■ ■ C1 -Z**	–
	326	220	4.50	12600	4.8	118	**2KJ3108- ■ HL23- ■ ■ B1 -Z**	–
	Z.79-LE132ZMS4P							
	76	945	19.33	11600	0.89	96	**2KJ3107- ■ HL23- ■ ■ N1 -Z**	–
	85	845	17.31	11400	0.99	96	**2KJ3107- ■ HL23- ■ ■ M1 -Z**	–
	97	740	15.13	11100	1.1	96	**2KJ3107- ■ HL23- ■ ■ L1 -Z**	–
	113	635	12.99	10700	1.3	96	**2KJ3107- ■ HL23- ■ ■ K1 -Z**	–
	128	560	11.48	10400	1.5	96	**2KJ3107- ■ HL23- ■ ■ J1 -Z**	–
	150	475	9.76	10100	1.7	96	**2KJ3107- ■ HL23- ■ ■ H1 -Z**	–
	175	405	8.37	7890	1.9	96	**2KJ3107- ■ HL23- ■ ■ G1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
7.5	**Z.79-LE132ZMS4P**							
	179	400	8.19	6500	1.8	96	**2KJ3107- ■ HL23- ■ ■ F1 -Z**	–
	205	350	7.16	6810	2.1	96	**2KJ3107- ■ HL23- ■ ■ E1 -Z**	–
	238	300	6.15	7080	2.4	96	**2KJ3107- ■ HL23- ■ ■ D1 -Z**	–
	270	265	5.43	7220	2.6	96	**2KJ3107- ■ HL23- ■ ■ C1 -Z**	–
	317	225	4.62	7320	3.4	96	**2KJ3107- ■ HL23- ■ ■ B1 -Z**	–
	370	194	3.96	7310	4	96	**2KJ3107- ■ HL23- ■ ■ A1 -Z**	–
	Z.69-LE132ZMS4P							
	105	680	14.00	8990	0.88	86	**2KJ3106- ■ HL23- ■ ■ K1 -Z**	–
	119	600	12.31	8780	1	86	**2KJ3106- ■ HL23- ■ ■ J1 -Z**	–
	141	505	10.39	8490	1.2	86	**2KJ3106- ■ HL23- ■ ■ H1 -Z**	–
	162	440	9.05	6080	1.3	86	**2KJ3106- ■ HL23- ■ ■ G1 -Z**	–
	172	415	8.50	8090	1.1	86	**2KJ3106- ■ HL23- ■ ■ F1 -Z**	–
	203	350	7.23	7810	1.3	86	**2KJ3106- ■ HL23- ■ ■ E1 -Z**	–
	236	300	6.20	5750	1.5	86	**2KJ3106- ■ HL23- ■ ■ D1 -Z**	–
	269	265	5.45	6060	1.6	86	**2KJ3106- ■ HL23- ■ ■ C1 -Z**	–
	318	225	4.60	6360	2	86	**2KJ3106- ■ HL23- ■ ■ B1 -Z**	–
	365	196	4.01	6540	2.3	86	**2KJ3106- ■ HL23- ■ ■ A1 -Z**	–
	Z.59-LE132ZMS4P							
	127	560	11.51	3590	0.8	81	**2KJ3105- ■ HL23- ■ ■ J1 -Z**	–
	151	475	9.71	3600	0.95	81	**2KJ3105- ■ HL23- ■ ■ H1 -Z**	–
	173	410	8.46	3610	1.1	81	**2KJ3105- ■ HL23- ■ ■ G1 -Z**	–
	182	395	8.07	3500	1	81	**2KJ3105- ■ HL23- ■ ■ F1 -Z**	–
	214	335	6.86	3480	1.2	81	**2KJ3105- ■ HL23- ■ ■ E1 -Z**	–
	249	285	5.88	3440	1.4	81	**2KJ3105- ■ HL23- ■ ■ D1 -Z**	–
	283	250	5.17	2280	1.6	81	**2KJ3105- ■ HL23- ■ ■ C1 -Z**	–
	336	210	4.36	2720	1.9	81	**2KJ3105- ■ HL23- ■ ■ B1 -Z**	–
	386	186	3.80	2920	2.2	81	**2KJ3105- ■ HL23- ■ ■ A1 -Z**	–
	Z.49-LE132ZMS4P							
	189	375	7.74	2710	0.85	79	**2KJ3104- ■ HL23- ■ ■ H1 -Z**	–
	203	350	7.21	2590	0.82	79	**2KJ3104- ■ HL23- ■ ■ F1 -Z**	–
	239	300	6.14	2590	0.88	79	**2KJ3104- ■ HL23- ■ ■ E1 -Z**	–
	279	255	5.26	2590	0.95	79	**2KJ3104- ■ HL23- ■ ■ D1 -Z**	–
	317	225	4.62	2560	1	79	**2KJ3104- ■ HL23- ■ ■ C1 -Z**	–
	376	191	3.90	2510	1.1	79	**2KJ3104- ■ HL23- ■ ■ B1 -Z**	–
	431	166	3.40	2470	1.1	79	**2KJ3104- ■ HL23- ■ ■ A1 -Z**	–
	E.149-LE132ZMS4P							
	150	475	9.76	16000	2.5	182	**2KJ3007- ■ HL23- ■ ■ S1 -Z**	–
	161	445	9.11	16000	2.8	182	**2KJ3007- ■ HL23- ■ ■ R1 -Z**	–
	181	395	8.10	16000	3.4	182	**2KJ3007- ■ HL23- ■ ■ Q1 -Z**	–
	202	355	7.27	16000	3.8	182	**2KJ3007- ■ HL23- ■ ■ P1 -Z**	–
	223	320	6.58	16000	4.1	182	**2KJ3007- ■ HL23- ■ ■ N1 -Z**	–
	E.129-LE132ZMS4P							
	150	475	9.79	13500	1.4	144	**2KJ3006- ■ HL23- ■ ■ T1 -Z**	–
	175	410	8.38	13500	1.6	144	**2KJ3006- ■ HL23- ■ ■ S1 -Z**	–
	186	385	7.88	13500	1.7	144	**2KJ3006- ■ HL23- ■ ■ R1 -Z**	–
	198	360	7.39	13500	2.2	144	**2KJ3006- ■ HL23- ■ ■ Q1 -Z**	–
	224	320	6.55	13500	2.5	144	**2KJ3006- ■ HL23- ■ ■ P1 -Z**	–
	252	285	5.82	13500	2.8	144	**2KJ3006- ■ HL23- ■ ■ N1 -Z**	–
	279	255	5.25	13500	3.1	144	**2KJ3006- ■ HL23- ■ ■ M1 -Z**	–
	315	225	4.65	13500	3.5	144	**2KJ3006- ■ HL23- ■ ■ L1 -Z**	–
	356	200	4.12	13500	3.9	144	**2KJ3006- ■ HL23- ■ ■ K1 -Z**	–
	399	179	3.67	13500	4.3	144	**2KJ3006- ■ HL23- ■ ■ J1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
7.5	**E.129-LE132ZMS4P**							
	445	161	3.29	13300	4.8	144	**2KJ3006- ■ HL23- ■ ■ H1 -Z**	–
	503	142	2.91	12800	5.4	144	**2KJ3006- ■ HL23- ■ ■ G1 -Z**	–
	E.109-LE132ZMS4P							
	204	350	7.19	10500	1.6	119	**2KJ3005- ■ HL23- ■ ■ Q1 -Z**	–
	217	330	6.76	10500	1.7	119	**2KJ3005- ■ HL23- ■ ■ P1 -Z**	–
	233	305	6.28	10500	1.8	119	**2KJ3005- ■ HL23- ■ ■ N1 -Z**	–
	264	270	5.55	10500	2.1	119	**2KJ3005- ■ HL23- ■ ■ M1 -Z**	–
	296	240	4.95	10500	2.3	119	**2KJ3005- ■ HL23- ■ ■ L1 -Z**	–
	328	215	4.46	10500	2.6	119	**2KJ3005- ■ HL23- ■ ■ K1 -Z**	–
	379	189	3.87	10500	2.9	119	**2KJ3005- ■ HL23- ■ ■ J1 -Z**	–
	421	170	3.48	10500	3.2	119	**2KJ3005- ■ HL23- ■ ■ H1 -Z**	–
	482	149	3.04	10500	3.7	119	**2KJ3005- ■ HL23- ■ ■ G1 -Z**	–
	541	132	2.71	10500	4.1	119	**2KJ3005- ■ HL23- ■ ■ F1 -Z**	–
	613	117	2.39	10500	4.6	119	**2KJ3005- ■ HL23- ■ ■ E1 -Z**	–
	698	103	2.10	10500	5.2	119	**2KJ3005- ■ HL23- ■ ■ D1 -Z**	–
	801	90	1.83	10100	5.9	119	**2KJ3005- ■ HL23- ■ ■ C1 -Z**	–
	877	82	1.67	9900	6.5	119	**2KJ3005- ■ HL23- ■ ■ B1 -Z**	–
	E.89-LE132ZMS4P							
	221	325	6.64	8000	0.8	96	**2KJ3004- ■ HL23- ■ ■ P1 -Z**	–
	261	275	5.62	8000	1.2	96	**2KJ3004- ■ HL23- ■ ■ N1 -Z**	–
	277	255	5.29	8000	0.81	96	**2KJ3004- ■ HL23- ■ ■ M1 -Z**	–
	300	235	4.89	8000	1.5	96	**2KJ3004- ■ HL23- ■ ■ L1 -Z**	–
	337	210	4.35	8000	1.7	96	**2KJ3004- ■ HL23- ■ ■ K1 -Z**	–
	380	189	3.86	8000	1.9	96	**2KJ3004- ■ HL23- ■ ■ J1 -Z**	–
	423	169	3.46	8000	2.2	96	**2KJ3004- ■ HL23- ■ ■ H1 -Z**	–
	495	145	2.96	8000	2.5	96	**2KJ3004- ■ HL23- ■ ■ G1 -Z**	–
	555	129	2.64	8000	2.8	96	**2KJ3004- ■ HL23- ■ ■ F1 -Z**	–
	629	114	2.33	8000	3.2	96	**2KJ3004- ■ HL23- ■ ■ E1 -Z**	–
	715	100	2.05	7740	3.6	96	**2KJ3004- ■ HL23- ■ ■ D1 -Z**	–
	823	87	1.78	7470	4.2	96	**2KJ3004- ■ HL23- ■ ■ C1 -Z**	–
	964	74	1.52	7170	4.8	96	**2KJ3004- ■ HL23- ■ ■ B1 -Z**	–
	1127	64	1.30	6880	5.7	96	**2KJ3004- ■ HL23- ■ ■ A1 -Z**	–
	E.69-LE132ZMS4P							
	334	210	4.38	6100	0.93	82	**2KJ3003- ■ HL23- ■ ■ K1 -Z**	–
	356	200	4.12	6100	0.82	82	**2KJ3003- ■ HL23- ■ ■ J1 -Z**	–
	388	185	3.78	6100	1.1	82	**2KJ3003- ■ HL23- ■ ■ H1 -Z**	–
	444	161	3.30	6100	1.2	82	**2KJ3003- ■ HL23- ■ ■ G1 -Z**	–
	497	144	2.95	6100	1.4	82	**2KJ3003- ■ HL23- ■ ■ F1 -Z**	–
	568	126	2.58	6100	1.6	82	**2KJ3003- ■ HL23- ■ ■ E1 -Z**	–
	660	109	2.22	6100	1.8	82	**2KJ3003- ■ HL23- ■ ■ D1 -Z**	–
	747	96	1.96	6100	2	82	**2KJ3003- ■ HL23- ■ ■ C1 -Z**	–
	877	82	1.67	6100	2.4	82	**2KJ3003- ■ HL23- ■ ■ B1 -Z**	–
	1024	70	1.43	6100	2.8	82	**2KJ3003- ■ HL23- ■ ■ A1 -Z**	–
	E.49-LE132ZMS4P							
	563	127	2.60	1390	0.8	75	**2KJ3002- ■ HL23- ■ ■ E1 -Z**	–
9.2	**D.189-LE160MPA4P**							
	4.7	18600	313.63	107000	1	717	**2KJ3214- ■ JQ23- ■ ■ T1 -Z**	–
	5.3	16600	280.59	107000	1.1	717	**2KJ3214- ■ JQ23- ■ ■ S1 -Z**	–
	5.8	15000	253.06	107000	1.3	717	**2KJ3214- ■ JQ23- ■ ■ R1 -Z**	–
	6.6	13200	223.66	107000	1.4	717	**2KJ3214- ■ JQ23- ■ ■ Q1 -Z**	–
	7.2	12100	204.44	107000	1.6	717	**2KJ3214- ■ JQ23- ■ ■ P1 -Z**	–
	8	10900	183.92	107000	1.7	717	**2KJ3214- ■ JQ23- ■ ■ N1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
9.2	**D.189-LE160MPA4P**							
	9	9750	164.36	107000	1.9	717	**2KJ3214- ■ JQ23- ■ ■ M1 -Z**	–
	10	8820	148.63	107000	2.2	717	**2KJ3214- ■ JQ23- ■ ■ L1 -Z**	–
	D.169-LE160MPA4P							
	5.5	16100	271.40	69300	0.87	504	**2KJ3213- ■ JQ23- ■ ■ T1 -Z**	–
	6.1	14400	243.68	70000	0.97	504	**2KJ3213- ■ JQ23- ■ ■ S1 -Z**	–
	6.7	13000	220.58	70500	1.1	504	**2KJ3213- ■ JQ23- ■ ■ R1 -Z**	–
	7.6	11500	193.75	71000	1.2	504	**2KJ3213- ■ JQ23- ■ ■ Q1 -Z**	–
	8.4	10400	175.57	71500	1.3	504	**2KJ3213- ■ JQ23- ■ ■ P1 -Z**	–
	9.5	9280	156.36	71900	1.5	504	**2KJ3213- ■ JQ23- ■ ■ N1 -Z**	–
	11	8330	140.41	72200	1.7	504	**2KJ3213- ■ JQ23- ■ ■ M1 -Z**	–
	12	7430	125.28	72600	1.9	504	**2KJ3213- ■ JQ23- ■ ■ L1 -Z**	–
	13	6630	111.69	72800	2.1	504	**2KJ3213- ■ JQ23- ■ ■ K1 -Z**	–
	D.149-LE160MPA4P							
	9.5	9260	156.11	50600	0.86	325	**2KJ3212- ■ JQ23- ■ ■ P1 -Z**	–
	11	8200	138.26	51100	0.97	325	**2KJ3212- ■ JQ23- ■ ■ N1 -Z**	–
	12	7300	123.04	51500	1.1	325	**2KJ3212- ■ JQ23- ■ ■ M1 -Z**	–
	13	6540	110.26	51900	1.2	325	**2KJ3212- ■ JQ23- ■ ■ L1 -Z**	–
	15	5800	97.75	52200	1.4	325	**2KJ3212- ■ JQ23- ■ ■ K1 -Z**	–
	17	5120	86.29	52500	1.6	325	**2KJ3212- ■ JQ23- ■ ■ J1 -Z**	–
	20	4500	75.87	52800	1.8	325	**2KJ3212- ■ JQ23- ■ ■ H1 -Z**	–
	22	4070	68.71	53000	2	325	**2KJ3212- ■ JQ23- ■ ■ G1 -Z**	–
	Z.149-LE160MPA4P							
	26	3360	56.64	53400	2.4	319	**2KJ3112- ■ JQ23- ■ ■ W1 -Z**	–
	28	3130	52.84	53500	2.5	319	**2KJ3112- ■ JQ23- ■ ■ V1 -Z**	–
	D.129-LE160MPA4P							
	15	6050	102.05	26400	0.83	241	**2KJ3211- ■ JQ23- ■ ■ E1 -Z**	–
	16	5330	89.91	26800	0.94	241	**2KJ3211- ■ JQ23- ■ ■ D1 -Z**	–
	19	4670	78.78	27200	1.1	241	**2KJ3211- ■ JQ23- ■ ■ C1 -Z**	–
	Z.129-LE160MPA4P							
	24	3700	62.48	27800	1.3	237	**2KJ3111- ■ JQ23- ■ ■ X1 -Z**	–
	28	3170	53.47	28100	1.6	237	**2KJ3111- ■ JQ23- ■ ■ W1 -Z**	–
	29	2980	50.33	28200	1.7	237	**2KJ3111- ■ JQ23- ■ ■ V1 -Z**	–
	31	2800	47.18	28300	1.8	237	**2KJ3111- ■ JQ23- ■ ■ U1 -Z**	–
	35	2480	41.82	28500	2	237	**2KJ3111- ■ JQ23- ■ ■ T1 -Z**	–
	40	2200	37.15	28700	2.3	237	**2KJ3111- ■ JQ23- ■ ■ S1 -Z**	–
	44	1990	33.52	28800	2.5	237	**2KJ3111- ■ JQ23- ■ ■ R1 -Z**	–
	50	1760	29.70	28900	2.8	237	**2KJ3111- ■ JQ23- ■ ■ Q1 -Z**	–
	D.109-LE160MPA4P							
	23	3820	64.34	20000	0.81	178	**2KJ3210- ■ JQ23- ■ ■ C1 -Z**	–
	Z.109-LE160MPA4P							
	29	3030	51.17	20200	1	175	**2KJ3110- ■ JQ23- ■ ■ X1 -Z**	–
	34	2590	43.64	20200	1.2	175	**2KJ3110- ■ JQ23- ■ ■ W1 -Z**	–
	36	2430	41.07	20200	1.3	175	**2KJ3110- ■ JQ23- ■ ■ V1 -Z**	–
	39	2260	38.12	20200	1.4	175	**2KJ3110- ■ JQ23- ■ ■ U1 -Z**	–
	44	2000	33.70	20200	1.5	175	**2KJ3110- ■ JQ23- ■ ■ T1 -Z**	–
	49	1780	30.08	20200	1.7	175	**2KJ3110- ■ JQ23- ■ ■ S1 -Z**	–
	55	1600	27.07	20200	1.9	175	**2KJ3110- ■ JQ23- ■ ■ R1 -Z**	–
	63	1390	23.49	20200	2.1	175	**2KJ3110- ■ JQ23- ■ ■ Q1 -Z**	–
	70	1250	21.13	20200	2.3	175	**2KJ3110- ■ JQ23- ■ ■ P1 -Z**	–
	80	1090	18.47	20200	2.5	175	**2KJ3110- ■ JQ23- ■ ■ N1 -Z**	–
	90	975	16.48	20200	2.7	175	**2KJ3110- ■ JQ23- ■ ■ M1 -Z**	–
	102	860	14.52	19800	3	175	**2KJ3110- ■ JQ23- ■ ■ L1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
9.2	**Z.109-LE160MPA4P**							
	116	755	12.72	19200	3.3	175	**2KJ3110- ■ JQ23- ■ ■ K1 -Z**	–
	133	655	11.09	18500	3.7	175	**2KJ3110- ■ JQ23- ■ ■ J1 -Z**	–
	146	600	10.12	18100	4	175	**2KJ3110- ■ JQ23- ■ ■ H1 -Z**	–
	Z.89-LE160MPA4P							
	44	1980	33.38	18500	0.85	137	**2KJ3108- ■ JQ23- ■ ■ T1 -Z**	–
	47	1860	31.41	18500	0.9	137	**2KJ3108- ■ JQ23- ■ ■ S1 -Z**	–
	51	1720	29.01	18500	0.98	137	**2KJ3108- ■ JQ23- ■ ■ R1 -Z**	–
	57	1530	25.81	18500	1.1	137	**2KJ3108- ■ JQ23- ■ ■ Q1 -Z**	–
	65	1360	22.92	18500	1.2	137	**2KJ3108- ■ JQ23- ■ ■ P1 -Z**	–
	72	1210	20.52	18400	1.4	137	**2KJ3108- ■ JQ23- ■ ■ N1 -Z**	–
	84	1040	17.54	17800	1.6	137	**2KJ3108- ■ JQ23- ■ ■ M1 -Z**	–
	95	930	15.66	17300	1.8	137	**2KJ3108- ■ JQ23- ■ ■ L1 -Z**	–
	107	820	13.84	16800	2	137	**2KJ3108- ■ JQ23- ■ ■ K1 -Z**	–
	122	720	12.15	16300	2.3	137	**2KJ3108- ■ JQ23- ■ ■ J1 -Z**	–
	140	625	10.58	15700	2.5	137	**2KJ3108- ■ JQ23- ■ ■ H1 -Z**	–
	164	535	9.04	15100	2.9	137	**2KJ3108- ■ JQ23- ■ ■ G1 -Z**	–
	191	455	7.74	14500	3.3	137	**2KJ3108- ■ JQ23- ■ ■ F1 -Z**	–
	215	405	6.89	14100	2.6	137	**2KJ3108- ■ JQ23- ■ ■ E1 -Z**	–
	245	355	6.05	13600	3	137	**2KJ3108- ■ JQ23- ■ ■ D1 -Z**	–
	281	310	5.26	13100	3.4	137	**2KJ3108- ■ JQ23- ■ ■ C1 -Z**	–
	329	265	4.50	12500	4	137	**2KJ3108- ■ JQ23- ■ ■ B1 -Z**	–
	384	225	3.85	11900	4.6	137	**2KJ3108- ■ JQ23- ■ ■ A1 -Z**	–
	Z.79-LE160MPA4P							
	85	1020	17.31	10800	0.82	114	**2KJ3107- ■ JQ23- ■ ■ M1 -Z**	–
	98	895	15.13	10500	0.94	114	**2KJ3107- ■ JQ23- ■ ■ L1 -Z**	–
	114	770	12.99	10300	1.1	114	**2KJ3107- ■ JQ23- ■ ■ K1 -Z**	–
	129	680	11.48	10000	1.2	114	**2KJ3107- ■ JQ23- ■ ■ J1 -Z**	–
	152	575	9.76	9750	1.4	114	**2KJ3107- ■ JQ23- ■ ■ H1 -Z**	–
	177	495	8.37	6480	1.6	114	**2KJ3107- ■ JQ23- ■ ■ G1 -Z**	–
	181	485	8.19	4880	1.5	114	**2KJ3107- ■ JQ23- ■ ■ F1 -Z**	–
	207	425	7.16	5380	1.7	114	**2KJ3107- ■ JQ23- ■ ■ E1 -Z**	–
	241	365	6.15	5830	2	114	**2KJ3107- ■ JQ23- ■ ■ D1 -Z**	–
	273	320	5.43	6160	2.1	114	**2KJ3107- ■ JQ23- ■ ■ C1 -Z**	–
	320	270	4.62	6450	2.8	114	**2KJ3107- ■ JQ23- ■ ■ B1 -Z**	–
	374	235	3.96	6520	3.3	114	**2KJ3107- ■ JQ23- ■ ■ A1 -Z**	–
	E.149-LE160MPA4P							
	152	575	9.76	16000	2.1	198	**2KJ3007- ■ JQ23- ■ ■ S1 -Z**	–
	162	540	9.11	16000	2.3	198	**2KJ3007- ■ JQ23- ■ ■ R1 -Z**	–
	183	480	8.10	16000	2.8	198	**2KJ3007- ■ JQ23- ■ ■ Q1 -Z**	–
	204	430	7.27	16000	3.1	198	**2KJ3007- ■ JQ23- ■ ■ P1 -Z**	–
	225	390	6.58	16000	3.4	198	**2KJ3007- ■ JQ23- ■ ■ N1 -Z**	–
	256	340	5.78	16000	4.3	198	**2KJ3007- ■ JQ23- ■ ■ M1 -Z**	–
	282	310	5.24	16000	4.8	198	**2KJ3007- ■ JQ23- ■ ■ L1 -Z**	–
	E.129-LE160MPA4P							
	151	580	9.79	13500	1.1	161	**2KJ3006- ■ JQ23- ■ ■ T1 -Z**	–
	177	495	8.38	13500	1.3	161	**2KJ3006- ■ JQ23- ■ ■ S1 -Z**	–
	188	465	7.88	13500	1.4	161	**2KJ3006- ■ JQ23- ■ ■ R1 -Z**	–
	200	435	7.39	13500	1.8	161	**2KJ3006- ■ JQ23- ■ ■ Q1 -Z**	–
	226	385	6.55	13500	2.1	161	**2KJ3006- ■ JQ23- ■ ■ P1 -Z**	–
	254	345	5.82	13500	2.3	161	**2KJ3006- ■ JQ23- ■ ■ N1 -Z**	–
	282	310	5.25	13500	2.6	161	**2KJ3006- ■ JQ23- ■ ■ M1 -Z**	–
	318	275	4.65	13500	2.9	161	**2KJ3006- ■ JQ23- ■ ■ L1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
9.2	**E.149-LE160MPA4P**							
	359	245	4.12	13500	3.2	161	**2KJ3006- ■ JQ23- ■ ■ K1 -Z**	–
	403	215	3.67	13400	3.6	161	**2KJ3006- ■ JQ23- ■ ■ J1 -Z**	–
	450	195	3.29	13000	4	161	**2KJ3006- ■ JQ23- ■ ■ H1 -Z**	–
	509	173	2.91	12600	4.5	161	**2KJ3006- ■ JQ23- ■ ■ G1 -Z**	–
	576	153	2.57	12200	5	161	**2KJ3006- ■ JQ23- ■ ■ F1 -Z**	–
	655	134	2.26	11800	5.7	161	**2KJ3006- ■ JQ23- ■ ■ E1 -Z**	–
	E.109-LE160MPA4P							
	206	425	7.19	10500	1.3	137	**2KJ3005- ■ JQ23- ■ ■ Q1 -Z**	–
	219	400	6.76	10500	1.4	137	**2KJ3005- ■ JQ23- ■ ■ P1 -Z**	–
	236	370	6.28	10500	1.5	137	**2KJ3005- ■ JQ23- ■ ■ N1 -Z**	–
	267	325	5.55	10500	1.7	137	**2KJ3005- ■ JQ23- ■ ■ M1 -Z**	–
	299	290	4.95	10500	1.9	137	**2KJ3005- ■ JQ23- ■ ■ L1 -Z**	–
	332	265	4.46	10500	2.1	137	**2KJ3005- ■ JQ23- ■ ■ K1 -Z**	–
	382	230	3.87	10500	2.4	137	**2KJ3005- ■ JQ23- ■ ■ J1 -Z**	–
	425	205	3.48	10500	2.7	137	**2KJ3005- ■ JQ23- ■ ■ H1 -Z**	–
	487	180	3.04	10500	3	137	**2KJ3005- ■ JQ23- ■ ■ G1 -Z**	–
	546	161	2.71	10500	3.4	137	**2KJ3005- ■ JQ23- ■ ■ F1 -Z**	–
	619	142	2.39	10500	3.8	137	**2KJ3005- ■ JQ23- ■ ■ E1 -Z**	–
	705	125	2.10	10300	4.3	137	**2KJ3005- ■ JQ23- ■ ■ D1 -Z**	–
	809	109	1.83	10000	4.9	137	**2KJ3005- ■ JQ23- ■ ■ C1 -Z**	–
	886	99	1.67	9760	5.3	137	**2KJ3005- ■ JQ23- ■ ■ B1 -Z**	–
	1035	85	1.43	9380	5.5	137	**2KJ3005- ■ JQ23- ■ ■ A1 -Z**	–
	E.89-LE160MPA4P							
	263	330	5.62	8000	0.96	115	**2KJ3004- ■ JQ23- ■ ■ N1 -Z**	–
	303	290	4.89	8000	1.2	115	**2KJ3004- ■ JQ23- ■ ■ L1 -Z**	–
	340	255	4.35	8000	1.4	115	**2KJ3004- ■ JQ23- ■ ■ K1 -Z**	–
	383	225	3.86	8000	1.6	115	**2KJ3004- ■ JQ23- ■ ■ J1 -Z**	–
	428	205	3.46	8000	1.8	115	**2KJ3004- ■ JQ23- ■ ■ H1 -Z**	–
	500	176	2.96	8000	2	115	**2KJ3004- ■ JQ23- ■ ■ G1 -Z**	–
	561	157	2.64	8000	2.3	115	**2KJ3004- ■ JQ23- ■ ■ F1 -Z**	–
	635	138	2.33	7800	2.6	115	**2KJ3004- ■ JQ23- ■ ■ E1 -Z**	–
	722	122	2.05	7560	3	115	**2KJ3004- ■ JQ23- ■ ■ D1 -Z**	–
	831	106	1.78	7310	3.5	115	**2KJ3004- ■ JQ23- ■ ■ C1 -Z**	–
	974	90	1.52	7030	4	115	**2KJ3004- ■ JQ23- ■ ■ B1 -Z**	–
	1138	77	1.30	6750	4.7	115	**2KJ3004- ■ JQ23- ■ ■ A1 -Z**	–
	E.69-LE160MPA4P							
	392	220	3.78	6100	0.89	98	**2KJ3003- ■ JQ23- ■ ■ H1 -Z**	–
	448	196	3.30	6100	1	98	**2KJ3003- ■ JQ23- ■ ■ G1 -Z**	–
	502	175	2.95	6100	1.1	98	**2KJ3003- ■ JQ23- ■ ■ F1 -Z**	–
	667	132	2.22	6100	1.5	98	**2KJ3003- ■ JQ23- ■ ■ D1 -Z**	–
	755	116	1.96	6100	1.7	98	**2KJ3003- ■ JQ23- ■ ■ C1 -Z**	–
	886	99	1.67	6040	2	98	**2KJ3003- ■ JQ23- ■ ■ B1 -Z**	–
	1035	85	1.43	5910	2.3	98	**2KJ3003- ■ JQ23- ■ ■ A1 -Z**	–
11	**D.189-LE160MPB4P**							
	4.7	22300	313.63	107000	0.85	709	**2KJ3214- ■ JR23- ■ ■ T1 -Z**	–
	5.3	19900	280.59	107000	0.95	709	**2KJ3214- ■ JR23- ■ ■ S1 -Z**	–
	5.8	18000	253.06	107000	1.1	709	**2KJ3214- ■ JR23- ■ ■ R1 -Z**	–
	6.6	15900	223.66	107000	1.2	709	**2KJ3214- ■ JR23- ■ ■ Q1 -Z**	–
	7.2	14500	204.44	107000	1.3	709	**2KJ3214- ■ JR23- ■ ■ P1 -Z**	–
	8	13000	183.92	107000	1.5	709	**2KJ3214- ■ JR23- ■ ■ N1 -Z**	–
	9	11700	164.36	107000	1.6	709	**2KJ3214- ■ JR23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
11	**D.189-LE160MPB4P**							
	9.9	10500	148.63	107000	1.8	709	**2KJ3214- ■ JR23- ■ ■ L1 -Z**	–
	11	9340	131.17	107000	2	709	**2KJ3214- ■ JR23- ■ ■ K1 -Z**	–
	D.169-LE160MPB4P							
	6.1	17300	243.68	68900	0.81	496	**2KJ3213- ■ JR23- ■ ■ S1 -Z**	–
	6.7	15700	220.58	69500	0.89	496	**2KJ3213- ■ JR23- ■ ■ R1 -Z**	–
	7.6	13700	193.75	70200	1	496	**2KJ3213- ■ JR23- ■ ■ Q1 -Z**	–
	8.4	12500	175.57	70700	1.1	496	**2KJ3213- ■ JR23- ■ ■ P1 -Z**	–
	9.4	11100	156.36	71200	1.3	496	**2KJ3213- ■ JR23- ■ ■ N1 -Z**	–
	11	10000	140.41	71600	1.4	496	**2KJ3213- ■ JR23- ■ ■ M1 -Z**	–
	12	8920	125.28	72000	1.6	496	**2KJ3213- ■ JR23- ■ ■ L1 -Z**	–
	13	7950	111.69	72400	1.8	496	**2KJ3213- ■ JR23- ■ ■ K1 -Z**	–
	15	7050	99.06	72700	2	496	**2KJ3213- ■ JR23- ■ ■ J1 -Z**	–
	16	6470	90.94	72900	2.2	496	**2KJ3213- ■ JR23- ■ ■ H1 -Z**	–
	D.149-LE160MPB4P							
	11	9840	138.26	50300	0.81	317	**2KJ3212- ■ JR23- ■ ■ N1 -Z**	–
	12	8760	123.04	50800	0.91	317	**2KJ3212- ■ JR23- ■ ■ M1 -Z**	–
	13	7850	110.26	51200	1	317	**2KJ3212- ■ JR23- ■ ■ L1 -Z**	–
	15	6960	97.75	51600	1.1	317	**2KJ3212- ■ JR23- ■ ■ K1 -Z**	–
	17	6140	86.29	52100	1.3	317	**2KJ3212- ■ JR23- ■ ■ J1 -Z**	–
	19	5400	75.87	52400	1.5	317	**2KJ3212- ■ JR23- ■ ■ H1 -Z**	–
	21	4890	68.71	52700	1.6	317	**2KJ3212- ■ JR23- ■ ■ G1 -Z**	–
	Z.149-LE160MPB4P							
	26	4030	56.64	53100	2	311	**2KJ3112- ■ JR23- ■ ■ W1 -Z**	–
	28	3760	52.84	53200	2	311	**2KJ3112- ■ JR23- ■ ■ V1 -Z**	–
	31	3340	46.98	53200	2.3	311	**2KJ3112- ■ JR23- ■ ■ U1 -Z**	–
	35	3000	42.18	51800	2.5	311	**2KJ3112- ■ JR23- ■ ■ T1 -Z**	–
	D.129-LE160MPB4P							
	19	5610	78.78	26700	0.89	233	**2KJ3211- ■ JR23- ■ ■ C1 -Z**	–
	Z.129-LE160MPB4P							
	24	4450	62.48	27300	1.1	229	**2KJ3111- ■ JR23- ■ ■ X1 -Z**	–
	28	3800	53.47	27700	1.3	229	**2KJ3111- ■ JR23- ■ ■ W1 -Z**	–
	29	3580	50.33	27900	1.4	229	**2KJ3111- ■ JR23- ■ ■ V1 -Z**	–
	31	3360	47.18	28000	1.5	229	**2KJ3111- ■ JR23- ■ ■ U1 -Z**	–
	35	2970	41.82	28200	1.7	229	**2KJ3111- ■ JR23- ■ ■ T1 -Z**	–
	40	2640	37.15	28400	1.9	229	**2KJ3111- ■ JR23- ■ ■ S1 -Z**	–
	44	2380	33.52	28500	2.1	229	**2KJ3111- ■ JR23- ■ ■ R1 -Z**	–
	50	2110	29.70	28600	2.4	229	**2KJ3111- ■ JR23- ■ ■ Q1 -Z**	–
	56	1870	26.30	27800	2.7	229	**2KJ3111- ■ JR23- ■ ■ P1 -Z**	–
	63	1660	23.41	27100	3	229	**2KJ3111- ■ JR23- ■ ■ N1 -Z**	–
	Z.109-LE160MPB4P							
	29	3640	51.17	20200	0.85	167	**2KJ3110- ■ JR23- ■ ■ X1 -Z**	–
	34	3100	43.64	20200	1	167	**2KJ3110- ■ JR23- ■ ■ W1 -Z**	–
	36	2920	41.07	20200	1.1	167	**2KJ3110- ■ JR23- ■ ■ V1 -Z**	–
	39	2710	38.12	20200	1.1	167	**2KJ3110- ■ JR23- ■ ■ U1 -Z**	–
	44	2400	33.70	20200	1.3	167	**2KJ3110- ■ JR23- ■ ■ T1 -Z**	–
	49	2140	30.08	20200	1.4	167	**2KJ3110- ■ JR23- ■ ■ S1 -Z**	–
	54	1920	27.07	20200	1.6	167	**2KJ3110- ■ JR23- ■ ■ R1 -Z**	–
	63	1670	23.49	20200	1.7	167	**2KJ3110- ■ JR23- ■ ■ Q1 -Z**	–
	70	1500	21.13	20200	1.9	167	**2KJ3110- ■ JR23- ■ ■ P1 -Z**	–
	80	1310	18.47	20200	2.1	167	**2KJ3110- ■ JR23- ■ ■ N1 -Z**	–
	90	1170	16.48	19900	2.2	167	**2KJ3110- ■ JR23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
11	**Z.109-LE160MPB4P**							
	102	1030	14.52	19400	2.5	167	**2KJ3110- ■ JR23- ■ ■ L1 -Z**	–
	116	905	12.72	18800	2.8	167	**2KJ3110- ■ JR23- ■ ■ K1 -Z**	–
	133	790	11.09	18200	3.1	167	**2KJ3110- ■ JR23- ■ ■ J1 -Z**	–
	146	720	10.12	17900	3.4	167	**2KJ3110- ■ JR23- ■ ■ H1 -Z**	–
	169	620	8.71	17200	3.8	167	**2KJ3110- ■ JR23- ■ ■ G1 -Z**	–
	175	595	8.41	17000	3.8	167	**2KJ3110- ■ JR23- ■ ■ F1 -Z**	–
	199	525	7.41	16500	4.3	167	**2KJ3110- ■ JR23- ■ ■ E1 -Z**	–
	Z.89-LE160MPB4P							
	51	2060	29.01	15700	0.81	129	**2KJ3108- ■ JR23- ■ ■ R1 -Z**	–
	57	1830	25.81	17000	0.91	129	**2KJ3108- ■ JR23- ■ ■ Q1 -Z**	–
	64	1630	22.92	17900	1	129	**2KJ3108- ■ JR23- ■ ■ P1 -Z**	–
	72	1460	20.52	17700	1.1	129	**2KJ3108- ■ JR23- ■ ■ N1 -Z**	–
	84	1240	17.54	17200	1.3	129	**2KJ3108- ■ JR23- ■ ■ M1 -Z**	–
	94	1110	15.66	16800	1.5	129	**2KJ3108- ■ JR23- ■ ■ L1 -Z**	–
	107	985	13.84	16400	1.7	129	**2KJ3108- ■ JR23- ■ ■ K1 -Z**	–
	121	865	12.15	15900	1.9	129	**2KJ3108- ■ JR23- ■ ■ J1 -Z**	–
	139	750	10.58	15400	2.1	129	**2KJ3108- ■ JR23- ■ ■ H1 -Z**	–
	163	640	9.04	14800	2.4	129	**2KJ3108- ■ JR23- ■ ■ G1 -Z**	–
	191	550	7.74	14200	2.8	129	**2KJ3108- ■ JR23- ■ ■ F1 -Z**	–
	214	490	6.89	13900	2.1	129	**2KJ3108- ■ JR23- ■ ■ E1 -Z**	–
	244	430	6.05	13400	2.5	129	**2KJ3108- ■ JR23- ■ ■ D1 -Z**	–
	280	375	5.26	12900	2.8	129	**2KJ3108- ■ JR23- ■ ■ C1 -Z**	–
	328	320	4.50	12300	3.3	129	**2KJ3108- ■ JR23- ■ ■ B1 -Z**	–
	383	270	3.85	11800	3.9	129	**2KJ3108- ■ JR23- ■ ■ A1 -Z**	–
	Z.79-LE160MPB4P							
	114	925	12.99	9850	0.91	106	**2KJ3107- ■ JR23- ■ ■ K1 -Z**	–
	128	815	11.48	9680	1	106	**2KJ3107- ■ JR23- ■ ■ J1 -Z**	–
	151	695	9.76	9400	1.2	106	**2KJ3107- ■ JR23- ■ ■ H1 -Z**	–
	176	595	8.37	4990	1.3	106	**2KJ3107- ■ JR23- ■ ■ G1 -Z**	–
	180	580	8.19	8880	1.2	106	**2KJ3107- ■ JR23- ■ ■ F1 -Z**	–
	206	510	7.16	8650	1.4	106	**2KJ3107- ■ JR23- ■ ■ E1 -Z**	–
	240	435	6.15	4550	1.6	106	**2KJ3107- ■ JR23- ■ ■ D1 -Z**	–
	272	385	5.43	4970	1.8	106	**2KJ3107- ■ JR23- ■ ■ C1 -Z**	–
	319	325	4.62	5440	2.4	106	**2KJ3107- ■ JR23- ■ ■ B1 -Z**	–
	372	280	3.96	5700	2.7	106	**2KJ3107- ■ JR23- ■ ■ A1 -Z**	–
	E.149-LE160MPB4P							
	151	695	9.76	16000	1.7	190	**2KJ3007- ■ JR23- ■ ■ S1 -Z**	–
	162	645	9.11	16000	1.9	190	**2KJ3007- ■ JR23- ■ ■ R1 -Z**	–
	182	575	8.10	16000	2.3	190	**2KJ3007- ■ JR23- ■ ■ Q1 -Z**	–
	203	515	7.27	16000	2.6	190	**2KJ3007- ■ JR23- ■ ■ P1 -Z**	–
	224	465	6.58	16000	2.8	190	**2KJ3007- ■ JR23- ■ ■ N1 -Z**	–
	255	410	5.78	16000	3.6	190	**2KJ3007- ■ JR23- ■ ■ M1 -Z**	–
	281	370	5.24	16000	4	190	**2KJ3007- ■ JR23- ■ ■ L1 -Z**	–
	316	330	4.67	16000	4.4	190	**2KJ3007- ■ JR23- ■ ■ K1 -Z**	–
	352	295	4.19	15800	5	190	**2KJ3007- ■ JR23- ■ ■ J1 -Z**	–
	E.129-LE160MPB4P							
	151	695	9.79	13500	0.95	153	**2KJ3006- ■ JR23- ■ ■ T1 -Z**	–
	176	595	8.38	13500	1.1	153	**2KJ3006- ■ JR23- ■ ■ S1 -Z**	–
	187	560	7.88	13500	1.2	153	**2KJ3006- ■ JR23- ■ ■ R1 -Z**	–
	200	525	7.39	13500	1.5	153	**2KJ3006- ■ JR23- ■ ■ Q1 -Z**	–
	225	465	6.55	13500	1.7	153	**2KJ3006- ■ JR23- ■ ■ P1 -Z**	–
	253	415	5.82	13500	1.9	153	**2KJ3006- ■ JR23- ■ ■ N1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
11	**E.149-LE160MPB4P**							
	281	370	5.25	13500	2.1	153	**2KJ3006- ■ JR23- ■ ■ M1 -Z**	–
	317	330	4.65	13500	2.4	153	**2KJ3006- ■ JR23- ■ ■ L1 -Z**	–
	358	290	4.12	13500	2.7	153	**2KJ3006- ■ JR23- ■ ■ K1 -Z**	–
	402	260	3.67	13100	3	153	**2KJ3006- ■ JR23- ■ ■ J1 -Z**	–
	448	230	3.29	12800	3.3	153	**2KJ3006- ■ JR23- ■ ■ H1 -Z**	–
	507	205	2.91	12400	3.7	153	**2KJ3006- ■ JR23- ■ ■ G1 -Z**	–
	574	183	2.57	12100	4.2	153	**2KJ3006- ■ JR23- ■ ■ F1 -Z**	–
	653	161	2.26	11700	4.7	153	**2KJ3006- ■ JR23- ■ ■ E1 -Z**	–
	720	146	2.05	11400	5.2	153	**2KJ3006- ■ JR23- ■ ■ D1 -Z**	–
	829	127	1.78	11000	6	153	**2KJ3006- ■ JR23- ■ ■ C1 -Z**	–
	E.109-LE160MPB4P							
	205	510	7.19	10500	1.1	129	**2KJ3005- ■ JR23- ■ ■ Q1 -Z**	–
	218	480	6.76	10500	1.2	129	**2KJ3005- ■ JR23- ■ ■ P1 -Z**	–
	235	445	6.28	10500	1.3	129	**2KJ3005- ■ JR23- ■ ■ N1 -Z**	–
	266	395	5.55	10500	1.4	129	**2KJ3005- ■ JR23- ■ ■ M1 -Z**	–
	298	350	4.95	10500	1.6	129	**2KJ3005- ■ JR23- ■ ■ L1 -Z**	–
	331	315	4.46	10500	1.8	129	**2KJ3005- ■ JR23- ■ ■ K1 -Z**	–
	381	275	3.87	10500	2	129	**2KJ3005- ■ JR23- ■ ■ J1 -Z**	–
	424	245	3.48	10500	2.2	129	**2KJ3005- ■ JR23- ■ ■ H1 -Z**	–
	485	215	3.04	10500	2.5	129	**2KJ3005- ■ JR23- ■ ■ G1 -Z**	–
	544	193	2.71	10500	2.8	129	**2KJ3005- ■ JR23- ■ ■ F1 -Z**	–
	617	170	2.39	10500	3.2	129	**2KJ3005- ■ JR23- ■ ■ E1 -Z**	–
	702	150	2.10	10200	3.6	129	**2KJ3005- ■ JR23- ■ ■ D1 -Z**	–
	806	130	1.83	9890	4.1	129	**2KJ3005- ■ JR23- ■ ■ C1 -Z**	–
	883	119	1.67	9650	4.5	129	**2KJ3005- ■ JR23- ■ ■ B1 -Z**	–
	1031	102	1.43	9280	4.6	129	**2KJ3005- ■ JR23- ■ ■ A1 -Z**	–
	E.89-LE160MPB4P							
	262	400	5.62	8000	0.8	107	**2KJ3004- ■ JR23- ■ ■ N1 -Z**	–
	302	345	4.89	8000	1	107	**2KJ3004- ■ JR23- ■ ■ L1 -Z**	–
	339	310	4.35	8000	1.2	107	**2KJ3004- ■ JR23- ■ ■ K1 -Z**	–
	382	275	3.86	8000	1.3	107	**2KJ3004- ■ JR23- ■ ■ J1 -Z**	–
	426	245	3.46	8000	1.5	107	**2KJ3004- ■ JR23- ■ ■ H1 -Z**	–
	498	210	2.96	8000	1.7	107	**2KJ3004- ■ JR23- ■ ■ G1 -Z**	–
	559	188	2.64	7820	1.9	107	**2KJ3004- ■ JR23- ■ ■ F1 -Z**	–
	633	166	2.33	7620	2.2	107	**2KJ3004- ■ JR23- ■ ■ E1 -Z**	–
	720	146	2.05	7400	2.5	107	**2KJ3004- ■ JR23- ■ ■ D1 -Z**	–
	829	127	1.78	7160	2.9	107	**2KJ3004- ■ JR23- ■ ■ C1 -Z**	–
	970	108	1.52	6900	3.3	107	**2KJ3004- ■ JR23- ■ ■ B1 -Z**	–
	1135	93	1.30	6630	3.9	107	**2KJ3004- ■ JR23- ■ ■ A1 -Z**	–
	E.69-LE160MPB4P							
	447	235	3.30	5190	0.85	90	**2KJ3003- ■ JR23- ■ ■ G1 -Z**	–
	500	210	2.95	5390	0.95	90	**2KJ3003- ■ JR23- ■ ■ F1 -Z**	–
	883	119	1.67	5450	1.6	90	**2KJ3003- ■ JR23- ■ ■ B1 -Z**	–
	1031	102	1.43	5370	1.9	90	**2KJ3003- ■ JR23- ■ ■ A1 -Z**	–
15	**D.189-LE160ZLL4P**							
	6.6	21700	223.66	107000	0.87	734	**2KJ3214- ■ JU23- ■ ■ Q1 -Z**	–
	7.2	19800	204.44	107000	0.96	734	**2KJ3214- ■ JU23- ■ ■ P1 -Z**	–
	8	17800	183.92	107000	1.1	734	**2KJ3214- ■ JU23- ■ ■ N1 -Z**	–
	9	15900	164.36	107000	1.2	734	**2KJ3214- ■ JU23- ■ ■ M1 -Z**	–
	9.9	14400	148.63	107000	1.3	734	**2KJ3214- ■ JU23- ■ ■ L1 -Z**	–
	11	12700	131.17	107000	1.5	734	**2KJ3214- ■ JU23- ■ ■ K1 -Z**	–
	13	11300	116.88	107000	1.7	734	**2KJ3214- ■ JU23- ■ ■ J1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
15	**D.189-LE160ZLL4P**							
	14	10200	105.89	107000	1.8	734	**2KJ3214- ■ JU23- ■ ■ H1 -Z**	–
	15	9250	95.24	107000	2.1	734	**2KJ3214- ■ JU23- ■ ■ G1 -Z**	–
	D.169-LE160ZLL4P							
	8.4	17000	175.57	69000	0.82	521	**2KJ3213- ■ JU23- ■ ■ P1 -Z**	–
	9.4	15100	156.36	69700	0.92	521	**2KJ3213- ■ JU23- ■ ■ N1 -Z**	–
	11	13600	140.41	70300	1	521	**2KJ3213- ■ JU23- ■ ■ M1 -Z**	–
	12	12100	125.28	70800	1.2	521	**2KJ3213- ■ JU23- ■ ■ L1 -Z**	–
	13	10800	111.69	71300	1.3	521	**2KJ3213- ■ JU23- ■ ■ K1 -Z**	–
	15	9620	99.06	71800	1.5	521	**2KJ3213- ■ JU23- ■ ■ J1 -Z**	–
	16	8830	90.94	72100	1.6	521	**2KJ3213- ■ JU23- ■ ■ H1 -Z**	–
	18	7780	80.12	72400	1.8	521	**2KJ3213- ■ JU23- ■ ■ G1 -Z**	–
	22	6380	65.72	72900	2.2	521	**2KJ3213- ■ JU23- ■ ■ F1 -Z**	–
	D.149-LE160ZLL4P							
	15	9490	97.75	50400	0.84	342	**2KJ3212- ■ JU23- ■ ■ K1 -Z**	–
	17	8380	86.29	51000	0.95	342	**2KJ3212- ■ JU23- ■ ■ J1 -Z**	–
	19	7360	75.87	51500	1.1	342	**2KJ3212- ■ JU23- ■ ■ H1 -Z**	–
	21	6670	68.71	51800	1.2	342	**2KJ3212- ■ JU23- ■ ■ G1 -Z**	–
	Z.149-LE160ZLL4P							
	26	5500	56.64	52400	1.5	336	**2KJ3112- ■ JU23- ■ ■ W1 -Z**	–
	28	5130	52.84	52500	1.5	336	**2KJ3112- ■ JU23- ■ ■ V1 -Z**	–
	31	4560	46.98	51500	1.7	336	**2KJ3112- ■ JU23- ■ ■ U1 -Z**	–
	35	4090	42.18	50300	1.9	336	**2KJ3112- ■ JU23- ■ ■ T1 -Z**	–
	39	3700	38.18	49200	2	336	**2KJ3112- ■ JU23- ■ ■ S1 -Z**	–
	44	3250	33.54	47700	2.5	336	**2KJ3112- ■ JU23- ■ ■ R1 -Z**	–
	49	2950	30.39	46600	2.7	336	**2KJ3112- ■ JU23- ■ ■ Q1 -Z**	–
	24	6060	62.48	26400	0.82	254	**2KJ3111- ■ JU23- ■ ■ X1 -Z**	–
	28	5190	53.47	26900	0.96	254	**2KJ3111- ■ JU23- ■ ■ W1 -Z**	–
	29	4880	50.33	27100	1	254	**2KJ3111- ■ JU23- ■ ■ V1 -Z**	–
	31	4580	47.18	27300	1.1	254	**2KJ3111- ■ JU23- ■ ■ U1 -Z**	–
	35	4060	41.82	27600	1.2	254	**2KJ3111- ■ JU23- ■ ■ T1 -Z**	–
	40	3600	37.15	27800	1.4	254	**2KJ3111- ■ JU23- ■ ■ S1 -Z**	–
	44	3250	33.52	27800	1.5	254	**2KJ3111- ■ JU23- ■ ■ R1 -Z**	–
	50	2880	29.70	27300	1.7	254	**2KJ3111- ■ JU23- ■ ■ Q1 -Z**	–
	56	2550	26.30	26700	2	254	**2KJ3111- ■ JU23- ■ ■ P1 -Z**	–
	63	2270	23.41	26100	2.2	254	**2KJ3111- ■ JU23- ■ ■ N1 -Z**	–
	70	2030	20.98	25500	2.5	254	**2KJ3111- ■ JU23- ■ ■ M1 -Z**	–
	79	1800	18.60	24900	2.8	254	**2KJ3111- ■ JU23- ■ ■ L1 -Z**	–
	90	1590	16.42	24200	3.1	254	**2KJ3111- ■ JU23- ■ ■ K1 -Z**	–
	102	1400	14.43	23500	3.5	254	**2KJ3111- ■ JU23- ■ ■ J1 -Z**	–
	Z.109-LE160ZLL4P							
	39	3700	38.12	20100	0.84	192	**2KJ3110- ■ JU23- ■ ■ U1 -Z**	–
	44	3270	33.70	20200	0.95	192	**2KJ3110- ■ JU23- ■ ■ T1 -Z**	–
	49	2920	30.08	20200	1.1	192	**2KJ3110- ■ JU23- ■ ■ S1 -Z**	–
	54	2620	27.07	20200	1.2	192	**2KJ3110- ■ JU23- ■ ■ R1 -Z**	–
	63	2280	23.49	19900	1.3	192	**2KJ3110- ■ JU23- ■ ■ Q1 -Z**	–
	70	2050	21.13	19600	1.4	192	**2KJ3110- ■ JU23- ■ ■ P1 -Z**	–
	80	1790	18.47	19200	1.5	192	**2KJ3110- ■ JU23- ■ ■ N1 -Z**	–
	90	1600	16.48	18900	1.6	192	**2KJ3110- ■ JU23- ■ ■ M1 -Z**	–
	102	1410	14.52	18500	1.8	192	**2KJ3110- ■ JU23- ■ ■ L1 -Z**	–
	116	1230	12.72	18100	2	192	**2KJ3110- ■ JU23- ■ ■ K1 -Z**	–
	133	1070	11.09	17600	2.3	192	**2KJ3110- ■ JU23- ■ ■ J1 -Z**	–
	146	980	10.12	17300	2.5	192	**2KJ3110- ■ JU23- ■ ■ H1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
15	**Z.109-LE160ZLL4P**							
	169	845	8.71	16700	2.8	192	**2KJ3110- ■ JU23- ■ ■ G1 -Z**	–
	175	815	8.41	16400	2.8	192	**2KJ3110- ■ JU23- ■ ■ F1 -Z**	–
	199	720	7.41	16000	3.2	192	**2KJ3110- ■ JU23- ■ ■ E1 -Z**	–
	227	630	6.50	15500	3.6	192	**2KJ3110- ■ JU23- ■ ■ D1 -Z**	–
	261	550	5.66	15000	4.2	192	**2KJ3110- ■ JU23- ■ ■ C1 -Z**	–
	285	500	5.17	14700	4.5	192	**2KJ3110- ■ JU23- ■ ■ B1 -Z**	–
	331	430	4.45	14200	5	192	**2KJ3110- ■ JU23- ■ ■ A1 -Z**	–
	Z.89-LE160ZLL4P							
	72	1990	20.52	12100	0.84	154	**2KJ3108- ■ JU23- ■ ■ N1 -Z**	–
	84	1700	17.54	13800	0.99	154	**2KJ3108- ■ JU23- ■ ■ M1 -Z**	–
	94	1520	15.66	14700	1.1	154	**2KJ3108- ■ JU23- ■ ■ L1 -Z**	–
	107	1340	13.84	15300	1.2	154	**2KJ3108- ■ JU23- ■ ■ K1 -Z**	–
	121	1180	12.15	15000	1.4	154	**2KJ3108- ■ JU23- ■ ■ J1 -Z**	–
	139	1020	10.58	14600	1.5	154	**2KJ3108- ■ JU23- ■ ■ H1 -Z**	–
	163	875	9.04	14100	1.8	154	**2KJ3108- ■ JU23- ■ ■ G1 -Z**	–
	191	750	7.74	13600	2	154	**2KJ3108- ■ JU23- ■ ■ F1 -Z**	–
	214	665	6.89	13400	1.6	154	**2KJ3108- ■ JU23- ■ ■ E1 -Z**	–
	244	585	6.05	13000	1.8	154	**2KJ3108- ■ JU23- ■ ■ D1 -Z**	–
	280	510	5.26	12500	2.1	154	**2KJ3108- ■ JU23- ■ ■ C1 -Z**	–
	328	435	4.50	12000	2.4	154	**2KJ3108- ■ JU23- ■ ■ B1 -Z**	–
	383	370	3.85	11500	2.8	154	**2KJ3108- ■ JU23- ■ ■ A1 -Z**	–
	Z.79-LE160ZLL4P							
	151	945	9.76	8640	0.86	131	**2KJ3107- ■ JU23- ■ ■ H1 -Z**	–
	176	810	8.37	8480	0.97	131	**2KJ3107- ■ JU23- ■ ■ G1 -Z**	–
	180	795	8.19	8150	0.9	131	**2KJ3107- ■ JU23- ■ ■ F1 -Z**	–
	206	695	7.16	8020	1	131	**2KJ3107- ■ JU23- ■ ■ E1 -Z**	–
	240	595	6.15	7840	1.2	131	**2KJ3107- ■ JU23- ■ ■ D1 -Z**	–
	272	525	5.43	7680	1.3	131	**2KJ3107- ■ JU23- ■ ■ C1 -Z**	–
	319	445	4.62	7460	1.7	131	**2KJ3107- ■ JU23- ■ ■ B1 -Z**	–
	372	385	3.96	3760	2	131	**2KJ3107- ■ JU23- ■ ■ A1 -Z**	–
	E.149-LE160ZLL4P							
	151	945	9.76	16000	1.3	215	**2KJ3007- ■ JU23- ■ ■ S1 -Z**	–
	162	885	9.11	16000	1.4	215	**2KJ3007- ■ JU23- ■ ■ R1 -Z**	–
	182	785	8.10	16000	1.7	215	**2KJ3007- ■ JU23- ■ ■ Q1 -Z**	–
	203	705	7.27	16000	1.9	215	**2KJ3007- ■ JU23- ■ ■ P1 -Z**	–
	224	635	6.58	16000	2.1	215	**2KJ3007- ■ JU23- ■ ■ N1 -Z**	–
	255	560	5.78	16000	2.7	215	**2KJ3007- ■ JU23- ■ ■ M1 -Z**	–
	281	505	5.24	16000	2.9	215	**2KJ3007- ■ JU23- ■ ■ L1 -Z**	–
	316	450	4.67	15700	3.3	215	**2KJ3007- ■ JU23- ■ ■ K1 -Z**	–
	352	405	4.19	15300	3.6	215	**2KJ3007- ■ JU23- ■ ■ J1 -Z**	–
	394	360	3.74	14900	4.1	215	**2KJ3007- ■ JU23- ■ ■ H1 -Z**	–
	443	320	3.33	14500	4.6	215	**2KJ3007- ■ JU23- ■ ■ G1 -Z**	–
	498	285	2.96	14100	5.1	215	**2KJ3007- ■ JU23- ■ ■ F1 -Z**	–
	544	260	2.71	13800	5.5	215	**2KJ3007- ■ JU23- ■ ■ E1 -Z**	–
	E.129-LE160ZLL4P							
	176	810	8.38	13500	0.82	178	**2KJ3006- ■ JU23- ■ ■ S1 -Z**	–
	187	765	7.88	13500	0.87	178	**2KJ3006- ■ JU23- ■ ■ R1 -Z**	–
	200	715	7.39	13500	1.1	178	**2KJ3006- ■ JU23- ■ ■ Q1 -Z**	–
	225	635	6.55	13500	1.3	178	**2KJ3006- ■ JU23- ■ ■ P1 -Z**	–
	253	565	5.82	13500	1.4	178	**2KJ3006- ■ JU23- ■ ■ N1 -Z**	–
	281	510	5.25	13500	1.6	178	**2KJ3006- ■ JU23- ■ ■ M1 -Z**	–
	317	450	4.65	13200	1.8	178	**2KJ3006- ■ JU23- ■ ■ L1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
15	**E.129-LE160ZLL4P**							
	358	400	4.12	12900	2	178	**2KJ3006- ■ JU23- ■ ■ K1 -Z**	–
	402	355	3.67	12600	2.2	178	**2KJ3006- ■ JU23- ■ ■ J1 -Z**	–
	448	320	3.29	12300	2.4	178	**2KJ3006- ■ JU23- ■ ■ H1 -Z**	–
	507	280	2.91	12000	2.7	178	**2KJ3006- ■ JU23- ■ ■ G1 -Z**	–
	574	250	2.57	11600	3.1	178	**2KJ3006- ■ JU23- ■ ■ F1 -Z**	–
	653	215	2.26	11300	3.5	178	**2KJ3006- ■ JU23- ■ ■ E1 -Z**	–
	720	199	2.05	11000	3.8	178	**2KJ3006- ■ JU23- ■ ■ D1 -Z**	–
	829	173	1.78	10700	4.4	178	**2KJ3006- ■ JU23- ■ ■ C1 -Z**	–
	1010	142	1.46	10100	5.3	178	**2KJ3006- ■ JU23- ■ ■ B1 -Z**	–
	1190	120	1.24	9750	6.2	178	**2KJ3006- ■ JU23- ■ ■ A1 -Z**	–
	E.109-LE160ZLL4P							
	205	695	7.19	10500	0.81	154	**2KJ3005- ■ JU23- ■ ■ Q1 -Z**	–
	218	655	6.76	10500	0.86	154	**2KJ3005- ■ JU23- ■ ■ P1 -Z**	–
	235	610	6.28	10500	0.93	154	**2KJ3005- ■ JU23- ■ ■ N1 -Z**	–
	266	535	5.55	10500	1	154	**2KJ3005- ■ JU23- ■ ■ M1 -Z**	–
	298	480	4.95	10500	1.2	154	**2KJ3005- ■ JU23- ■ ■ L1 -Z**	–
	331	430	4.46	10500	1.3	154	**2KJ3005- ■ JU23- ■ ■ K1 -Z**	–
	381	375	3.87	10500	1.5	154	**2KJ3005- ■ JU23- ■ ■ J1 -Z**	–
	424	335	3.48	10500	1.6	154	**2KJ3005- ■ JU23- ■ ■ H1 -Z**	–
	485	295	3.04	10500	1.8	154	**2KJ3005- ■ JU23- ■ ■ G1 -Z**	–
	544	260	2.71	10500	2.1	154	**2KJ3005- ■ JU23- ■ ■ F1 -Z**	–
	617	230	2.39	10200	2.3	154	**2KJ3005- ■ JU23- ■ ■ E1 -Z**	–
	702	200	2.10	9940	2.6	154	**2KJ3005- ■ JU23- ■ ■ D1 -Z**	–
	806	178	1.83	9590	3	154	**2KJ3005- ■ JU23- ■ ■ C1 -Z**	–
	883	162	1.67	9390	3.3	154	**2KJ3005- ■ JU23- ■ ■ B1 -Z**	–
	1031	139	1.43	9040	3.3	154	**2KJ3005- ■ JU23- ■ ■ A1 -Z**	–
	E.89-LE160ZLL4P							
	339	420	4.35	7010	0.85	132	**2KJ3004- ■ JU23- ■ ■ K1 -Z**	–
	382	375	3.86	7190	0.96	132	**2KJ3004- ■ JU23- ■ ■ J1 -Z**	–
	426	335	3.46	7360	1.1	132	**2KJ3004- ■ JU23- ■ ■ H1 -Z**	–
	498	285	2.96	7470	1.3	132	**2KJ3004- ■ JU23- ■ ■ G1 -Z**	–
	559	255	2.64	7360	1.4	132	**2KJ3004- ■ JU23- ■ ■ F1 -Z**	–
	633	225	2.33	7210	1.6	132	**2KJ3004- ■ JU23- ■ ■ E1 -Z**	–
	720	199	2.05	7020	1.8	132	**2KJ3004- ■ JU23- ■ ■ D1 -Z**	–
	829	173	1.78	6830	2.1	132	**2KJ3004- ■ JU23- ■ ■ C1 -Z**	–
	970	148	1.52	6600	2.4	132	**2KJ3004- ■ JU23- ■ ■ B1 -Z**	–
	1135	126	1.30	6370	2.9	132	**2KJ3004- ■ JU23- ■ ■ A1 -Z**	–
18.5	**D.189-LES180MQ4P**							
	8	22100	183.92	107000	0.86	809	**2KJ3214- ■ KL33- ■ ■ N1 -Z**	–
	8.9	19700	164.36	107000	0.96	809	**2KJ3214- ■ KL33- ■ ■ M1 -Z**	–
	9.9	17800	148.63	107000	1.1	809	**2KJ3214- ■ KL33- ■ ■ L1 -Z**	–
	11	15700	131.17	107000	1.2	809	**2KJ3214- ■ KL33- ■ ■ K1 -Z**	–
	13	14000	116.88	107000	1.4	809	**2KJ3214- ■ KL33- ■ ■ J1 -Z**	–
	14	12700	105.89	107000	1.5	809	**2KJ3214- ■ KL33- ■ ■ H1 -Z**	–
	15	11400	95.24	107000	1.7	809	**2KJ3214- ■ KL33- ■ ■ G1 -Z**	–
	19	9510	79.14	107000	2	809	**2KJ3214- ■ KL33- ■ ■ F1 -Z**	–
	21	8450	70.36	107000	2.2	809	**2KJ3214- ■ KL33- ■ ■ E1 -Z**	–
	D.169-LES180MQ4P							
	10	16800	140.41	69100	0.83	590	**2KJ3213- ■ KL33- ■ ■ M1 -Z**	–
	12	15000	125.28	69700	0.93	590	**2KJ3213- ■ KL33- ■ ■ L1 -Z**	–
	13	13400	111.69	70400	1	590	**2KJ3213- ■ KL33- ■ ■ K1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
18.5	**D.169-LES180MQ4P**							
	15	11900	99.06	70900	1.2	590	**2KJ3213- ■ KL33- ■ ■ J1 -Z**	–
	16	10900	90.94	71300	1.3	590	**2KJ3213- ■ KL33- ■ ■ H1 -Z**	–
	18	9620	80.12	71800	1.5	590	**2KJ3213- ■ KL33- ■ ■ G1 -Z**	–
	22	7890	65.72	72400	1.8	590	**2KJ3213- ■ KL33- ■ ■ F1 -Z**	–
	26	6920	57.63	72800	2	590	**2KJ3213- ■ KL33- ■ ■ E1 -Z**	–
	33	5410	45.06	73300	2.6	590	**2KJ3213- ■ KL33- ■ ■ D1 -Z**	–
	D.149-LES180MQ4P							
	19	9110	75.87	50600	0.88	421	**2KJ3212- ■ KL33- ■ ■ H1 -Z**	–
	21	8250	68.71	51000	0.97	421	**2KJ3212- ■ KL33- ■ ■ G1 -Z**	–
	25	7190	59.82	51600	1.1	421	**2KJ3212- ■ KL33- ■ ■ F1 -Z**	–
	30	5890	49.05	50500	1.4	421	**2KJ3212- ■ KL33- ■ ■ E1 -Z**	–
	34	5220	43.51	49300	1.5	421	**2KJ3212- ■ KL33- ■ ■ D1 -Z**	–
	37	4730	39.41	48400	1.7	421	**2KJ3212- ■ KL33- ■ ■ C1 -Z**	–
	43	4120	34.31	47000	1.9	421	**2KJ3212- ■ KL33- ■ ■ B1 -Z**	–
	Z.149-LES180MQ4P							
	48	3650	30.39	45700	2.2	415	**2KJ3112- ■ KL33- ■ ■ Q1 -Z**	–
	54	3250	27.07	44500	2.5	415	**2KJ3112- ■ KL33- ■ ■ P1 -Z**	–
	60	2920	24.30	43400	2.7	415	**2KJ3112- ■ KL33- ■ ■ N1 -Z**	–
	68	2600	21.69	42300	3.1	415	**2KJ3112- ■ KL33- ■ ■ M1 -Z**	–
	Z.129-LES180MQ4P							
	56	3160	26.30	25700	1.6	331	**2KJ3111- ■ KL33- ■ ■ P1 -Z**	–
	63	2810	23.41	25200	1.8	331	**2KJ3111- ■ KL33- ■ ■ N1 -Z**	–
	70	2520	20.98	24700	2	331	**2KJ3111- ■ KL33- ■ ■ M1 -Z**	–
	79	2230	18.60	24200	2.2	331	**2KJ3111- ■ KL33- ■ ■ L1 -Z**	–
	90	1970	16.42	23600	2.5	331	**2KJ3111- ■ KL33- ■ ■ K1 -Z**	–
	102	1730	14.43	23000	2.8	331	**2KJ3111- ■ KL33- ■ ■ J1 -Z**	–
	112	1570	13.07	22500	3.1	331	**2KJ3111- ■ KL33- ■ ■ H1 -Z**	–
	129	1360	11.38	21800	3.5	331	**2KJ3111- ■ KL33- ■ ■ G1 -Z**	–
	172	1020	8.53	20100	3.6	331	**2KJ3111- ■ KL33- ■ ■ E1 -Z**	–
	196	900	7.50	19500	4	331	**2KJ3111- ■ KL33- ■ ■ D1 -Z**	–
	216	815	6.79	19100	4.4	331	**2KJ3111- ■ KL33- ■ ■ C1 -Z**	–
	Z.109-LES180MQ4P							
	70	2540	21.13	18500	1.1	271	**2KJ3110- ■ KL33- ■ ■ P1 -Z**	–
	80	2220	18.47	18300	1.2	271	**2KJ3110- ■ KL33- ■ ■ N1 -Z**	–
	89	1980	16.48	18000	1.3	271	**2KJ3110- ■ KL33- ■ ■ M1 -Z**	–
	101	1740	14.52	17800	1.5	271	**2KJ3110- ■ KL33- ■ ■ L1 -Z**	–
	116	1520	12.72	17400	1.6	271	**2KJ3110- ■ KL33- ■ ■ K1 -Z**	–
	133	1330	11.09	17000	1.8	271	**2KJ3110- ■ KL33- ■ ■ J1 -Z**	–
	145	1210	10.12	16700	2	271	**2KJ3110- ■ KL33- ■ ■ H1 -Z**	–
	169	1040	8.71	16300	2.3	271	**2KJ3110- ■ KL33- ■ ■ G1 -Z**	–
	175	1010	8.41	16000	2.3	271	**2KJ3110- ■ KL33- ■ ■ F1 -Z**	–
	198	890	7.41	15600	2.6	271	**2KJ3110- ■ KL33- ■ ■ E1 -Z**	–
	226	780	6.50	15200	2.9	271	**2KJ3110- ■ KL33- ■ ■ D1 -Z**	–
	260	680	5.66	14700	3.4	271	**2KJ3110- ■ KL33- ■ ■ C1 -Z**	–
	284	620	5.17	14400	3.7	271	**2KJ3110- ■ KL33- ■ ■ B1 -Z**	–
	330	535	4.45	13900	4	271	**2KJ3110- ■ KL33- ■ ■ A1 -Z**	–
	Z.89-LES180MQ4P							
	94	1880	15.66	10300	0.89	230	**2KJ3108- ■ KL33- ■ ■ L1 -Z**	–
	106	1660	13.84	11700	1	230	**2KJ3108- ■ KL33- ■ ■ K1 -Z**	–
	121	1460	12.15	12800	1.1	230	**2KJ3108- ■ KL33- ■ ■ J1 -Z**	–
	139	1270	10.58	13700	1.3	230	**2KJ3108- ■ KL33- ■ ■ H1 -Z**	–
	163	1080	9.04	13600	1.4	230	**2KJ3108- ■ KL33- ■ ■ G1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
18.5	**Z.89-LES180MQ4P**							
	190	930	7.74	13100	1.6	230	**2KJ3108- ■ KL33- ■ ■ F1 -Z**	–
	213	825	6.89	12700	1.3	230	**2KJ3108- ■ KL33- ■ ■ E1 -Z**	–
	243	725	6.05	12700	1.5	230	**2KJ3108- ■ KL33- ■ ■ D1 -Z**	–
	279	630	5.26	12200	1.7	230	**2KJ3108- ■ KL33- ■ ■ C1 -Z**	–
	327	540	4.50	11800	2	230	**2KJ3108- ■ KL33- ■ ■ B1 -Z**	–
	382	460	3.85	11300	2.3	230	**2KJ3108- ■ KL33- ■ ■ A1 -Z**	–
	E.149-LES180MQ4P							
	281	630	5.24	15500	2.4	294	**2KJ3007- ■ KL33- ■ ■ L1 -Z**	–
	315	560	4.67	15200	2.6	294	**2KJ3007- ■ KL33- ■ ■ K1 -Z**	–
	351	500	4.19	14900	2.9	294	**2KJ3007- ■ KL33- ■ ■ J1 -Z**	–
	393	445	3.74	14500	3.3	294	**2KJ3007- ■ KL33- ■ ■ H1 -Z**	–
	441	400	3.33	14200	3.7	294	**2KJ3007- ■ KL33- ■ ■ G1 -Z**	–
	497	355	2.96	13800	4.1	294	**2KJ3007- ■ KL33- ■ ■ F1 -Z**	–
	542	325	2.71	13500	4.5	294	**2KJ3007- ■ KL33- ■ ■ E1 -Z**	–
	615	285	2.39	13100	5.1	294	**2KJ3007- ■ KL33- ■ ■ D1 -Z**	–
	750	235	1.96	12500	6.2	294	**2KJ3007- ■ KL33- ■ ■ C1 -Z**	–
	E.129-LES180MQ4P							
	357	495	4.12	12400	1.6	255	**2KJ3006- ■ KL33- ■ ■ K1 -Z**	–
	401	440	3.67	12100	1.8	255	**2KJ3006- ■ KL33- ■ ■ J1 -Z**	–
	447	395	3.29	11900	2	255	**2KJ3006- ■ KL33- ■ ■ H1 -Z**	–
	505	350	2.91	11600	2.2	255	**2KJ3006- ■ KL33- ■ ■ G1 -Z**	–
	572	305	2.57	11300	2.5	255	**2KJ3006- ■ KL33- ■ ■ F1 -Z**	–
	650	270	2.26	11000	2.8	255	**2KJ3006- ■ KL33- ■ ■ E1 -Z**	–
	717	245	2.05	10800	3.1	255	**2KJ3006- ■ KL33- ■ ■ D1 -Z**	–
	826	210	1.78	10400	3.6	255	**2KJ3006- ■ KL33- ■ ■ C1 -Z**	–
	1007	175	1.46	9960	4.3	255	**2KJ3006- ■ KL33- ■ ■ B1 -Z**	–
	1185	149	1.24	9560	5	255	**2KJ3006- ■ KL33- ■ ■ A1 -Z**	–
	E.109-LES180MQ4P							
	422	415	3.48	10500	1.3	232	**2KJ3005- ■ KL33- ■ ■ H1 -Z**	–
	484	365	3.04	10400	1.5	232	**2KJ3005- ■ KL33- ■ ■ G1 -Z**	–
	542	325	2.71	10100	1.7	232	**2KJ3005- ■ KL33- ■ ■ F1 -Z**	–
	615	285	2.39	9940	1.9	232	**2KJ3005- ■ KL33- ■ ■ E1 -Z**	–
	700	250	2.10	9660	2.1	232	**2KJ3005- ■ KL33- ■ ■ D1 -Z**	–
	803	220	1.83	9350	2.4	232	**2KJ3005- ■ KL33- ■ ■ C1 -Z**	–
	880	200	1.67	9160	2.6	232	**2KJ3005- ■ KL33- ■ ■ B1 -Z**	–
	1028	172	1.43	8840	2.7	232	**2KJ3005- ■ KL33- ■ ■ A1 -Z**	–
	E.89-LES180MQ4P							
	557	315	2.64	6300	1.1	208	**2KJ3004- ■ KL33- ■ ■ F1 -Z**	–
	717	245	2.05	6480	1.5	208	**2KJ3004- ■ KL33- ■ ■ D1 -Z**	–
	826	210	1.78	6570	1.7	208	**2KJ3004- ■ KL33- ■ ■ C1 -Z**	–
	967	183	1.52	6340	2	208	**2KJ3004- ■ KL33- ■ ■ B1 -Z**	–
	1131	156	1.30	6150	2.3	208	**2KJ3004- ■ KL33- ■ ■ A1 -Z**	–
22	**D.189-LES180ZLN4P**							
	8.9	23400	164.36	107000	0.81	814	**2KJ3214- ■ KN33- ■ ■ M1 -Z**	–
	9.9	21200	148.63	107000	0.89	814	**2KJ3214- ■ KN33- ■ ■ L1 -Z**	–
	11	18700	131.17	107000	1	814	**2KJ3214- ■ KN33- ■ ■ K1 -Z**	–
	13	16700	116.88	107000	1.1	814	**2KJ3214- ■ KN33- ■ ■ J1 -Z**	–
	14	15100	105.89	107000	1.3	814	**2KJ3214- ■ KN33- ■ ■ H1 -Z**	–
	15	13600	95.24	107000	1.4	814	**2KJ3214- ■ KN33- ■ ■ G1 -Z**	–
	19	11300	79.14	107000	1.7	814	**2KJ3214- ■ KN33- ■ ■ F1 -Z**	–
	21	10000	70.36	107000	1.9	814	**2KJ3214- ■ KN33- ■ ■ E1 -Z**	–
	26	8010	56.08	107000	2.4	814	**2KJ3214- ■ KN33- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
22	**D.169-LES180ZLN4P**							
	13	15900	111.69	69400	0.88	595	**2KJ3213- ■ KN33- ■ ■ K1 -Z**	–
	15	14100	99.06	70100	0.99	595	**2KJ3213- ■ KN33- ■ ■ J1 -Z**	–
	16	12900	90.94	70500	1.1	595	**2KJ3213- ■ KN33- ■ ■ H1 -Z**	–
	18	11400	80.12	71000	1.2	595	**2KJ3213- ■ KN33- ■ ■ G1 -Z**	–
	22	9390	65.72	71800	1.5	595	**2KJ3213- ■ KN33- ■ ■ F1 -Z**	–
	26	8230	57.63	72300	1.7	595	**2KJ3213- ■ KN33- ■ ■ E1 -Z**	–
	33	6440	45.06	72900	2.2	595	**2KJ3213- ■ KN33- ■ ■ D1 -Z**	–
	35	5920	41.43	73100	2.4	595	**2KJ3213- ■ KN33- ■ ■ C1 -Z**	–
	40	5190	36.33	73400	2.7	595	**2KJ3213- ■ KN33- ■ ■ B1 -Z**	–
	Z.169-LES180ZLN4P							
	40	5220	36.55	73400	2.3	558	**2KJ3113- ■ KN33- ■ ■ Q1 -Z**	–
	D.149-LES180ZLN4P							
	21	9820	68.71	50300	0.81	426	**2KJ3212- ■ KN33- ■ ■ G1 -Z**	–
	25	8550	59.82	50500	0.94	426	**2KJ3212- ■ KN33- ■ ■ F1 -Z**	–
	30	7010	49.05	49000	1.1	426	**2KJ3212- ■ KN33- ■ ■ E1 -Z**	–
	34	6210	43.51	48000	1.3	426	**2KJ3212- ■ KN33- ■ ■ D1 -Z**	–
	37	5630	39.41	47100	1.4	426	**2KJ3212- ■ KN33- ■ ■ C1 -Z**	–
	43	4900	34.31	45900	1.6	426	**2KJ3212- ■ KN33- ■ ■ B1 -Z**	–
	Z.149-LES180ZLN4P							
	48	4340	30.39	44800	1.8	420	**2KJ3112- ■ KN33- ■ ■ Q1 -Z**	–
	54	3860	27.07	43700	2.1	420	**2KJ3112- ■ KN33- ■ ■ P1 -Z**	–
	60	3470	24.30	42700	2.3	420	**2KJ3112- ■ KN33- ■ ■ N1 -Z**	–
	68	3100	21.69	41600	2.6	420	**2KJ3112- ■ KN33- ■ ■ M1 -Z**	–
	76	2760	19.33	40500	2.9	420	**2KJ3112- ■ KN33- ■ ■ L1 -Z**	–
	86	2450	17.15	39400	3.3	420	**2KJ3112- ■ KN33- ■ ■ K1 -Z**	–
	Z.129-LES180ZLN4P							
	56	3750	26.30	24600	1.3	336	**2KJ3111- ■ KN33- ■ ■ P1 -Z**	–
	63	3340	23.41	24300	1.5	336	**2KJ3111- ■ KN33- ■ ■ N1 -Z**	–
	70	2990	20.98	23900	1.7	336	**2KJ3111- ■ KN33- ■ ■ M1 -Z**	–
	79	2650	18.60	23500	1.9	336	**2KJ3111- ■ KN33- ■ ■ L1 -Z**	–
	90	2340	16.42	23000	2.1	336	**2KJ3111- ■ KN33- ■ ■ K1 -Z**	–
	102	2060	14.43	22400	2.4	336	**2KJ3111- ■ KN33- ■ ■ J1 -Z**	–
	112	1860	13.07	22000	2.6	336	**2KJ3111- ■ KN33- ■ ■ H1 -Z**	–
	129	1620	11.38	21400	2.9	336	**2KJ3111- ■ KN33- ■ ■ G1 -Z**	–
	158	1330	9.33	20500	3.5	336	**2KJ3111- ■ KN33- ■ ■ F1 -Z**	–
	172	1210	8.53	19800	3	336	**2KJ3111- ■ KN33- ■ ■ E1 -Z**	–
	196	1070	7.50	19200	3.4	336	**2KJ3111- ■ KN33- ■ ■ D1 -Z**	–
	216	970	6.79	18800	3.7	336	**2KJ3111- ■ KN33- ■ ■ C1 -Z**	–
	249	845	5.91	18200	4.3	336	**2KJ3111- ■ KN33- ■ ■ B1 -Z**	–
	303	690	4.85	17300	4.7	336	**2KJ3111- ■ KN33- ■ ■ A1 -Z**	–
	Z.109-LES180ZLN4P							
	70	3020	21.13	17400	0.94	276	**2KJ3110- ■ KN33- ■ ■ P1 -Z**	–
	80	2640	18.47	17300	1	276	**2KJ3110- ■ KN33- ■ ■ N1 -Z**	–
	89	2350	16.48	17200	1.1	276	**2KJ3110- ■ KN33- ■ ■ M1 -Z**	–
	101	2070	14.52	17000	1.2	276	**2KJ3110- ■ KN33- ■ ■ L1 -Z**	–
	116	1810	12.72	16700	1.4	276	**2KJ3110- ■ KN33- ■ ■ K1 -Z**	–
	133	1580	11.09	16400	1.6	276	**2KJ3110- ■ KN33- ■ ■ J1 -Z**	–
	145	1440	10.12	16200	1.7	276	**2KJ3110- ■ KN33- ■ ■ H1 -Z**	–
	169	1240	8.71	15800	1.9	276	**2KJ3110- ■ KN33- ■ ■ G1 -Z**	–
	175	1200	8.41	15500	1.9	276	**2KJ3110- ■ KN33- ■ ■ F1 -Z**	–
	198	1050	7.41	15200	2.2	276	**2KJ3110- ■ KN33- ■ ■ E1 -Z**	–
	226	925	6.50	14800	2.5	276	**2KJ3110- ■ KN33- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
22	**Z.109-LES180ZLN4P**							
	260	805	5.66	14400	2.8	276	**2KJ3110- ■ KN33- ■ ■ C1 -Z**	–
	284	735	5.17	14100	3.1	276	**2KJ3110- ■ KN33- ■ ■ B1 -Z**	–
	330	635	4.45	13700	3.4	276	**2KJ3110- ■ KN33- ■ ■ A1 -Z**	–
	Z.89-LES180ZLN4P							
	106	1970	13.84	7850	0.85	235	**2KJ3108- ■ KN33- ■ ■ K1 -Z**	–
	121	1730	12.15	9460	0.94	235	**2KJ3108- ■ KN33- ■ ■ J1 -Z**	–
	139	1510	10.58	10800	1.1	235	**2KJ3108- ■ KN33- ■ ■ H1 -Z**	–
	163	1290	9.04	12000	1.2	235	**2KJ3108- ■ KN33- ■ ■ G1 -Z**	–
	190	1100	7.74	12700	1.4	235	**2KJ3108- ■ KN33- ■ ■ F1 -Z**	–
	213	985	6.89	10200	1.1	235	**2KJ3108- ■ KN33- ■ ■ E1 -Z**	–
	243	865	6.05	10900	1.2	235	**2KJ3108- ■ KN33- ■ ■ D1 -Z**	–
	279	750	5.26	11600	1.4	235	**2KJ3108- ■ KN33- ■ ■ C1 -Z**	–
	327	640	4.50	11500	1.6	235	**2KJ3108- ■ KN33- ■ ■ B1 -Z**	–
	382	550	3.85	11100	1.9	235	**2KJ3108- ■ KN33- ■ ■ A1 -Z**	–
	E.149-LES180ZLN4P							
	281	745	5.24	15000	2	299	**2KJ3007- ■ KN33- ■ ■ L1 -Z**	–
	315	665	4.67	14700	2.2	299	**2KJ3007- ■ KN33- ■ ■ K1 -Z**	–
	351	595	4.19	14500	2.5	299	**2KJ3007- ■ KN33- ■ ■ J1 -Z**	–
	393	535	3.74	14100	2.8	299	**2KJ3007- ■ KN33- ■ ■ H1 -Z**	–
	441	475	3.33	13800	3.1	299	**2KJ3007- ■ KN33- ■ ■ G1 -Z**	–
	497	420	2.96	13500	3.5	299	**2KJ3007- ■ KN33- ■ ■ F1 -Z**	–
	542	385	2.71	13200	3.8	299	**2KJ3007- ■ KN33- ■ ■ E1 -Z**	–
	615	340	2.39	12800	4.3	299	**2KJ3007- ■ KN33- ■ ■ D1 -Z**	–
	750	280	1.96	12200	5.2	299	**2KJ3007- ■ KN33- ■ ■ C1 -Z**	–
	855	245	1.72	11900	5.9	299	**2KJ3007- ■ KN33- ■ ■ B1 -Z**	–
	1097	192	1.34	11100	6.7	299	**2KJ3007- ■ KN33- ■ ■ A1 -Z**	–
	E.129-LES180ZLN4P							
	357	585	4.12	11900	1.3	260	**2KJ3006- ■ KN33- ■ ■ K1 -Z**	–
	401	525	3.67	11600	1.5	260	**2KJ3006- ■ KN33- ■ ■ J1 -Z**	–
	447	470	3.29	11400	1.7	260	**2KJ3006- ■ KN33- ■ ■ H1 -Z**	–
	505	415	2.91	11200	1.9	260	**2KJ3006- ■ KN33- ■ ■ G1 -Z**	–
	572	365	2.57	11000	2.1	260	**2KJ3006- ■ KN33- ■ ■ F1 -Z**	–
	650	320	2.26	10700	2.4	260	**2KJ3006- ■ KN33- ■ ■ E1 -Z**	–
	717	290	2.05	10500	2.6	260	**2KJ3006- ■ KN33- ■ ■ D1 -Z**	–
	826	250	1.78	10200	3	260	**2KJ3006- ■ KN33- ■ ■ C1 -Z**	–
	1007	205	1.46	9760	3.6	260	**2KJ3006- ■ KN33- ■ ■ B1 -Z**	–
	1185	177	1.24	9360	4.2	260	**2KJ3006- ■ KN33- ■ ■ A1 -Z**	–
	E.109-LES180ZLN4P							
	422	495	3.48	10200	1.1	237	**2KJ3005- ■ KN33- ■ ■ H1 -Z**	–
	484	430	3.04	10000	1.3	237	**2KJ3005- ■ KN33- ■ ■ G1 -Z**	–
	542	385	2.71	9850	1.4	237	**2KJ3005- ■ KN33- ■ ■ F1 -Z**	–
	615	340	2.39	9620	1.6	237	**2KJ3005- ■ KN33- ■ ■ E1 -Z**	–
	700	300	2.10	9360	1.8	237	**2KJ3005- ■ KN33- ■ ■ D1 -Z**	–
	803	260	1.83	9110	2	237	**2KJ3005- ■ KN33- ■ ■ C1 -Z**	–
	880	235	1.67	8950	2.2	237	**2KJ3005- ■ KN33- ■ ■ B1 -Z**	–
	1028	200	1.43	8660	2.3	237	**2KJ3005- ■ KN33- ■ ■ A1 -Z**	–
	E.89-LES180ZLN4P							
	557	375	2.64	5080	0.95	213	**2KJ3004- ■ KN33- ■ ■ F1 -Z**	–
	967	215	1.52	5660	1.7	213	**2KJ3004- ■ KN33- ■ ■ B1 -Z**	–
	1131	186	1.30	5600	1.9	213	**2KJ3004- ■ KN33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
30	**D.189-LES200ZLU4P**							
	13	22700	116.88	107000	0.83	884	**2KJ3214- ■ LN33- ■ ■ J1 -Z**	–
	14	20600	105.89	107000	0.92	884	**2KJ3214- ■ LN33- ■ ■ H1 -Z**	–
	15	18500	95.24	107000	1	884	**2KJ3214- ■ LN33- ■ ■ G1 -Z**	–
	19	15400	79.14	107000	1.2	884	**2KJ3214- ■ LN33- ■ ■ F1 -Z**	–
	21	13700	70.36	107000	1.4	884	**2KJ3214- ■ LN33- ■ ■ E1 -Z**	–
	26	10900	56.08	107000	1.7	884	**2KJ3214- ■ LN33- ■ ■ D1 -Z**	–
	33	8690	44.63	107000	2.2	884	**2KJ3214- ■ LN33- ■ ■ C1 -Z**	–
	40	7140	36.67	107000	2.7	884	**2KJ3214- ■ LN33- ■ ■ B1 -Z**	–
	D.169-LES200ZLU4P							
	18	15600	80.12	69500	0.9	665	**2KJ3213- ■ LN33- ■ ■ G1 -Z**	–
	22	12800	65.72	70600	1.1	665	**2KJ3213- ■ LN33- ■ ■ F1 -Z**	–
	26	11200	57.63	71100	1.2	665	**2KJ3213- ■ LN33- ■ ■ E1 -Z**	–
	33	8780	45.06	72100	1.6	665	**2KJ3213- ■ LN33- ■ ■ D1 -Z**	–
	35	8070	41.43	72300	1.7	665	**2KJ3213- ■ LN33- ■ ■ C1 -Z**	–
	40	7080	36.33	72700	2	665	**2KJ3213- ■ LN33- ■ ■ B1 -Z**	–
	Z.169-LES200ZLU4P							
	45	6400	32.88	72900	2.2	634	**2KJ3113- ■ LN33- ■ ■ P1 -Z**	–
	50	5720	29.38	73200	2.4	634	**2KJ3113- ■ LN33- ■ ■ N1 -Z**	–
	55	5170	26.57	73400	2.7	634	**2KJ3113- ■ LN33- ■ ■ M1 -Z**	–
	D.149-LES200ZLU4P							
	30	9560	49.05	45500	0.84	501	**2KJ3212- ■ LN33- ■ ■ E1 -Z**	–
	34	8480	43.51	44900	0.94	501	**2KJ3212- ■ LN33- ■ ■ D1 -Z**	–
	37	7680	39.41	44300	1	501	**2KJ3212- ■ LN33- ■ ■ C1 -Z**	–
	43	6680	34.31	43500	1.2	501	**2KJ3212- ■ LN33- ■ ■ B1 -Z**	–
	Z.149-LES200ZLU4P							
	54	5270	27.07	41800	1.5	494	**2KJ3112- ■ LN33- ■ ■ P1 -Z**	–
	60	4730	24.30	41000	1.7	494	**2KJ3112- ■ LN33- ■ ■ N1 -Z**	–
	68	4220	21.69	40100	1.9	494	**2KJ3112- ■ LN33- ■ ■ M1 -Z**	–
	76	3760	19.33	39100	2.1	494	**2KJ3112- ■ LN33- ■ ■ L1 -Z**	–
	86	3340	17.15	38100	2.4	494	**2KJ3112- ■ LN33- ■ ■ K1 -Z**	–
	93	3060	15.74	37400	2.6	494	**2KJ3112- ■ LN33- ■ ■ J1 -Z**	–
	106	2700	13.87	36400	3	494	**2KJ3112- ■ LN33- ■ ■ H1 -Z**	–
	129	2210	11.38	34700	3.6	494	**2KJ3112- ■ LN33- ■ ■ G1 -Z**	–
	202	1410	7.27	31200	3.4	494	**2KJ3112- ■ LN33- ■ ■ D1 -Z**	–
	247	1160	5.96	29600	4.2	494	**2KJ3112- ■ LN33- ■ ■ C1 -Z**	–
	281	1010	5.23	28600	4.8	494	**2KJ3112- ■ LN33- ■ ■ B1 -Z**	–
	Z.129-LES200ZLU4P							
	63	4560	23.41	22200	1.1	411	**2KJ3111- ■ LN33- ■ ■ N1 -Z**	–
	70	4080	20.98	22000	1.2	411	**2KJ3111- ■ LN33- ■ ■ M1 -Z**	–
	79	3620	18.60	21800	1.4	411	**2KJ3111- ■ LN33- ■ ■ L1 -Z**	–
	90	3200	16.42	21500	1.6	411	**2KJ3111- ■ LN33- ■ ■ K1 -Z**	–
	102	2810	14.43	21100	1.8	411	**2KJ3111- ■ LN33- ■ ■ J1 -Z**	–
	112	2540	13.07	20800	1.9	411	**2KJ3111- ■ LN33- ■ ■ H1 -Z**	–
	129	2210	11.38	20400	2.1	411	**2KJ3111- ■ LN33- ■ ■ G1 -Z**	–
	158	1810	9.33	19600	2.6	411	**2KJ3111- ■ LN33- ■ ■ F1 -Z**	–
	172	1660	8.53	18900	2.2	411	**2KJ3111- ■ LN33- ■ ■ E1 -Z**	–
	196	1460	7.50	18400	2.5	411	**2KJ3111- ■ LN33- ■ ■ D1 -Z**	–
	216	1320	6.79	18100	2.7	411	**2KJ3111- ■ LN33- ■ ■ C1 -Z**	–
	249	1150	5.91	17600	3.1	411	**2KJ3111- ■ LN33- ■ ■ B1 -Z**	–
	303	945	4.85	16800	3.5	411	**2KJ3111- ■ LN33- ■ ■ A1 -Z**	–
	Z.109-LES200ZLU4P							
	89	3210	16.48	15200	0.82	351	**2KJ3110- ■ LN33- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
30	**Z.109-LES200ZLU4P**							
	101	2830	14.52	15200	0.91	351	**2KJ3110- ■ LN33- ■ ■ L1 -Z**	–
	116	2470	12.72	15200	1	351	**2KJ3110- ■ LN33- ■ ■ K1 -Z**	–
	133	2160	11.09	15100	1.1	351	**2KJ3110- ■ LN33- ■ ■ J1 -Z**	–
	145	1970	10.12	15000	1.2	351	**2KJ3110- ■ LN33- ■ ■ H1 -Z**	–
	169	1690	8.71	14800	1.4	351	**2KJ3110- ■ LN33- ■ ■ G1 -Z**	–
	175	1630	8.41	14400	1.4	351	**2KJ3110- ■ LN33- ■ ■ F1 -Z**	–
	198	1440	7.41	14200	1.6	351	**2KJ3110- ■ LN33- ■ ■ E1 -Z**	–
	226	1260	6.50	13900	1.8	351	**2KJ3110- ■ LN33- ■ ■ D1 -Z**	–
	260	1100	5.66	13600	2.1	351	**2KJ3110- ■ LN33- ■ ■ C1 -Z**	–
	284	1000	5.17	13500	2.3	351	**2KJ3110- ■ LN33- ■ ■ B1 -Z**	–
	330	865	4.45	13100	2.5	351	**2KJ3110- ■ LN33- ■ ■ A1 -Z**	–
	E.149-LES200ZLU4P							
	315	910	4.67	13600	1.6	374	**2KJ3007- ■ LN33- ■ ■ K1 -Z**	–
	351	815	4.19	13500	1.8	374	**2KJ3007- ■ LN33- ■ ■ J1 -Z**	–
	393	725	3.74	13200	2	374	**2KJ3007- ■ LN33- ■ ■ H1 -Z**	–
	441	645	3.33	13000	2.3	374	**2KJ3007- ■ LN33- ■ ■ G1 -Z**	–
	497	575	2.96	12700	2.5	374	**2KJ3007- ■ LN33- ■ ■ F1 -Z**	–
	542	525	2.71	12600	2.8	374	**2KJ3007- ■ LN33- ■ ■ E1 -Z**	–
	615	465	2.39	12200	3.1	374	**2KJ3007- ■ LN33- ■ ■ D1 -Z**	–
	750	380	1.96	11700	3.8	374	**2KJ3007- ■ LN33- ■ ■ C1 -Z**	–
	855	335	1.72	11400	4.4	374	**2KJ3007- ■ LN33- ■ ■ B1 -Z**	–
	1097	260	1.34	10800	4.9	374	**2KJ3007- ■ LN33- ■ ■ A1 -Z**	–
	E.129-LES200ZLU4P							
	401	715	3.67	10200	1.1	335	**2KJ3006- ■ LN33- ■ ■ J1 -Z**	–
	447	640	3.29	10400	1.2	335	**2KJ3006- ■ LN33- ■ ■ H1 -Z**	–
	505	565	2.91	10300	1.4	335	**2KJ3006- ■ LN33- ■ ■ G1 -Z**	–
	572	500	2.57	10200	1.5	335	**2KJ3006- ■ LN33- ■ ■ F1 -Z**	–
	650	440	2.26	10000	1.7	335	**2KJ3006- ■ LN33- ■ ■ E1 -Z**	–
	717	400	2.05	9830	1.9	335	**2KJ3006- ■ LN33- ■ ■ D1 -Z**	–
	826	345	1.78	9610	2.2	335	**2KJ3006- ■ LN33- ■ ■ C1 -Z**	–
	1007	285	1.46	9220	2.7	335	**2KJ3006- ■ LN33- ■ ■ B1 -Z**	–
	1185	240	1.24	8910	3.1	335	**2KJ3006- ■ LN33- ■ ■ A1 -Z**	–
	E.109-LES200ZLU4P							
	484	590	3.04	7660	0.92	312	**2KJ3005- ■ LN33- ■ ■ G1 -Z**	–
	542	525	2.71	7980	1	312	**2KJ3005- ■ LN33- ■ ■ F1 -Z**	–
	803	355	1.83	8310	1.5	312	**2KJ3005- ■ LN33- ■ ■ C1 -Z**	–
	880	325	1.67	8320	1.6	312	**2KJ3005- ■ LN33- ■ ■ B1 -Z**	–
	1028	275	1.43	8180	1.7	312	**2KJ3005- ■ LN33- ■ ■ A1 -Z**	–
37	**D.189-LES225SD4P**							
	16	22700	95.24	107000	0.83	935	**2KJ3214- ■ MF33- ■ ■ G1 -Z**	–
	19	18900	79.14	107000	1	935	**2KJ3214- ■ MF33- ■ ■ F1 -Z**	–
	21	16800	70.36	107000	1.1	935	**2KJ3214- ■ MF33- ■ ■ E1 -Z**	–
	26	13400	56.08	107000	1.4	935	**2KJ3214- ■ MF33- ■ ■ D1 -Z**	–
	33	10600	44.63	107000	1.8	935	**2KJ3214- ■ MF33- ■ ■ C1 -Z**	–
	Z.189-LES225SD4P							
	43	8180	34.25	107000	2.3	853	**2KJ3114- ■ MF33- ■ ■ L1 -Z**	–
	48	7340	30.73	107000	2.6	853	**2KJ3114- ■ MF33- ■ ■ K1 -Z**	–
	54	6560	27.46	105100	2.9	853	**2KJ3114- ■ MF33- ■ ■ J1 -Z**	–
	D.169-LES225SD4P							
	22	15700	65.72	69500	0.89	721	**2KJ3213- ■ MF33- ■ ■ F1 -Z**	–
	26	13700	57.63	70200	1	721	**2KJ3213- ■ MF33- ■ ■ E1 -Z**	–
	33	10700	45.06	71300	1.3	721	**2KJ3213- ■ MF33- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
37	**D.169-LES225SD4P**							
	36	9900	41.43	71700	1.4	721	**2KJ3213- ■ MF33- ■ ■ C1 -Z**	–
	41	8680	36.33	72100	1.6	721	**2KJ3213- ■ MF33- ■ ■ B1 -Z**	–
	Z.169-LES225SD4P							
	50	7020	29.38	72700	2	677	**2KJ3113- ■ MF33- ■ ■ N1 -Z**	–
	56	6350	26.57	72100	2.2	677	**2KJ3113- ■ MF33- ■ ■ M1 -Z**	–
	63	5600	23.45	70000	2.5	677	**2KJ3113- ■ MF33- ■ ■ L1 -Z**	–
	71	4990	20.90	68200	2.8	677	**2KJ3113- ■ MF33- ■ ■ K1 -Z**	–
	78	4520	18.93	66600	3.1	677	**2KJ3113- ■ MF33- ■ ■ J1 -Z**	–
	D.149-LES225SD4P							
	38	9420	39.41	41900	0.85	546	**2KJ3212- ■ MF33- ■ ■ C1 -Z**	–
	43	8200	34.31	41300	0.98	546	**2KJ3212- ■ MF33- ■ ■ B1 -Z**	–
	53	6720	28.13	40300	1.2	546	**2KJ3212- ■ MF33- ■ ■ A1 -Z**	–
	Z.149-LES225SD4P							
	61	5800	24.30	39400	1.4	539	**2KJ3112- ■ MF33- ■ ■ N1 -Z**	–
	68	5180	21.69	38700	1.5	539	**2KJ3112- ■ MF33- ■ ■ M1 -Z**	–
	76	4620	19.33	37900	1.7	539	**2KJ3112- ■ MF33- ■ ■ L1 -Z**	–
	86	4100	17.15	37000	2	539	**2KJ3112- ■ MF33- ■ ■ K1 -Z**	–
	94	3760	15.74	36400	2.1	539	**2KJ3112- ■ MF33- ■ ■ J1 -Z**	–
	107	3310	13.87	35500	2.4	539	**2KJ3112- ■ MF33- ■ ■ H1 -Z**	–
	130	2720	11.38	34000	2.9	539	**2KJ3112- ■ MF33- ■ ■ G1 -Z**	–
	148	2380	9.98	33000	3.4	539	**2KJ3112- ■ MF33- ■ ■ F1 -Z**	–
	189	1860	7.80	31100	4.3	539	**2KJ3112- ■ MF33- ■ ■ E1 -Z**	–
	203	1730	7.27	30700	2.8	539	**2KJ3112- ■ MF33- ■ ■ D1 -Z**	–
	248	1420	5.96	29200	3.4	539	**2KJ3112- ■ MF33- ■ ■ C1 -Z**	–
	283	1250	5.23	28200	3.9	539	**2KJ3112- ■ MF33- ■ ■ B1 -Z**	–
	361	975	4.09	26400	5	539	**2KJ3112- ■ MF33- ■ ■ A1 -Z**	–
	Z.129-LES225SD4P							
	70	5010	20.98	20400	1	455	**2KJ3111- ■ MF33- ■ ■ M1 -Z**	–
	79	4440	18.60	20300	1.1	455	**2KJ3111- ■ MF33- ■ ■ L1 -Z**	–
	90	3920	16.42	20200	1.3	455	**2KJ3111- ■ MF33- ■ ■ K1 -Z**	–
	102	3450	14.43	20000	1.4	455	**2KJ3111- ■ MF33- ■ ■ J1 -Z**	–
	113	3120	13.07	19800	1.6	455	**2KJ3111- ■ MF33- ■ ■ H1 -Z**	–
	130	2720	11.38	19500	1.7	455	**2KJ3111- ■ MF33- ■ ■ G1 -Z**	–
	158	2230	9.33	18900	2.1	455	**2KJ3111- ■ MF33- ■ ■ F1 -Z**	–
	173	2030	8.53	18100	1.8	455	**2KJ3111- ■ MF33- ■ ■ E1 -Z**	–
	197	1790	7.50	17800	2	455	**2KJ3111- ■ MF33- ■ ■ D1 -Z**	–
	218	1620	6.79	17500	2.2	455	**2KJ3111- ■ MF33- ■ ■ C1 -Z**	–
	250	1410	5.91	17000	2.6	455	**2KJ3111- ■ MF33- ■ ■ B1 -Z**	–
	305	1160	4.85	16400	2.8	455	**2KJ3111- ■ MF33- ■ ■ A1 -Z**	–
	Z.109-LES225SD4P							
	116	3040	12.72	13800	0.83	393	**2KJ3110- ■ MF33- ■ ■ K1 -Z**	–
	133	2650	11.09	13900	0.93	393	**2KJ3110- ■ MF33- ■ ■ J1 -Z**	–
	146	2410	10.12	13900	1	393	**2KJ3110- ■ MF33- ■ ■ H1 -Z**	–
	170	2080	8.71	13800	1.1	393	**2KJ3110- ■ MF33- ■ ■ G1 -Z**	–
	176	2010	8.41	13400	1.1	393	**2KJ3110- ■ MF33- ■ ■ F1 -Z**	–
	199	1770	7.41	13300	1.3	393	**2KJ3110- ■ MF33- ■ ■ E1 -Z**	–
	227	1550	6.50	13200	1.5	393	**2KJ3110- ■ MF33- ■ ■ D1 -Z**	–
	261	1350	5.66	13000	1.7	393	**2KJ3110- ■ MF33- ■ ■ C1 -Z**	–
	286	1230	5.17	12800	1.8	393	**2KJ3110- ■ MF33- ■ ■ B1 -Z**	–
	332	1060	4.45	12600	2	393	**2KJ3110- ■ MF33- ■ ■ A1 -Z**	–
	E.149-LES225SD4P							
	353	1000	4.19	12600	1.5	419	**2KJ3007- ■ MF33- ■ ■ J1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
37	**E.149-LES225SD4P**							
	395	890	3.74	12500	1.7	419	**2KJ3007- ■ MF33- ■ ■ H1 -Z**	–
	444	795	3.33	12300	1.9	419	**2KJ3007- ■ MF33- ■ ■ G1 -Z**	–
	499	705	2.96	12100	2.1	419	**2KJ3007- ■ MF33- ■ ■ F1 -Z**	–
	545	645	2.71	12000	2.3	419	**2KJ3007- ■ MF33- ■ ■ E1 -Z**	–
	618	570	2.39	11700	2.6	419	**2KJ3007- ■ MF33- ■ ■ D1 -Z**	–
	754	465	1.96	11300	3.1	419	**2KJ3007- ■ MF33- ■ ■ C1 -Z**	–
	859	410	1.72	11000	3.6	419	**2KJ3007- ■ MF33- ■ ■ B1 -Z**	–
	1103	320	1.34	10400	4	419	**2KJ3007- ■ MF33- ■ ■ A1 -Z**	–
	E.129-LES225SD4P							
	449	785	3.29	8430	0.99	379	**2KJ3006- ■ MF33- ■ ■ H1 -Z**	–
	508	695	2.91	8760	1.1	379	**2KJ3006- ■ MF33- ■ ■ G1 -Z**	–
	721	490	2.05	9140	1.6	379	**2KJ3006- ■ MF33- ■ ■ D1 -Z**	–
	830	425	1.78	9070	1.8	379	**2KJ3006- ■ MF33- ■ ■ C1 -Z**	–
	1012	345	1.46	8790	2.2	379	**2KJ3006- ■ MF33- ■ ■ B1 -Z**	–
	1192	295	1.24	8500	2.5	379	**2KJ3006- ■ MF33- ■ ■ A1 -Z**	–
	E.109-LES225SD4P							
	545	645	2.71	5910	0.84	354	**2KJ3005- ■ MF33- ■ ■ F1 -Z**	–
45	**D.189-LES225YMF4P**							
	19	23000	79.14	107000	0.83	980	**2KJ3214- ■ MT33- ■ ■ F1 -Z**	–
	21	20400	70.36	107000	0.93	980	**2KJ3214- ■ MT33- ■ ■ E1 -Z**	–
	26	16300	56.08	107000	1.2	980	**2KJ3214- ■ MT33- ■ ■ D1 -Z**	–
	33	12900	44.63	107000	1.5	980	**2KJ3214- ■ MT33- ■ ■ C1 -Z**	–
	Z.189-LES225YMF4P							
	43	9950	34.25	107000	1.9	898	**2KJ3114- ■ MT33- ■ ■ L1 -Z**	–
	48	8930	30.73	106700	2.1	898	**2KJ3114- ■ MT33- ■ ■ K1 -Z**	–
	54	7980	27.46	103800	2.4	898	**2KJ3114- ■ MT33- ■ ■ J1 -Z**	–
	60	7130	24.53	100900	2.7	898	**2KJ3114- ■ MT33- ■ ■ H1 -Z**	–
	66	6520	22.44	98600	2.9	898	**2KJ3114- ■ MT33- ■ ■ G1 -Z**	–
	D.169-LES225YMF4P							
	26	16700	57.63	69100	0.84	766	**2KJ3213- ■ MT33- ■ ■ E1 -Z**	–
	33	13100	45.06	70500	1.1	766	**2KJ3213- ■ MT33- ■ ■ D1 -Z**	–
	36	12000	41.43	70900	1.2	766	**2KJ3213- ■ MT33- ■ ■ C1 -Z**	–
	41	10500	36.33	71400	1.3	766	**2KJ3213- ■ MT33- ■ ■ B1 -Z**	–
	Z.169-LES225YMF4P							
	50	8540	29.38	71800	1.6	722	**2KJ3113- ■ MT33- ■ ■ N1 -Z**	–
	56	7720	26.57	70400	1.8	722	**2KJ3113- ■ MT33- ■ ■ M1 -Z**	–
	63	6810	23.45	68600	2.1	722	**2KJ3113- ■ MT33- ■ ■ L1 -Z**	–
	71	6070	20.90	66900	2.3	722	**2KJ3113- ■ MT33- ■ ■ K1 -Z**	–
	78	5500	18.93	65400	2.5	722	**2KJ3113- ■ MT33- ■ ■ J1 -Z**	–
	87	4950	17.03	63800	2.8	722	**2KJ3113- ■ MT33- ■ ■ H1 -Z**	–
	104	4110	14.15	61100	3.4	722	**2KJ3113- ■ MT33- ■ ■ G1 -Z**	–
	201	2140	7.37	51700	3.7	722	**2KJ3113- ■ MT33- ■ ■ C1 -Z**	–
	251	1710	5.88	48700	4.6	722	**2KJ3113- ■ MT33- ■ ■ B1 -Z**	–
	D.149-LES225YMF4P							
	43	9970	34.31	38900	0.8	591	**2KJ3212- ■ MT33- ■ ■ B1 -Z**	–
	53	8170	28.13	38300	0.98	591	**2KJ3212- ■ MT33- ■ ■ A1 -Z**	–
	Z.149-LES225YMF4P							
	61	7060	24.30	37700	1.1	584	**2KJ3112- ■ MT33- ■ ■ N1 -Z**	–
	68	6300	21.69	37100	1.3	584	**2KJ3112- ■ MT33- ■ ■ M1 -Z**	–
	76	5620	19.33	36500	1.4	584	**2KJ3112- ■ MT33- ■ ■ L1 -Z**	–
	86	4980	17.15	35800	1.6	584	**2KJ3112- ■ MT33- ■ ■ K1 -Z**	–
	94	4570	15.74	35300	1.7	584	**2KJ3112- ■ MT33- ■ ■ J1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
45	**Z.149-LES225YMF4P**							
	107	4030	13.87	34500	2	584	**2KJ3112- ■ MT33- ■ ■ H1 -Z**	–
	130	3300	11.38	33200	2.4	584	**2KJ3112- ■ MT33- ■ ■ G1 -Z**	–
	148	2900	9.98	32300	2.8	584	**2KJ3112- ■ MT33- ■ ■ F1 -Z**	–
	189	2260	7.80	30600	3.5	584	**2KJ3112- ■ MT33- ■ ■ E1 -Z**	–
	203	2110	7.27	30200	2.3	584	**2KJ3112- ■ MT33- ■ ■ D1 -Z**	–
	248	1730	5.96	28800	2.8	584	**2KJ3112- ■ MT33- ■ ■ C1 -Z**	–
	283	1520	5.23	27900	3.2	584	**2KJ3112- ■ MT33- ■ ■ B1 -Z**	–
	361	1180	4.09	26200	4.1	584	**2KJ3112- ■ MT33- ■ ■ A1 -Z**	–
	Z.129-LES225YMF4P							
	70	6100	20.98	12900	0.82	500	**2KJ3111- ■ MT33- ■ ■ M1 -Z**	–
	79	5400	18.60	16700	0.92	500	**2KJ3111- ■ MT33- ■ ■ L1 -Z**	–
	90	4770	16.42	18700	1	500	**2KJ3111- ■ MT33- ■ ■ K1 -Z**	–
	102	4190	14.43	18700	1.2	500	**2KJ3111- ■ MT33- ■ ■ J1 -Z**	–
	113	3800	13.07	18600	1.3	500	**2KJ3111- ■ MT33- ■ ■ H1 -Z**	–
	130	3300	11.38	18500	1.4	500	**2KJ3111- ■ MT33- ■ ■ G1 -Z**	–
	158	2710	9.33	18100	1.7	500	**2KJ3111- ■ MT33- ■ ■ F1 -Z**	–
	173	2480	8.53	17200	1.5	500	**2KJ3111- ■ MT33- ■ ■ E1 -Z**	–
	197	2180	7.50	17000	1.7	500	**2KJ3111- ■ MT33- ■ ■ D1 -Z**	–
	218	1970	6.79	16800	1.8	500	**2KJ3111- ■ MT33- ■ ■ C1 -Z**	–
	250	1710	5.91	16400	2.1	500	**2KJ3111- ■ MT33- ■ ■ B1 -Z**	–
	305	1410	4.85	15900	2.3	500	**2KJ3111- ■ MT33- ■ ■ A1 -Z**	–
	Z.109-LES225YMF4P							
	146	2940	10.12	12700	0.83	438	**2KJ3110- ■ MT33- ■ ■ H1 -Z**	–
	170	2530	8.71	12800	0.94	438	**2KJ3110- ■ MT33- ■ ■ G1 -Z**	–
	176	2440	8.41	12300	0.94	438	**2KJ3110- ■ MT33- ■ ■ F1 -Z**	–
	199	2150	7.41	12400	1.1	438	**2KJ3110- ■ MT33- ■ ■ E1 -Z**	–
	227	1890	6.50	12300	1.2	438	**2KJ3110- ■ MT33- ■ ■ D1 -Z**	–
	261	1640	5.66	12300	1.4	438	**2KJ3110- ■ MT33- ■ ■ C1 -Z**	–
	286	1500	5.17	12200	1.5	438	**2KJ3110- ■ MT33- ■ ■ B1 -Z**	–
	332	1290	4.45	12000	1.7	438	**2KJ3110- ■ MT33- ■ ■ A1 -Z**	–
	E.149-LES225YMF4P							
	353	1210	4.19	10600	1.2	464	**2KJ3007- ■ MT33- ■ ■ J1 -Z**	–
	395	1080	3.74	11000	1.4	464	**2KJ3007- ■ MT33- ■ ■ H1 -Z**	–
	444	965	3.33	11200	1.5	464	**2KJ3007- ■ MT33- ■ ■ G1 -Z**	–
	499	860	2.96	11400	1.7	464	**2KJ3007- ■ MT33- ■ ■ F1 -Z**	–
	545	785	2.71	11300	1.9	464	**2KJ3007- ■ MT33- ■ ■ E1 -Z**	–
	618	695	2.39	11100	2.1	464	**2KJ3007- ■ MT33- ■ ■ D1 -Z**	–
	754	570	1.96	10800	2.6	464	**2KJ3007- ■ MT33- ■ ■ C1 -Z**	–
	859	500	1.72	10500	2.9	464	**2KJ3007- ■ MT33- ■ ■ B1 -Z**	–
	1103	390	1.34	10000	3.3	464	**2KJ3007- ■ MT33- ■ ■ A1 -Z**	–
	E.129-LES225YMF4P							
	449	955	3.29	6110	0.82	424	**2KJ3006- ■ MT33- ■ ■ H1 -Z**	–
	508	845	2.91	6660	0.91	424	**2KJ3006- ■ MT33- ■ ■ G1 -Z**	–
	830	515	1.78	7770	1.5	424	**2KJ3006- ■ MT33- ■ ■ C1 -Z**	–
	1012	425	1.46	7830	1.8	424	**2KJ3006- ■ MT33- ■ ■ B1 -Z**	–
	1192	360	1.24	7830	2.1	424	**2KJ3006- ■ MT33- ■ ■ A1 -Z**	–
55	**D.189-LES250MD4P**							
	26	19800	56.08	107000	0.96	1083	**2KJ3214- ■ NM33- ■ ■ D1 -Z**	–
	33	15800	44.63	107000	1.2	1083	**2KJ3214- ■ NM33- ■ ■ C1 -Z**	–
	40	12900	36.67	107000	1.5	1083	**2KJ3214- ■ NM33- ■ ■ B1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Helical geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
55	**Z.189-LES250MD4P**							
	54	9730	27.46	102100	2	1001	**2KJ3114- ■ NM33- ■ ■ J1 -Z**	–
	60	8690	24.53	99400	2.2	1001	**2KJ3114- ■ NM33- ■ ■ H1 -Z**	–
	66	7950	22.44	97200	2.4	1001	**2KJ3114- ■ NM33- ■ ■ G1 -Z**	–
	74	7070	19.95	94400	2.7	1001	**2KJ3114- ■ NM33- ■ ■ F1 -Z**	–
	88	6000	16.93	90500	3.2	1001	**2KJ3114- ■ NM33- ■ ■ E1 -Z**	–
	D.169-LES250MD4P							
	33	15900	45.06	69400	0.88	870	**2KJ3213- ■ NM33- ■ ■ D1 -Z**	–
	36	14600	41.43	69900	0.95	870	**2KJ3213- ■ NM33- ■ ■ C1 -Z**	–
	41	12800	36.33	70600	1.1	870	**2KJ3213- ■ NM33- ■ ■ B1 -Z**	–
	52	10000	28.41	69100	1.4	870	**2KJ3213- ■ NM33- ■ ■ A1 -Z**	–
	Z.169-LES250MD4P							
	63	8310	23.45	66600	1.7	826	**2KJ3113- ■ NM33- ■ ■ L1 -Z**	–
	71	7400	20.90	65100	1.9	826	**2KJ3113- ■ NM33- ■ ■ K1 -Z**	–
	78	6700	18.93	63800	2.1	826	**2KJ3113- ■ NM33- ■ ■ J1 -Z**	–
	87	6030	17.03	62400	2.3	826	**2KJ3113- ■ NM33- ■ ■ H1 -Z**	–
	105	5010	14.15	59900	2.8	826	**2KJ3113- ■ NM33- ■ ■ G1 -Z**	–
	118	4450	12.58	58300	3.1	826	**2KJ3113- ■ NM33- ■ ■ F1 -Z**	–
	148	3550	10.03	55200	3.9	826	**2KJ3113- ■ NM33- ■ ■ E1 -Z**	–
	201	2610	7.37	51100	3	826	**2KJ3113- ■ NM33- ■ ■ C1 -Z**	–
	252	2080	5.88	48200	3.8	826	**2KJ3113- ■ NM33- ■ ■ B1 -Z**	–
	317	1650	4.68	45300	4.7	826	**2KJ3113- ■ NM33- ■ ■ A1 -Z**	–
	D.149-LES250MD4P							
	53	9970	28.13	35800	0.8	693	**2KJ3212- ■ NM33- ■ ■ A1 -Z**	–
	Z.149-LES250MD4P							
	77	6850	19.33	34800	1.2	686	**2KJ3112- ■ NM33- ■ ■ L1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
55	**Z.149-LES250MD4P**							
	86	6070	17.15	34300	1.3	686	**2KJ3112- ■ NM33- ■ ■ K1 -Z**	–
	94	5570	15.74	33900	1.4	686	**2KJ3112- ■ NM33- ■ ■ J1 -Z**	–
	107	4910	13.87	33300	1.6	686	**2KJ3112- ■ NM33- ■ ■ H1 -Z**	–
	130	4030	11.38	32200	2	686	**2KJ3112- ■ NM33- ■ ■ G1 -Z**	–
	148	3530	9.98	31400	2.3	686	**2KJ3112- ■ NM33- ■ ■ F1 -Z**	–
	190	2760	7.80	29800	2.9	686	**2KJ3112- ■ NM33- ■ ■ E1 -Z**	–
	204	2570	7.27	29600	1.9	686	**2KJ3112- ■ NM33- ■ ■ D1 -Z**	–
	249	2110	5.96	28300	2.3	686	**2KJ3112- ■ NM33- ■ ■ C1 -Z**	–
	283	1850	5.23	27400	2.6	686	**2KJ3112- ■ NM33- ■ ■ B1 -Z**	–
	362	1450	4.09	25800	3.4	686	**2KJ3112- ■ NM33- ■ ■ A1 -Z**	–
	Z.129-LES250MD4P							
	90	5820	16.42	10600	0.86	601	**2KJ3111- ■ NM33- ■ ■ K1 -Z**	–
	103	5110	14.43	14500	0.97	601	**2KJ3111- ■ NM33- ■ ■ J1 -Z**	–
	113	4630	13.07	17000	1	601	**2KJ3111- ■ NM33- ■ ■ H1 -Z**	–
	130	4030	11.38	17200	1.2	601	**2KJ3111- ■ NM33- ■ ■ G1 -Z**	–
	159	3300	9.33	17000	1.4	601	**2KJ3111- ■ NM33- ■ ■ F1 -Z**	–
	174	3020	8.53	16200	1.2	601	**2KJ3111- ■ NM33- ■ ■ E1 -Z**	–
	198	2650	7.50	16100	1.4	601	**2KJ3111- ■ NM33- ■ ■ D1 -Z**	–
	218	2400	6.79	15900	1.5	601	**2KJ3111- ■ NM33- ■ ■ C1 -Z**	–
	251	2090	5.91	15700	1.7	601	**2KJ3111- ■ NM33- ■ ■ B1 -Z**	–
	306	1710	4.85	15300	1.9	601	**2KJ3111- ■ NM33- ■ ■ A1 -Z**	–
	E.149-LES250MD4P							
	445	1180	3.33	8970	1.3	566	**2KJ3007- ■ NM33- ■ ■ G1 -Z**	–
	501	1040	2.96	9450	1.4	566	**2KJ3007- ■ NM33- ■ ■ F1 -Z**	–
	547	960	2.71	9620	1.5	566	**2KJ3007- ■ NM33- ■ ■ E1 -Z**	–
	620	845	2.39	9880	1.7	566	**2KJ3007- ■ NM33- ■ ■ D1 -Z**	–
	756	695	1.96	9980	2.1	566	**2KJ3007- ■ NM33- ■ ■ C1 -Z**	–
	862	610	1.72	9990	2.4	566	**2KJ3007- ■ NM33- ■ ■ B1 -Z**	–
	1106	475	1.34	9620	2.7	566	**2KJ3007- ■ NM33- ■ ■ A1 -Z**	–
	E.129-LES250MD4P							
	1015	515	1.46	6300	1.5	525	**2KJ3006- ■ NM33- ■ ■ B1 -Z**	–
	1195	435	1.24	6480	1.7	525	**2KJ3006- ■ NM33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.19																			
34.97	41	100	1650	12.6	0.02	1364/39	✓	✓											**2KJ3101 - ■ ■■■■ - ■■ W1**
30.97	47	100	1650	13.2	0.03	2013/65	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ V1**
26.91	54	100	1650	13.3	0.04	1749/65	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ U1**
24.46	59	100	1650	13.3	0.05	318/13	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ T1**
20.82	70	100	1650	13.5	0.06	1353/65	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ S1**
18.92	77	100	1790	13.5	0.08	246/13	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ R1**
16.50	88	99	1900	13.7	0.09	33/2	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ Q1**
14.77	98	95	1870	13.8	0.12	192/13	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ P1**
13.12	111	91	1830	13.9	0.15	341/26	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ N1**
12.11	120	88	1810	13.9	0.18	2046/169	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ M1**
10.52	138	82	1760	14.3	0.20	957/91	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ L1**
9.14	159	78	1710	13.9	0.21	594/65	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ K1**
8.25	176	74	1670	14.1	0.27	33/4	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ J1**
7.76	187	73	1650	14.1	0.32	132/17	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ H1**
6.77	214	68	1600	14.5	0.36	88/13	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ G1**
6.25	232	56	1460	20.3	0.19	1705/273	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ F1**
5.43	267	53	1420	21.0	0.22	1595/294	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ E1**
4.71	308	49	1380	20.3	0.22	33/7	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ D1**
4.26	340	47	1350	20.7	0.29	715/168	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ C1**
4.01	362	46	1330	20.7	0.32	1430/357	✓	✓	✓										**2KJ3101 - ■ ■■■■ - ■■ B1**
3.49	415	43	1290	21.5	0.39	220/63			✓										**2KJ3101 - ■ ■■■■ - ■■ A1**
D.19																			
184.86	7.8	100	1650	13.1	0.02	50468/273	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ Q1**
163.69	8.9	100	1650	13.2	0.03	74481/455	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ P1**
142.23	10	100	1650	13.2	0.04	64713/455	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ N1**
129.30	11	100	1650	13.2	0.04	11766/91	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ M1**
110.02	13	100	1650	13.2	0.06	50061/455	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ L1**
100.02	14	100	1650	13.2	0.07	9102/91	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ K1**
87.21	17	100	1650	13.3	0.08	1221/14	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ J1**
78.07	19	100	1650	13.3	0.11	7104/91	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ H1**
69.32	21	100	1650	13.3	0.13	12617/182	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ G1**
63.99	23	100	1650	13.3	0.16	75702/1183	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ F1**
55.59	26	100	1650	13.4	0.17	35409/637	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ E1**
48.30	30	100	1650	13.3	0.18	21978/455	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ D1**
43.61	33	100	1650	13.3	0.22	1221/28	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ C1**
41.04	35	100	1650	13.3	0.26	4884/119	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ B1**
35.78	41	100	1650	13.4	0.29	3256/91	✓	✓											**2KJ3201 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.29																			
41.40	35	140	3710	10.8	0.04	207/5	✓	✓											**2KJ3102 - ■ ■■■■ - ■■ A2**
36.72	39	140	3670	10.8	0.05	918/25	✓	✓	✓	✓									**2KJ3102 - ■ ■■■■ - ■■ X1**
31.86	46	140	3330	10.9	0.06	1593/50	✓	✓	✓	✓									**2KJ3102 - ■ ■■■■ - ■■ W1**
28.96	50	140	3110	10.9	0.07	1593/55	✓	✓	✓	✓									**2KJ3102 - ■ ■■■■ - ■■ V1**
24.84	58	140	2770	11.0	0.09	621/25	✓	✓	✓	✓									**2KJ3102 - ■ ■■■■ - ■■ U1**
22.58	64	140	2570	11.0	0.11	1242/55	✓	✓	✓	✓									**2KJ3102 - ■ ■■■■ - ■■ T1**
19.80	73	140	2300	11.2	0.13	99/5	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ S1**
17.67	82	140	2070	11.3	0.15	972/55	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ R1**
15.75	92	140	1850	11.4	0.18	63/4	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ Q1**
14.54	100	120	2240	11.4	0.23	189/13	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ P1**
12.73	114	140	1470	11.6	0.26	891/70	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ N1**
11.16	130	140	1250	11.9	0.27	279/25	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ M1**
10.12	143	140	1090	12.1	0.34	81/8	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ L1**
9.53	152	140	1000	12.1	0.40	162/17	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ K1**
8.40	173	138	855	11.7	0.45	42/5	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ J1**
7.29	199	130	860	11.9	0.60	729/100	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ H1**
6.92	210	75	1900	17.4	0.29	90/13	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ G1**
6.06	239	100	945	17.9	0.34	297/49	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ F1**
5.31	273	91	1050	18.6	0.37	186/35	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ E1**
4.82	301	86	1080	18.9	0.46	135/28	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ D1**
4.54	319	84	1070	18.9	0.54	540/119	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ C1**
4.00	362	76	1160	18.2	0.63	4/1	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ B1**
3.47	418	70	1240	18.5	0.84	243/70	✓	✓	✓	✓	✓								**2KJ3102 - ■ ■■■■ - ■■ A1**
D.29																			
217.89	6.7	140	3710	10.7	0.02	7626/35	✓	✓											**2KJ3202 - ■ ■■■■ - ■■ Q1**
192.93	7.5	140	3710	10.8	0.03	67527/350	✓	✓	✓	✓									**2KJ3202 - ■ ■■■■ - ■■ P1**
167.63	8.7	140	3710	10.8	0.04	58671/350	✓	✓	✓	✓									**2KJ3202 - ■ ■■■■ - ■■ N1**
152.39	9.5	140	3710	10.8	0.05	58671/385	✓	✓	✓	✓									**2KJ3202 - ■ ■■■■ - ■■ M1**
129.68	11	140	3710	10.9	0.06	45387/350	✓	✓	✓	✓									**2KJ3202 - ■ ■■■■ - ■■ L1**
117.89	12	140	3710	10.9	0.08	45387/385	✓	✓	✓	✓									**2KJ3202 - ■ ■■■■ - ■■ K1**
102.79	14	140	3710	10.9	0.09	14391/140	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ J1**
92.01	16	140	3710	10.9	0.12	35424/385	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ H1**
81.71	18	140	3710	10.9	0.14	11439/140	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ G1**
75.42	19	140	3710	10.9	0.17	34317/455	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ F1**
65.52	22	140	3710	11.0	0.19	32103/490	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ E1**
56.93	25	140	3710	10.9	0.19	9963/175	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ D1**
51.40	28	140	3710	11.0	0.25	14391/280	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ C1**
48.37	30	140	3710	11.0	0.29	28782/595	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ B1**
42.17	34	140	3710	11.0	0.33	1476/35	✓	✓	✓	✓	✓								**2KJ3202 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.39																			
55.95	26	200	4370	7.7	0.06	7553/135	✓	✓											**2KJ3103 - ■ ■■■■ - ■■ A2**
49.75	29	200	4370	7.7	0.07	3731/75	✓	✓	✓	✓									**2KJ3103 - ■ ■■■■ - ■■ X1**
43.68	33	200	4070	7.8	0.08	1092/25	✓	✓	✓	✓									**2KJ3103 - ■ ■■■■ - ■■ W1**
39.71	37	200	3790	7.8	0.10	2184/55	✓	✓	✓	✓									**2KJ3103 - ■ ■■■■ - ■■ V1**
33.97	43	200	3340	7.9	0.12	2548/75	✓	✓	✓	✓									**2KJ3103 - ■ ■■■■ - ■■ U1**
30.88	47	200	3080	7.9	0.14	5096/165	✓	✓	✓	✓									**2KJ3103 - ■ ■■■■ - ■■ T1**
27.30	53	200	2760	8.0	0.17	273/10	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ S1**
24.82	58	200	2520	8.0	0.22	273/11	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ R1**
21.74	67	200	2190	8.1	0.25	3913/180	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ Q1**
20.07	72	200	2000	8.1	0.31	301/15	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ P1**
17.77	82	200	1720	8.3	0.36	533/30	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ N1**
14.79	98	193	1500	8.4	0.47	1183/80	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ M1**
13.92	104	189	1470	8.4	0.55	1183/85	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ L1**
12.47	116	180	1470	8.6	0.60	3367/270	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ K1**
10.62	137	169	1440	8.8	0.78	637/60	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ J1**
9.10	159	158	1430	9.0	1.02	91/10			✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ H1**
7.84	185	148	1420	9.3	1.30	2821/360			✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ G1**
6.46	224	146	225	13.4	0.57	2379/368	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ F1**
6.08	238	147	100	13.4	0.66	2379/391	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ E1**
5.45	266	140	150	13.8	0.74	2257/414	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ D1**
4.64	312	130	490	14.3	0.97	427/92	✓	✓	✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ C1**
3.98	364	121	820	14.8	1.28	183/46			✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ B1**
3.43	423	112	1070	15.4	1.65	1891/552			✓	✓	✓								**2KJ3103 - ■ ■■■■ - ■■ A1**
D.39																			
235.29	6.2	200	4370	8.1	0.03	179998/765	✓	✓											**2KJ3203 - ■ ■■■■ - ■■ R1**
208.69	6.9	200	4370	8.2	0.05	15652/75	✓	✓	✓	✓									**2KJ3203 - ■ ■■■■ - ■■ Q1**
181.07	8	200	4370	8.2	0.05	230867/1275	✓	✓	✓	✓									**2KJ3203 - ■ ■■■■ - ■■ P1**
164.61	8.8	200	4370	8.2	0.07	461734/2805	✓	✓	✓	✓									**2KJ3203 - ■ ■■■■ - ■■ N1**
141.17	10	200	4370	8.2	0.08	179998/1275	✓	✓	✓	✓									**2KJ3203 - ■ ■■■■ - ■■ M1**
128.34	11	200	4370	8.2	0.10	359996/2805	✓	✓	✓	✓									**2KJ3203 - ■ ■■■■ - ■■ L1**
112.53	13	200	4370	8.2	0.12	86086/765	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ K1**
100.44	14	200	4370	8.3	0.15	93912/935	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ J1**
89.51	16	200	4370	8.3	0.17	27391/306	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ H1**
82.63	18	200	4370	8.3	0.21	4214/51	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ G1**
72.34	20	200	4370	8.3	0.25	6149/85	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ F1**
63.43	23	200	4370	8.4	0.23	242606/3825	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ E1**
57.54	25	200	4370	8.4	0.33	3913/68	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ D1**
54.16	27	200	4370	8.4	0.39	15652/289	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ C1**
47.74	30	200	4350	8.3	0.43	109564/2295	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ B1**
41.43	35	200	3920	8.4	0.58	35217/850	✓	✓	✓	✓	✓								**2KJ3203 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.49																			
52.14	28	320	5900	7.0	0.17	4171/80	✓	✓	✓	✓									**2KJ3104 - ■ ■■■■ - ■■ B2**
47.40	31	320	5780	7.0	0.21	4171/88	✓	✓	✓	✓									**2KJ3104 - ■ ■■■■ - ■■ A2**
40.31	36	320	5650	7.1	0.25	645/16	✓	✓	✓	✓									**2KJ3104 - ■ ■■■■ - ■■ X1**
36.65	40	320	5220	7.1	0.31	3225/88	✓	✓	✓	✓									**2KJ3104 - ■ ■■■■ - ■■ W1**
32.70	44	320	5520	7.1	0.36	3139/96	✓	✓	✓	✓	✓	✓							**2KJ3104 - ■ ■■■■ - ■■ V1**
29.32	49	320	5280	7.2	0.43	645/22	✓	✓	✓	✓	✓	✓							**2KJ3104 - ■ ■■■■ - ■■ U1**
26.43	55	320	5060	7.2	0.50	2537/96	✓	✓	✓	✓	✓	✓							**2KJ3104 - ■ ■■■■ - ■■ T1**
24.39	59	320	4890	7.2	0.59	2537/104	✓	✓	✓	✓	✓	✓							**2KJ3104 - ■ ■■■■ - ■■ S1**
22.27	65	320	4710	7.2	0.71	1247/56	✓	✓	✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ R1**
18.48	78	320	4350	7.4	0.90	2365/128	✓	✓	✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ Q1**
17.39	83	320	4230	7.4	1.03	2365/136	✓	✓	✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ P1**
16.42	88	320	4130	7.4	1.17	2365/144	✓	✓	✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ N1**
13.98	104	320	3850	7.5	1.44	559/40	✓	✓	✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ M1**
11.97	121	320	3590	7.5	1.76	2107/176			✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ L1**
10.53	138	320	3390	7.5	2.10	2021/192			✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ K1**
8.88	163	320	3130	7.8	2.70	817/92			✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ J1**
7.74	187	320	3100	8.0	3.60	387/50			✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ H1**
7.64	190	295	3000	11.8	1.18	649/85	✓	✓	✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ G1**
7.21	201	290	2980	11.8	1.34	649/90	✓	✓	✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ F1**
6.14	236	265	2940	12.2	1.67	767/125	✓	✓	✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ E1**
5.26	276	245	2880	12.2	2.10	2891/550			✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ D1**
4.62	314	225	2820	12.2	2.60	2773/600			✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ C1**
3.90	372	205	2740	12.2	3.30	2242/575			✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ B1**
3.40	426	191	2210	12.2	4.40	2124/625			✓	✓	✓	✓	✓						**2KJ3104 - ■ ■■■■ - ■■ A1**
D.49																			
280.89	5.2	320	5780	7.3	0.06	60673/216	✓	✓											**2KJ3204 - ■ ■■■■ - ■■ S1**
249.76	5.8	320	5780	7.3	0.07	29971/120	✓	✓	✓	✓									**2KJ3204 - ■ ■■■■ - ■■ R1**
219.30	6.6	320	5780	7.4	0.08	2193/10	✓	✓	✓	✓									**2KJ3204 - ■ ■■■■ - ■■ Q1**
199.36	7.3	320	5780	7.4	0.10	2193/11	✓	✓	✓	✓									**2KJ3204 - ■ ■■■■ - ■■ P1**
170.57	8.5	320	5780	7.4	0.12	5117/30	✓	✓	✓	✓									**2KJ3204 - ■ ■■■■ - ■■ N1**
155.06	9.4	320	5780	7.4	0.14	5117/33	✓	✓	✓	✓									**2KJ3204 - ■ ■■■■ - ■■ M1**
137.06	11	320	5780	7.4	0.17	2193/16	✓	✓	✓	✓	✓	✓							**2KJ3204 - ■ ■■■■ - ■■ L1**
124.60	12	320	5780	7.4	0.22	10965/88	✓	✓	✓	✓	✓	✓							**2KJ3204 - ■ ■■■■ - ■■ K1**
109.14	13	320	5780	7.4	0.25	31433/288	✓	✓	✓	✓	✓	✓							**2KJ3204 - ■ ■■■■ - ■■ J1**
100.75	14	320	5780	7.4	0.31	31433/312	✓	✓	✓	✓	✓	✓							**2KJ3204 - ■ ■■■■ - ■■ H1**
89.20	16	320	5780	7.4	0.37	29971/336	✓	✓	✓	✓	✓	✓	✓						**2KJ3204 - ■ ■■■■ - ■■ G1**
74.24	20	320	5780	7.5	0.50	9503/128	✓	✓	✓	✓	✓	✓	✓						**2KJ3204 - ■ ■■■■ - ■■ F1**
69.88	21	320	5780	7.5	0.58	559/8	✓	✓	✓	✓	✓	✓	✓						**2KJ3204 - ■ ■■■■ - ■■ E1**
62.61	23	320	5780	7.5	0.65	27047/432	✓	✓	✓	✓	✓	✓	✓						**2KJ3204 - ■ ■■■■ - ■■ D1**
53.30	27	320	5780	7.5	0.85	5117/96	✓	✓	✓	✓	✓	✓	✓						**2KJ3204 - ■ ■■■■ - ■■ C1**
45.69	32	320	5780	7.6	1.12	731/16			✓	✓	✓	✓	✓						**2KJ3204 - ■ ■■■■ - ■■ B1**
39.34	37	320	5540	7.6	1.43	22661/576			✓	✓	✓	✓	✓						**2KJ3204 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.59																			
56.99	25	450	7660	6.5	0.18	4559/80	✓	✓	✓	✓									**2KJ3105 - ■ ■■■■ - ■■ A2**
51.81	28	450	7660	6.5	0.21	4559/88	✓	✓	✓	✓									**2KJ3105 - ■ ■■■■ - ■■ X1**
44.06	33	450	7310	6.6	0.26	705/16	✓	✓	✓	✓									**2KJ3105 - ■ ■■■■ - ■■ W1**
40.06	36	450	7020	6.6	0.32	3525/88	✓	✓	✓	✓									**2KJ3105 - ■ ■■■■ - ■■ V1**
35.74	41	450	6690	6.6	0.37	3431/96	✓	✓	✓	✓	✓	✓							**2KJ3105 - ■ ■■■■ - ■■ U1**
32.05	45	450	6180	6.7	0.44	705/22	✓	✓	✓	✓	✓	✓							**2KJ3105 - ■ ■■■■ - ■■ T1**
28.89	50	450	5690	6.7	0.52	2773/96	✓	✓	✓	✓	✓	✓							**2KJ3105 - ■ ■■■■ - ■■ S1**
26.66	54	450	5330	6.7	0.62	2773/104	✓	✓	✓	✓	✓	✓							**2KJ3105 - ■ ■■■■ - ■■ R1**
24.34	60	450	4930	6.7	0.73	1363/56	✓	✓	✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ Q1**
20.20	72	450	5230	6.9	0.94	2585/128	✓	✓	✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ P1**
19.01	76	450	5090	6.9	1.08	2585/136	✓	✓	✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ N1**
17.95	81	450	4960	6.9	1.23	2585/144	✓	✓	✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ M1**
15.27	95	450	4600	7.0	1.51	611/40	✓	✓	✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ L1**
13.09	111	450	4280	7.2	1.85	2303/176			✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ K1**
11.51	126	450	4030	7.3	2.30	2209/192			✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ J1**
9.71	149	450	3710	7.5	2.90	893/92			✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ H1**
8.46	171	450	3600	8.0	3.90	423/50			✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ G1**
8.07	180	410	3500	10.6	1.45	121/15	✓	✓	✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ F1**
6.86	211	410	3480	11.0	1.81	858/125	✓	✓	✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ E1**
5.88	247	410	3440	11.3	2.30	147/25			✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ D1**
5.17	280	410	2210	11.6	2.80	517/100			✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ C1**
4.36	333	405	2650	12.0	3.60	2508/575			✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ B1**
3.80	382	405	2920	13.4	4.90	2376/625			✓	✓	✓	✓	✓						**2KJ3105 - ■ ■■■■ - ■■ A1**
D.59																			
307.02	4.7	450	7660	6.8	0.06	66317/216	✓	✓											**2KJ3205 - ■ ■■■■ - ■■ S1**
272.99	5.3	450	7660	6.8	0.07	32759/120	✓	✓	✓	✓									**2KJ3205 - ■ ■■■■ - ■■ R1**
239.70	6	450	7660	6.8	0.08	2397/10	✓	✓	✓	✓									**2KJ3205 - ■ ■■■■ - ■■ Q1**
217.91	6.7	450	7660	6.8	0.10	2397/11	✓	✓	✓	✓									**2KJ3205 - ■ ■■■■ - ■■ P1**
186.43	7.8	450	7660	6.9	0.12	5593/30	✓	✓	✓	✓									**2KJ3205 - ■ ■■■■ - ■■ N1**
169.48	8.6	450	7660	6.9	0.14	5593/33	✓	✓	✓	✓									**2KJ3205 - ■ ■■■■ - ■■ M1**
149.81	9.7	450	7660	6.9	0.17	2397/16	✓	✓	✓	✓	✓	✓							**2KJ3205 - ■ ■■■■ - ■■ L1**
136.19	11	450	7660	6.9	0.22	11985/88	✓	✓	✓	✓	✓	✓							**2KJ3205 - ■ ■■■■ - ■■ K1**
119.30	12	450	7660	6.9	0.26	34357/288	✓	✓	✓	✓	✓	✓							**2KJ3205 - ■ ■■■■ - ■■ J1**
110.12	13	450	7660	6.9	0.31	34357/312	✓	✓	✓	✓	✓	✓							**2KJ3205 - ■ ■■■■ - ■■ H1**
97.50	15	450	7660	6.9	0.37	32759/336	✓	✓	✓	✓	✓	✓	✓						**2KJ3205 - ■ ■■■■ - ■■ G1**
81.15	18	450	7660	7.0	0.50	10387/128	✓	✓	✓	✓	✓	✓	✓						**2KJ3205 - ■ ■■■■ - ■■ F1**
76.38	19	450	7660	7.0	0.59	611/8	✓	✓	✓	✓	✓	✓	✓						**2KJ3205 - ■ ■■■■ - ■■ E1**
68.43	21	450	7660	7.0	0.65	29563/432	✓	✓	✓	✓	✓	✓	✓						**2KJ3205 - ■ ■■■■ - ■■ D1**
58.26	25	450	7660	7.0	0.85	5593/96	✓	✓	✓	✓	✓	✓	✓						**2KJ3205 - ■ ■■■■ - ■■ C1**
49.94	29	450	7660	7.1	1.12	799/16			✓	✓	✓	✓	✓						**2KJ3205 - ■ ■■■■ - ■■ B1**
43.00	34	450	7230	7.1	1.44	24769/576			✓	✓	✓	✓	✓						**2KJ3205 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.69																			
60.97	24	600	11000	6.2	0.18	2134/35	✓	✓	✓	✓									**2KJ3106 - ■ ■■■■ - ■■ A2**
55.43	26	600	11000	6.2	0.22	388/7	✓	✓	✓	✓									**2KJ3106 - ■ ■■■■ - ■■ X1**
47.14	31	600	11000	6.3	0.28	330/7	✓	✓	✓	✓									**2KJ3106 - ■ ■■■■ - ■■ W1**
42.86	34	600	11000	6.3	0.34	300/7	✓	✓	✓	✓									**2KJ3106 - ■ ■■■■ - ■■ V1**
38.24	38	600	11000	6.4	0.39	803/21	✓	✓	✓	✓	✓	✓							**2KJ3106 - ■ ■■■■ - ■■ U1**
34.29	42	600	11000	6.4	0.47	240/7	✓	✓	✓	✓	✓	✓							**2KJ3106 - ■ ■■■■ - ■■ T1**
30.90	47	600	10400	6.4	0.56	649/21	✓	✓	✓	✓	✓	✓							**2KJ3106 - ■ ■■■■ - ■■ S1**
28.53	51	600	9860	6.4	0.66	2596/91	✓	✓	✓	✓	✓	✓							**2KJ3106 - ■ ■■■■ - ■■ R1**
26.04	56	600	9200	6.5	0.79	1276/49	✓	✓	✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ Q1**
21.61	67	600	7910	6.6	1.01	605/28	✓	✓	✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ P1**
20.34	71	600	7510	6.6	1.16	2420/119	✓	✓	✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ N1**
19.21	75	600	7140	6.6	1.32	1210/63	✓	✓	✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ M1**
16.34	89	600	9850	6.7	1.64	572/35	✓	✓	✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ L1**
14.00	104	600	9260	6.8	2.00	14/1			✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ K1**
12.31	118	600	8790	7.0	2.50	517/42			✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ J1**
10.39	140	600	8200	7.1	3.20	1672/161			✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ H1**
9.05	160	591	7920	7.7	4.30	1584/175			✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ G1**
8.50	171	446	8000	10.0	1.67	1760/207	✓	✓	✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ F1**
7.23	201	447	7540	10.3	2.10	832/115	✓	✓	✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ E1**
6.20	234	445	7290	10.6	2.70	1568/253			✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ D1**
5.45	266	429	7090	10.9	3.40	376/69			✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ C1**
4.60	315	446	6810	11.3	4.40	2432/529			✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ B1**
4.01	362	445	5440	11.6	5.80	2304/575			✓	✓	✓	✓	✓						**2KJ3106 - ■ ■■■■ - ■■ A1**
D.69																			
328.49	4.4	600	11000	6.5	0.06	62084/189	✓	✓											**2KJ3206 - ■ ■■■■ - ■■ S1**
292.08	5.0	600	11000	6.5	0.07	30668/105	✓	✓	✓	✓									**2KJ3206 - ■ ■■■■ - ■■ R1**
256.46	5.7	600	11000	6.6	0.08	8976/35	✓	✓	✓	✓									**2KJ3206 - ■ ■■■■ - ■■ Q1**
233.14	6.2	600	11000	6.6	0.10	1632/7	✓	✓	✓	✓									**2KJ3206 - ■ ■■■■ - ■■ P1**
199.47	7.3	600	11000	6.6	0.12	2992/15	✓	✓	✓	✓									**2KJ3206 - ■ ■■■■ - ■■ N1**
181.33	8	600	11000	6.6	0.14	544/3	✓	✓	✓	✓									**2KJ3206 - ■ ■■■■ - ■■ M1**
160.29	9	600	11000	6.6	0.17	1122/7	✓	✓	✓	✓	✓	✓							**2KJ3206 - ■ ■■■■ - ■■ L1**
145.71	10	600	11000	6.6	0.22	1020/7	✓	✓	✓	✓	✓	✓							**2KJ3206 - ■ ■■■■ - ■■ K1**
127.63	11	600	11000	6.6	0.26	8041/63	✓	✓	✓	✓	✓	✓							**2KJ3206 - ■ ■■■■ - ■■ J1**
117.82	12	600	11000	6.6	0.31	32164/273	✓	✓	✓	✓	✓	✓							**2KJ3206 - ■ ■■■■ - ■■ H1**
104.31	14	600	11000	6.6	0.37	15334/147	✓	✓	✓	✓	✓	✓	✓						**2KJ3206 - ■ ■■■■ - ■■ G1**
86.82	17	600	11000	6.7	0.50	2431/28	✓	✓	✓	✓	✓	✓	✓						**2KJ3206 - ■ ■■■■ - ■■ F1**
81.71	18	600	11000	6.7	0.59	572/7	✓	✓	✓	✓	✓	✓	✓						**2KJ3206 - ■ ■■■■ - ■■ E1**
73.22	20	600	11000	6.7	0.66	13838/189	✓	✓	✓	✓	✓	✓	✓						**2KJ3206 - ■ ■■■■ - ■■ D1**
62.33	23	600	11000	6.7	0.86	187/3	✓	✓	✓	✓	✓	✓	✓						**2KJ3206 - ■ ■■■■ - ■■ C1**
53.43	27	600	11000	6.7	1.14	374/7			✓	✓	✓	✓	✓						**2KJ3206 - ■ ■■■■ - ■■ B1**
46.01	32	600	11000	6.7	1.46	5797/126			✓	✓	✓	✓	✓						**2KJ3206 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.79																			
54.47	27	840	13400	6.1	0.43	3813/70		✓	✓	✓									**2KJ3107 - ■ ■■■■ - ■■ A2**
49.52	29	840	12600	6.1	0.53	3813/77		✓	✓	✓									**2KJ3107 - ■ ■■■■ - ■■ X1**
44.42	33	840	11700	6.2	0.73	533/12		✓	✓	✓	✓	✓							**2KJ3107 - ■ ■■■■ - ■■ W1**
39.94	36	840	10900	6.2	0.83	3075/77		✓	✓	✓	✓	✓							**2KJ3107 - ■ ■■■■ - ■■ V1**
36.12	40	840	10100	6.2	0.92	1517/42		✓	✓	✓	✓	✓							**2KJ3107 - ■ ■■■■ - ■■ U1**
33.34	43	840	13400	6.2	1.08	3034/91		✓	✓	✓	✓	✓							**2KJ3107 - ■ ■■■■ - ■■ T1**
30.54	47	840	13400	6.3	1.41	2993/98		✓	✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ S1**
25.62	57	840	13300	6.0	1.52	205/8		✓	✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ R1**
24.12	60	840	13000	6.0	1.73	410/17		✓	✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ Q1**
22.13	66	840	12600	6.1	1.90	1394/63		✓	✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ P1**
19.33	75	840	11900	6.1	2.7	1353/70		✓	✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ N1**
17.31	84	840	11400	6.2	3.3	2665/154			✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ M1**
15.13	96	840	10800	6.3	3.9	1271/84			✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ L1**
12.99	112	840	10100	6.3	4.3	2091/161			✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ K1**
11.48	126	840	9640	6.7	5.5	287/25			✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ J1**
9.76	149	815	9080	6.9	7.0	205/21					✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ H1**
8.37	173	790	8580	7.1	9.3	410/49					✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ G1**
8.19	177	715	8460	9.2	4.0	3965/484			✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ F1**
7.16	203	730	8030	9.4	4.8	1891/264			✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ E1**
6.15	236	715	7850	9.6	5.4	3111/506			✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ D1**
5.43	267	685	7690	10.5	6.9	2989/550			✓	✓	✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ C1**
4.62	314	775	7460	10.9	9.1	305/66					✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ B1**
3.96	366	775	3730	11.3	12.0	305/77					✓	✓	✓	✓					**2KJ3107 - ■ ■■■■ - ■■ A1**
D.79																			
330.23	4.4	840	13400	6.1	0.17	369861/1120		✓	✓	✓									**2KJ3207 - ■ ■■■■ - ■■ S1**
300.21	4.8	840	13400	6.1	0.20	369861/1232		✓	✓	✓									**2KJ3207 - ■ ■■■■ - ■■ R1**
255.33	5.7	840	13400	6.2	0.25	57195/224		✓	✓	✓									**2KJ3207 - ■ ■■■■ - ■■ Q1**
232.12	6.2	840	13400	6.2	0.30	285975/1232		✓	✓	✓									**2KJ3207 - ■ ■■■■ - ■■ P1**
207.10	7	840	13400	6.2	0.35	92783/448		✓	✓	✓	✓	✓							**2KJ3207 - ■ ■■■■ - ■■ N1**
185.70	7.8	840	13400	6.2	0.42	57195/308		✓	✓	✓	✓	✓							**2KJ3207 - ■ ■■■■ - ■■ M1**
167.39	8.7	840	13400	6.2	0.49	74989/448		✓	✓	✓	✓	✓							**2KJ3207 - ■ ■■■■ - ■■ L1**
154.51	9.4	840	13400	6.2	0.58	224967/1456		✓	✓	✓	✓	✓							**2KJ3207 - ■ ■■■■ - ■■ K1**
141.04	10	840	13400	6.2	0.69	110577/784		✓	✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ J1**
117.03	12	840	13400	6.2	0.87	209715/1792		✓	✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ H1**
110.14	13	840	13400	6.2	1.00	209715/1904		✓	✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ G1**
104.03	14	840	13400	6.2	1.14	69905/672		✓	✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ F1**
88.52	16	840	13400	6.2	1.39	49569/560		✓	✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ E1**
75.83	19	840	13400	6.2	1.69	26691/352			✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ D1**
66.67	22	840	13400	6.2	2.10	59737/896			✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ C1**
56.25	26	840	13400	6.2	2.60	72447/1288			✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ B1**
49.02	30	840	12600	6.2	3.50	34317/700			✓	✓	✓	✓	✓	✓					**2KJ3207 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.89																			
57.36	25	1680	18500	5.4	1.34	2581/45			✓	✓	✓	✓							**2KJ3108 - ■ ■■■■ - ■■ A2**
51.78	28	1680	18500	5.4	1.46	2848/55			✓	✓	✓	✓							**2KJ3108 - ■ ■■■■ - ■■ X1**
46.97	31	1680	18500	5.4	1.71	1691/36			✓	✓	✓	✓							**2KJ3108 - ■ ■■■■ - ■■ W1**
43.36	33	1680	18500	5.4	2.0	1691/39			✓	✓	✓	✓							**2KJ3108 - ■ ■■■■ - ■■ V1**
39.41	37	1680	18500	5.5	2.3	2759/70			✓	✓	✓	✓	✓	✓					**2KJ3108 - ■ ■■■■ - ■■ U1**
33.38	43	1680	18500	5.5	2.8	267/8			✓	✓	✓	✓	✓	✓					**2KJ3108 - ■ ■■■■ - ■■ T1**
31.41	46	1680	18500	5.5	2.8	534/17			✓	✓	✓	✓	✓	✓					**2KJ3108 - ■ ■■■■ - ■■ S1**
29.01	50	1680	18500	5.6	4.3	3916/135			✓	✓	✓	✓	✓	✓					**2KJ3108 - ■ ■■■■ - ■■ R1**
25.81	56	1680	18500	5.6	5.3	2581/100			✓	✓	✓	✓	✓	✓					**2KJ3108 - ■ ■■■■ - ■■ Q1**
22.92	63	1680	17400	5.6	6.4	1513/66			✓	✓	✓	✓	✓	✓					**2KJ3108 - ■ ■■■■ - ■■ P1**
20.52	71	1680	16000	5.7	6.4	7387/360			✓	✓	✓	✓	✓	✓					**2KJ3108 - ■ ■■■■ - ■■ N1**
17.54	83	1680	14200	5.7	7.5	6052/345			✓	✓	✓	✓	✓	✓					**2KJ3108 - ■ ■■■■ - ■■ M1**
15.66	93	1680	12900	6.0	9.5	1958/125			✓	✓	✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ L1**
13.84	105	1680	11500	6.1	11	623/45					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ K1**
12.15	119	1630	10700	5.9	15	3827/315					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ J1**
10.58	137	1590	10700	6.0	19	3649/345					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ H1**
9.04	160	1560	11900	6.1	24	2848/315					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ G1**
7.74	187	1530	12700	6.3	30	178/23					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ F1**
6.89	210	1050	10100	8.6	12	62/9					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ E1**
6.05	240	1060	10900	8.8	17	2666/441					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ D1**
5.26	276	1060	11600	9.0	21	2542/483					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ C1**
4.50	322	1060	11500	9.3	28	1984/441					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ B1**
3.85	377	1060	11100	9.7	35	620/161					✓	✓	✓	✓	✓				**2KJ3108 - ■ ■■■■ - ■■ A1**
D.89																			
311.60	4.7	1680	18500	5.7	0.41	132432/425			✓	✓									**2KJ3208 - ■ ■■■■ - ■■ S1**
283.28	5.1	1680	18500	5.7	0.50	264864/935			✓	✓									**2KJ3208 - ■ ■■■■ - ■■ R1**
254.09	5.7	1680	18500	5.7	0.70	64792/255			✓	✓	✓	✓							**2KJ3208 - ■ ■■■■ - ■■ Q1**
228.45	6.3	1680	18500	5.7	0.79	42720/187			✓	✓	✓	✓							**2KJ3208 - ■ ■■■■ - ■■ P1**
206.62	7	1680	18500	5.7	0.87	52688/255			✓	✓	✓	✓							**2KJ3208 - ■ ■■■■ - ■■ N1**
190.73	7.6	1680	18500	5.7	1.03	210752/1105			✓	✓	✓	✓							**2KJ3208 - ■ ■■■■ - ■■ M1**
174.71	8.3	1680	18500	5.7	1.35	103952/595			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ L1**
146.59	9.9	1680	18500	5.7	1.43	2492/17			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ K1**
137.97	11	1680	18500	5.7	1.63	39872/289			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ J1**
126.58	11	1680	18500	5.7	1.78	5696/45			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ H1**
110.57	13	1680	18500	5.7	2.5	46992/425			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ G1**
98.99	15	1680	18500	5.7	3.1	18512/187			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ F1**
86.56	17	1680	18500	5.7	3.7	22072/255			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ E1**
74.30	20	1680	18500	5.7	4.0	8544/115			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ D1**
65.67	22	1680	18500	5.7	5.0	139552/2125			✓	✓	✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ C1**
55.84	26	1680	18500	5.7	6.4	2848/51					✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ B1**
47.87	30	1680	18500	5.7	8.5	5696/119					✓	✓	✓	✓					**2KJ3208 - ■ ■■■■ - ■■ A1**

Article No. supplement		
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Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.109																			
51.17	28	3100	20200	5.4	4.7	5015/98				✓	✓	✓	✓	✓					**2KJ3110 - ■ ■■■■ - ■■ X1**
43.64	33	3100	20200	5.4	6.0	9775/224				✓	✓	✓	✓	✓					**2KJ3110 - ■ ■■■■ - ■■ W1**
41.07	35	3100	20200	5.4	6.8	575/14				✓	✓	✓	✓	✓					**2KJ3110 - ■ ■■■■ - ■■ V1**
38.12	38	3100	20200	5.4	7.4	9605/252				✓	✓	✓	✓	✓					**2KJ3110 - ■ ■■■■ - ■■ U1**
33.70	43	3100	20200	5.4	9.0	1887/56				✓	✓	✓	✓	✓					**2KJ3110 - ■ ■■■■ - ■■ T1**
30.08	48	3100	20000	5.5	11	9265/308				✓	✓	✓	✓	✓					**2KJ3110 - ■ ■■■■ - ■■ S1**
27.07	54	3040	19300	5.5	13	9095/336				✓	✓	✓	✓	✓					**2KJ3110 - ■ ■■■■ - ■■ R1**
23.49	62	2920	18400	5.5	15	7565/322				✓	✓	✓	✓	✓					**2KJ3110 - ■ ■■■■ - ■■ Q1**
21.13	69	2830	17900	5.7	18	1479/70				✓	✓	✓	✓	✓	✓				**2KJ3110 - ■ ■■■■ - ■■ P1**
18.47	79	2720	17100	5.8	21	6205/336					✓	✓	✓	✓	✓	✓			**2KJ3110 - ■ ■■■■ - ■■ N1**
16.48	88	2630	16600	5.8	25	1615/98					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ M1**
14.52	100	2570	15900	5.9	30	4675/322					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ L1**
12.72	114	2510	15100	6.0	37	1870/147					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ K1**
11.09	131	2460	14400	6.1	44	255/23					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ J1**
10.12	143	2430	13900	6.1	51	425/42					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ H1**
8.71	166	2380	13200	6.3	64	2805/322							✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ G1**
8.41	172	2290	12800	8.6	29	589/70					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ F1**
7.41	196	2280	12300	8.7	34	341/46					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ E1**
6.50	223	2280	12300	8.8	42	682/105					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ D1**
5.66	256	2290	12200	9.0	51	651/115					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ C1**
5.17	280	2280	12200	9.1	60	31/6					✓	✓	✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ B1**
4.45	326	2150	12000	9.4	75	1023/230							✓	✓	✓	✓	✓		**2KJ3110 - ■ ■■■■ - ■■ A1**
D.109																			
348.88	4.2	3100	20200	5.5	1.27	263755/756				✓	✓	✓							**2KJ3210 - ■ ■■■■ - ■■ T1**
314.98	4.6	3100	20200	5.5	1.36	72760/231				✓	✓	✓							**2KJ3210 - ■ ■■■■ - ■■ S1**
285.72	5.1	3100	20200	5.5	1.60	864025/3024				✓	✓	✓							**2KJ3210 - ■ ■■■■ - ■■ R1**
263.74	5.5	3100	20200	5.5	1.88	864025/3276				✓	✓	✓							**2KJ3210 - ■ ■■■■ - ■■ Q1**
239.75	6	3100	20200	5.5	2.1	281945/1176				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ P1**
203.01	7.1	3100	20200	5.5	2.6	45475/224				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ N1**
191.07	7.6	3100	20200	5.5	2.6	2675/14				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ M1**
176.45	8.2	3100	20200	5.6	4.0	100045/567				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ L1**
157.00	9.2	3100	20200	5.6	5.0	52751/336				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ K1**
139.44	10	3100	20200	5.6	5.9	773075/5544				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ J1**
124.82	12	3100	20200	5.6	5.8	754885/6048				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ H1**
106.70	14	3100	20200	5.6	6.7	154615/1449				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ G1**
95.28	15	3100	20200	5.6	8.5	20009/210				✓	✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ F1**
84.21	17	3100	20200	5.6	9.6	9095/108					✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ E1**
73.90	20	3100	20200	5.6	13	391085/5292					✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ D1**
64.34	23	3100	20200	5.6	16	372895/5796					✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ C1**
55.00	26	3090	20200	5.6	20	72760/1323					✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ B1**
47.08	31	2930	20200	5.7	25	45475/966					✓	✓	✓	✓					**2KJ3210 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.129																			
62.48	23	5000	27000	6.2	7.5	11371/182				✓	✓	✓	✓	✓					**2KJ3111 - ■ ■■■■ - ■■ X1**
53.47	27	5000	27000	6.2	9.5	5561/104				✓	✓	✓	✓	✓					**2KJ3111 - ■ ■■■■ - ■■ W1**
50.33	29	5000	27000	6.2	11	11122/221				✓	✓	✓	✓	✓					**2KJ3111 - ■ ■■■■ - ■■ V1**
47.18	31	5000	27000	6.2	12	11039/234				✓	✓	✓	✓	✓					**2KJ3111 - ■ ■■■■ - ■■ U1**
41.82	35	5000	27000	6.3	14	10873/260				✓	✓	✓	✓	✓					**2KJ3111 - ■ ■■■■ - ■■ T1**
37.15	39	5000	26000	6.3	17	5312/143				✓	✓	✓	✓	✓					**2KJ3111 - ■ ■■■■ - ■■ S1**
33.52	43	5000	24900	6.3	20	1743/52				✓	✓	✓	✓	✓					**2KJ3111 - ■ ■■■■ - ■■ R1**
29.70	49	5000	23700	6.3	25	8881/299				✓	✓	✓	✓	✓					**2KJ3111 - ■ ■■■■ - ■■ Q1**
26.30	55	5000	22600	6.4	28	8549/325				✓	✓	✓	✓	✓	✓				**2KJ3111 - ■ ■■■■ - ■■ P1**
23.41	62	5000	21500	6.4	33	913/39					✓	✓	✓	✓	✓	✓			**2KJ3111 - ■ ■■■■ - ■■ N1**
20.98	69	5000	20500	6.5	40	1909/91					✓	✓	✓	✓	✓	✓	✓		**2KJ3111 - ■ ■■■■ - ■■ M1**
18.60	78	5000	19500	6.5	47	5561/299					✓	✓	✓	✓	✓	✓	✓		**2KJ3111 - ■ ■■■■ - ■■ L1**
16.42	88	5000	18100	6.6	57	1494/91					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ K1**
14.43	100	4940	16200	6.6	69	332/23					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ J1**
13.07	111	4850	16600	6.6	78	3569/273					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ H1**
11.38	127	4760	17200	6.6	95	3403/299							✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ G1**
9.33	155	4660	17000	6.7	126	1577/169							✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ F1**
8.53	170	3640	16200	7.4	66	162/19					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ E1**
7.50	193	3630	16100	8.3	80	3276/437					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ D1**
6.79	214	3630	15900	8.3	91	129/19					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ C1**
5.91	245	3610	15700	8.5	112	2583/437							✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ B1**
4.85	299	3270	15300	8.8	151	63/13							✓	✓	✓	✓	✓	✓	**2KJ3111 - ■ ■■■■ - ■■ A1**
D.129																			
373.00	3.9	5000	27000	6.4	3.3	523481/1404				✓	✓	✓							**2KJ3211 - ■ ■■■■ - ■■ S1**
344.17	4.2	5000	27000	6.4	3.9	523481/1521				✓	✓	✓							**2KJ3211 - ■ ■■■■ - ■■ R1**
316.90	4.6	5000	27000	6.4	4.5	259541/819				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ Q1**
270.24	5.4	5000	27000	6.4	5.6	505885/1872				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ P1**
254.34	5.7	5000	27000	6.4	6.4	505885/1989				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ N1**
236.03	6.1	5000	27000	6.4	6.9	497087/2106				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ M1**
208.67	6.9	5000	27000	6.4	8.4	162763/780				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ L1**
186.28	7.8	5000	27000	6.4	9.9	479491/2574				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ K1**
167.63	8.7	5000	27000	6.4	12	470693/2808				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ J1**
145.49	10	5000	27000	6.4	14	391511/2691				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ H1**
130.84	11	5000	27000	6.4	16	127571/975				✓	✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ G1**
114.36	13	5000	27000	6.5	19	321127/2808					✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ F1**
102.05	14	5000	27000	6.5	23	83581/819					✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ E1**
89.91	16	5000	27000	6.5	27	241945/2691					✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ D1**
78.78	18	5000	27000	6.5	31	193556/2457					✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ C1**
68.66	21	5000	27000	6.5	37	61586/897					✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ B1**
62.66	23	5000	27000	6.5	44	21995/351					✓	✓	✓	✓					**2KJ3211 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.149																			
56.64	26	8000	50300	5.2	19	4814/85					✓	✓	✓	✓					**2KJ3112 - ■ ■■■■ - ■■ W1**
52.84	27	7710	49500	5.2	21	2378/45					✓	✓	✓	✓					**2KJ3112 - ■ ■■■■ - ■■ V1**
46.98	31	7570	47600	5.2	25	2349/50					✓	✓	✓	✓					**2KJ3112 - ■ ■■■■ - ■■ U1**
42.18	34	7660	45600	5.2	30	464/11					✓	✓	✓	✓					**2KJ3112 - ■ ■■■■ - ■■ T1**
38.18	38	7550	44100	5.2	35	2291/60					✓	✓	✓	✓					**2KJ3112 - ■ ■■■■ - ■■ S1**
33.54	43	8000	41400	5.2	43	3857/115					✓	✓	✓	✓					**2KJ3112 - ■ ■■■■ - ■■ R1**
30.39	48	8000	39900	5.2	50	3799/125					✓	✓	✓	✓	✓				**2KJ3112 - ■ ■■■■ - ■■ Q1**
27.07	54	8000	38100	5.3	59	406/15					✓	✓	✓	✓	✓	✓			**2KJ3112 - ■ ■■■■ - ■■ P1**
24.30	60	8000	36600	5.3	70	2552/105					✓	✓	✓	✓	✓	✓	✓		**2KJ3112 - ■ ■■■■ - ■■ N1**
21.69	67	8000	35000	5.3	81	2494/115					✓	✓	✓	✓	✓	✓	✓		**2KJ3112 - ■ ■■■■ - ■■ M1**
19.33	75	8000	33400	5.4	96	58/3					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ L1**
17.15	85	8000	31900	5.4	113	1972/115					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ K1**
15.74	92	8000	30800	5.4	127	551/35					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ J1**
13.87	105	8000	29200	5.5	150	319/23							✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ H1**
11.38	127	8000	28700	5.5	203	1479/130							✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ G1**
9.98	145	8000	28300	5.6	227	1247/125							✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ F1**
7.80	186	8000	27500	5.9	360	39/5							✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ E1**
7.27	199	4880	27500	7.5	173	836/115							✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ D1**
5.96	243	4870	26600	7.7	237	1938/325							✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ C1**
5.23	277	4870	26000	7.7	273	3268/625							✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ B1**
4.09	355	4870	24700	7.7	432	2964/725							✓	✓	✓	✓	✓	✓	**2KJ3112 - ■ ■■■■ - ■■ A1**
D.149																			
328.38	4.4	8000	51200	5.5	7.1	321813/980					✓	✓	✓	✓					**2KJ3212 - ■ ■■■■ - ■■ W1**
281.04	5.2	8000	51200	5.5	9	157383/560					✓	✓	✓	✓					**2KJ3212 - ■ ■■■■ - ■■ V1**
264.51	5.5	8000	51200	5.5	10	157383/595					✓	✓	✓	✓					**2KJ3212 - ■ ■■■■ - ■■ U1**
247.95	5.8	8000	51200	5.5	11	4959/20					✓	✓	✓	✓					**2KJ3212 - ■ ■■■■ - ■■ T1**
219.80	6.6	8000	51200	5.5	14	307719/1400					✓	✓	✓	✓					**2KJ3212 - ■ ■■■■ - ■■ S1**
195.24	7.4	8000	51200	5.5	16	75168/385					✓	✓	✓	✓					**2KJ3212 - ■ ■■■■ - ■■ R1**
176.18	8.2	8000	51200	5.5	19	7047/40					✓	✓	✓	✓					**2KJ3212 - ■ ■■■■ - ■■ Q1**
156.11	9.3	8000	51200	5.5	23	251343/1610					✓	✓	✓	✓					**2KJ3212 - ■ ■■■■ - ■■ P1**
138.26	10	8000	51200	5.5	26	241947/1750					✓	✓	✓	✓	✓				**2KJ3212 - ■ ■■■■ - ■■ N1**
123.04	12	8000	51200	5.5	31	8613/70					✓	✓	✓	✓	✓	✓			**2KJ3212 - ■ ■■■■ - ■■ M1**
110.26	13	8000	51200	5.5	37	54027/490					✓	✓	✓	✓	✓	✓	✓		**2KJ3212 - ■ ■■■■ - ■■ L1**
97.75	15	8000	51200	5.5	43	157383/1610					✓	✓	✓	✓	✓	✓	✓		**2KJ3212 - ■ ■■■■ - ■■ K1**
86.29	17	8000	51200	5.5	52	21141/245					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ J1**
75.87	19	8000	51200	5.5	63	61074/805					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ H1**
68.71	21	8000	51200	5.6	70	33669/490					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ G1**
59.82	24	8000	51200	5.6	85	96309/1610							✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ F1**
49.05	30	8000	47700	5.6	110	44631/910							✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ E1**
43.51	33	8000	45700	5.8	72	55042/1265					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ D1**
39.41	37	8000	44000	5.8	82	91031/2310					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ C1**
34.31	42	8000	41800	5.8	101	86797/2530							✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ B1**
28.13	52	8000	38700	5.9	133	40223/1430							✓	✓	✓	✓	✓	✓	**2KJ3212 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.169																			
36.55	40	12100	70800	4.7	79	13706/375						✓	✓	✓	✓				**2KJ3113 - ■ ■■■■ - ■■ Q1**
32.88	44	14000	68200	4.7	94	11837/360						✓	✓	✓	✓	✓			**2KJ3113 - ■ ■■■■ - ■■ P1**
29.38	49	14000	65300	4.8	109	9256/315						✓	✓	✓	✓	✓	✓		**2KJ3113 - ■ ■■■■ - ■■ N1**
26.57	55	14000	62900	4.8	131	9167/345						✓	✓	✓	✓	✓	✓		**2KJ3113 - ■ ■■■■ - ■■ M1**
23.45	62	14000	60200	4.8	154	7387/315						✓	✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ L1**
20.90	69	14000	59400	4.8	183	2403/115						✓	✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ K1**
18.93	77	14000	58600	4.8	203	5963/315						✓	✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ J1**
17.03	85	14000	57800	4.8	245	1958/115							✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ H1**
14.15	102	14000	56100	4.8	308	2759/195							✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ G1**
12.58	115	13900	54900	4.8	377	4717/375							✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ F1**
10.03	145	13900	52600	5.1	521	4361/435							✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ E1**
7.98	182	13800	50100	5.3	689	1157/145									✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ D1**
7.37	197	7960	49100	7.0	409	848/115							✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ C1**
5.88	247	7900	46700	7.1	571	3920/667							✓	✓	✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ B1**
4.68	310	7820	44200	7.3	768	3120/667									✓	✓	✓	✓	**2KJ3113 - ■ ■■■■ - ■■ A1**
D.169																			
327.18	4.4	14000	70100	5.0	18	472768 / 1445						✓	✓	✓					**2KJ3213 - ■ ■■■■ - ■■ V1**
305.28	4.7	14000	70100	5.0	19	233536 / 765						✓	✓	✓					**2KJ3213 - ■ ■■■■ - ■■ U1**
271.40	5.3	14000	70100	5.0	23	115344 / 425						✓	✓	✓					**2KJ3213 - ■ ■■■■ - ■■ T1**
243.68	6.0	14000	70100	5.0	28	45568 / 187						✓	✓	✓					**2KJ3213 - ■ ■■■■ - ■■ S1**
220.58	6.6	14000	70100	5.0	33	56248 / 255						✓	✓	✓					**2KJ3213 - ■ ■■■■ - ■■ R1**
193.75	7.5	14000	70100	5.0	40	378784 / 1955						✓	✓	✓					**2KJ3213 - ■ ■■■■ - ■■ Q1**
175.57	8.3	14000	70100	5.0	46	373088 / 2125						✓	✓	✓	✓				**2KJ3213 - ■ ■■■■ - ■■ P1**
156.36	9.3	14000	70100	5.0	54	39872 / 255						✓	✓	✓	✓	✓			**2KJ3213 - ■ ■■■■ - ■■ N1**
140.41	10	14000	70100	5.0	64	250624 / 1785						✓	✓	✓	✓	✓	✓		**2KJ3213 - ■ ■■■■ - ■■ M1**
125.28	12	14000	70100	5.0	74	244928 / 1955						✓	✓	✓	✓	✓	✓		**2KJ3213 - ■ ■■■■ - ■■ L1**
111.69	13	14000	70100	5.0	85	5696 / 51						✓	✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ K1**
99.06	15	14000	70100	5.0	101	11392 / 115						✓	✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ J1**
90.94	16	14000	70100	5.0	112	54112 / 595						✓	✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ H1**
80.12	18	14000	70100	5.0	132	31328 / 391							✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ G1**
65.72	22	14000	70100	5.1	176	4272 / 65							✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ F1**
57.63	25	14000	70100	5.1	193	122464 / 2125							✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ E1**
45.06	32	14000	70100	5.1	301	111072 / 2465							✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ D1**
41.43	35	14000	70100	5.2	200	134657 / 3250							✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ C1**
36.33	40	14000	70500	5.2	225	340603 / 9375							✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ B1**
28.41	51	14000	69200	5.3	353	102973 / 3625							✓	✓	✓	✓	✓	✓	**2KJ3213 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Helical geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
Z.189																			
34.25	42	19000	101700	4.5	140	3596/105						✓	✓	✓	✓	✓	✓		**2KJ3114 - ■ ■■■■ - ■■ L1**
30.73	47	19000	97900	4.5	166	3534/115						✓	✓	✓	✓	✓	✓		**2KJ3114 - ■ ■■■■ - ■■ K1**
27.46	53	19000	94100	4.6	199	961/35						✓	✓	✓	✓	✓	✓	✓	**2KJ3114 - ■ ■■■■ - ■■ J1**
24.53	59	19000	90400	4.6	236	2821/115						✓	✓	✓	✓	✓	✓	✓	**2KJ3114 - ■ ■■■■ - ■■ H1**
22.44	65	19000	87500	4.6	262	2356/105						✓	✓	✓	✓	✓	✓	✓	**2KJ3114 - ■ ■■■■ - ■■ G1**
19.95	73	19000	83900	4.6	314	2294/115							✓	✓	✓	✓	✓	✓	**2KJ3114 - ■ ■■■■ - ■■ F1**
16.93	86	19000	79000	4.6	400	2201/130							✓	✓	✓	✓	✓	✓	**2KJ3114 - ■ ■■■■ - ■■ E1**
14.63	99	19000	74900	4.7	481	1829/125							✓	✓	✓	✓	✓	✓	**2KJ3114 - ■ ■■■■ - ■■ D1**
11.97	121	19000	72500	4.8	666	1736/145							✓	✓	✓	✓	✓	✓	**2KJ3114 - ■ ■■■■ - ■■ C1**
9.83	148	18800	70100	4.8	875	1426/145									✓	✓	✓	✓	**2KJ3114 - ■ ■■■■ - ■■ B1**
7.65	190	16000	66800	4.8	1283	1147/150												✓	**2KJ3114 - ■ ■■■■ - ■■ A1**
D.189																			
313.63	4.6	19000	107000	4.7	36	533169/1700						✓	✓	✓					**2KJ3214 - ■ ■■■■ - ■■ T1**
280.59	5.2	19000	107000	4.7	43	262353/935						✓	✓	✓					**2KJ3214 - ■ ■■■■ - ■■ S1**
253.06	5.7	19000	107000	4.7	49	172081/680						✓	✓	✓					**2KJ3214 - ■ ■■■■ - ■■ R1**
223.66	6.5	19000	107000	4.7	61	87451/391						✓	✓	✓					**2KJ3214 - ■ ■■■■ - ■■ Q1**
204.44	7.1	19000	107000	4.7	71	434434/2125						✓	✓	✓	✓				**2KJ3214 - ■ ■■■■ - ■■ P1**
183.92	7.9	19000	107000	4.7	84	375193/2040						✓	✓	✓	✓	✓			**2KJ3214 - ■ ■■■■ - ■■ N1**
164.36	8.8	19000	107000	4.7	98	41912/255						✓	✓	✓	✓	✓	✓		**2KJ3214 - ■ ■■■■ - ■■ M1**
148.63	9.8	19000	107000	4.7	116	290563/1955						✓	✓	✓	✓	✓	✓		**2KJ3214 - ■ ■■■■ - ■■ L1**
131.17	11	19000	107000	4.7	136	33449/255						✓	✓	✓	✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ K1**
116.88	12	19000	107000	4.7	160	228501/1955						✓	✓	✓	✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ J1**
105.89	14	19000	107000	4.7	175	27001/255						✓	✓	✓	✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ H1**
95.24	15	19000	107000	4.7	210	186186/1955							✓	✓	✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ G1**
79.14	18	19000	107000	4.7	257	6727/85							✓	✓	✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ F1**
70.36	21	19000	107000	4.7	314	149513/2125							✓	✓	✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ E1**
56.08	26	19000	107000	4.7	421	138229/2465							✓	✓	✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ D1**
44.63	32	19000	107000	4.8	531	110019/2465									✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ C1**
36.67	40	19000	104200	4.8	475	10633/290							✓	✓	✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ B1**
29.18	50	19000	97800	4.8	617	8463/290									✓	✓	✓	✓	**2KJ3214 - ■ ■■■■ - ■■ A1**

Article No. supplement		
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Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
E.39																			
9.22	157	30	3000	–	0.001	83/9	✓	✓											**2KJ3001 - ■ ■■■■ - ■■ S1**
8.20	177	34	3000	–	0.001	41/5	✓	✓	✓	✓									**2KJ3001 - ■ ■■■■ - ■■ R1**
7.20	201	40	3000	–	0.003	36/5	✓	✓	✓	✓									**2KJ3001 - ■ ■■■■ - ■■ Q1**
6.55	221	40	3000	–	0.004	72/11	✓	✓	✓	✓									**2KJ3001 - ■ ■■■■ - ■■ P1**
5.60	259	40	3000	–	0.007	28/5	✓	✓	✓	✓									**2KJ3001 - ■ ■■■■ - ■■ N1**
5.09	285	40	3000	–	0.01	56/11	✓	✓	✓	✓									**2KJ3001 - ■ ■■■■ - ■■ M1**
4.50	322	48	3000	–	0.02	9/2	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ L1**
4.09	355	48	3000	–	0.02	45/11	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ K1**
3.58	405	58	2550	–	0.03	43/12	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ J1**
3.31	438	58	2400	–	0.05	43/13	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ H1**
2.93	495	65	1620	–	0.07	41/14	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ G1**
2.44	594	65	1200	–	0.13	39/16	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ F1**
2.29	633	66	1330	–	0.16	39/17	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ E1**
2.06	704	66	1370	–	0.19	37/18	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ D1**
1.75	829	66	1490	–	0.29	7/4	✓	✓	✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ C1**
1.50	967	61	1560	–	0.45	3/2			✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ B1**
1.29	1124	54	1600	–	0.64	31/24			✓	✓	✓	✓							**2KJ3001 - ■ ■■■■ - ■■ A1**
E.49																			
9.70	149	86	4000	–	0.003	97/10	✓	✓	✓	✓									**2KJ3002 - ■ ■■■■ - ■■ S1**
8.82	164	108	4000	–	0.004	97/11	✓	✓	✓	✓									**2KJ3002 - ■ ■■■■ - ■■ R1**
7.50	193	107	4000	–	0.007	15/2	✓	✓	✓	✓									**2KJ3002 - ■ ■■■■ - ■■ Q1**
6.82	213	104	4000	–	0.01	75/11	✓	✓	✓	✓									**2KJ3002 - ■ ■■■■ - ■■ P1**
6.08	238	104	4000	–	0.02	73/12	✓	✓	✓	✓	✓	✓							**2KJ3002 - ■ ■■■■ - ■■ N1**
5.45	266	103	4000	–	0.02	60/11	✓	✓	✓	✓	✓	✓							**2KJ3002 - ■ ■■■■ - ■■ M1**
4.92	295	102	4000	–	0.03	59/12	✓	✓	✓	✓	✓	✓							**2KJ3002 - ■ ■■■■ - ■■ L1**
4.54	319	102	4000	–	0.05	59/13	✓	✓	✓	✓	✓	✓							**2KJ3002 - ■ ■■■■ - ■■ K1**
4.14	350	102	4000	–	0.09	29/7	✓	✓	✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ J1**
3.44	422	101	3510	–	0.15	55/16	✓	✓	✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ H1**
3.24	448	101	3350	–	0.19	55/17	✓	✓	✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ G1**
3.06	474	101	3200	–	0.23	55/18	✓	✓	✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ F1**
2.60	558	102	2540	–	0.36	13/5	✓	✓	✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ E1**
2.23	650	102	1930	–	0.55	49/22			✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ D1**
1.96	740	103	1420	–	0.78	47/24			✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ C1**
1.65	879	103	975	–	1.1	38/23			✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ B1**
1.44	1007	102	1140	–	1.81	36/25			✓	✓	✓	✓	✓						**2KJ3002 - ■ ■■■■ - ■■ A1**

Article No. supplement		
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Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
E.69																			
9.30	156	120	6100	–	0.007	93/10		✓	✓	✓									**2KJ3003 - ■ ■■■■ - ■■ S1**
8.45	172	105	6100	–	0.01	93/11		✓	✓	✓									**2KJ3003 - ■ ■■■■ - ■■ R1**
7.58	191	205	6100	–	0.02	91/12		✓	✓	✓	✓	✓							**2KJ3003 - ■ ■■■■ - ■■ Q1**
6.82	213	170	6100	–	0.02	75/11		✓	✓	✓	✓	✓							**2KJ3003 - ■ ■■■■ - ■■ P1**
6.17	235	205	6100	–	0.03	37/6		✓	✓	✓	✓	✓							**2KJ3003 - ■ ■■■■ - ■■ N1**
5.69	255	165	6100	–	0.05	74/13		✓	✓	✓	✓	✓							**2KJ3003 - ■ ■■■■ - ■■ M1**
5.21	278	200	6100	–	0.09	73/14		✓	✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ L1**
4.38	331	200	6100	–	0.15	35/8		✓	✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ K1**
4.12	352	165	6100	–	0.19	70/17		✓	✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ J1**
3.78	384	200	6100	–	0.23	34/9		✓	✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ H1**
3.30	439	200	6100	–	0.36	33/10		✓	✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ G1**
2.95	492	200	5680	–	0.55	65/22			✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ F1**
2.58	562	197	5120	–	0.78	31/12			✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ E1**
2.22	653	196	4500	–	1.10	51/23			✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ D1**
1.96	740	196	4050	–	1.81	49/25			✓	✓	✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ C1**
1.67	868	196	4130	–	2.6	5/3					✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ B1**
1.43	1014	195	4170	–	3.7	10/7					✓	✓	✓	✓					**2KJ3003 - ■ ■■■■ - ■■ A1**
E.89																			
9.67	150	280	8000	–	0.02	29/3			✓	✓	✓	✓							**2KJ3004 - ■ ■■■■ - ■■ T1**
8.73	166	280	8000	–	0.02	96/11			✓	✓	✓	✓							**2KJ3004 - ■ ■■■■ - ■■ S1**
7.92	183	280	8000	–	0.03	95/12			✓	✓	✓	✓							**2KJ3004 - ■ ■■■■ - ■■ R1**
7.31	198	260	8000	–	0.05	95/13			✓	✓	✓	✓							**2KJ3004 - ■ ■■■■ - ■■ Q1**
6.64	218	260	8000	–	0.09	93/14			✓	✓	✓	✓	✓	✓					**2KJ3004 - ■ ■■■■ - ■■ P1**
5.62	258	320	8000	–	0.15	45/8			✓	✓	✓	✓	✓	✓					**2KJ3004 - ■ ■■■■ - ■■ N1**
5.29	274	210	8000	–	0.19	90/17			✓	✓	✓	✓	✓	✓					**2KJ3004 - ■ ■■■■ - ■■ M1**
4.89	297	360	8000	–	0.23	44/9			✓	✓	✓	✓	✓	✓					**2KJ3004 - ■ ■■■■ - ■■ L1**
4.35	333	360	8000	–	0.36	87/20			✓	✓	✓	✓	✓	✓					**2KJ3004 - ■ ■■■■ - ■■ K1**
3.86	376	360	7520	–	0.55	85/22			✓	✓	✓	✓	✓	✓					**2KJ3004 - ■ ■■■■ - ■■ J1**
3.46	419	365	6830	–	0.78	83/24			✓	✓	✓	✓	✓	✓					**2KJ3004 - ■ ■■■■ - ■■ H1**
2.96	490	360	6030	–	1.1	68/23			✓	✓	✓	✓	✓	✓					**2KJ3004 - ■ ■■■■ - ■■ G1**
2.64	549	360	5410	–	1.81	66/25			✓	✓	✓	✓	✓	✓	✓				**2KJ3004 - ■ ■■■■ - ■■ F1**
2.33	622	360	5260	–	2.6	7/3					✓	✓	✓	✓	✓				**2KJ3004 - ■ ■■■■ - ■■ E1**
2.05	707	360	5430	–	3.7	43/21					✓	✓	✓	✓	✓				**2KJ3004 - ■ ■■■■ - ■■ D1**
1.78	815	365	5550	–	5.4	41/23					✓	✓	✓	✓	✓				**2KJ3004 - ■ ■■■■ - ■■ C1**
1.52	954	360	5580	–	7.6	32/21					✓	✓	✓	✓	✓				**2KJ3004 - ■ ■■■■ - ■■ B1**
1.3	1115	360	5580	–	11	30/23					✓	✓	✓	✓	✓				**2KJ3004 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
E.109																			
7.19	202	565	10500	–	0.15	115/16				✓	✓	✓	✓	✓					**2KJ3005 - ■ ■■■■ - ■■ Q1**
6.76	214	565	10500	–	0.19	115/17				✓	✓	✓	✓	✓					**2KJ3005 - ■ ■■■■ - ■■ P1**
6.28	231	565	10500	–	0.23	113/18				✓	✓	✓	✓	✓					**2KJ3005 - ■ ■■■■ - ■■ N1**
5.55	261	560	10500	–	0.36	111/20				✓	✓	✓	✓	✓					**2KJ3005 - ■ ■■■■ - ■■ M1**
4.95	293	560	10500	–	0.55	109/22				✓	✓	✓	✓	✓					**2KJ3005 - ■ ■■■■ - ■■ L1**
4.46	325	560	10500	–	0.78	107/24				✓	✓	✓	✓	✓					**2KJ3005 - ■ ■■■■ - ■■ K1**
3.87	375	555	10000	–	1.10	89/23				✓	✓	✓	✓	✓					**2KJ3005 - ■ ■■■■ - ■■ J1**
3.48	417	550	9390	–	1.81	87/25				✓	✓	✓	✓	✓	✓				**2KJ3005 - ■ ■■■■ - ■■ H1**
3.04	477	545	8440	–	2.6	73/24					✓	✓	✓	✓	✓	✓			**2KJ3005 - ■ ■■■■ - ■■ G1**
2.71	535	545	7670	–	3.7	19/7					✓	✓	✓	✓	✓	✓	✓		**2KJ3005 - ■ ■■■■ - ■■ F1**
2.39	607	540	6850	–	5.4	55/23					✓	✓	✓	✓	✓	✓	✓		**2KJ3005 - ■ ■■■■ - ■■ E1**
2.10	690	535	5980	–	7.8	44/21					✓	✓	✓	✓	✓	✓	✓		**2KJ3005 - ■ ■■■■ - ■■ D1**
1.83	792	530	5060	–	11	42/23					✓	✓	✓	✓	✓	✓	✓		**2KJ3005 - ■ ■■■■ - ■■ C1**
1.67	868	530	5170	–	14	5/3					✓	✓	✓	✓	✓	✓	✓		**2KJ3005 - ■ ■■■■ - ■■ B1**
1.43	1014	465	5420	–	21	33/23							✓	✓	✓	✓	✓		**2KJ3005 - ■ ■■■■ - ■■ A1**
E.129																			
9.79	148	665	13500	–	0.09	137/14				✓	✓	✓	✓	✓					**2KJ3006 - ■ ■■■■ - ■■ T1**
8.38	173	665	13500	–	0.15	67/8				✓	✓	✓	✓	✓					**2KJ3006 - ■ ■■■■ - ■■ S1**
7.88	184	665	13500	–	0.19	134/17				✓	✓	✓	✓	✓					**2KJ3006 - ■ ■■■■ - ■■ R1**
7.39	196	800	13500	–	0.23	133/18				✓	✓	✓	✓	✓					**2KJ3006 - ■ ■■■■ - ■■ Q1**
6.55	221	800	13100	–	0.36	131/20				✓	✓	✓	✓	✓					**2KJ3006 - ■ ■■■■ - ■■ P1**
5.82	249	800	12500	–	0.55	64/11				✓	✓	✓	✓	✓					**2KJ3006 - ■ ■■■■ - ■■ N1**
5.25	276	795	12000	–	0.78	21/4				✓	✓	✓	✓	✓					**2KJ3006 - ■ ■■■■ - ■■ M1**
4.65	312	795	11100	–	1.10	107/23				✓	✓	✓	✓	✓					**2KJ3006 - ■ ■■■■ - ■■ L1**
4.12	352	785	10200	–	1.81	103/25				✓	✓	✓	✓	✓	✓				**2KJ3006 - ■ ■■■■ - ■■ K1**
3.67	395	780	9380	–	2.6	11/3					✓	✓	✓	✓	✓	✓			**2KJ3006 - ■ ■■■■ - ■■ J1**
3.29	441	780	8570	–	3.7	23/7					✓	✓	✓	✓	✓	✓	✓		**2KJ3006 - ■ ■■■■ - ■■ H1**
2.91	498	770	7780	–	5.4	67/23					✓	✓	✓	✓	✓	✓	✓		**2KJ3006 - ■ ■■■■ - ■■ G1**
2.57	564	765	6880	–	9.5	18/7					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3006 - ■ ■■■■ - ■■ F1**
2.26	642	760	5930	–	14	52/23					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3006 - ■ ■■■■ - ■■ E1**
2.05	707	765	5450	–	18	43/21					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3006 - ■ ■■■■ - ■■ D1**
1.78	815	760	5830	–	25	41/23							✓	✓	✓	✓	✓	✓	**2KJ3006 - ■ ■■■■ - ■■ C1**
1.46	993	755	6190	–	40	19/13							✓	✓	✓	✓	✓	✓	**2KJ3006 - ■ ■■■■ - ■■ B1**
1.24	1169	745	6350	–	66	31/25							✓	✓	✓	✓	✓	✓	**2KJ3006 - ■ ■■■■ - ■■ A1**

Article No. supplement		
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Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
E.149																			
9.76	149	1200	16000	–	0.17	166/17					✓	✓	✓	✓					**2KJ3007 - ■ ■■■■ - ■■ S1**
9.11	159	1260	16000	–	0.22	82/9					✓	✓	✓	✓					**2KJ3007 - ■ ■■■■ - ■■ R1**
8.10	179	1330	15200	–	0.33	81/10					✓	✓	✓	✓					**2KJ3007 - ■ ■■■■ - ■■ Q1**
7.27	199	1350	14300	–	0.5	80/11					✓	✓	✓	✓					**2KJ3007 - ■ ■■■■ - ■■ P1**
6.58	220	1330	13500	–	0.69	79/12					✓	✓	✓	✓					**2KJ3007 - ■ ■■■■ - ■■ N1**
5.78	251	1490	10800	–	1.08	133/23					✓	✓	✓	✓					**2KJ3007 - ■ ■■■■ - ■■ M1**
5.24	277	1490	9900	–	1.58	131/25					✓	✓	✓	✓	✓				**2KJ3007 - ■ ■■■■ - ■■ L1**
4.67	310	1480	8900	–	2.3	14/3					✓	✓	✓	✓	✓	✓			**2KJ3007 - ■ ■■■■ - ■■ K1**
4.19	346	1480	7940	–	4.0	88/21					✓	✓	✓	✓	✓	✓	✓		**2KJ3007 - ■ ■■■■ - ■■ J1**
3.74	388	1480	6890	–	4.6	86/23					✓	✓	✓	✓	✓	✓	✓		**2KJ3007 - ■ ■■■■ - ■■ H1**
3.33	435	1480	5850	–	6.7	10/3					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3007 - ■ ■■■■ - ■■ G1**
2.96	490	1460	4950	–	9.6	68/23					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3007 - ■ ■■■■ - ■■ F1**
2.71	535	1460	4140	–	12	19/7					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3007 - ■ ■■■■ - ■■ E1**
2.39	607	1460	3530	–	18	55/23							✓	✓	✓	✓	✓	✓	**2KJ3007 - ■ ■■■■ - ■■ D1**
1.96	740	1470	4840	–	9.6	51/26							✓	✓	✓	✓	✓	✓	**2KJ3007 - ■ ■■■■ - ■■ C1**
1.72	843	1460	5130	–	42	43/25							✓	✓	✓	✓	✓	✓	**2KJ3007 - ■ ■■■■ - ■■ B1**
1.34	1082	1280	5810	–	119	39/29							✓	✓	✓	✓	✓	✓	**2KJ3007 - ■ ■■■■ - ■■ A1**

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
Z.29-Z19															
1114	1.3	140	3710	–	0.02	362142/325	✓	✓							**2KJ3120 - ■ ■■■■ - ■■ P1**
987	1.5	140	3710	–	0.03	3206709/3250	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ N1**
857	1.7	140	3710	–	0.04	2786157/3250	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ M1**
779	1.9	140	3710	–	0.05	253287/325	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ L1**
663	2.2	140	3710	–	0.07	2155329/3250	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ K1**
603	2.4	140	3710	–	0.08	195939/325	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ J1**
526	2.8	140	3710	–	0.09	52569/100	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ H1**
471	3.1	140	3710	–	0.12	152928/325	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ G1**
418	3.5	140	3710	–	0.15	543213/1300	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ F1**
386	3.8	140	3710	–	0.18	1629639/4225	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ E1**
335.06	4.3	140	3710	–	0.20	1524501/4550	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ D1**
291.15	5.0	140	3710	–	0.21	473121/1625	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ C1**
262.85	5.5	140	3710	–	0.27	52569/200	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ B1**
247.38	5.9	140	3710	–	0.32	105138/425	✓	✓	✓						**2KJ3120 - ■ ■■■■ - ■■ A1**
Z.29-D19															
5890	0.25	140	3710	–	0.02	13399254/2275	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ P1**
5215	0.28	140	3710	–	0.03	118648233/22750	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ N1**
4531	0.32	140	3710	–	0.04	103087809/22750	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ M1**
4119	0.35	140	3710	–	0.04	9371619/2275	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ L1**
3505	0.41	140	3710	–	0.06	79747173/22750	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ K1**
3187	0.45	140	3710	–	0.07	7249743/2275	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ J1**
2779	0.52	140	3710	–	0.08	1945053/700	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ H1**
2487	0.58	140	3710	–	0.11	5658336/2275	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ G1**
2209	0.66	140	3710	–	0.13	20098881/9100	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ F1**
2039	0.71	140	3710	–	0.16	60296643/29575	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ E1**
1771	0.82	140	3710	–	0.17	56406537/31850	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ D1**
1539	0.94	140	3710	–	0.18	17505477/11375	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ C1**
1389	1.0	140	3710	–	0.22	1945053/1400	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ B1**
1308	1.1	140	3710	–	0.26	3890106/2975	✓	✓							**2KJ3121 - ■ ■■■■ - ■■ A1**
D.29-D19															
8025	0.18	140	3710	–	0.08	1966032/245	✓	✓							**2KJ3221 - ■ ■■■■ - ■■ C1**
7183	0.20	140	3710	–	0.11	251652096/35035	✓	✓							**2KJ3221 - ■ ■■■■ - ■■ B1**
6379	0.23	140	3710	–	0.13	20315664/3185	✓	✓							**2KJ3221 - ■ ■■■■ - ■■ A1**

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Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
Z.39-Z19															
1528	0.95	200	4370	–	0.02	38192/25	✓	✓							**2KJ3122 - ■ ■■■■ - ■■ S1**
1353	1.1	200	4370	–	0.03	169092/125	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ R1**
1175	1.2	200	4370	–	0.04	146916/125	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ Q1**
1068	1.4	200	4370	–	0.05	26712/25	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ P1**
909	1.6	200	4370	–	0.07	113652/125	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ N1**
827	1.8	200	4370	–	0.08	20664/25	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ M1**
721	2.0	200	4370	–	0.09	18018/25	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ L1**
645	2.2	200	4370	–	0.12	16128/25	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ K1**
573	2.5	200	4370	–	0.15	14322/25	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ J1**
529	2.7	200	4370	–	0.18	171864/325	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ H1**
459	3.2	200	4370	–	0.20	11484/25	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ G1**
399	3.6	200	4370	–	0.21	49896/125	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ F1**
360	4.0	200	4370	–	0.27	9009/25	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ E1**
339.16	4.3	200	4370	–	0.32	144144/425	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ D1**
295.68	4.9	200	4370	–	0.36	7392/25	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ C1**
272.80	5.3	200	4370	–	0.19	1364/5	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ B1**
236.97	6.1	200	4370	–	0.22	8294/35	✓	✓	✓						**2KJ3122 - ■ ■■■■ - ■■ A1**
Z.39-D19															
8075	0.18	200	4370	–	0.02	201872/25	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ P1**
7150	0.20	200	4370	–	0.03	893772/125	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ N1**
6212	0.23	200	4370	–	0.04	776556/125	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ M1**
5648	0.26	200	4370	–	0.04	141192/25	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ L1**
4806	0.30	200	4370	–	0.06	600732/125	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ K1**
4369	0.33	200	4370	–	0.07	109224/25	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ J1**
3810	0.38	200	4370	–	0.08	95238/25	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ H1**
3410	0.43	200	4370	–	0.11	85248/25	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ G1**
3028	0.48	200	4370	–	0.13	75702/25	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ F1**
2795	0.52	200	4370	–	0.16	908424/325	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ E1**
2428	0.60	200	4370	–	0.17	424908/175	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ D1**
2110	0.69	200	4370	–	0.18	263736/125	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ C1**
1905	0.76	200	4370	–	0.22	47619/25	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ B1**
1793	0.81	200	4370	–	0.26	761904/425	✓	✓							**2KJ3123 - ■ ■■■■ - ■■ A1**
D.39-D19															
8760	0.17	200	4370	–	0.08	744588/85	✓	✓							**2KJ3223 - ■ ■■■■ - ■■ A1**

Article No. supplement		
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Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
Z.49-Z19															
1823	0.80	320	5900	–	0.02	1422311/780	✓	✓							**2KJ3124 - ■ ■■■■■ - ■■ S1**
1615	0.90	320	5900	–	0.03	8396223/5200	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ R1**
1403	1.0	320	5900	–	0.04	7295079/5200	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ Q1**
1275	1.1	320	5900	–	0.05	663189/520	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ P1**
1085	1.3	320	5900	–	0.07	5643363/5200	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ N1**
987	1.5	320	5900	–	0.08	513033/520	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ M1**
860	1.7	320	5900	–	0.09	137643/160	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ L1**
770	1.9	320	5900	–	0.12	50052/65	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ K1**
684	2.1	320	5900	–	0.15	1422311/2080	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ J1**
631	2.3	320	5900	–	0.18	4266933/6760	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ H1**
548	2.6	320	5900	–	0.20	3991647/7280	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ G1**
476	3.0	320	5900	–	0.21	1238787/2600	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ F1**
430	3.4	320	5900	–	0.27	137643/320	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ E1**
405	3.6	320	5900	–	0.32	137643/340	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ D1**
353	4.1	320	5900	–	0.36	45881/130	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ C1**
325.62	4.5	320	5900	–	0.19	1422311/4368	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ B1**
282.85	5.1	320	5900	–	0.22	1330549/4704	✓	✓	✓						**2KJ3124 - ■ ■■■■■ - ■■ A1**
Z.49-D19															
9638	0.15	320	5900	–	0.02	52625507/5460	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ P1**
8535	0.17	320	5900	–	0.03	310660251/36400	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ N1**
7415	0.20	320	5900	–	0.04	269917923/36400	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ M1**
6741	0.22	320	5900	–	0.04	24537993/3640	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ L1**
5736	0.25	320	5900	–	0.06	208804431/36400	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ K1**
5215	0.28	320	5900	–	0.07	18982221/3640	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ J1**
4547	0.32	320	5900	–	0.08	5092791/1120	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ H1**
4070	0.36	320	5900	–	0.11	1851924/455	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ G1**
3614	0.40	320	5900	–	0.13	52625507/14560	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ F1**
3336	0.43	320	5900	–	0.16	157876521/47320	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ E1**
2898	0.50	320	5900	–	0.17	147690939/50960	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ D1**
2518	0.58	320	5900	–	0.18	45835119/18200	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ C1**
2274	0.64	320	5900	–	0.22	5092791/2240	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ B1**
2140	0.68	320	5900	–	0.26	5092791/2380	✓	✓							**2KJ3125 - ■ ■■■■■ - ■■ A1**
D.49-D19															
13709	0.11	320	5780	–	0.06	9980343/728	✓	✓							**2KJ3225 - ■ ■■■■■ - ■■ D1**
12463	0.12	320	5780	–	0.07	49901715/4004	✓	✓							**2KJ3225 - ■ ■■■■■ - ■■ C1**
10867	0.13	320	5780	–	0.08	1217115/112	✓	✓							**2KJ3225 - ■ ■■■■■ - ■■ B1**
9727	0.15	320	5780	–	0.11	9736920/1001	✓	✓							**2KJ3225 - ■ ■■■■■ - ■■ A1**

Article No. supplement		
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Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
Z.59-Z19															
1812	0.80	450	7660	–	0.02	141329/78	✓	✓							**2KJ3126 - ■ ■■■■ - ■■ G1**
1604	0.90	450	7660	–	0.03	834297/520	✓	✓	✓						**2KJ3126 - ■ ■■■■ - ■■ F1**
1394	1.0	450	7660	–	0.04	724881/520	✓	✓	✓						**2KJ3126 - ■ ■■■■ - ■■ E1**
1267	1.1	450	7660	–	0.05	724881/572	✓	✓	✓						**2KJ3126 - ■ ■■■■ - ■■ D1**
1078	1.3	450	7660	–	0.07	560757/520	✓	✓	✓						**2KJ3126 - ■ ■■■■ - ■■ C1**
980	1.5	450	7660	–	0.08	560757/572	✓	✓	✓						**2KJ3126 - ■ ■■■■ - ■■ B1**
855	1.7	450	7660	–	0.09	13677/16	✓	✓	✓						**2KJ3126 - ■ ■■■■ - ■■ A1**
Z.59-D19															
9577	0.15	450	7660	–	0.02	5229173/546	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ P1**
8480	0.17	450	7660	–	0.03	30868989/3640	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ N1**
7368	0.20	450	7660	–	0.04	26820597/3640	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ M1**
6698	0.22	450	7660	–	0.04	26820597/4004	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ L1**
5700	0.25	450	7660	–	0.06	20748009/3640	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ K1**
5182	0.28	450	7660	–	0.07	20748009/4004	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ J1**
4518	0.32	450	7660	–	0.08	506049/112	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ H1**
4044	0.36	450	7660	–	0.11	4048392/1001	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ G1**
3591	0.40	450	7660	–	0.13	5229173/1456	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ F1**
3315	0.44	450	7660	–	0.16	15687519/4732	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ E1**
2880	0.50	450	7660	–	0.17	14675421/5096	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ D1**
2502	0.58	450	7660	–	0.18	4554441/1820	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ C1**
2259	0.64	450	7660	–	0.22	506049/224	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ B1**
2126	0.68	450	7660	–	0.26	506049/238	✓	✓							**2KJ3127 - ■ ■■■■ - ■■ A1**
D.59-Z19															
739	2.0	450	7660	–	0.22	579275/784	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ J1**
642	2.3	450	7660	–	0.23	35955/56	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ H1**
580	2.5	450	7660	–	0.30	259675/448	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ G1**
546	2.7	450	7660	–	0.35	15275/28	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ F1**
507	2.9	450	7660	–	0.20	1362295/2688	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ E1**
440	3.3	450	7660	–	0.23	16567265/37632	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ D1**
383	3.8	450	7660	–	0.24	342771/896	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ C1**
345.36	4.2	450	7660	–	0.31	7426705/21504	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ B1**
325.05	4.5	450	7660	–	0.37	436865/1344	✓	✓	✓						**2KJ3226 - ■ ■■■■ - ■■ A1**
D.59-D19															
14985	0.10	450	7660	–	0.06	10908747/728	✓	✓							**2KJ3227 - ■ ■■■■ - ■■ D1**
13622	0.11	450	7660	–	0.07	54543735/4004	✓	✓							**2KJ3227 - ■ ■■■■ - ■■ C1**
11878	0.12	450	7660	–	0.08	1330335/112	✓	✓							**2KJ3227 - ■ ■■■■ - ■■ B1**
10632	0.14	450	7660	–	0.11	10642680/1001	✓	✓							**2KJ3227 - ■ ■■■■ - ■■ A1**

Article No. supplement		
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Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
Z.69-Z19															
1939	0.75	600	11000	–	0.02	529232/273	✓	✓							**2KJ3128 - ■ ■■■■ - ■■ B1**
1717	0.84	600	11000	–	0.03	781044/455	✓	✓	✓						**2KJ3128 - ■ ■■■■ - ■■ A1**
Z.69-D19															
10247	0.14	600	11000	–	0.02	19581584/1911	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ Q1**
9073	0.16	600	11000	–	0.03	28898628/3185	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ P1**
7883	0.18	600	11000	–	0.04	25108644/3185	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ N1**
7167	0.20	600	11000	–	0.04	4565208/637	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ M1**
6098	0.24	600	11000	–	0.06	19423668/3185	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ L1**
5544	0.26	600	11000	–	0.07	3531576/637	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ K1**
4834	0.30	600	11000	–	0.08	236874/49	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ J1**
4327	0.34	600	11000	–	0.11	2756352/637	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ H1**
3843	0.38	600	11000	–	0.13	2447698/637	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ G1**
3547	0.41	600	11000	–	0.16	29372376/8281	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ F1**
3081	0.47	600	11000	–	0.17	13738692/4459	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ E1**
2677	0.54	600	11000	–	0.18	8527464/3185	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ D1**
2417	0.60	600	11000	–	0.22	118437/49	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ C1**
2275	0.64	600	11000	–	0.26	1894992/833	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ B1**
1983	0.73	600	11000	–	0.29	1263328/637	✓	✓							**2KJ3130 - ■ ■■■■ - ■■ A1**
D.69-Z19															
1532	0.95	600	11000	–	0.20	976140/637	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ Q1**
1332	1.1	600	11000	–	0.21	121176/91	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ P1**
1202	1.2	600	11000	–	0.27	8415/7	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ N1**
1131	1.3	600	11000	–	0.32	7920/7	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ M1**
986	1.5	600	11000	–	0.37	89760/91	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ L1**
910	1.6	600	11000	–	0.19	579700/637	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ K1**
791	1.8	600	11000	–	0.22	271150/343	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ J1**
687	2.1	600	11000	–	0.23	33660/49	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ H1**
620	2.3	600	11000	–	0.30	60775/98	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ G1**
584	2.5	600	11000	–	0.35	28600/49	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ F1**
542	2.7	600	11000	–	0.20	318835/588	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ E1**
471	3.1	600	11000	–	0.23	3877445/8232	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ D1**
409	3.5	600	11000	–	0.24	80223/196	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ C1**
370	3.9	600	11000	–	0.31	1738165/4704	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ B1**
347.77	4.2	600	11000	–	0.37	102245/294	✓	✓	✓						**2KJ3228 - ■ ■■■■ - ■■ A1**
D.69-D19															
14575	0.10	600	11000	–	0.07	9284040/637	✓	✓							**2KJ3230 - ■ ■■■■ - ■■ C1**
12708	0.11	600	11000	–	0.08	622710/49	✓	✓							**2KJ3230 - ■ ■■■■ - ■■ B1**
11375	0.13	600	11000	–	0.11	7246080/637	✓	✓							**2KJ3230 - ■ ■■■■ - ■■ A1**

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Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
Z.79-Z39															
2485	0.58	840	13400	–	0.06	4025749/1620	✓	✓							**2KJ3131 - ■ ■■■■ - ■■ T1**
2210	0.66	840	13400	–	0.07	1988623/900	✓	✓	✓	✓					**2KJ3131 - ■ ■■■■ - ■■ S1**
1940	0.75	840	13400	–	0.08	48503/25	✓	✓	✓	✓					**2KJ3131 - ■ ■■■■ - ■■ R1**
1764	0.82	840	13400	–	0.10	97006/55	✓	✓	✓	✓					**2KJ3131 - ■ ■■■■ - ■■ Q1**
1509	0.96	840	13400	–	0.12	339521/225	✓	✓	✓	✓					**2KJ3131 - ■ ■■■■ - ■■ P1**
1372	1.1	840	13400	–	0.14	679042/495	✓	✓	✓	✓					**2KJ3131 - ■ ■■■■ - ■■ N1**
1213	1.2	840	13400	–	0.17	48503/40	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ M1**
1102	1.3	840	13400	–	0.22	48503/44	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ L1**
966	1.5	840	13400	–	0.26	2085629/2160	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ K1**
891	1.6	840	13400	–	0.31	160433/180	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ J1**
789	1.8	840	13400	–	0.36	284089/360	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ H1**
657	2.2	840	13400	–	0.48	630539/960	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ G1**
618	2.3	840	13400	–	0.56	630539/1020	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ F1**
554	2.6	840	13400	–	0.61	1794611/3240	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ E1**
472	3.1	840	13400	–	0.79	339521/720	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ D1**
455	3.2	840	13400	–	0.36	21853/48	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ C1**
379	3.8	840	13400	–	0.48	48503/128	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ B1**
357	4.1	840	13400	–	0.56	48503/136	✓	✓	✓	✓	✓				**2KJ3131 - ■ ■■■■ - ■■ A1**
Z.79-D39															
10451	0.14	840	13400	–	0.03	47969467/4590	✓	✓							**2KJ3132 - ■ ■■■■ - ■■ R1**
9269	0.16	840	13400	–	0.05	2085629/225	✓	✓	✓	✓					**2KJ3132 - ■ ■■■■ - ■■ Q1**
8043	0.18	840	13400	–	0.05	123052111/15300	✓	✓	✓	✓					**2KJ3132 - ■ ■■■■ - ■■ P1**
7311	0.20	840	13400	–	0.07	123052111/16830	✓	✓	✓	✓					**2KJ3132 - ■ ■■■■ - ■■ N1**
6271	0.23	840	13400	–	0.08	47969467/7650	✓	✓	✓	✓					**2KJ3132 - ■ ■■■■ - ■■ M1**
5700	0.25	840	13400	–	0.10	47969467/8415	✓	✓	✓	✓					**2KJ3132 - ■ ■■■■ - ■■ L1**
4998	0.29	840	13400	–	0.12	22941919/4590	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ K1**
4461	0.33	840	13400	–	0.15	4171258/935	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ J1**
3976	0.36	840	13400	–	0.17	14599403/3672	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ H1**
3670	0.40	840	13400	–	0.21	1123031/306	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ G1**
3213	0.45	840	13400	–	0.25	3277417/1020	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ F1**
2817	0.51	840	13400	–	0.23	64654499/22950	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ E1**
2556	0.57	840	13400	–	0.33	2085629/816	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ D1**
2406	0.60	840	13400	–	0.39	2085629/867	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ C1**
2120	0.68	840	13400	–	0.43	14599403/6885	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ B1**
1840	0.79	840	13400	–	0.58	6256887/3400	✓	✓	✓	✓	✓				**2KJ3132 - ■ ■■■■ - ■■ A1**
D.79-D39															
15344	0.09	840	13400	–	0.21	5738565/374	✓	✓	✓	✓	✓				**2KJ3232 - ■ ■■■■ - ■■ D1**
13434	0.11	840	13400	–	0.25	6394401/476	✓	✓	✓	✓	✓				**2KJ3232 - ■ ■■■■ - ■■ C1**
11778	0.12	840	13400	–	0.23	22025159/1870	✓	✓	✓	✓	✓				**2KJ3232 - ■ ■■■■ - ■■ B1**
10686	0.14	840	13400	–	0.33	31972005/2992	✓	✓	✓	✓	✓				**2KJ3232 - ■ ■■■■ - ■■ A1**

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Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
Z.89-Z39															
3209	0.45	1680	18500	–	0.06	19494293/6075	✓	✓							**2KJ3133 - ■ ■■■■■ - ■■ N1**
2853	0.51	1680	18500	–	0.07	9629711/3375	✓	✓	✓	✓					**2KJ3133 - ■ ■■■■■ - ■■ M1**
2505	0.58	1680	18500	–	0.08	939484/375	✓	✓	✓	✓					**2KJ3133 - ■ ■■■■■ - ■■ .L1**
2278	0.64	1680	18500	–	0.10	1878968/825	✓	✓	✓	✓					**2KJ3133 - ■ ■■■■■ - ■■ K1**
1949	0.74	1680	18500	–	0.12	6576388/3375	✓	✓	✓	✓					**2KJ3133 - ■ ■■■■■ - ■■ J1**
1771	0.82	1680	18500	–	0.14	13152776/7425	✓	✓	✓	✓					**2KJ3133 - ■ ■■■■■ - ■■ H1**
1566	0.93	1680	18500	–	0.17	234871/150	✓	✓	✓	✓	✓				**2KJ3133 - ■ ■■■■■ - ■■ G1**
1423	1.0	1680	18500	–	0.22	234871/165	✓	✓	✓	✓	✓				**2KJ3133 - ■ ■■■■■ - ■■ F1**
1247	1.2	1680	18500	–	0.26	10099453/8100	✓	✓	✓	✓	✓				**2KJ3133 - ■ ■■■■■ - ■■ E1**
1151	1.3	1680	18500	–	0.31	776881/675	✓	✓	✓	✓	✓				**2KJ3133 - ■ ■■■■■ - ■■ D1**
1019	1.4	1680	18500	–	0.36	1375673/1350	✓	✓	✓	✓	✓				**2KJ3133 - ■ ■■■■■ - ■■ C1**
848	1.7	1680	18500	–	0.48	3053323/3600	✓	✓	✓	✓	✓				**2KJ3133 - ■ ■■■■■ - ■■ B1**
798	1.8	1680	18500	–	0.56	3053323/3825	✓	✓	✓	✓	✓				**2KJ3133 - ■ ■■■■■ - ■■ A1**
Z.89-D39															
13495	0.11	1680	18500	–	0.03	464574838/34425	✓	✓							**2KJ3134 - ■ ■■■■■ - ■■ N1**
11970	0.12	1680	18500	–	0.05	40397812/3375	✓	✓	✓	✓					**2KJ3134 - ■ ■■■■■ - ■■ M1**
10385	0.14	1680	18500	–	0.05	595867727/57375	✓	✓	✓	✓					**2KJ3134 - ■ ■■■■■ - ■■ .L1**
9441	0.15	1680	18500	–	0.07	1191735454/126225	✓	✓	✓	✓					**2KJ3134 - ■ ■■■■■ - ■■ K1**
8097	0.18	1680	18500	–	0.08	464574838/57375	✓	✓	✓	✓					**2KJ3134 - ■ ■■■■■ - ■■ J1**
7361	0.20	1680	18500	–	0.1	929149676/126225	✓	✓	✓	✓					**2KJ3134 - ■ ■■■■■ - ■■ H1**
6454	0.22	1680	18500	–	0.12	222187966/34425	✓	✓	✓	✓	✓				**2KJ3134 - ■ ■■■■■ - ■■ G1**
5761	0.25	1680	18500	–	0.15	80795624/14025	✓	✓	✓	✓	✓				**2KJ3134 - ■ ■■■■■ - ■■ F1**
5134	0.28	1680	18500	–	0.17	70696171/13770	✓	✓	✓	✓	✓				**2KJ3134 - ■ ■■■■■ - ■■ E1**
4739	0.31	1680	18500	–	0.21	10876334/2295	✓	✓	✓	✓	✓				**2KJ3134 - ■ ■■■■■ - ■■ D1**
4149	0.35	1680	18500	–	0.25	15870569/3825	✓	✓	✓	✓	✓				**2KJ3134 - ■ ■■■■■ - ■■ C1**
3638	0.40	1680	18500	–	0.23	626166086/172125	✓	✓	✓	✓	✓				**2KJ3134 - ■ ■■■■■ - ■■ B1**
3300	0.44	1680	18500	–	0.33	10099453/3060	✓	✓	✓	✓	✓				**2KJ3134 - ■ ■■■■■ - ■■ A1**
D.89-Z39															
715	2.0	1680	18500	–	0.63	6987123/9775	✓	✓	✓	✓	✓				**2KJ3233 - ■ ■■■■■ - ■■ H1**
673	2.2	1680	18500	–	0.73	111793968/166175	✓	✓	✓	✓	✓				**2KJ3233 - ■ ■■■■■ - ■■ G1**
603	2.4	1680	18500	–	0.83	17676824/29325	✓	✓	✓	✓	✓				**2KJ3233 - ■ ■■■■■ - ■■ F1**
513	2.8	1680	18500	–	1.09	5016396/9775	✓	✓	✓	✓	✓				**2KJ3233 - ■ ■■■■■ - ■■ E1**
480	3.0	1680	18500	–	0.66	1270386/2645	✓	✓	✓	✓	✓				**2KJ3233 - ■ ■■■■■ - ■■ D1**
452	3.2	1680	18500	–	0.77	20326176/44965	✓	✓	✓	✓	✓				**2KJ3233 - ■ ■■■■■ - ■■ C1**
405	3.6	1680	18500	–	0.87	3213968/7935	✓	✓	✓	✓	✓				**2KJ3233 - ■ ■■■■■ - ■■ B1**
344.83	4.2	1680	18500	–	1.15	912072/2645	✓	✓	✓	✓	✓				**2KJ3233 - ■ ■■■■■ - ■■ A1**
D.89-D39															
16496	0.09	1680	18500	–	0.12	214526312/13005	✓	✓	✓	✓	✓				**2KJ3234 - ■ ■■■■■ - ■■ B1**
14723	0.10	1680	18500	–	0.15	234028704/15895	✓	✓	✓	✓	✓				**2KJ3234 - ■ ■■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
D.109-Z39															
5970	0.24	3100	20200	–	0.06	33365917/5589	✓	✓							**2KJ3235 - ■ ■■■■ - ■■ A2**
5308	0.27	3100	20200	–	0.07	16481959/3105	✓	✓	✓	✓					**2KJ3235 - ■ ■■■■ - ■■ X1**
4661	0.31	3100	20200	–	0.09	1607996/345	✓	✓	✓	✓					**2KJ3235 - ■ ■■■■ - ■■ W1**
4237	0.34	3100	20200	–	0.10	3215992/759	✓	✓	✓	✓					**2KJ3235 - ■ ■■■■ - ■■ V1**
3625	0.40	3100	20200	–	0.12	11255972/3105	✓	✓	✓	✓					**2KJ3235 - ■ ■■■■ - ■■ U1**
3296	0.44	3100	20200	–	0.15	22511944/6831	✓	✓	✓	✓					**2KJ3235 - ■ ■■■■ - ■■ T1**
2913	0.50	3100	20200	–	0.17	401999/138	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ S1**
2648	0.55	3100	20200	–	0.23	2009995/759	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ R1**
2320	0.62	3100	20200	–	0.27	17285957/7452	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ Q1**
2141	0.68	3100	20200	–	0.32	1329689/621	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ P1**
1896	0.76	3100	20200	–	0.38	16481959/8694	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ N1**
1578	0.92	3100	20200	–	0.50	5225987/3312	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ M1**
1485	0.98	3100	20200	–	0.59	307411/207	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ L1**
1331	1.1	3100	20200	–	0.64	14873963/11178	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ K1**
1133	1.3	3100	20200	–	0.84	2813993/2484	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ J1**
971	1.5	3100	20200	–	1.10	401999/414			✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ H1**
836	1.7	3100	20200	–	1.40	12461969/14904			✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ G1**
690	2.1	3100	20200	–	0.73	122609695/177744	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ F1**
649	2.2	3100	20200	–	0.84	7212335/11109	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ E1**
582	2.5	3100	20200	–	0.96	348966055/599886	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ D1**
495	2.9	3100	20200	–	1.28	9431515/19044	✓	✓	✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ C1**
424	3.4	3100	20200	–	1.69	9431515/22218			✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ B1**
366	4.0	3100	20200	–	2.20	292376965/799848			✓	✓	✓				**2KJ3235 - ■ ■■■■ - ■■ A1**
D.109-D39															
19321	0.08	3100	20200	–	0.05	59992439/3105	✓	✓	✓	✓					**2KJ3236 - ■ ■■■■ - ■■ T1**
17565	0.08	3100	20200	–	0.07	119984878/6831	✓	✓	✓	✓					**2KJ3236 - ■ ■■■■ - ■■ S1**
15064	0.10	3100	20200	–	0.08	2033642/135	✓	✓	✓	✓					**2KJ3236 - ■ ■■■■ - ■■ R1**
13695	0.11	3100	20200	–	0.10	4067284/297	✓	✓	✓	✓					**2KJ3236 - ■ ■■■■ - ■■ Q1**
12008	0.12	3100	20200	–	0.12	22370062/1863	✓	✓	✓	✓	✓				**2KJ3236 - ■ ■■■■ - ■■ P1**
10717	0.14	3100	20200	–	0.15	8134568/759	✓	✓	✓	✓	✓				**2KJ3236 - ■ ■■■■ - ■■ N1**
9551	0.15	3100	20200	–	0.18	35588735/3726	✓	✓	✓	✓	✓				**2KJ3236 - ■ ■■■■ - ■■ M1**
8817	0.16	3100	20200	–	0.21	5475190/621	✓	✓	✓	✓	✓				**2KJ3236 - ■ ■■■■ - ■■ L1**
7719	0.19	3100	20200	–	0.25	11185031/1449	✓	✓	✓	✓	✓				**2KJ3236 - ■ ■■■■ - ■■ K1**
6768	0.21	3100	20200	–	0.23	63042902/9315	✓	✓	✓	✓	✓				**2KJ3236 - ■ ■■■■ - ■■ J1**
6140	0.24	3100	20200	–	0.33	5084105/828	✓	✓	✓	✓	✓				**2KJ3236 - ■ ■■■■ - ■■ H1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
D.129-Z49															
5963	0.24	5000	27000	–	0.18	1339420717/224640	✓	✓	✓	✓					**2KJ3237 - ■ ■■■■ - ■■ B2**
5420	0.27	5000	27000	–	0.21	1339420717/247104	✓	✓	✓	✓					**2KJ3237 - ■ ■■■■ - ■■ A2**
4610	0.31	5000	27000	–	0.27	69042305/14976	✓	✓	✓	✓					**2KJ3237 - ■ ■■■■ - ■■ X1**
4191	0.35	5000	27000	–	0.32	345211525/82368	✓	✓	✓	✓					**2KJ3237 - ■ ■■■■ - ■■ W1**
3739	0.39	5000	27000	–	0.37	1008017653/269568	✓	✓	✓	✓	✓	✓			**2KJ3237 - ■ ■■■■ - ■■ V1**
3353	0.43	5000	27000	–	0.45	69042305/20592	✓	✓	✓	✓	✓	✓			**2KJ3237 - ■ ■■■■ - ■■ U1**
3022	0.48	5000	27000	–	0.53	814699199/269568	✓	✓	✓	✓	✓	✓			**2KJ3237 - ■ ■■■■ - ■■ T1**
2790	0.52	5000	27000	–	0.63	814699199/292032	✓	✓	✓	✓	✓	✓			**2KJ3237 - ■ ■■■■ - ■■ S1**
2547	0.57	5000	27000	–	0.74	400445369/157248	✓	✓	✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ R1**
2113	0.69	5000	27000	–	0.95	759465355/359424	✓	✓	✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ Q1**
1989	0.73	5000	27000	–	1.09	759465355/381888	✓	✓	✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ P1**
1878	0.77	5000	27000	–	1.24	759465355/404352	✓	✓	✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ N1**
1598	0.91	5000	27000	–	1.53	13808461/8640	✓	✓	✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ M1**
1369	1.1	5000	27000	–	1.89	676614589/494208			✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ L1**
1204	1.2	5000	27000	–	2.3	648997667/539136			✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ K1**
1016	1.4	5000	27000	–	2.9	262360759/258336			✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ J1**
885	1.6	5000	27000	–	3.9	13808461/15600			✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ H1**
873	1.7	5000	27000	–	1.51	208411423/238680	✓	✓	✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ G1**
825	1.8	5000	27000	–	1.71	208411423/252720	✓	✓	✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ F1**
702	2.1	5000	27000	–	2.2	18946493/27000	✓	✓	✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ E1**
601	2.4	5000	27000	–	2.8	928378157/1544400			✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ D1**
529	2.7	5000	27000	–	3.4	890485171/1684800			✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ C1**
446	3.3	5000	27000	–	4.5	359983367/807300			✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ B1**
389	3.7	5000	27000	–	6.0	18946493/48750			✓	✓	✓	✓	✓		**2KJ3237 - ■ ■■■■ - ■■ A1**
D.129-D49															
19506	0.07	5000	27000	–	0.12	1643206859/84240	✓	✓	✓	✓					**2KJ3238 - ■ ■■■■ - ■■ L1**
17733	0.08	5000	27000	–	0.14	1643206859/92664	✓	✓	✓	✓					**2KJ3238 - ■ ■■■■ - ■■ K1**
15675	0.09	5000	27000	–	0.17	234743837/14976	✓	✓	✓	✓	✓	✓			**2KJ3238 - ■ ■■■■ - ■■ J1**
14250	0.10	5000	27000	–	0.22	1173719185/82368	✓	✓	✓	✓	✓	✓			**2KJ3238 - ■ ■■■■ - ■■ H1**
12482	0.12	5000	27000	–	0.26	10093984991/808704	✓	✓	✓	✓	✓	✓			**2KJ3238 - ■ ■■■■ - ■■ G1**
11522	0.13	5000	27000	–	0.31	10093984991/876096	✓	✓	✓	✓	✓	✓			**2KJ3238 - ■ ■■■■ - ■■ F1**
10201	0.14	5000	27000	–	0.37	9624497317/943488	✓	✓	✓	✓	✓	✓	✓		**2KJ3238 - ■ ■■■■ - ■■ E1**
8490	0.17	5000	27000	–	0.50	234743837/27648	✓	✓	✓	✓	✓	✓	✓		**2KJ3238 - ■ ■■■■ - ■■ D1**
7991	0.18	5000	27000	–	0.59	13808461/1728	✓	✓	✓	✓	✓	✓	✓		**2KJ3238 - ■ ■■■■ - ■■ C1**
7160	0.2	5000	27000	–	0.65	8685521969/1213056	✓	✓	✓	✓	✓	✓	✓		**2KJ3238 - ■ ■■■■ - ■■ B1**
6096	0.24	5000	27000	–	0.85	1643206859/269568	✓	✓	✓	✓	✓	✓	✓		**2KJ3238 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

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D.149-Z49															
5749	0.25	8000	51200	–	0.18	225346617/39200	✓	✓	✓	✓					**2KJ3240 - ■ ■■■■ - ■■ B2**
5226	0.28	8000	51200	–	0.22	225346617/43120	✓	✓	✓	✓					**2KJ3240 - ■ ■■■■ - ■■ A2**
4445	0.33	8000	51200	–	0.28	6969483/1568	✓	✓	✓	✓					**2KJ3240 - ■ ■■■■ - ■■ X1**
4041	0.36	8000	51200	–	0.34	34847415/8624	✓	✓	✓	✓					**2KJ3240 - ■ ■■■■ - ■■ W1**
3605	0.40	8000	51200	–	0.39	56530251/15680	✓	✓	✓	✓	✓	✓			**2KJ3240 - ■ ■■■■ - ■■ V1**
3233	0.45	8000	51200	–	0.47	6969483/2156	✓	✓	✓	✓	✓	✓			**2KJ3240 - ■ ■■■■ - ■■ U1**
2914	0.50	8000	51200	–	0.55	45688833/15680	✓	✓	✓	✓	✓	✓			**2KJ3240 - ■ ■■■■ - ■■ T1**
2690	0.54	8000	51200	–	0.66	137066499/50960	✓	✓	✓	✓	✓	✓			**2KJ3240 - ■ ■■■■ - ■■ S1**
2455	0.59	8000	51200	–	0.78	67371669/27440	✓	✓	✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ R1**
2037	0.71	8000	51200	–	1.0	25554771/12544	✓	✓	✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ Q1**
1917	0.76	8000	51200	–	1.16	25554771/13328	✓	✓	✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ P1**
1811	0.80	8000	51200	–	1.31	2839419/1568	✓	✓	✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ N1**
1541	0.94	8000	51200	–	1.62	30201093/19600	✓	✓	✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ M1**
1320	1.1	8000	51200	–	2.0	2323161/1760			✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ L1**
1161	1.2	8000	51200	–	2.5	36396189/31360			✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ K1**
979	1.5	8000	51200	–	3.2	1919133/1960			✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ J1**
853	1.7	8000	51200	–	4.2	20908449/24500			✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ H1**
842	1.7	8000	51200	–	1.81	35063523/41650	✓	✓	✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ G1**
795	1.8	8000	51200	–	2.0	3895947/4900	✓	✓	✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ F1**
677	2.1	8000	51200	–	2.6	41438709/61250	✓	✓	✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ E1**
580	2.5	8000	51200	–	3.4	3187593/5500			✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ D1**
510	2.8	8000	51200	–	4.3	49938957/98000			✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ C1**
430	3.4	8000	51200	–	5.7	2633229/6125			✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ B1**
375	3.9	8000	51200	–	7.5	57376674/153125			✓	✓	✓	✓	✓		**2KJ3240 - ■ ■■■■ - ■■ A1**
D.149-D49															
24180	0.06	8000	51200	–	0.08	118481211/4900	✓	✓	✓	✓					**2KJ3241 - ■ ■■■■ - ■■ N1**
21982	0.07	8000	51200	–	0.10	118481211/5390	✓	✓	✓	✓					**2KJ3241 - ■ ■■■■ - ■■ M1**
18807	0.08	8000	51200	–	0.12	13164579/700	✓	✓	✓	✓					**2KJ3241 - ■ ■■■■ - ■■ L1**
17097	0.08	8000	51200	–	0.14	13164579/770	✓	✓	✓	✓					**2KJ3241 - ■ ■■■■ - ■■ K1**
15112	0.10	8000	51200	–	0.17	118481211/7840	✓	✓	✓	✓	✓	✓			**2KJ3241 - ■ ■■■■ - ■■ J1**
13739	0.11	8000	51200	–	0.22	118481211/8624	✓	✓	✓	✓	✓	✓			**2KJ3241 - ■ ■■■■ - ■■ H1**
12034	0.12	8000	51200	–	0.26	188692299/15680	✓	✓	✓	✓	✓	✓			**2KJ3241 - ■ ■■■■ - ■■ G1**
11108	0.13	8000	51200	–	0.31	566076897/50960	✓	✓	✓	✓	✓	✓			**2KJ3241 - ■ ■■■■ - ■■ F1**
9835	0.15	8000	51200	–	0.37	539747739/54880	✓	✓	✓	✓	✓	✓	✓		**2KJ3241 - ■ ■■■■ - ■■ E1**
8186	0.18	8000	51200	–	0.50	513418581/62720	✓	✓	✓	✓	✓	✓	✓		**2KJ3241 - ■ ■■■■ - ■■ D1**
7704	0.19	8000	51200	–	0.59	30201093/3920	✓	✓	✓	✓	✓	✓	✓		**2KJ3241 - ■ ■■■■ - ■■ C1**
6903	0.21	8000	51200	–	0.66	54121047/7840	✓	✓	✓	✓	✓	✓	✓		**2KJ3241 - ■ ■■■■ - ■■ B1**
5877	0.25	8000	51200	–	0.86	13164579/2240	✓	✓	✓	✓	✓	✓	✓		**2KJ3241 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
D.169-Z.69															
5545	0.26	14000	70100	–	0.21	115475008/20825	✓	✓	✓	✓					**2KJ3242 - ■ ■■■■ - ■■ A2**
5041	0.29	14000	70100	–	0.26	20995456/4165	✓	✓	✓	✓					**2KJ3242 - ■ ■■■■ - ■■ X1**
4287	0.34	14000	70100	–	0.33	3571392/833	✓	✓	✓	✓					**2KJ3242 - ■ ■■■■ - ■■ W1**
3898	0.37	14000	70100	–	0.40	3246720/833	✓	✓	✓	✓					**2KJ3242 - ■ ■■■■ - ■■ V1**
3478	0.42	14000	70100	–	0.47	43451936/12495	✓	✓	✓	✓	✓	✓			**2KJ3242 - ■ ■■■■ - ■■ U1**
3118	0.47	14000	70100	–	0.57	2597376/833	✓	✓	✓	✓	✓	✓			**2KJ3242 - ■ ■■■■ - ■■ T1**
2811	0.52	14000	70100	–	0.67	35118688/12495	✓	✓	✓	✓	✓	✓			**2KJ3242 - ■ ■■■■ - ■■ S1**
2594	0.56	14000	70100	–	0.8	140474752/54145	✓	✓	✓	✓	✓	✓			**2KJ3242 - ■ ■■■■ - ■■ R1**
2368	0.61	14000	70100	–	0.95	69046912/29155	✓	✓	✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ Q1**
1965	0.74	14000	70100	–	1.25	1636888/833	✓	✓	✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ P1**
1849	0.78	14000	70100	–	1.44	26190208/14161	✓	✓	✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ N1**
1747	0.83	14000	70100	–	1.62	13095104/7497	✓	✓	✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ M1**
1486	0.98	14000	70100	–	2.1	30952064/20825	✓	✓	✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ L1**
1273	1.1	14000	70100	–	2.6	108224/85			✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ K1**
1119	1.3	14000	70100	–	3.2	13987952/12495			✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ J1**
944	1.5	14000	70100	–	4.2	90475264/95795			✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ H1**
823	1.8	14000	70100	–	5.7	85713408/104125			✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ G1**
773	1.9	14000	70100	–	3.2	19047424/24633	✓	✓	✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ F1**
658	2.2	14000	70100	–	4.3	45021184/68425	✓	✓	✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ E1**
564	2.6	14000	70100	–	5.6	12121088/21505			✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ D1**
496	2.9	14000	70100	–	7.1	20346112/41055			✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ C1**
418	3.5	14000	70100	–	9.7	131600384/314755			✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ B1**
364	4.0	14000	70100	–	13	124674048/342125			✓	✓	✓	✓	✓		**2KJ3242 - ■ ■■■■ - ■■ A1**
D.169-D69															
23323	0.06	14000	70100	–	0.08	28571136/1225	✓	✓	✓	✓					**2KJ3243 - ■ ■■■■ - ■■ N1**
21203	0.07	14000	70100	–	0.10	5194752/245	✓	✓	✓	✓					**2KJ3243 - ■ ■■■■ - ■■ M1**
18140	0.08	14000	70100	–	0.12	9523712/525	✓	✓	✓	✓					**2KJ3243 - ■ ■■■■ - ■■ L1**
16491	0.09	14000	70100	–	0.15	1731584/105	✓	✓	✓	✓					**2KJ3243 - ■ ■■■■ - ■■ K1**
14577	0.10	14000	70100	–	0.17	3571392/245	✓	✓	✓	✓	✓	✓			**2KJ3243 - ■ ■■■■ - ■■ J1**
13252	0.11	14000	70100	–	0.23	649344/49	✓	✓	✓	✓	✓	✓			**2KJ3243 - ■ ■■■■ - ■■ H1**
11608	0.12	14000	70100	–	0.26	25594976/2205	✓	✓	✓	✓	✓	✓			**2KJ3243 - ■ ■■■■ - ■■ G1**
10715	0.14	14000	70100	–	0.32	102379904/9555	✓	✓	✓	✓	✓	✓			**2KJ3243 - ■ ■■■■ - ■■ F1**
9487	0.15	14000	70100	–	0.39	48809024/5145	✓	✓	✓	✓	✓	✓	✓		**2KJ3243 - ■ ■■■■ - ■■ E1**
7896	0.18	14000	70100	–	0.52	1934504/245	✓	✓	✓	✓	✓	✓	✓		**2KJ3243 - ■ ■■■■ - ■■ D1**
7431	0.20	14000	70100	–	0.61	30952064/4165	✓	✓	✓	✓	✓	✓	✓		**2KJ3243 - ■ ■■■■ - ■■ C1**
6659	0.22	14000	70100	–	0.68	44047168/6615	✓	✓	✓	✓	✓	✓	✓		**2KJ3243 - ■ ■■■■ - ■■ B1**
5669	0.26	14000	70100	–	0.89	595232/105	✓	✓	✓	✓	✓	✓	✓		**2KJ3243 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Helical geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
D.189-Z69															
5807	0.25	19000	107000	–	0.24	56760132/9775	✓	✓	✓	✓					**2KJ3244 - ■ ■■■■ - ■■ A2**
5279	0.27	19000	107000	–	0.29	10320024/1955	✓	✓	✓	✓					**2KJ3244 - ■ ■■■■ - ■■ X1**
4490	0.32	19000	107000	–	0.37	1755468/391	✓	✓	✓	✓					**2KJ3244 - ■ ■■■■ - ■■ W1**
4082	0.36	19000	107000	–	0.45	1595880/391	✓	✓	✓	✓					**2KJ3244 - ■ ■■■■ - ■■ V1**
3642	0.40	19000	107000	–	0.53	7119398/1955	✓	✓	✓	✓	✓	✓			**2KJ3244 - ■ ■■■■ - ■■ U1**
3265	0.44	19000	107000	–	0.64	1276704/391	✓	✓	✓	✓	✓	✓			**2KJ3244 - ■ ■■■■ - ■■ T1**
2943	0.49	19000	107000	–	0.77	5754034/1955	✓	✓	✓	✓	✓	✓			**2KJ3244 - ■ ■■■■ - ■■ S1**
2717	0.53	19000	107000	–	0.91	5311416/1955	✓	✓	✓	✓	✓	✓			**2KJ3244 - ■ ■■■■ - ■■ R1**
2480	0.58	19000	107000	–	1.08	33939048/13685	✓	✓	✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ Q1**
2058	0.70	19000	107000	–	1.45	1609179/782	✓	✓	✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ P1**
1937	0.75	19000	107000	–	1.65	12873432/6647	✓	✓	✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ N1**
1829	0.79	19000	107000	–	1.87	2145572/1173	✓	✓	✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ M1**
1556	0.93	19000	107000	–	2.4	15214056/9775	✓	✓	✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ L1**
1333	1.1	19000	107000	–	3.1	2606604/1955			✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ K1**
1172	1.2	19000	107000	–	3.8	2291861/1955			✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ J1**
989	1.5	19000	107000	–	5.1	44471856/44965			✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ H1**
862	1.7	19000	107000	–	6.8	42131232/48875			✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ G1**
810	1.8	19000	107000	–	4.5	21845824/26979	✓	✓	✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ F1**
689	2.1	19000	107000	–	6	154906752/224825	✓	✓	✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ E1**
590	2.5	19000	107000	–	8	26539968/44965			✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ D1**
519	2.8	19000	107000	–	10	23335312/44965			✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ C1**
438	3.3	19000	107000	–	14	452804352/1034195			✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ B1**
382	3.8	19000	107000	–	18	428972544/1124125			✓	✓	✓	✓	✓		**2KJ3244 - ■ ■■■■ - ■■ A1**
D.189-D69															
27816	0.05	19000	107000	–	0.07	15994264/575	✓	✓	✓	✓					**2KJ3245 - ■ ■■■■ - ■■ P1**
24424	0.06	19000	107000	–	0.09	14043744/575	✓	✓	✓	✓					**2KJ3245 - ■ ■■■■ - ■■ N1**
22204	0.07	19000	107000	–	0.11	2553408/115	✓	✓	✓	✓					**2KJ3245 - ■ ■■■■ - ■■ M1**
18996	0.08	19000	107000	–	0.12	10922912/575	✓	✓	✓	✓					**2KJ3245 - ■ ■■■■ - ■■ L1**
17269	0.08	19000	107000	–	0.15	1985984/115	✓	✓	✓	✓					**2KJ3245 - ■ ■■■■ - ■■ K1**
15265	0.09	19000	107000	–	0.18	1755468/115	✓	✓	✓	✓	✓	✓			**2KJ3245 - ■ ■■■■ - ■■ J1**
13877	0.10	19000	107000	–	0.23	319176/23	✓	✓	✓	✓	✓	✓			**2KJ3245 - ■ ■■■■ - ■■ H1**
12155	0.12	19000	107000	–	0.27	4193618/345	✓	✓	✓	✓	✓	✓			**2KJ3245 - ■ ■■■■ - ■■ G1**
11220	0.13	19000	107000	–	0.32	1290344/115	✓	✓	✓	✓	✓	✓			**2KJ3245 - ■ ■■■■ - ■■ F1**
9934	0.15	19000	107000	–	0.39	7997132/805	✓	✓	✓	✓	✓	✓	✓		**2KJ3245 - ■ ■■■■ - ■■ E1**
8269	0.18	19000	107000	–	0.53	1901757/230	✓	✓	✓	✓	✓	✓	✓		**2KJ3245 - ■ ■■■■ - ■■ D1**
7782	0.19	19000	107000	–	0.62	15214056/1955	✓	✓	✓	✓	✓	✓	✓		**2KJ3245 - ■ ■■■■ - ■■ C1**
6973	0.21	19000	107000	–	0.69	7216924/1035	✓	✓	✓	✓	✓	✓	✓		**2KJ3245 - ■ ■■■■ - ■■ B1**
5936	0.24	19000	107000	–	0.91	682682/115	✓	✓	✓	✓	✓	✓	✓		**2KJ3245 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/50
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, B, F or H**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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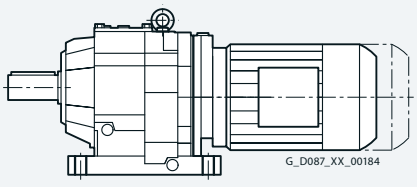
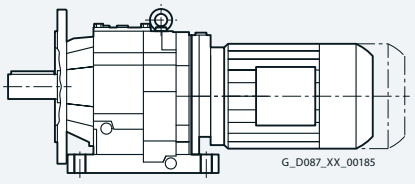
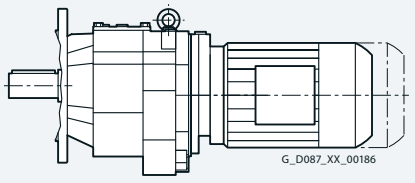
Overview

Notes on the dimensional drawings are provided in chapter Introduction on page 1/22.

Design	Frame size	Dimensional drawing, see page
Helical geared motor Z and D		
Foot-mounted design		
 G_D087_XX_00184	Z/D19	3/100
	Z/D29	3/103
	Z/D39	3/107
	Z/D49	3/111
	Z/D59	3/114
	Z/D69	3/117
	Z/D79	3/120
	Z/D89	3/123
	Z/D109	3/128
	Z/D129	3/133
	Z/D149	3/138
	Z/D169	3/142
	Z/D189	3/146
Foot/flange-mounted design		
 G_D087_XX_00185	ZB/DB29	3/104
	ZB/DB39	3/108
	ZB/DB49	3/111
	ZB/DB59	3/114
	ZB/DB69	3/117
	ZB/DB79	3/120
	ZB/DB89	3/123
Flange-mounted design		
 G_D087_XX_00186	ZF/DF19	3/101
	ZF/DF29	3/105
	ZF/DF39	3/109
	ZF/DF49	3/112
	ZF/DF59	3/115
	ZF/DF69	3/118
	ZF/DF79	3/121
	ZF/DF89	3/124
	ZF/DF109	3/129
	ZF/DF129	3/134
	ZF/DF149	3/139
	ZF/DF169	3/143
	ZF/DF189	3/147

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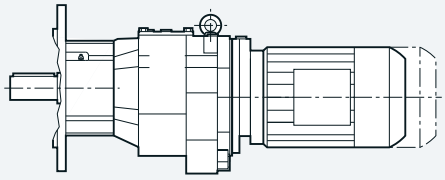
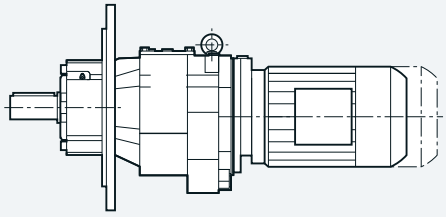
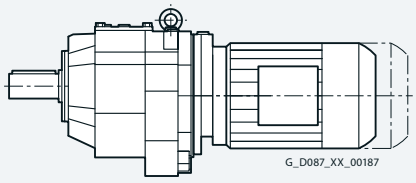
Helical geared motors

Overview

Design	Frame size	Dimensional drawing, see page
Helical geared motor Z and D		
Flange-mounted design with VLplus reinforced bearing system		
	ZF/DF89	3/125
	ZF/DF109	3/130
	ZF/DF129	3/135
	ZF/DF149	3/140
	ZF/DF169	3/144
Flange-mounted design with XLplus reinforced bearing system		
	ZF/DF89	3/126
	ZF/DF109	3/131
	ZF/DF129	3/136
	ZF/DF149	3/141
	ZF/DF169	3/145
Housing flange design		
	ZZ/DZ19	3/102
	ZZ/DZ29	3/106
	ZZ/DZ39	3/110
	ZZ/DZ49	3/113
	ZZ/DZ59	3/116
	ZZ/DZ69	3/119
	ZZ/DZ79	3/122
	ZZ/DZ89	3/127
	ZZ/DZ109	3/132
	ZZ/DZ129	3/137

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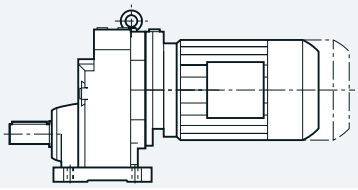
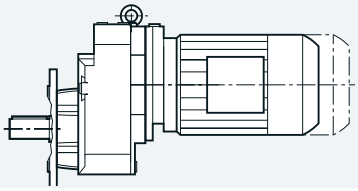
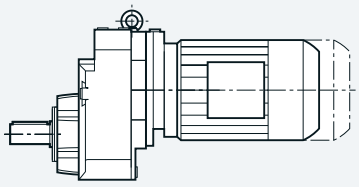
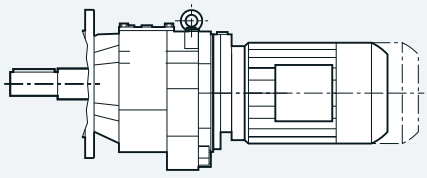
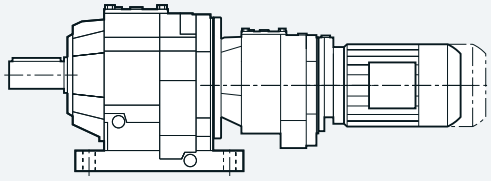
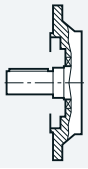
Overview

Design	Frame size	Dimensional drawing, see page
Helical geared motor E		
Foot-mounted design		
	E39	3/148
	E49	3/151
	E69	3/154
	E89	3/157
	E109	3/160
	E129	3/163
	E149	3/166
Flange-mounted design		
	EF39	3/149
	EF49	3/152
	EF69	3/155
	EF89	3/158
	EF109	3/161
	EF129	3/164
	EF149	3/167
Housing flange design		
	EZ39	3/150
	EZ49	3/153
	EZ69	3/156
	EZ89	3/159
	EZ109	3/162
	EZ129	3/165
	EZ149	3/168
Cooling tower geared motor		
	ZKF89	3/169
	ZKF109	3/170
	ZKF129	3/171
	ZKF149	3/172
	ZKF169	3/173
	ZKF189	3/174
	EKF89	3/175
	EKF109	3/176
	EKF129	3/177
	EKF149	3/178
Helical tandem geared motor		
	Z./D.29-Z/D19 ... D.189-Z/D69	3/179
Additional versions and options		
Inner contour of the flange-mounted design		
	ZF/DF19 ... ZF/DF189, ZB/DB29 ... ZB/DB89	3/181
	EF39 ... EF149	3/183
	ZKF89 ... ZKF189	3/184
	EKF89 ... EKF149	3/184

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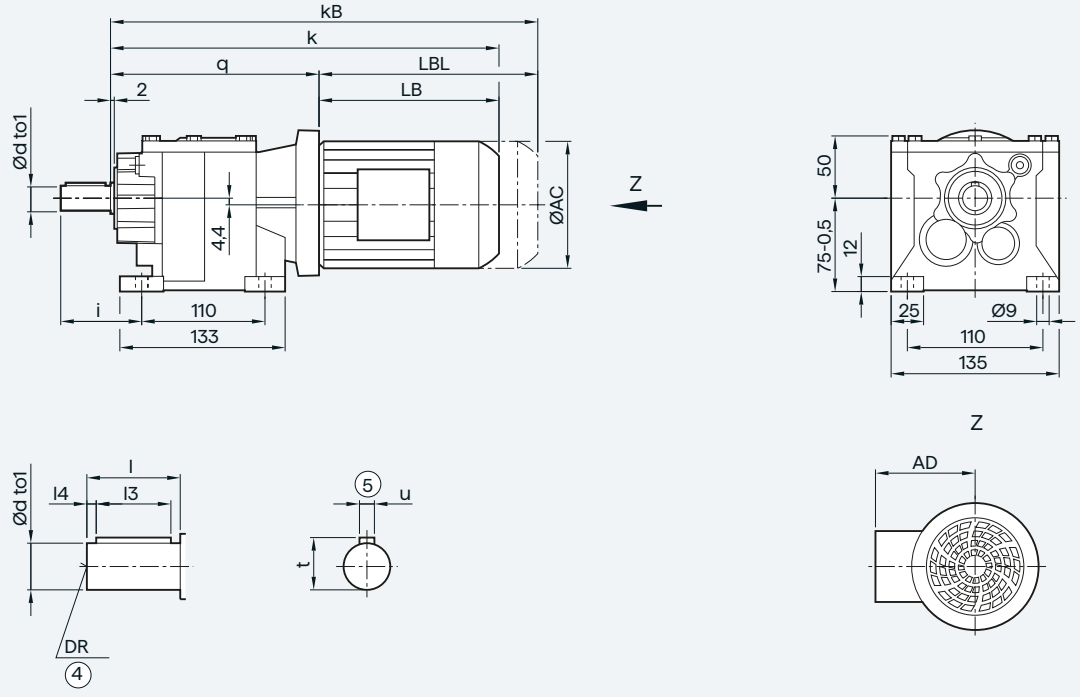
Gearbox Z/D19 in a foot-mounted design

Z/D19



Shaft	d	to1	l	l3	l4	t	u	i	DR
	16	k6	28	22	3	18.0	5	46	M5
	16	k6	40	32	4	18.0	5	58	M8
	20	k6	40	32	4	22.5	6	58t	M6x16

Motor	LE						
	63	63Z	71	71Z	71Y	80	80Z
q	159.5	159.5	167.5	167.5	167.5	168.0	168.0
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2
k	320.0	346.0	352.0	371.0	411.0	408.0	443.0
kB	364.5	390.5	407.0	426.0	466.0	468.0	503.0
LB	160.5	186.5	184.5	203.5	243.5	240.0	275.0
LBL	205.0	231.0	239.5	258.5	298.5	300.0	335.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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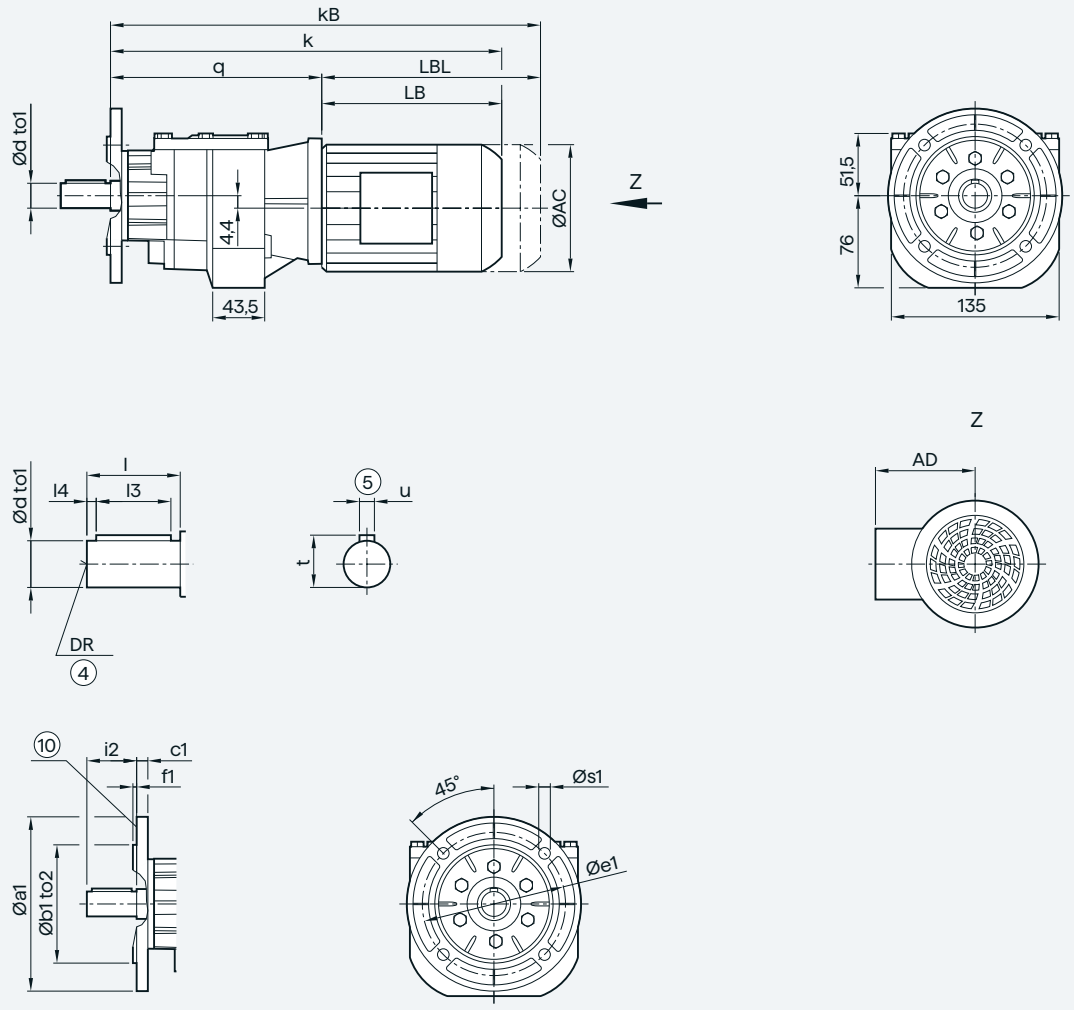
Gearbox ZF/DF19 in a flange-mounted design

ZF/DF19



Flange	a1	b1	to2	c1	e1	f1	s1
	120	80	j6	8	100	3.0	6.6
	140	95	j6	9	115	3.0	9.0
	160	110	j6	9	130	3.5	9.0

Shaft	d	to1	l	l3	l4	t	u	i2	DR
	16	k6	28	22	3	18.0	5	28	M5
	16	k6	40	32	4	18.0	5	40	M8
	20	k6	40	32	4	22.5	6	40	M6x16

Motor	LE						
	63	63Z	71	71Z	71Y	80	80Z
q	168.5	168.5	176.5	176.5	176.5	177.0	177.0
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2
k	329.0	355.0	361.0	380.0	420.0	417.0	452.0
kB	373.5	399.5	416.0	435.0	475.0	477.0	512.0
LB	160.5	186.5	184.5	203.5	243.5	240.0	275.0
LBL	205.0	231.0	239.5	258.5	298.5	300.0	335.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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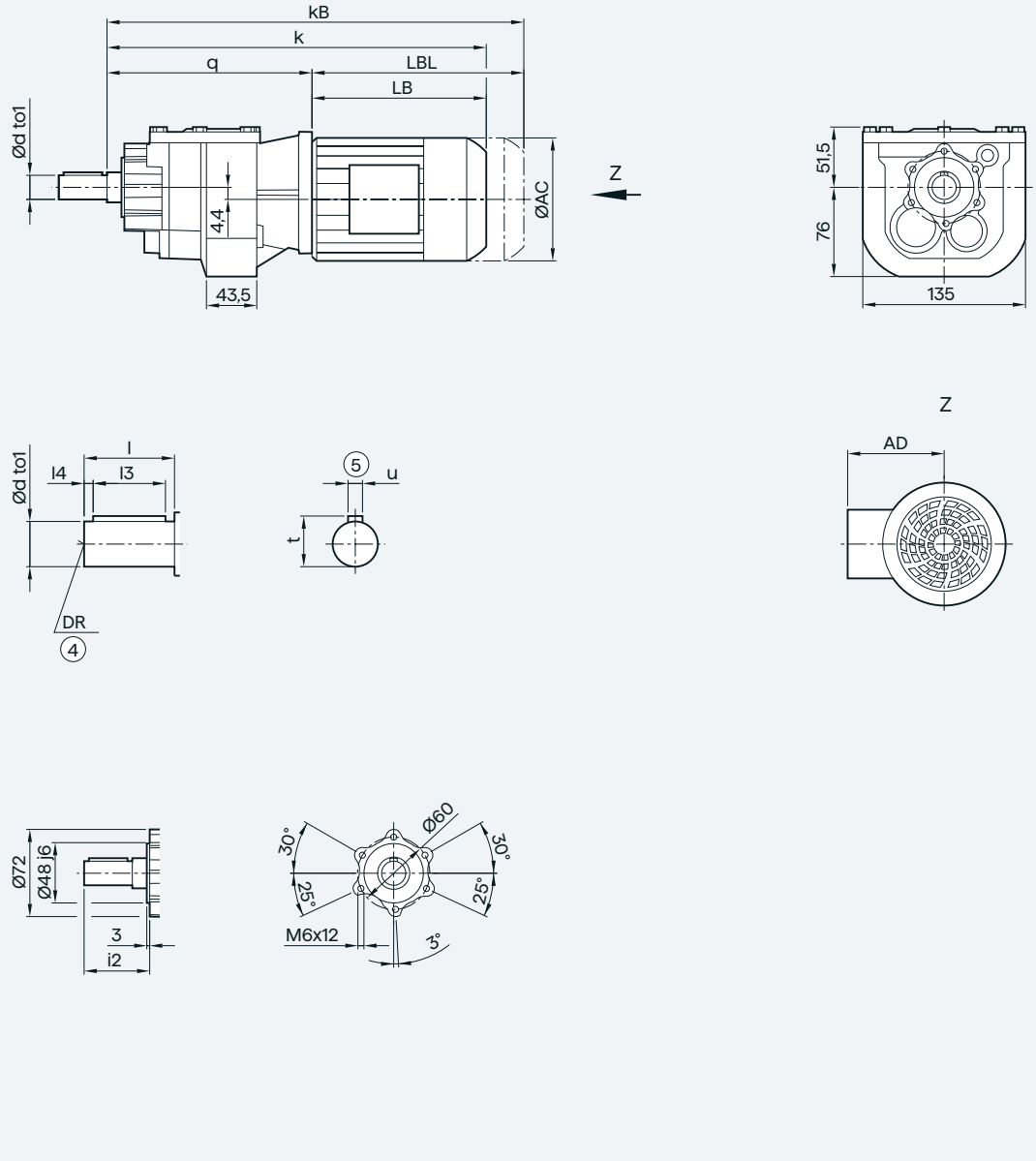
3

Gearbox ZZ/DZ19 in a housing flange design

ZZ/DZ19



Shaft	d	to1	l	l3	l4	t	u	i2	DR
	16	k6	28	22	3	18.0	5	42	M5
	16	k6	40	32	4	18.0	5	54	M8
	20	k6	40	32	4	22.5	6	54	M6x16

Motor	LE						
	63	63Z	71	71Z	71Y	80	80Z
q	168.5	168.5	176.5	176.5	176.5	177.0	177.0
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2
k	329.0	355.0	361.0	380.0	420.0	417.0	452.0
kB	373.5	399.5	416.0	435.0	475.0	477.0	512.0
LB	160.5	186.5	184.5	203.5	243.5	240.0	275.0
LBL	205.0	231.0	239.5	258.5	298.5	300.0	335.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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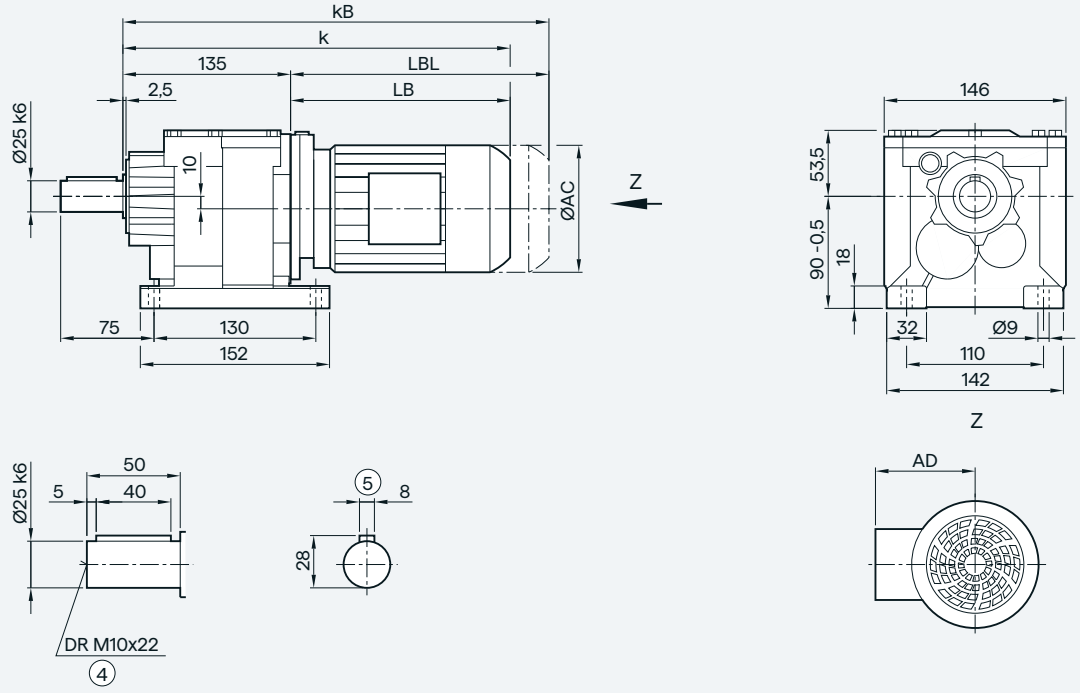
Gearbox Z/D29 in a foot-mounted design

Z/D29



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	329.0	355.0	361.0	380.0	420.0	425.0	460.0	486.5	526.5	543.0	578.0
kB	373.5	399.5	416.0	435.0	475.0	485.0	520.0	556.5	596.5	621.5	656.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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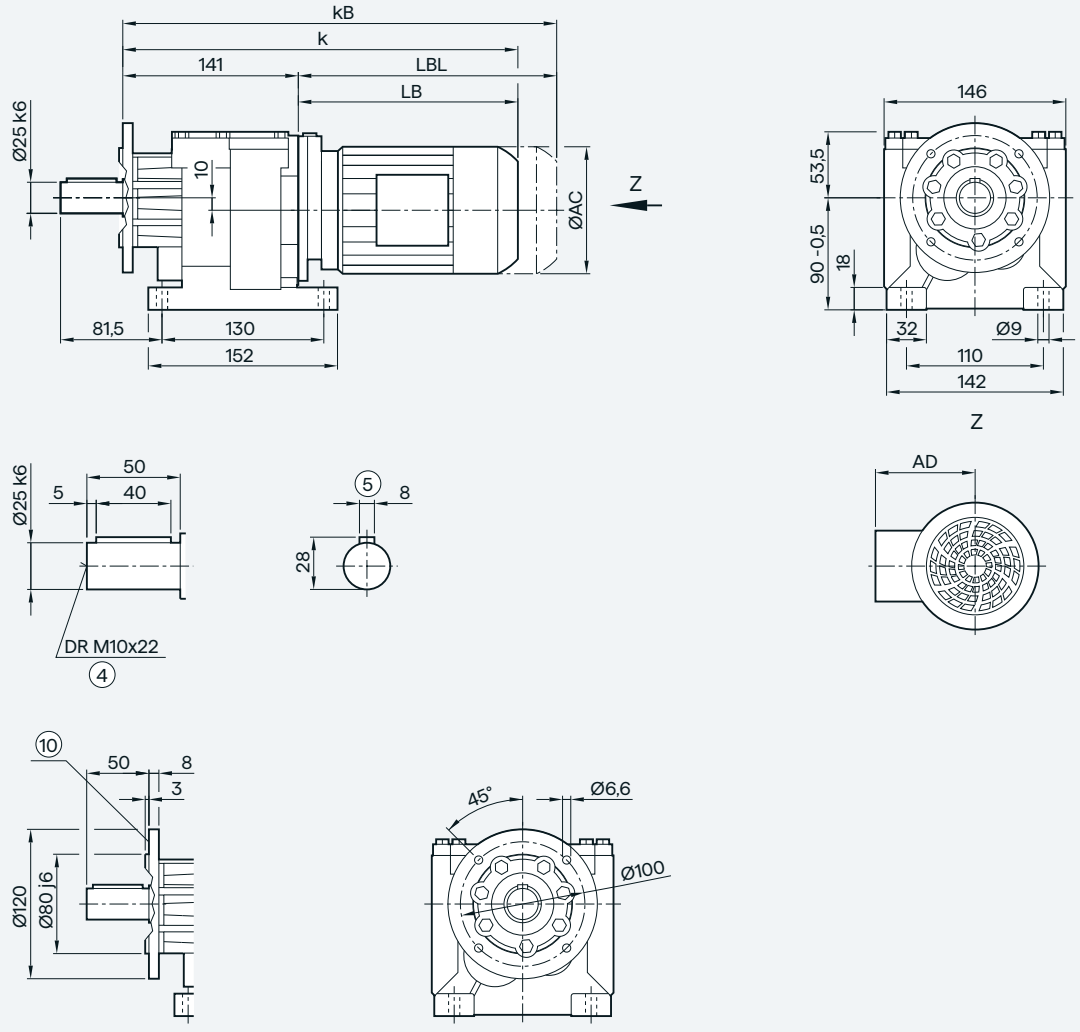
3

Gearbox ZB/DB29 in a foot/flange-mounted design

ZB/DB29



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	335.0	361.0	367.0	386.0	426.0	431.0	466.0	492.5	532.5	549.0	584.0
kB	379.5	405.5	422.0	441.0	481.0	491.0	526.0	562.5	602.5	627.5	662.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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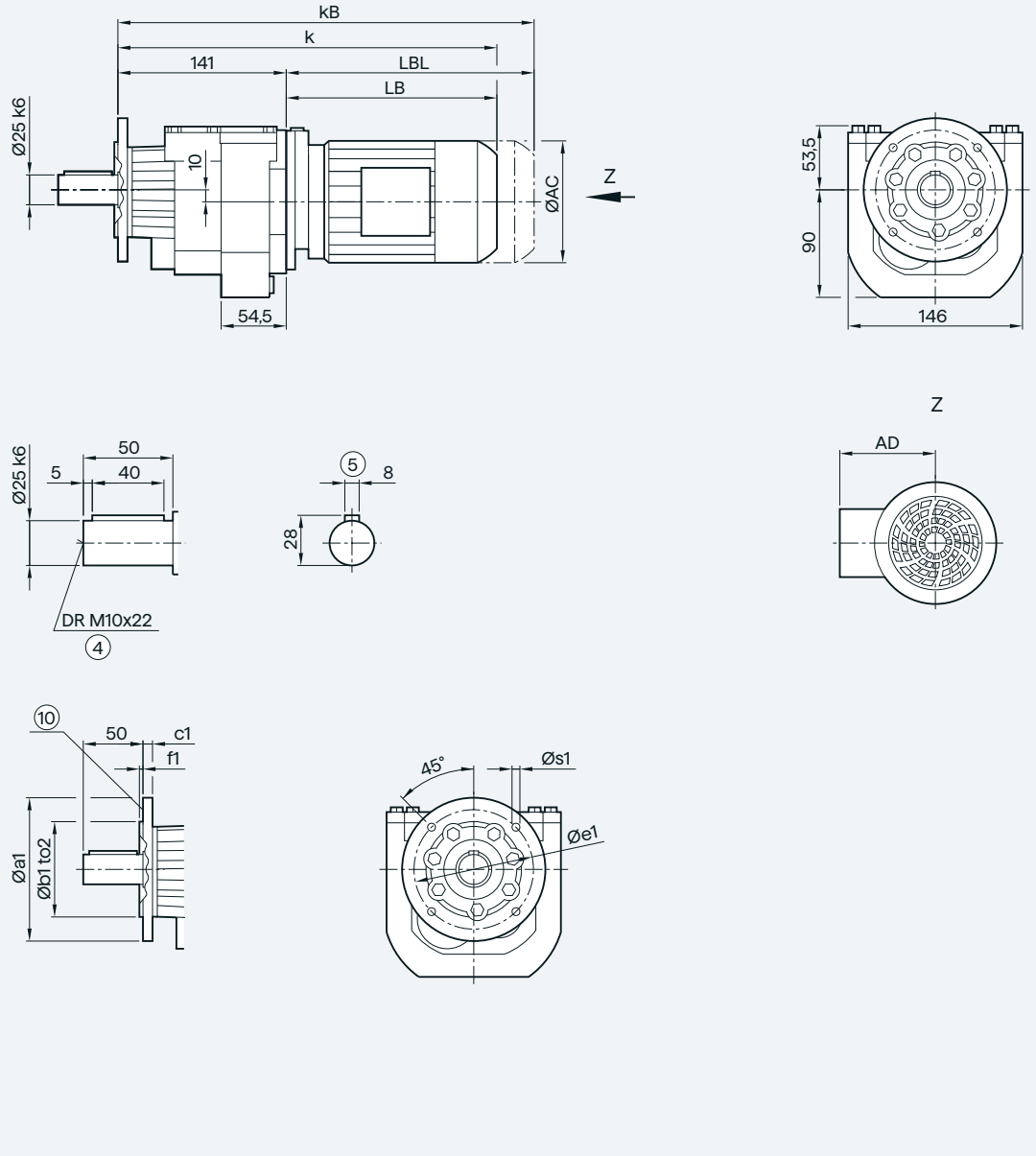
Gearbox ZF/DF29 in a flange-mounted design

ZF/DF29



Flange	a1	b1	to2	c1	e1	f1	s1
	120	80	j6	8	100	3.0	6.6
	140	95	j6	9	115	3.0	9.0
	160	110	j6	9	130	3.5	9.0

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	335.0	361.0	367.0	386.0	426.0	431.0	466.0	492.5	532.5	549.0	584.0
kB	379.5	405.5	422.0	441.0	481.0	491.0	526.0	562.5	602.5	627.5	662.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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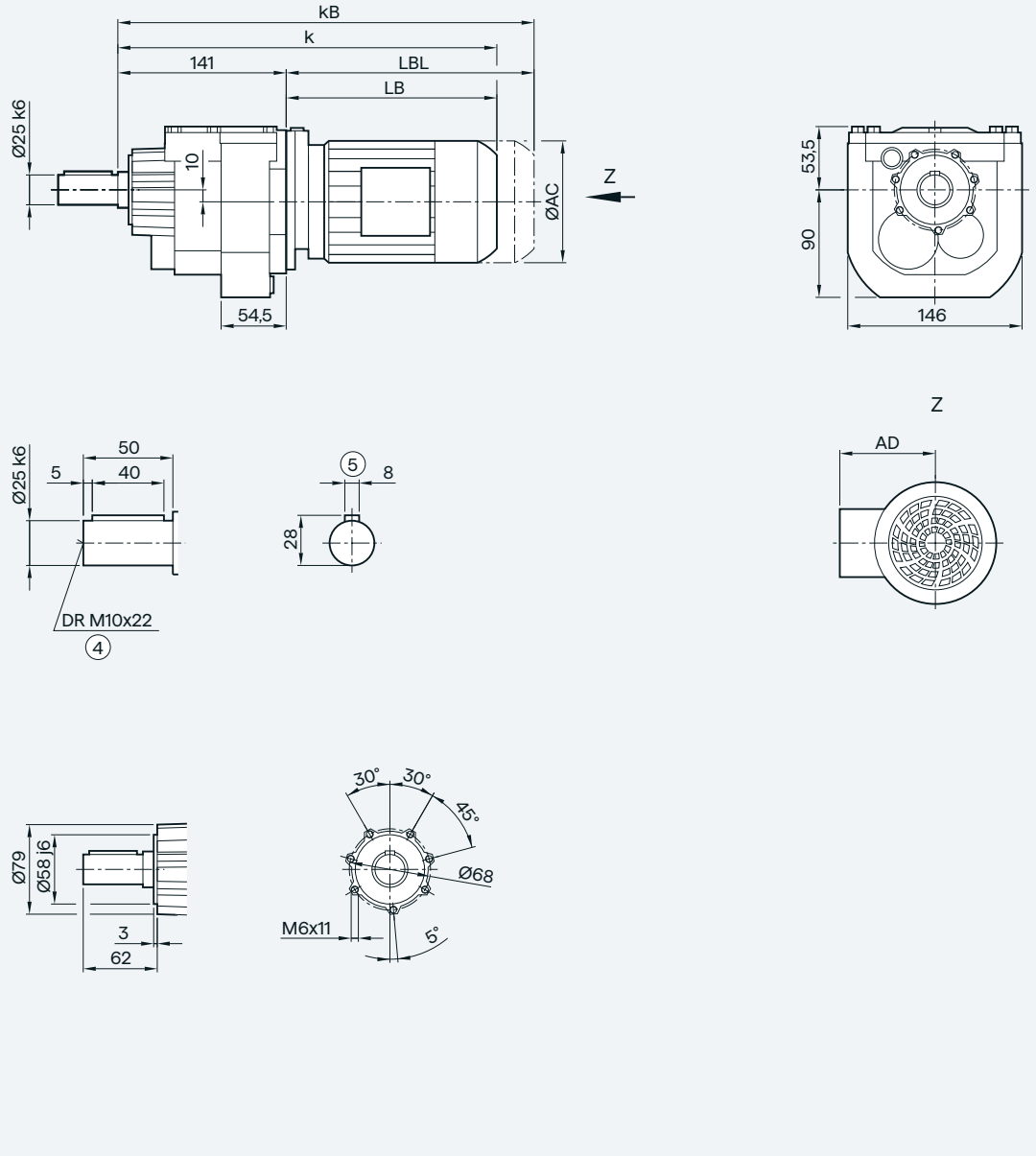
Helical geared motors

Gearbox ZZ/DZ29 in a housing flange design

ZZ/DZ29



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	335.0	361.0	367.0	386.0	426.0	431.0	466.0	492.5	532.5	549.0	584.0
kB	379.5	405.5	422.0	441.0	481.0	491.0	526.0	562.5	602.5	627.5	662.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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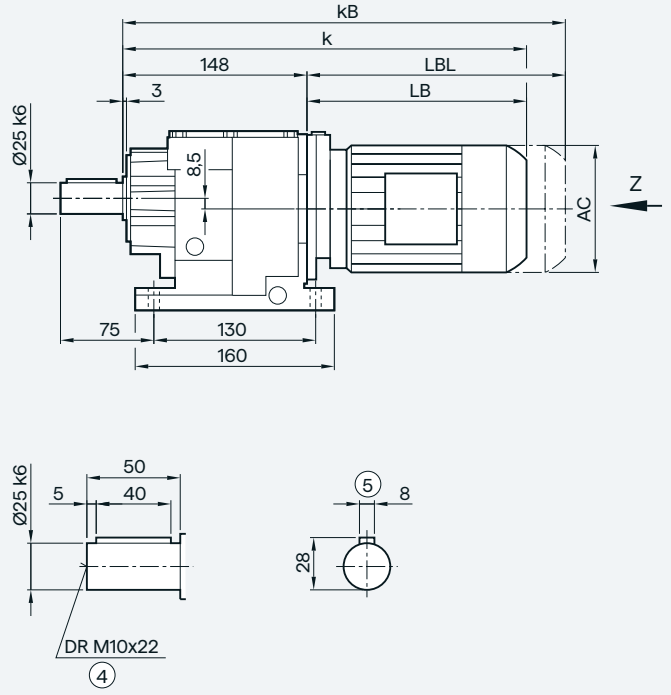
Gearbox Z/D39 in a foot-mounted design

Z/D39



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	342.0	368.0	374.0	393.0	433.0	438.0	473.0	499.5	539.5	556.0	591.0
kB	386.5	412.5	429.0	448.0	488.0	498.0	533.0	569.5	609.5	634.5	669.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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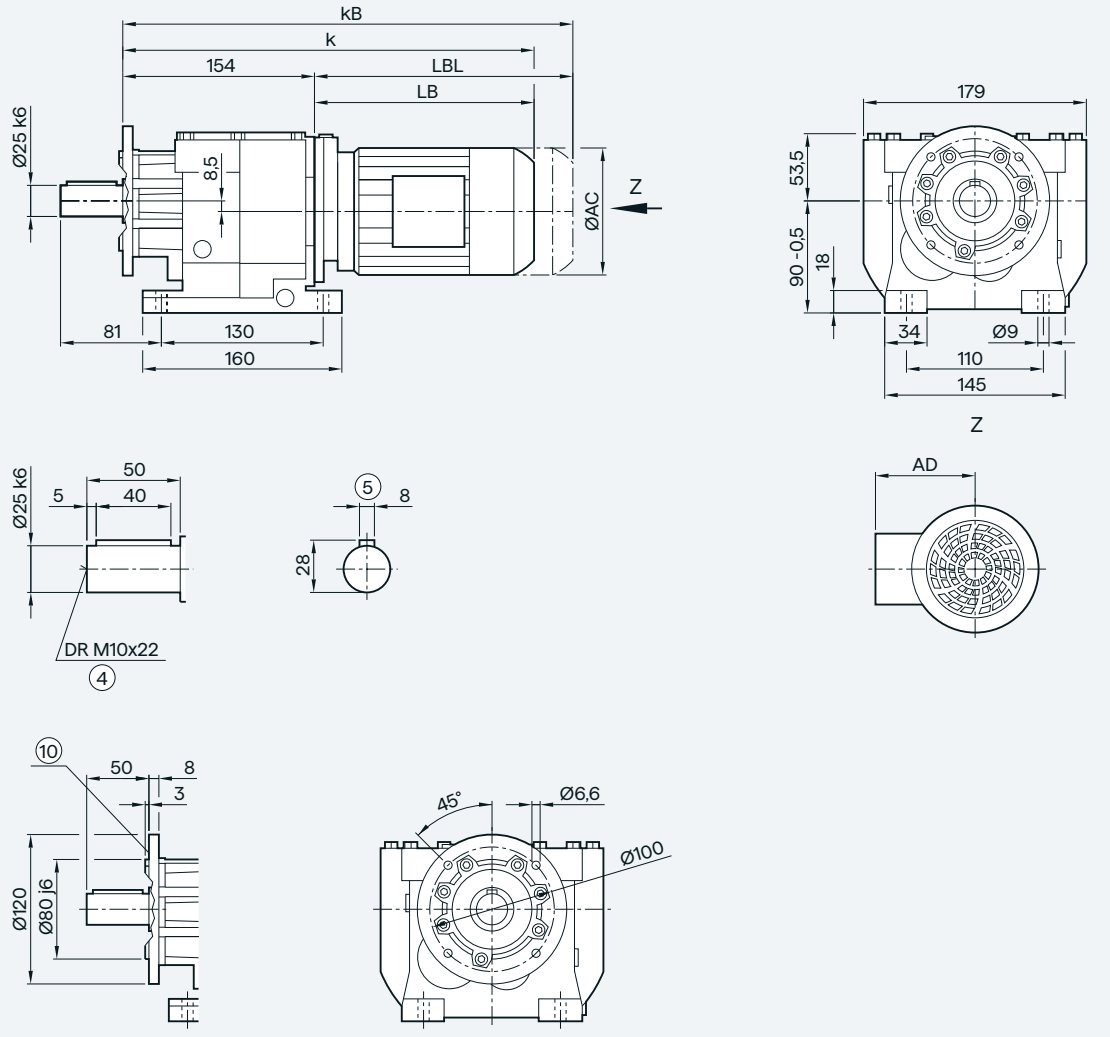
3

Gearbox ZB/DB39 in a foot/flange-mounted design

ZB/DB39



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	348.0	374.0	380.0	399.0	439.0	444.0	479.0	505.5	545.5	562.0	597.0
kB	392.5	418.5	435.0	454.0	494.0	504.0	539.0	575.5	615.5	640.5	675.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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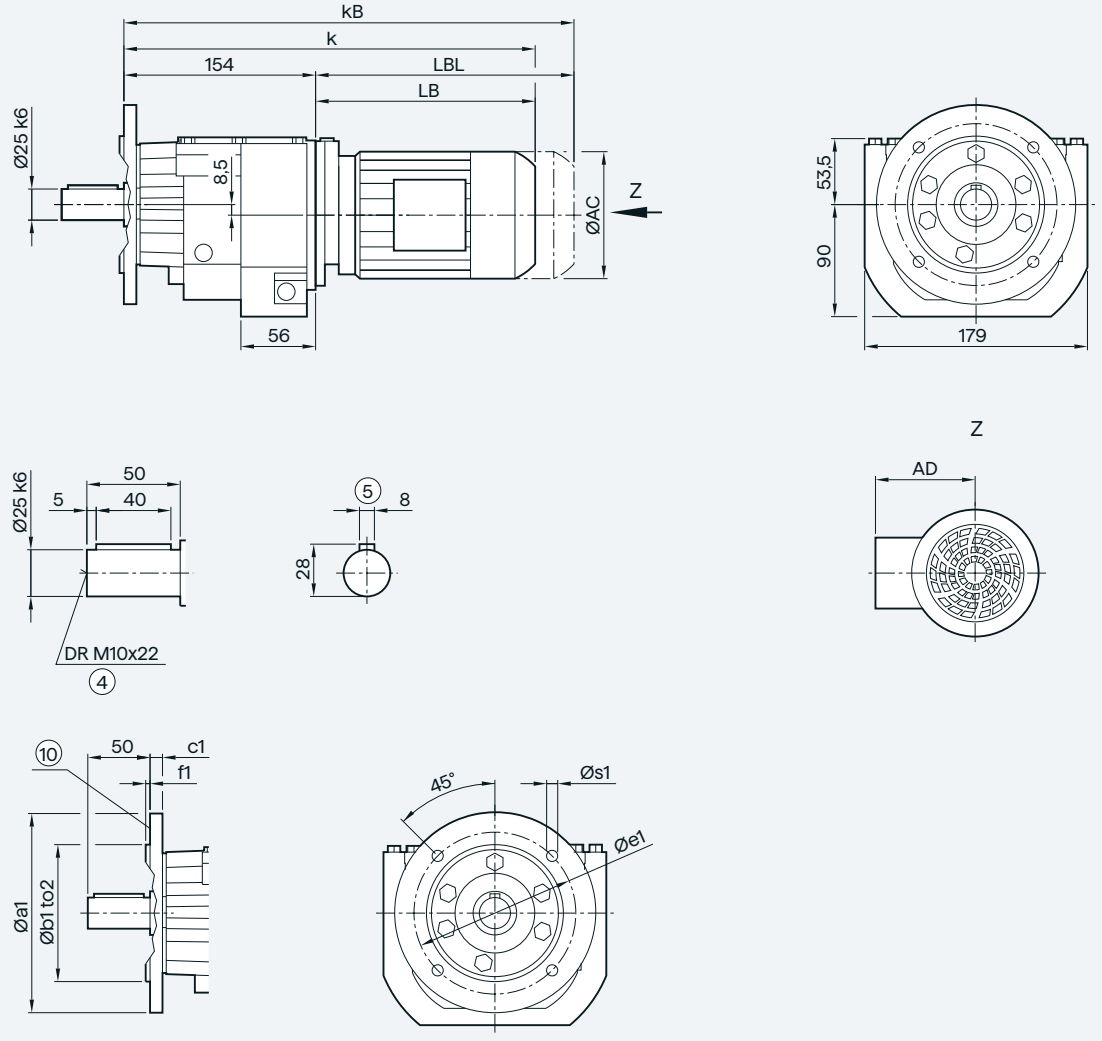
Gearbox ZF/DF39 in a flange-mounted design

ZF/DF39



Flange	a1	b1	to2	c1	e1	f1	s1
	120	80	j6	8	100	3.0	6.6
	160	110	j6	10	130	3.5	9.0
	200	130	j6	12	165	3.5	11.0

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	348.0	374.0	380.0	399.0	439.0	444.0	479.0	505.5	545.5	562.0	597.0
kB	392.5	418.5	435.0	454.0	494.0	504.0	539.0	575.5	615.5	640.5	675.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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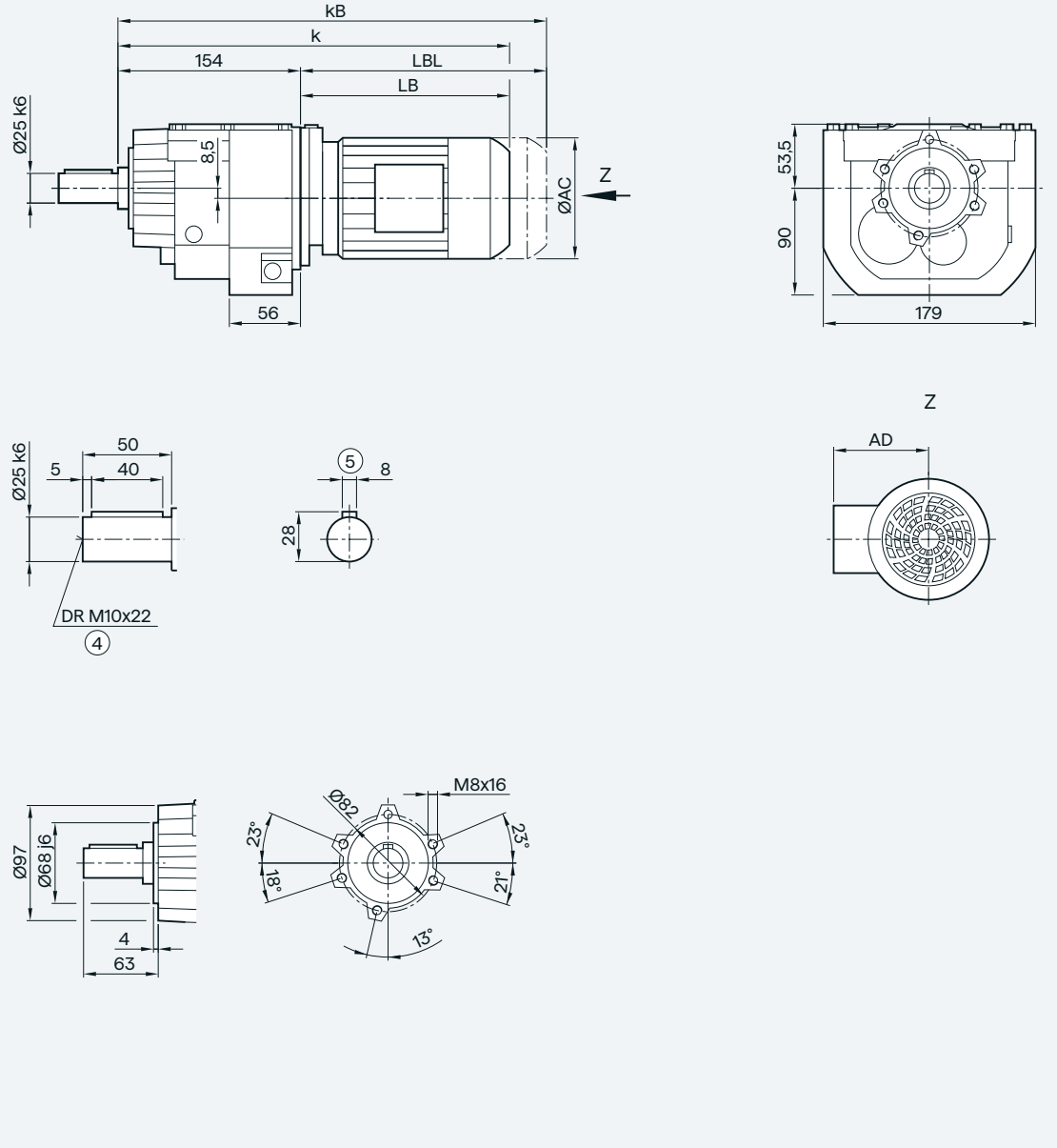
3

Gearbox ZZ/DZ39 in a housing flange design

ZZ/DZ39



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	348.0	374.0	380.0	399.0	439.0	444.0	479.0	505.5	545.5	562.0	597.0
kB	392.5	418.5	435.0	454.0	494.0	504.0	539.0	575.5	615.5	640.5	675.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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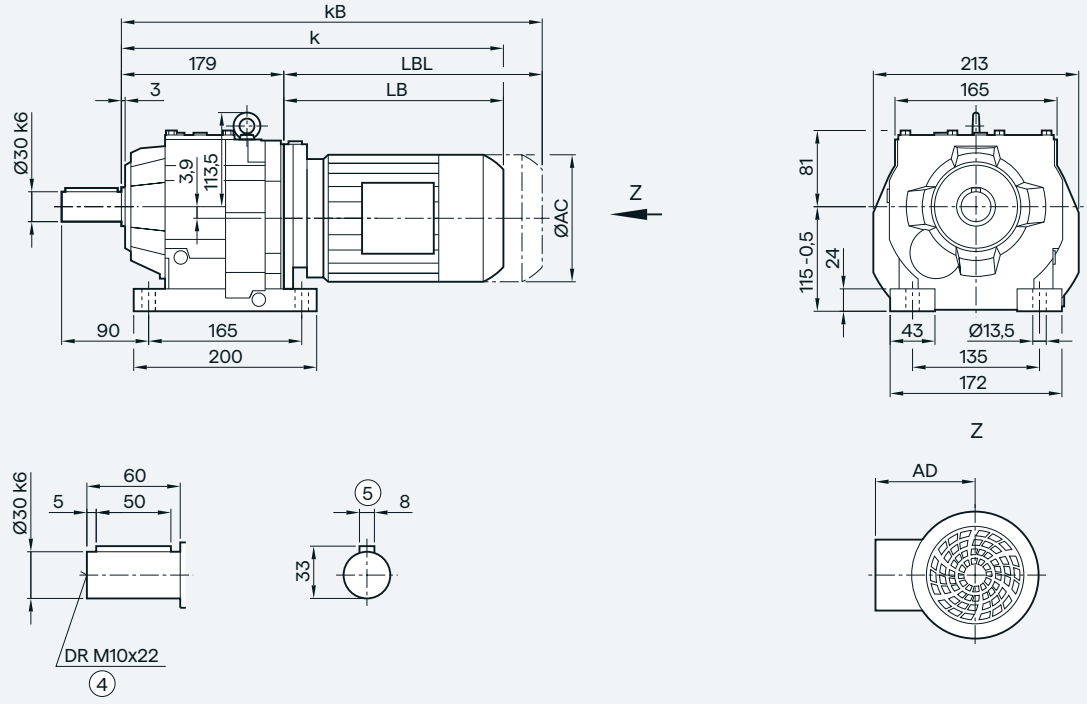
Gearbox Z/D49 in a foot-mounted design and ZB/DB49 in a foot/flange-mounted design

Z/D49



ZB/DB49

Flange	a1	b1	to2	c1	e1	f1	s1
	140	95	j6	10	115	3.0	9.0
	160	110	j6	10	130	3.5	9.0

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	363.5	389.5	395.5	414.5	454.5	459.5	494.5	521.0	561.0	577.5	612.5	587.5	622.0	640.5	690.5
kB	408.0	434.0	450.5	469.5	509.5	519.5	554.5	591.0	631.0	656.0	691.0	660.5	695.0	745.0	795.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181

1) AD depends on the motor options, for other dimensions, see page 9/46.

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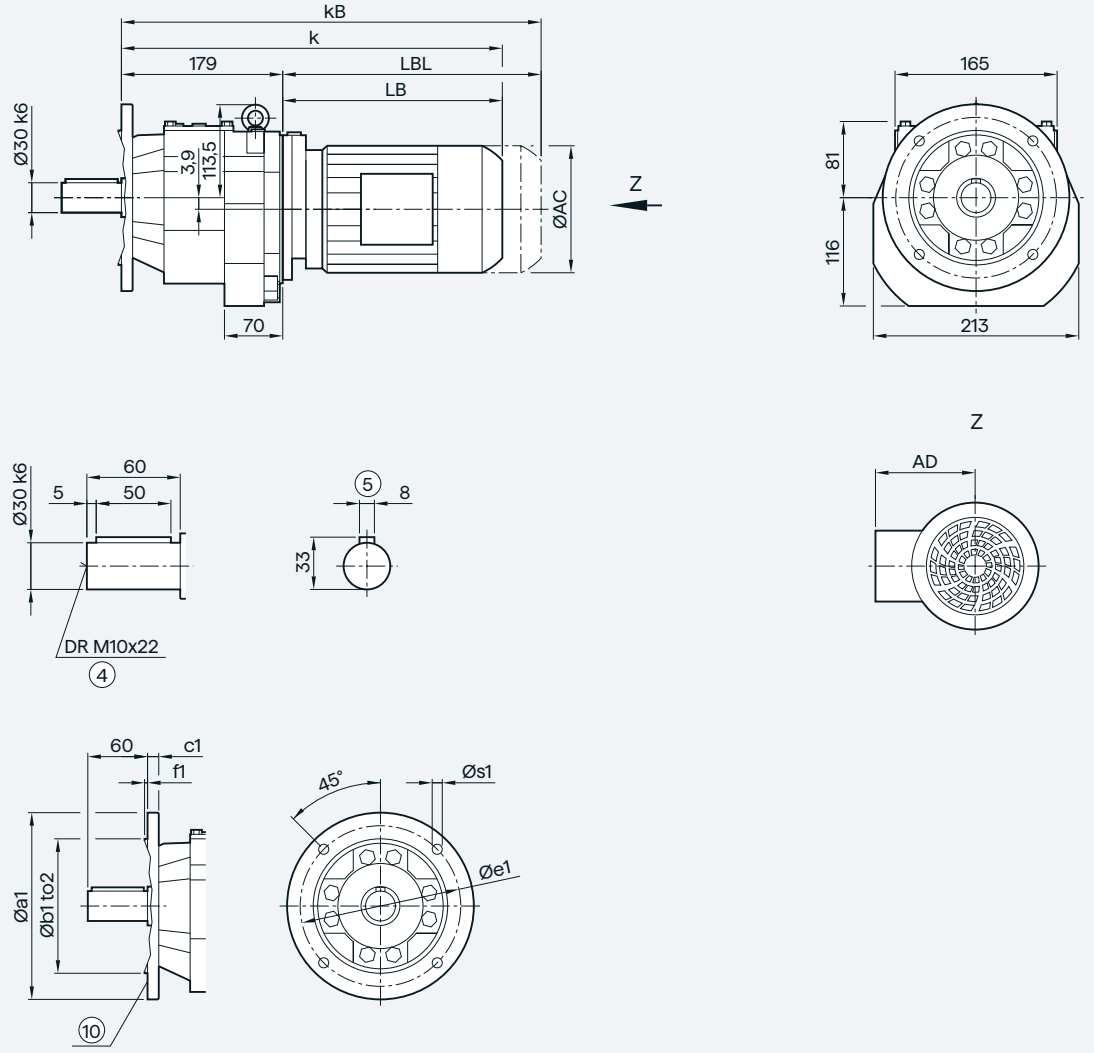
3

Gearbox ZF/DF49 in a flange-mounted design

ZF/DF49



Flange	a1	b1	to2	c1	e1	f1	s1
	140	95	j6	10	115	3.0	9.0
	160	110	j6	10	130	3.5	9.0
	200	130	j6	12	165	3.5	11.0

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	363.5	389.5	395.5	414.5	454.5	459.5	494.5	521.0	561.0	577.5	612.5	587.5	622.0	640.5	690.5
kB	408.0	434.0	450.5	469.5	509.5	519.5	554.5	591.0	631.0	656.0	691.0	660.5	695.0	745.0	795.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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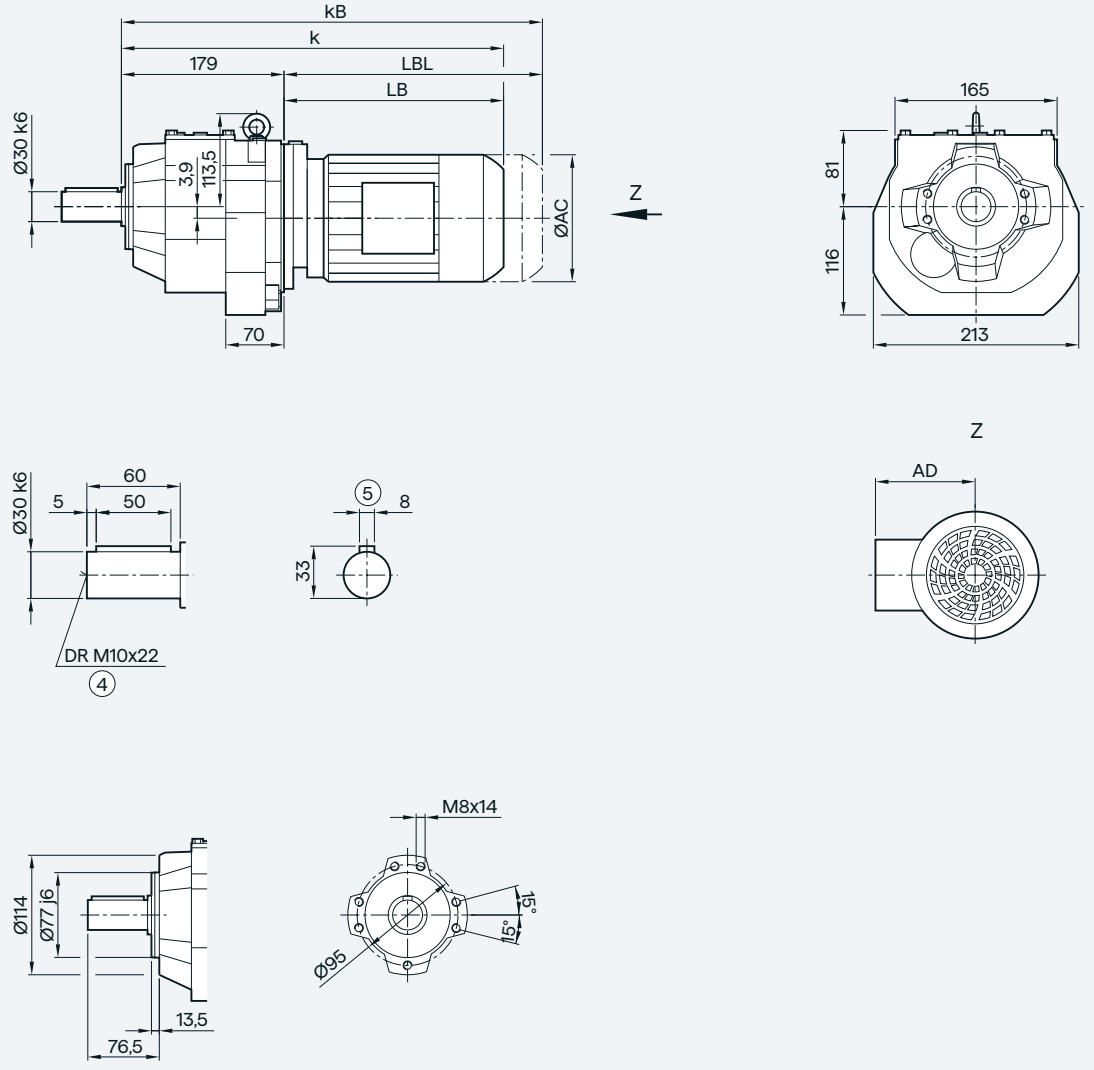
Gearbox ZZ/DZ49 in a housing flange design

ZZ/DZ49



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	363.5	389.5	395.5	414.5	454.5	459.5	494.5	521.0	561.0	577.5	612.5	587.5	622.0	640.5	690.5
kB	408.0	434.0	450.5	469.5	509.5	519.5	554.5	591.0	631.0	656.0	691.0	660.5	695.0	745.0	795.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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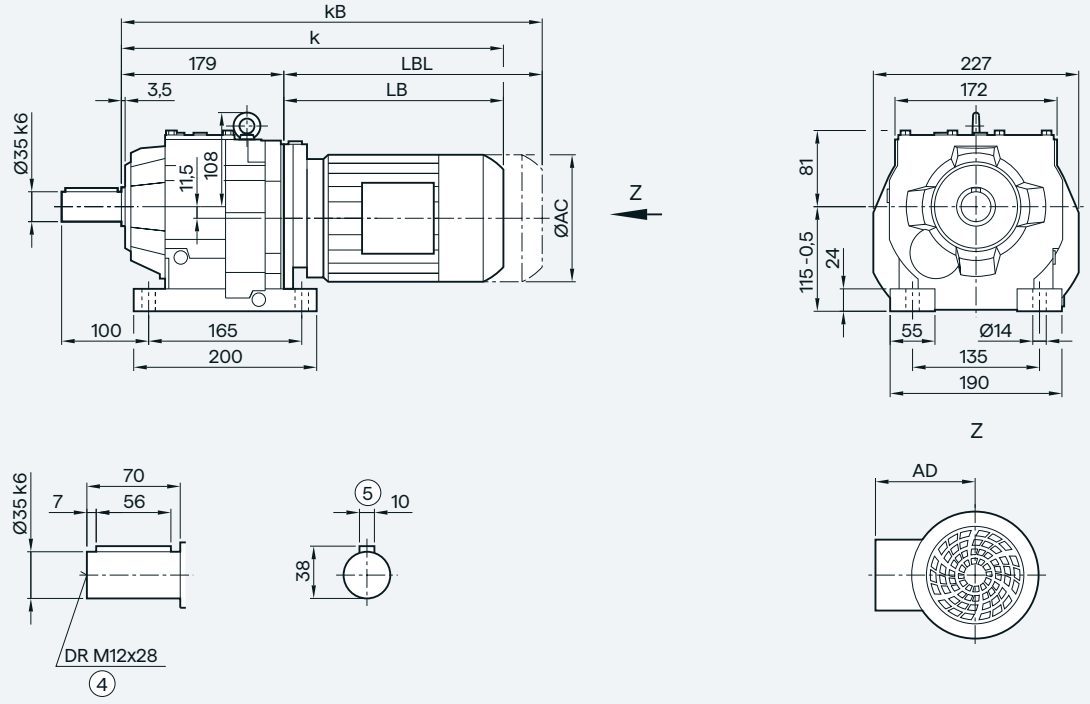
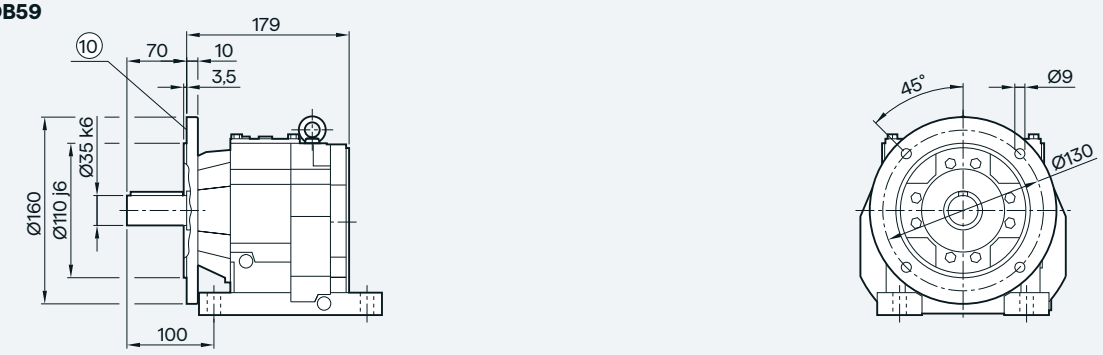
Helical geared motors

Gearbox Z/D59 in a foot-mounted design and ZB/DB59 in a foot/flange-mounted design

Z/D59



ZB/DB59



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	363.5	389.5	395.5	414.5	454.5	459.5	494.5	521.0	561.0	577.5	612.5	587.5	622.0	640.5	690.5
kB	408.0	434.0	450.5	469.5	509.5	519.5	554.5	591.0	631.0	656.0	691.0	660.5	695.0	745.0	795.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

⑩ For inner contour, see page 3/181

1) AD depends on the motor options, for other dimensions, see page 9/46.

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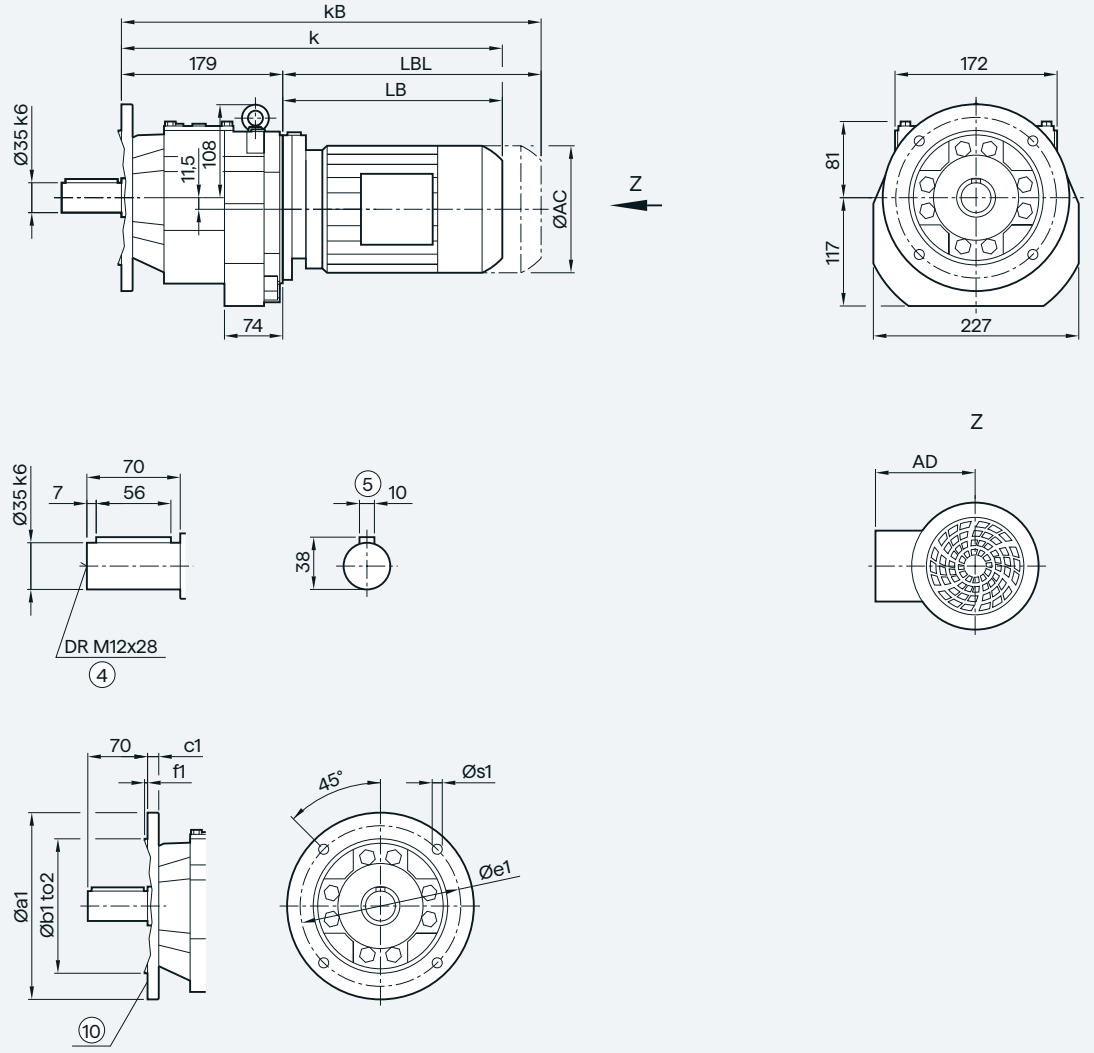
Gearbox ZF/DF59 in a flange-mounted design

ZF/DF59



Flange	a1	b1	to2	c1	e1	f1	s1
	160	110	j6	10	130	3.5	9.0
	200	130	j6	12	165	3.5	11.0
	250	180	j6	15	215	4.0	13.5

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	363.5	389.5	395.5	414.5	454.5	459.5	494.5	521.0	561.0	577.5	612.5	587.5	622.0	640.5	690.5
kB	408.0	434.0	450.5	469.5	509.5	519.5	554.5	591.0	631.0	656.0	691.0	660.5	695.0	745.0	795.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181

1) AD depends on the motor options, for other dimensions, see page 9/46.

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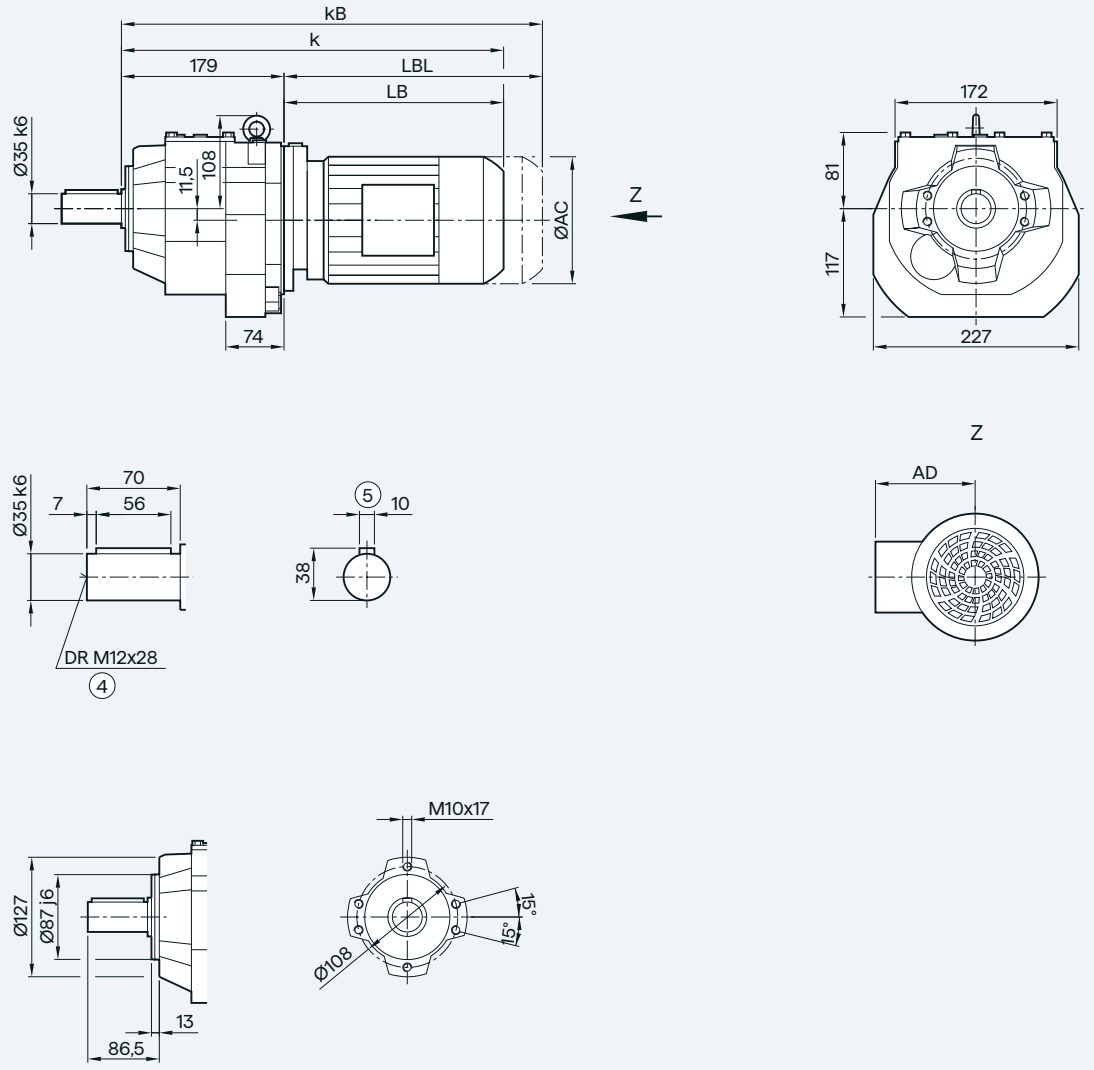
Helical geared motors

Gearbox ZZ/DZ59 in a housing flange design

ZZ/DZ59



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	363.5	389.5	395.5	414.5	454.5	459.5	494.5	521.0	561.0	577.5	612.5	587.5	622.0	640.5	690.5
kB	408.0	434.0	450.5	469.5	509.5	519.5	554.5	591.0	631.0	656.0	691.0	660.5	695.0	745.0	795.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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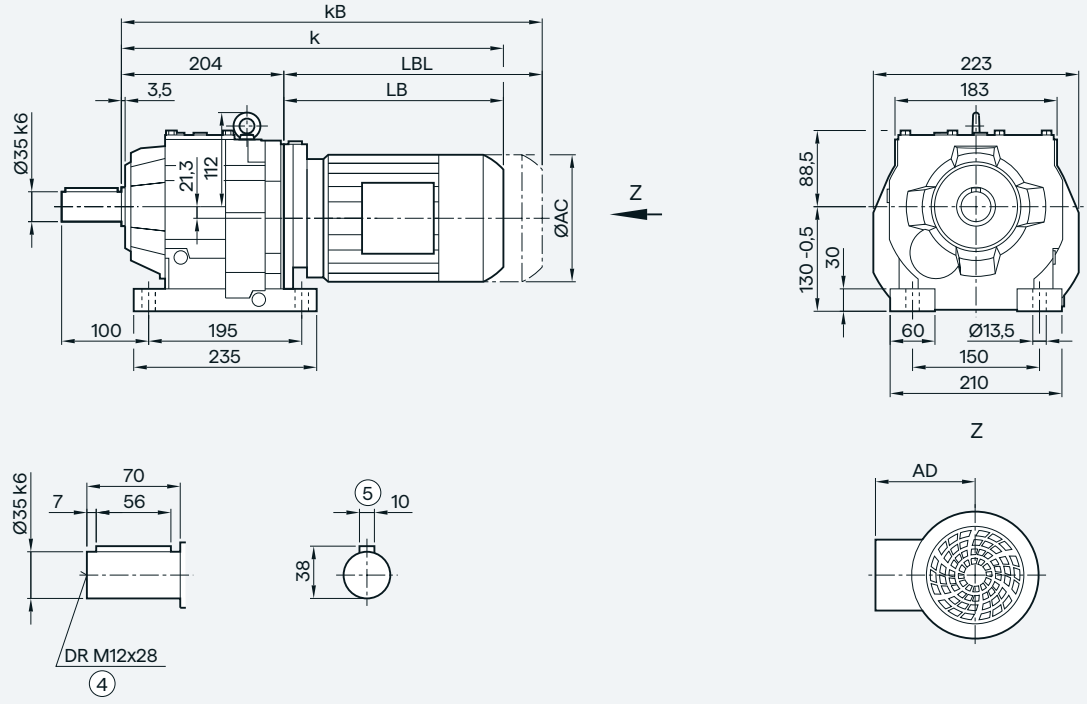
Gearbox Z/D69 in a foot-mounted design and ZB/DB69 in a foot/flange-mounted design

Z/D69



ZB/DB69

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	388.5	414.5	420.5	439.5	479.5	484.5	519.5	546.0	586.0	602.5	637.5	612.5	647.0	665.5	715.5
kB	433.0	459.0	475.5	494.5	534.5	544.5	579.5	616.0	656.0	681.0	716.0	685.5	720.0	770.0	820.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	340.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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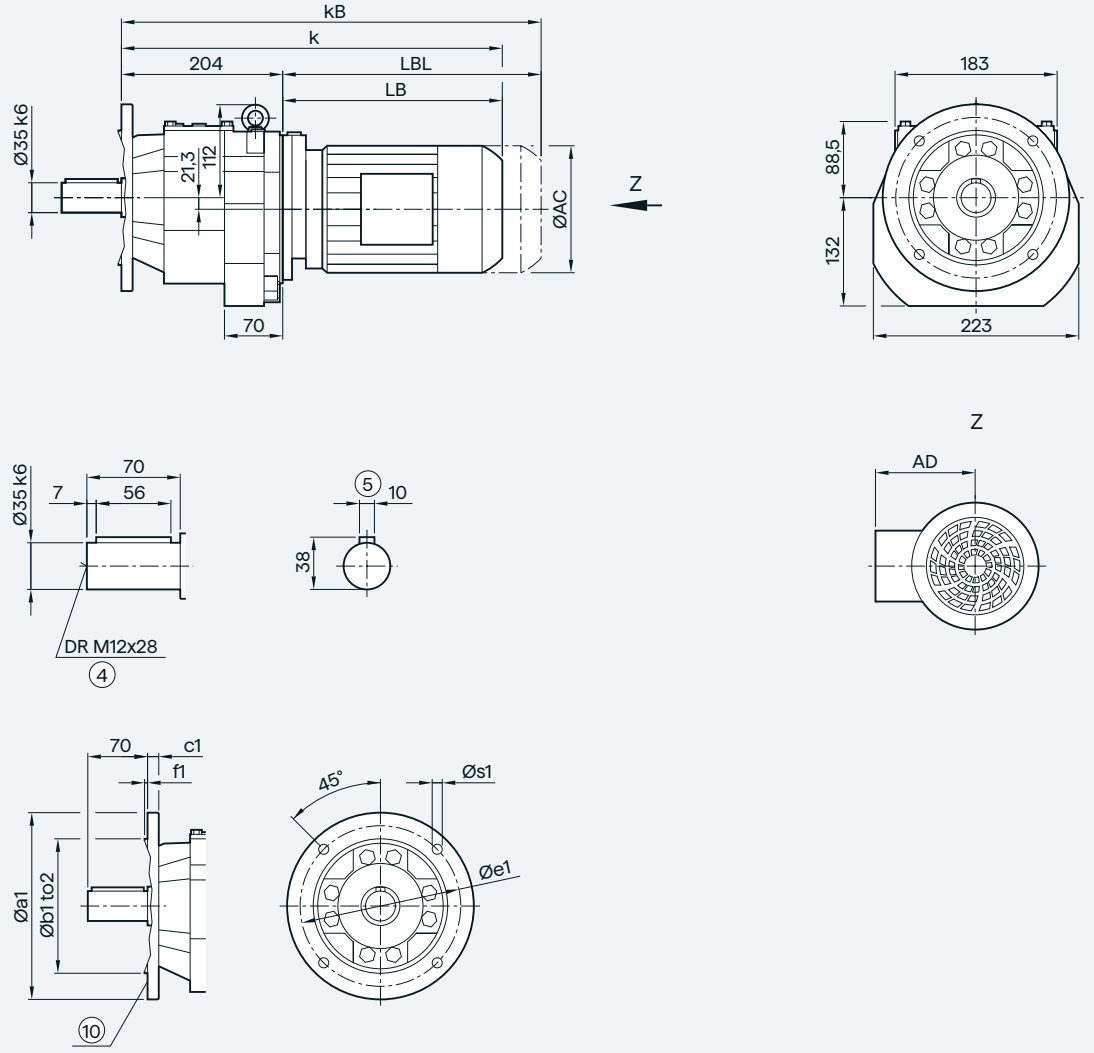
3

Gearbox ZF/DF69 in a flange-mounted design

ZF/DF69



Flange	a1	b1	to2	c1	e1	f1	s1
	200	130	j6	12	165	3.5	11.0
	250	180	j6	15	215	4.0	13.5

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	388.5	414.5	420.5	439.5	479.5	484.5	519.5	546.0	586.0	602.5	637.5	612.5	647.0	665.5	715.5
kB	433.0	459.0	475.5	494.5	534.5	544.5	579.5	616.0	656.0	681.0	716.0	685.5	720.0	770.0	820.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	340.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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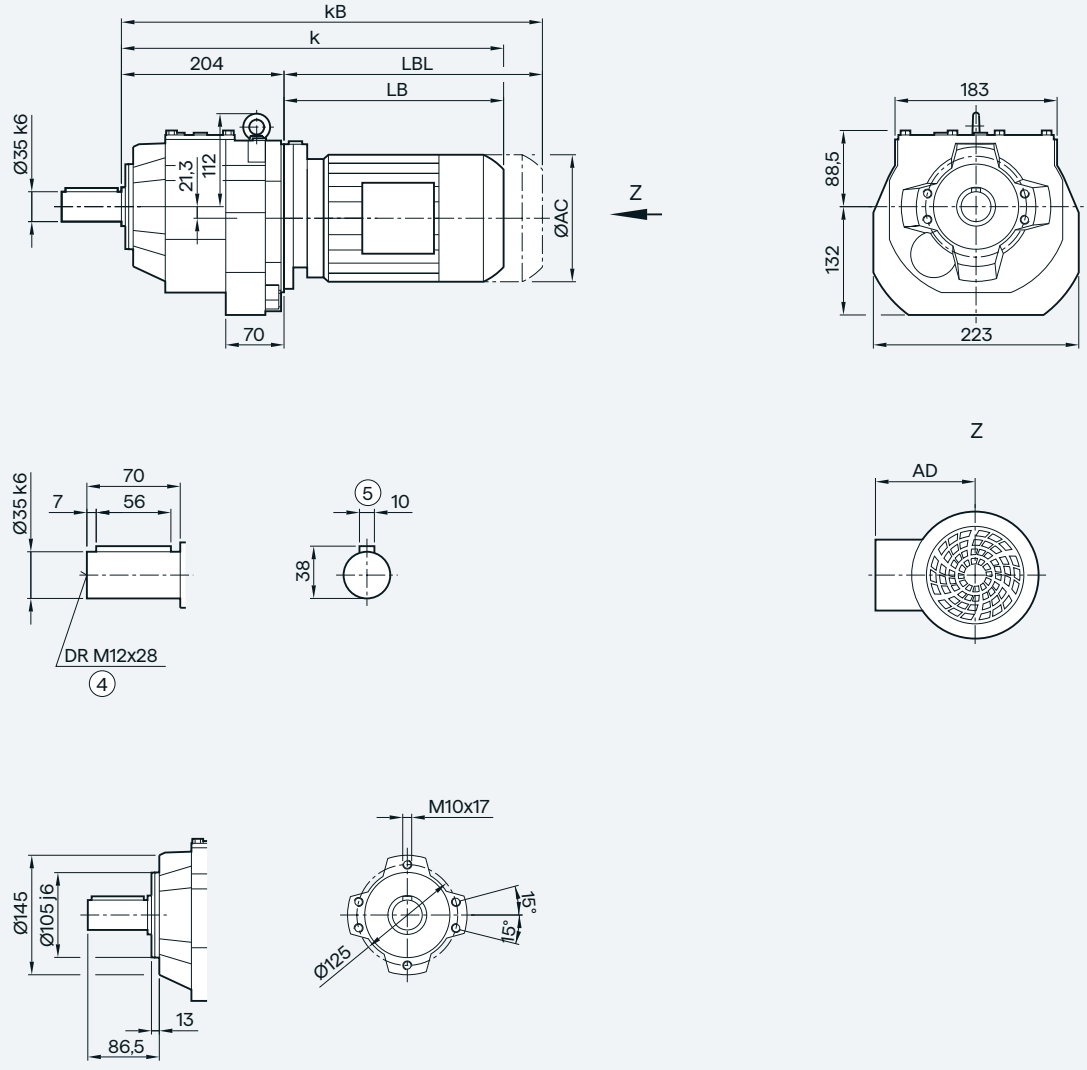
Gearbox ZZ/DZ69 in a housing flange design

ZZ/DZ69



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	388.5	414.5	420.5	439.5	479.5	484.5	519.5	546.0	586.0	602.5	637.5	612.5	647.0	665.5	715.5
kB	433.0	459.0	475.5	494.5	534.5	544.5	579.5	616.0	656.0	681.0	716.0	685.5	720.0	770.0	820.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	340.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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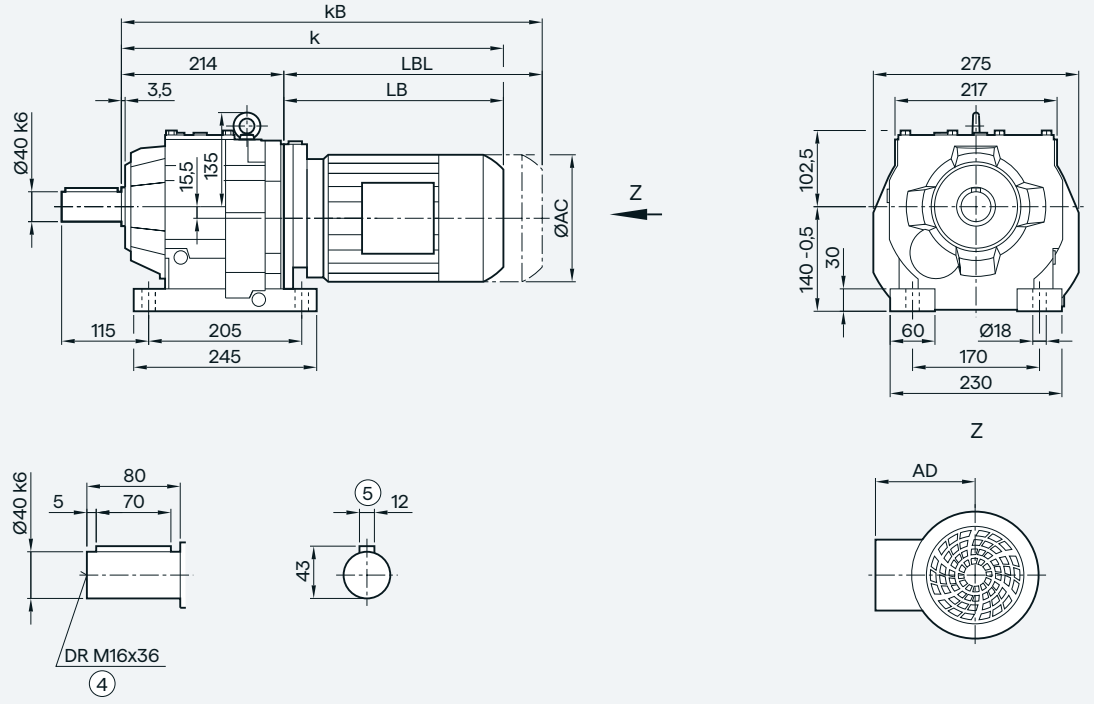
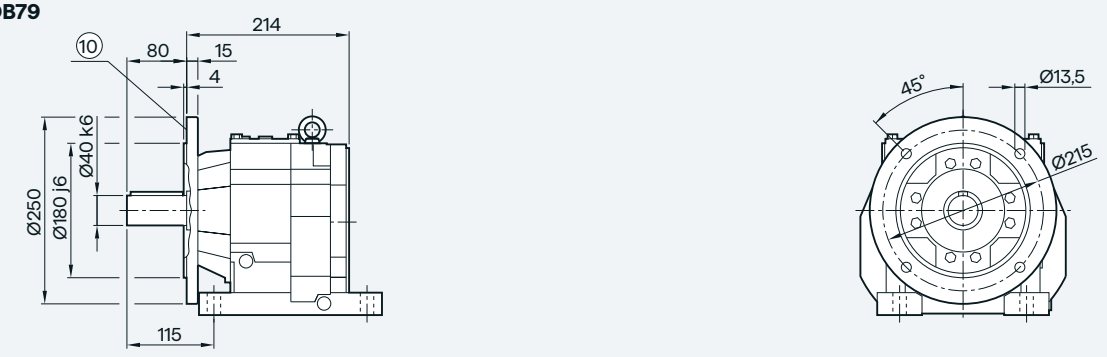
3

Gearbox Z/D79 in a foot-mounted design and ZB/DB79 in a foot/flange-mounted design

Z/D79



ZB/DB79



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	428.5	447.5	487.5	488.5	523.5	550.0	590.0	606.5	641.5	616.5	641.5	669.5	719.5	751.5	811.5
kB	483.5	502.5	542.5	548.5	583.5	620.0	660.0	685.0	720.0	689.5	714.5	774.0	824.0	867.5	927.5
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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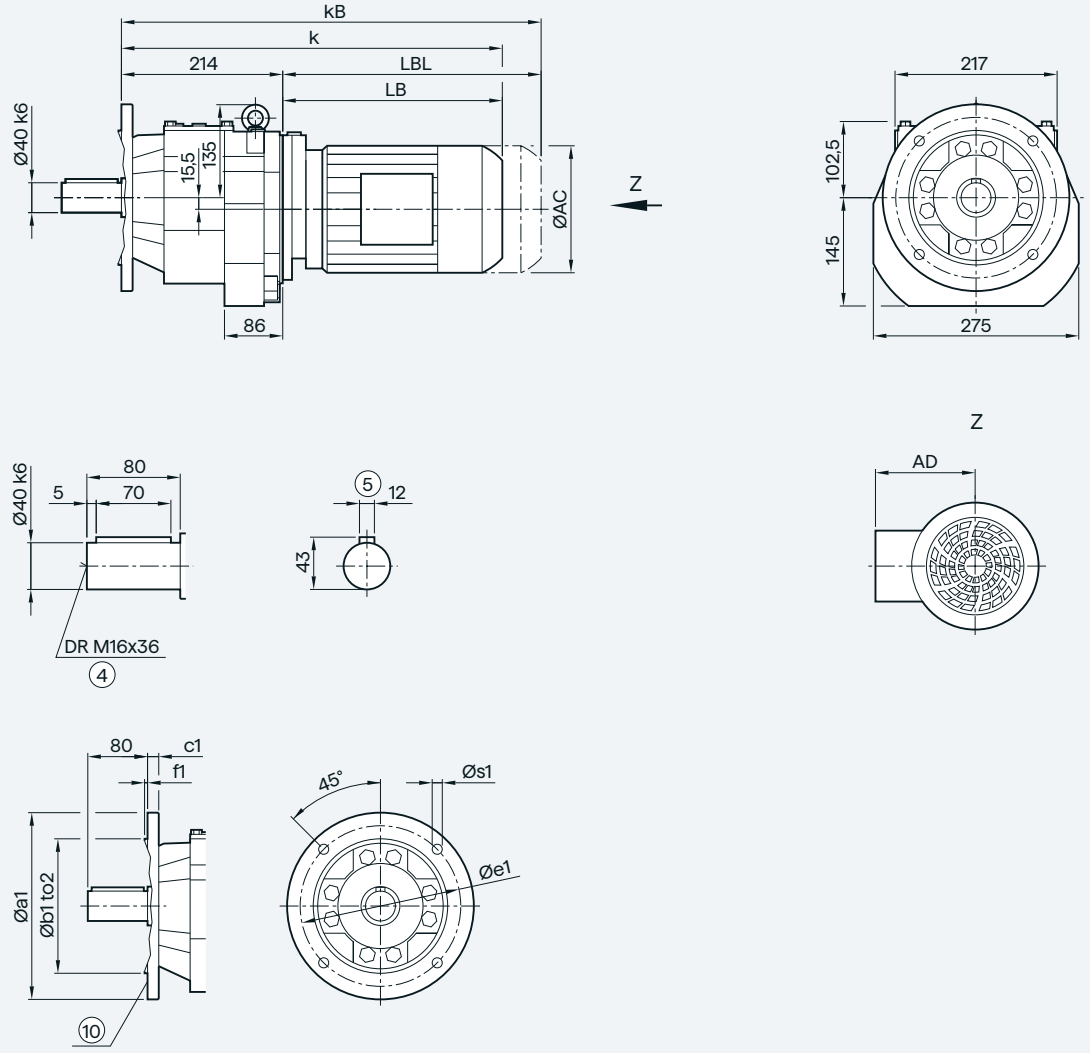
Gearbox ZF/DF79 in a flange-mounted design

ZF/DF79



Flange	a1	b1	to2	c1	e1	f1	s1
	250	180	j6	15	215	4.0	13.5
	300	230	j6	16	265	4.0	13.5
	350	250	j6	16	300	5.0	17.5

Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	428.5	447.5	487.5	488.5	523.5	550.0	590.0	606.5	641.5	616.5	641.5	669.5	719.5	751.5	811.5
kB	483.5	502.5	542.5	548.5	583.5	620.0	660.0	685.0	720.0	689.5	714.5	774.0	824.0	867.5	927.5
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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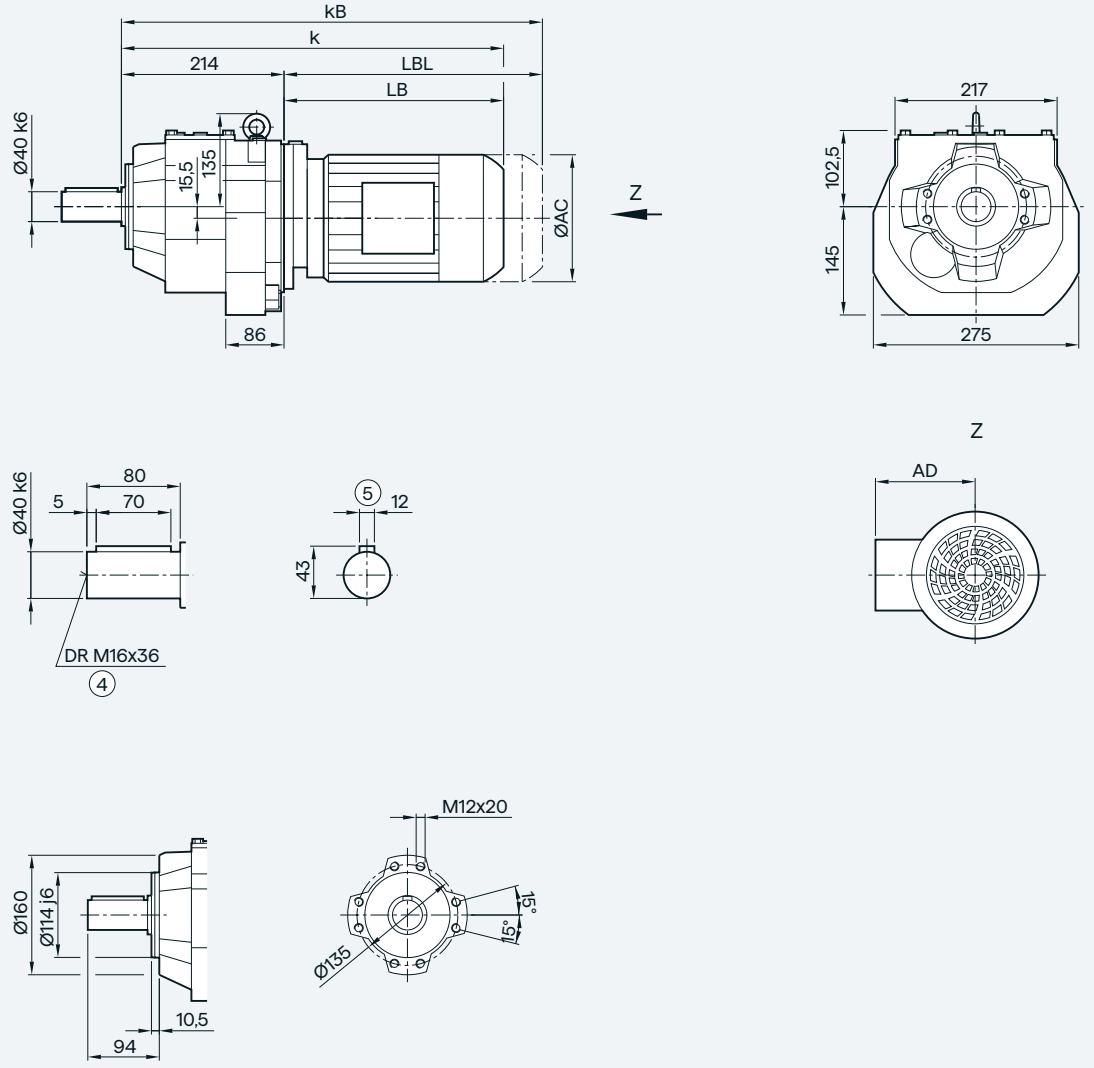
Helical geared motors

Gearbox ZZ/DZ79 in a housing flange design

ZZ/DZ79



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	428.5	447.5	487.5	488.5	523.5	550.0	590.0	606.5	641.5	616.5	641.5	669.5	719.5	751.5	811.5
kB	483.5	502.5	542.5	548.5	583.5	620.0	660.0	685.0	720.0	689.5	714.5	774.0	824.0	867.5	927.5
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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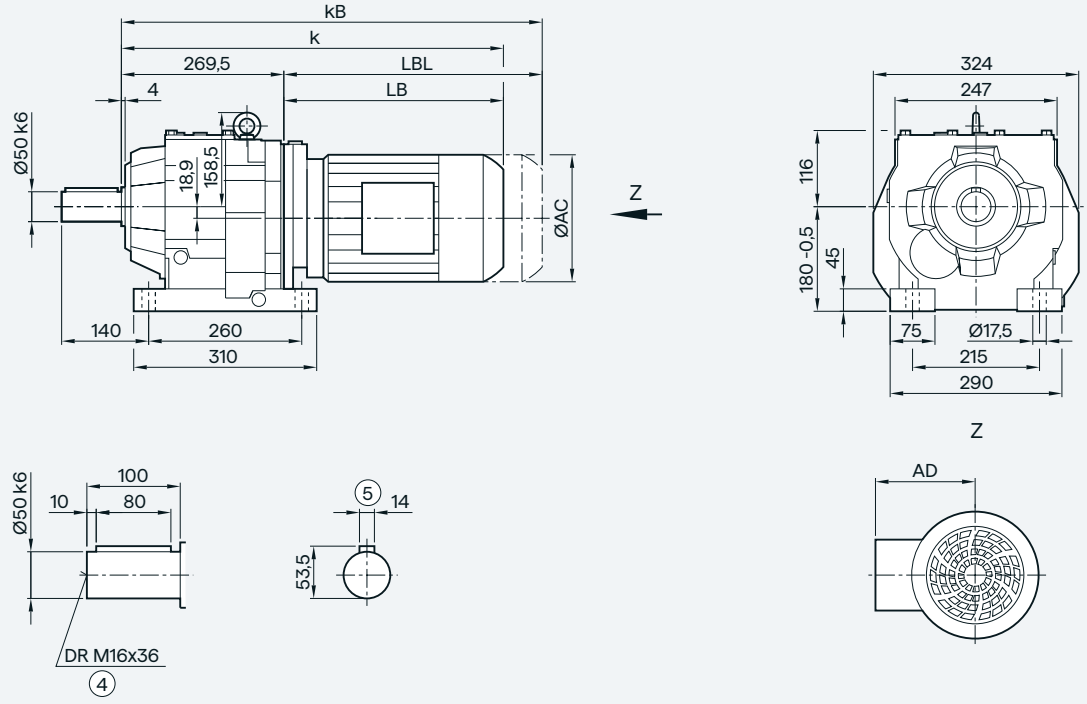
Gearbox Z/D89 in a foot-mounted design and ZB/DB89 in a foot/flange-mounted design

Z/D89



ZB/DB89

Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	531.0	566.0	592.5	632.5	645.0	680.0	655.0	680.0	708.0	758.0	790.0	850.0	863.0	893.0
kB	591.0	626.0	662.5	702.5	723.5	758.5	728.0	753.0	812.5	862.5	906.0	966.0	992.0	1022.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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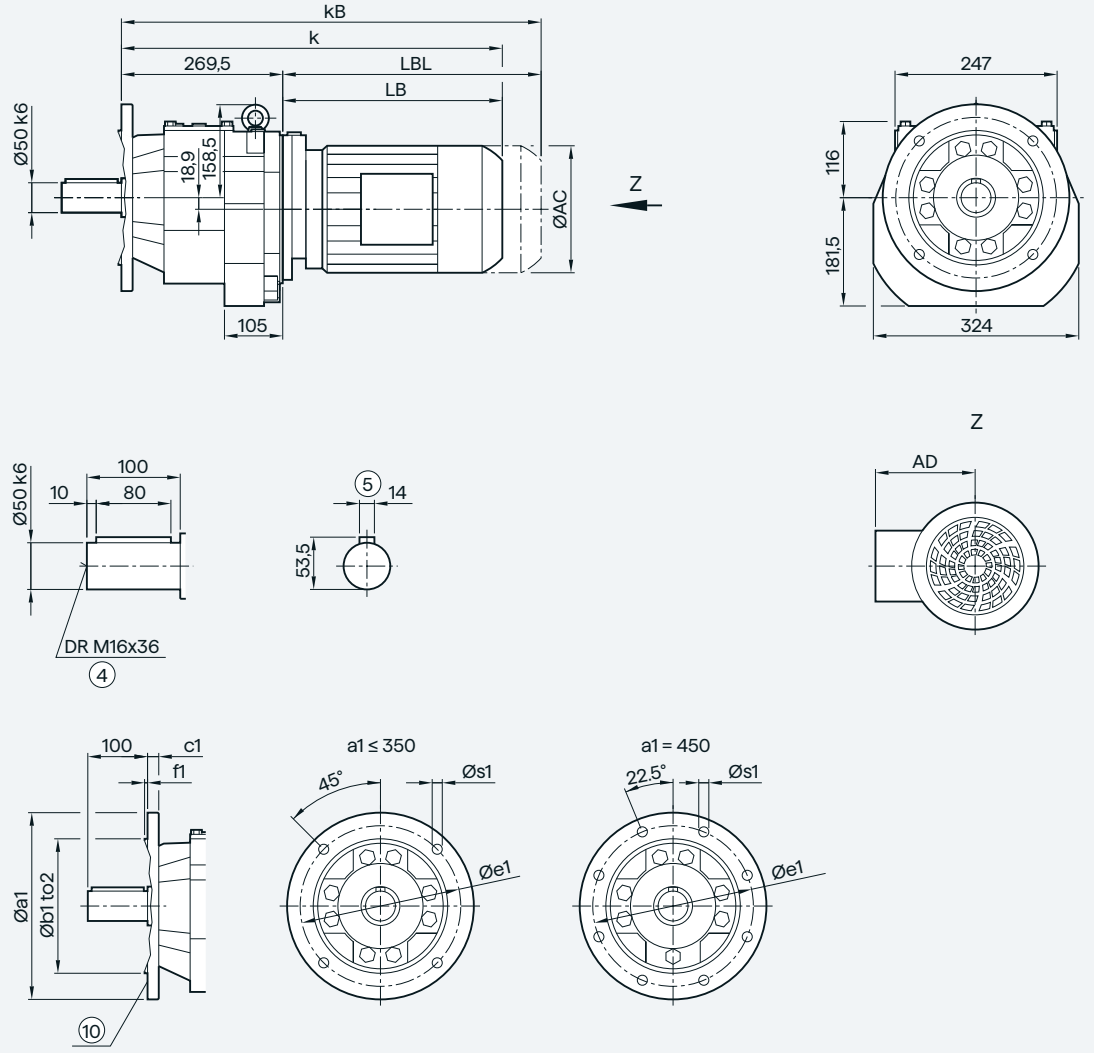
Gearbox ZF/DF89 in a flange-mounted design

ZF/DF89



Flange	a1	b1	to2	c1	e1	f1	s1
	300	230	j6	16	265	4.0	13.5
	350	250	j6	18	300	5.0	17.5
	450	350	h6	18	400	5.0	17.5

Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	531.0	566.0	592.5	632.5	645.0	680.0	655.0	680.0	708.0	758.0	790.0	850.0	863.0	893.0
kB	591.0	626.0	662.5	702.5	723.5	758.5	728.0	753.0	812.5	862.5	906.0	966.0	992.0	1022.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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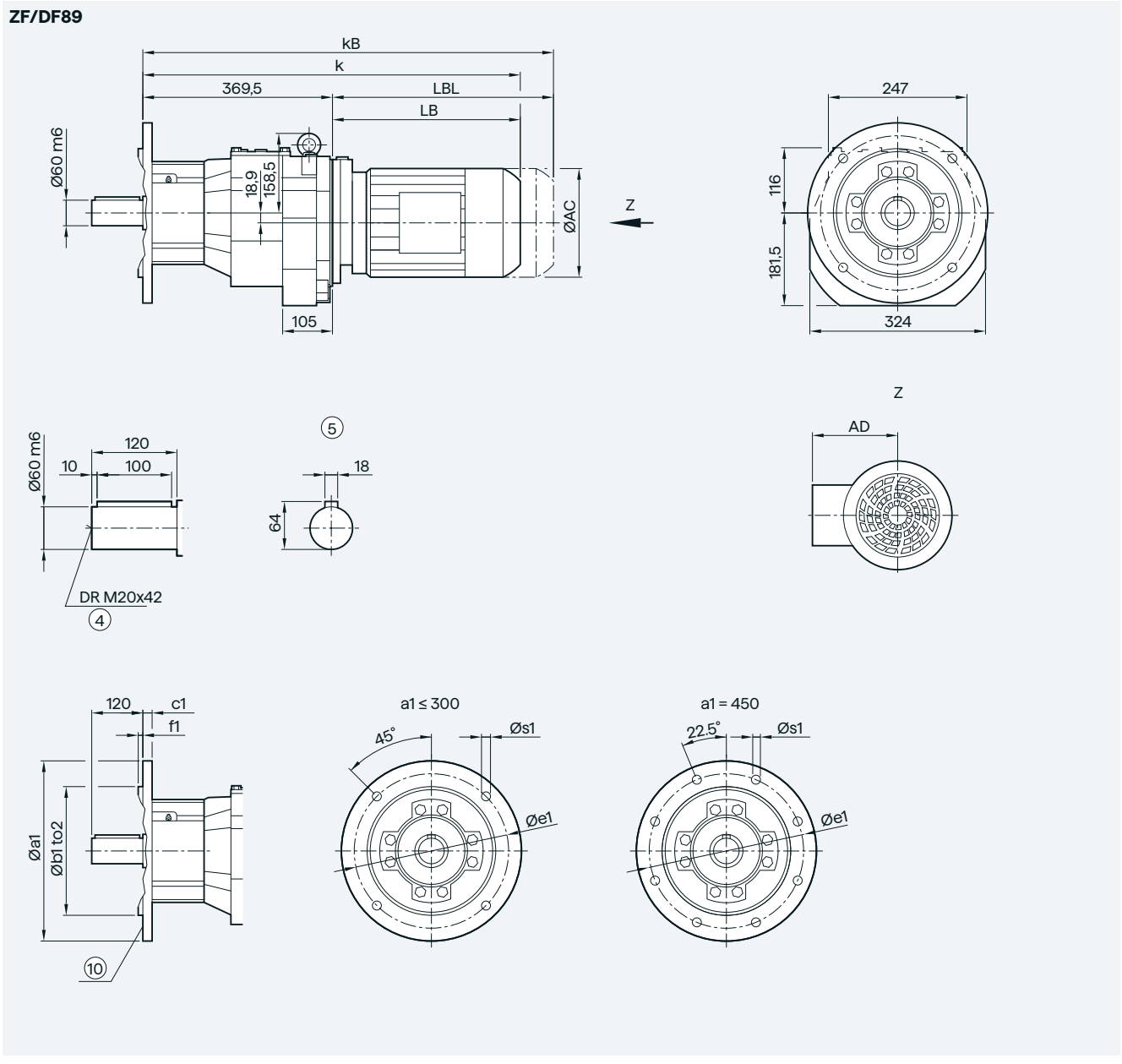
Gearbox ZF/DF89 in a flange-mounted design with VLplus reinforced bearing system (G30)

ZF/DF89



Flange	a1	b1	to2	c1	e1	f1	s1
	300	230	j6	16	265	4.0	13.5
	350	250	j6	18	300	5.0	17.5
	450	350	h6	18	400	5.0	17.5

Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	631.0	666.0	692.5	732.5	745.0	780.0	755.0	780.0	808.0	858.0	890.0	950.0	963.0	993.0
kB	691.0	726.0	762.5	802.5	823.5	858.5	828.0	853.0	912.5	962.5	1006.0	1066.0	1092.0	1122.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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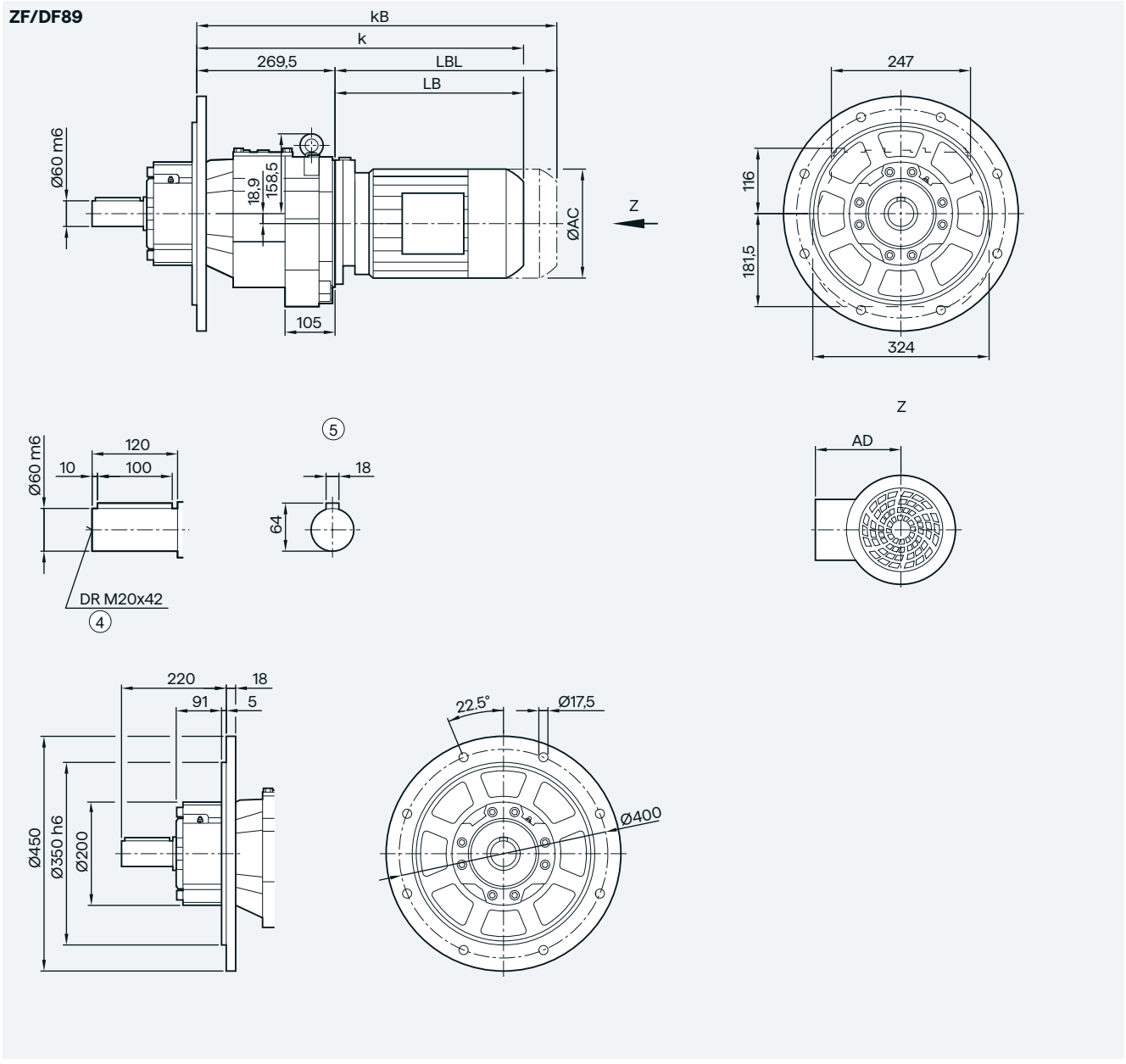
3

Gearbox ZF/DF89 in a flange-mounted design with XLplus reinforced bearing system (G31)



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	531.0	566.0	592.5	632.5	645.0	680.0	655.0	680.0	708.0	758.0	790.0	850.0	863.0	893.0
kB	591.0	626.0	662.5	702.5	723.5	758.5	728.0	753.0	812.5	862.5	906.0	966.0	992.0	1022.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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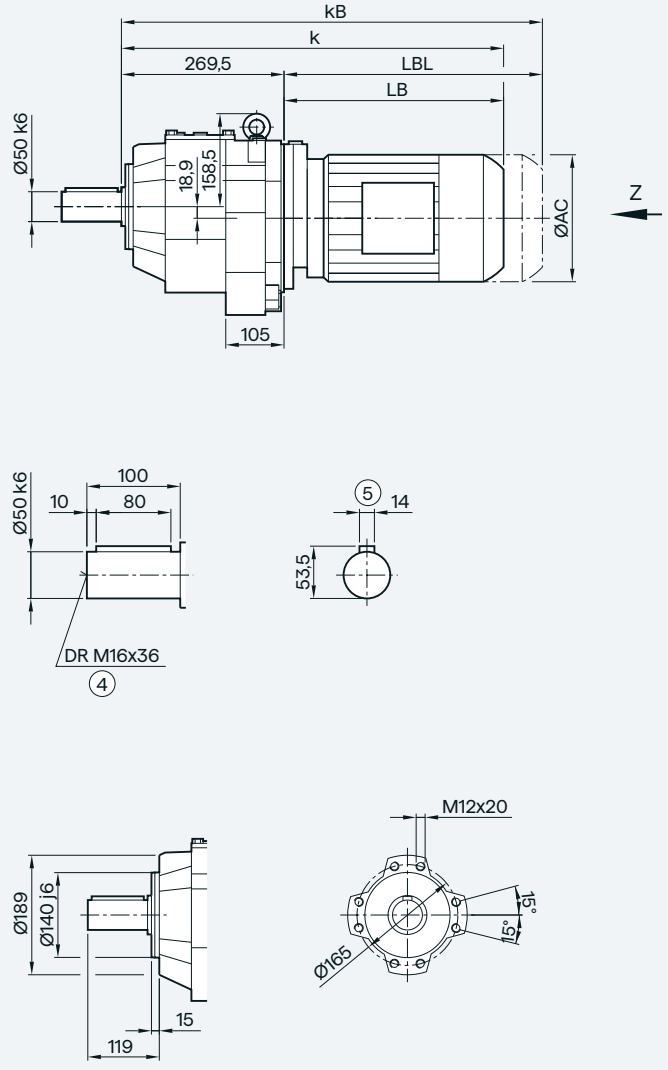
Gearbox ZZ/DZ89 in a housing flange design

ZZ/DZ89



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	531.0	566.0	592.5	632.5	645.0	680.0	655.0	680.0	708.0	758.0	790.0	850.0	863.0	893.0
kB	591.0	626.0	662.5	702.5	723.5	758.5	728.0	753.0	812.5	862.5	906.0	966.0	992.0	1022.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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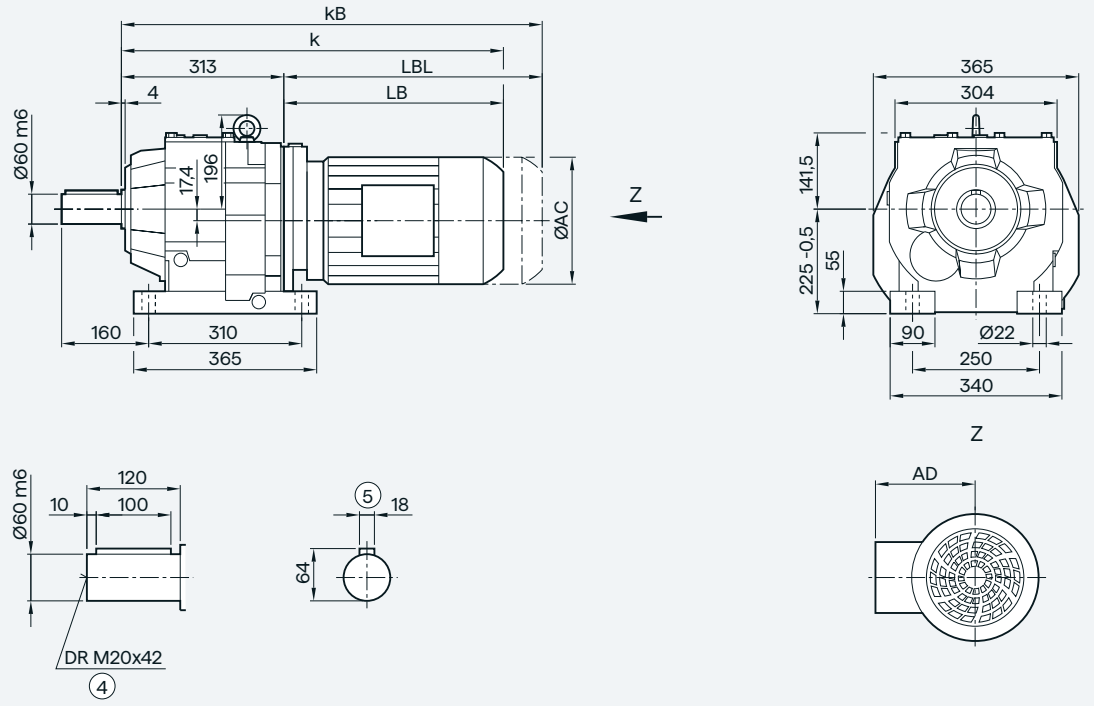
3

Gearbox Z/D109 in a foot-mounted design

Z/D109



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0
k	629.0	669.0	679.5	714.5	689.5	714.5	742.5	792.5	824.5	884.5	897.5	927.5	965.5	990.5	1011.0	1071.0
kB	699.0	739.0	758.0	793.0	762.5	787.5	847.0	897.0	940.5	1000.5	1026.5	1056.5	1112.5	1137.5	1239.0	1299.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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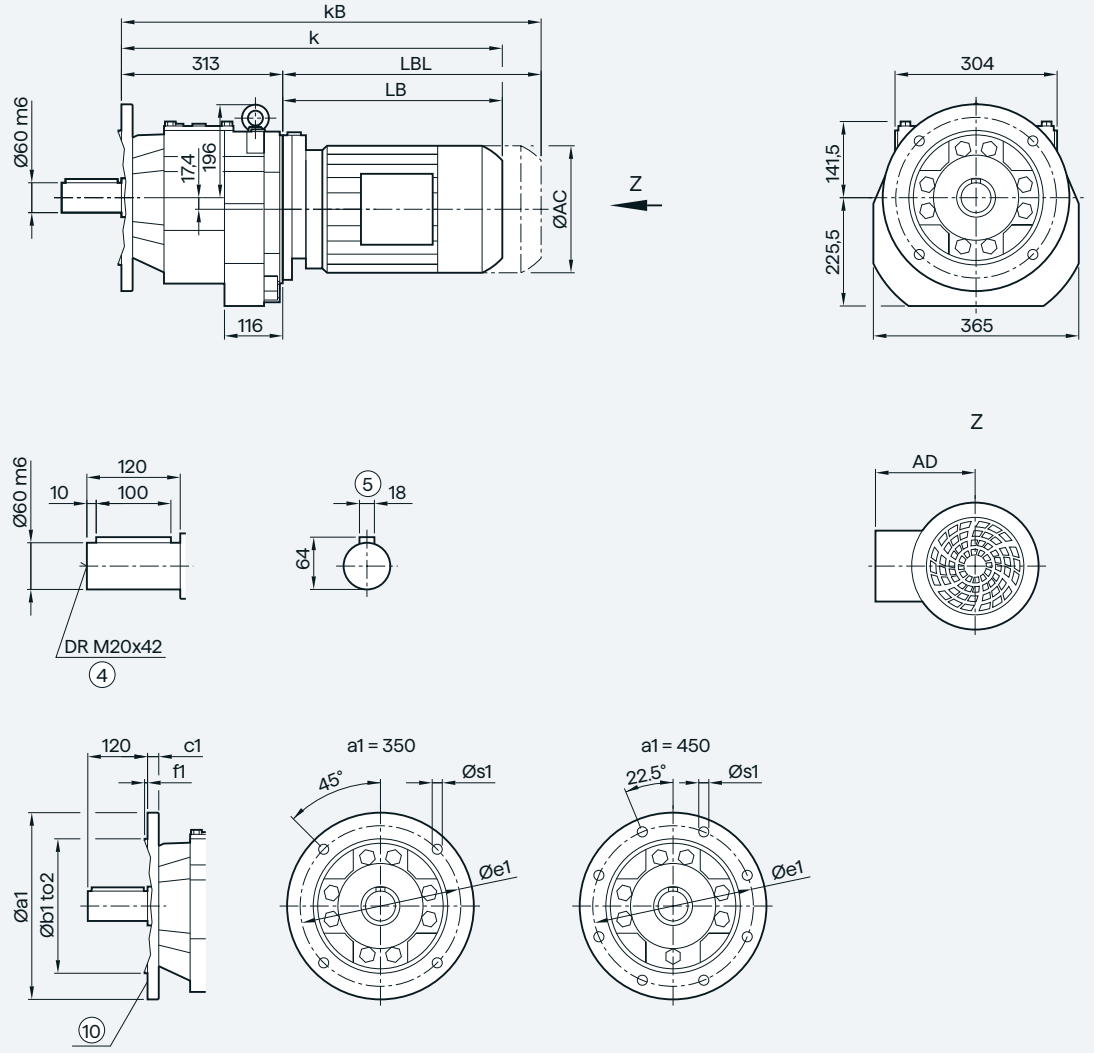
Gearbox ZF/DF109 in a flange-mounted design

ZF/DF109



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	18	300	5	17.5
	450	350	h6	22	400	5	17.5

Motor	LE										LES					
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0
k	629.0	669.0	679.5	714.5	689.5	714.5	742.5	792.5	824.5	884.5	897.5	927.5	965.5	990.5	1011.0	1071.0
kB	699.0	739.0	758.0	793.0	762.5	787.5	847.0	897.0	940.5	1000.5	1026.5	1056.5	1112.5	1137.5	1239.0	1299.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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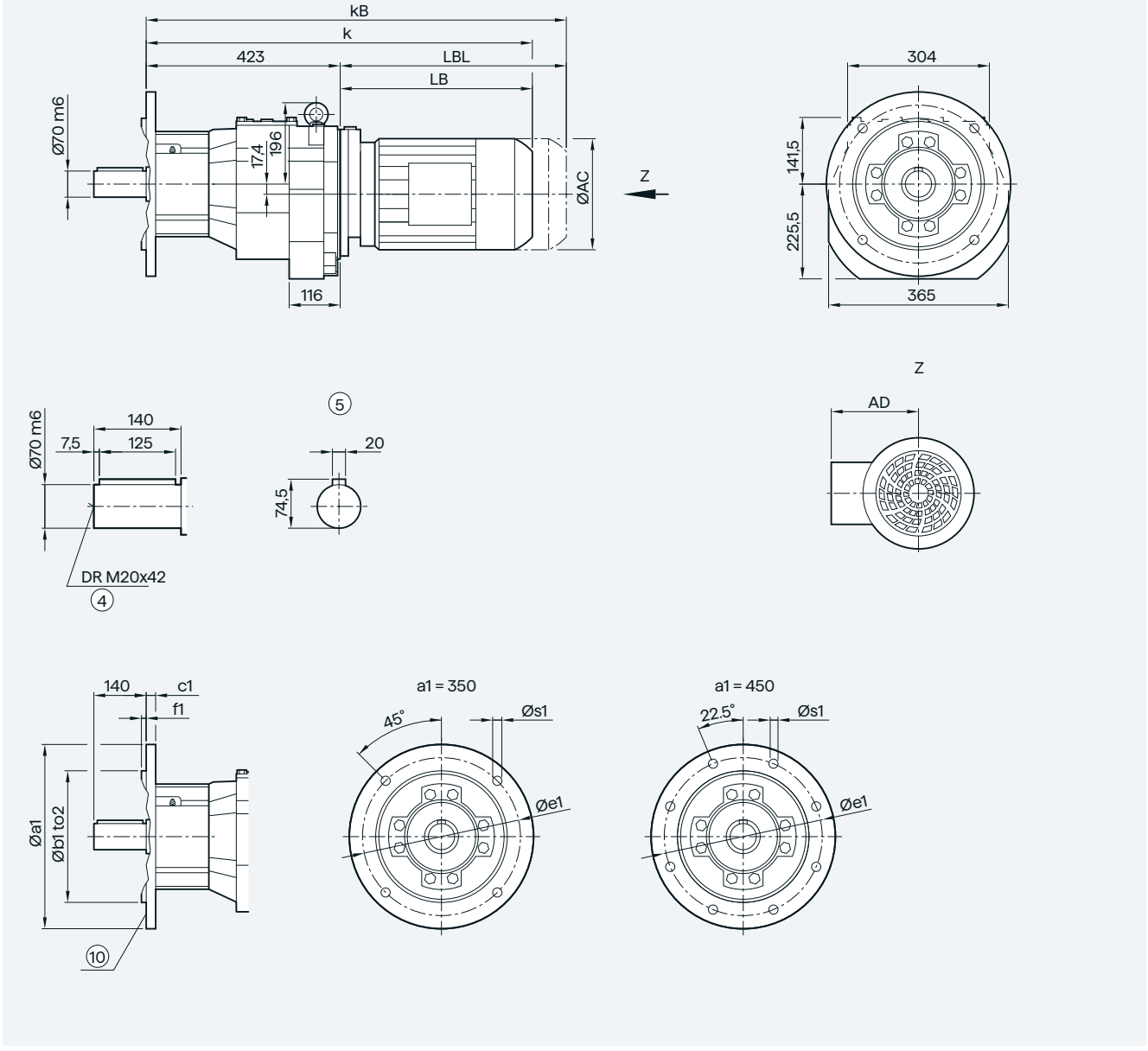
3

Gearbox ZF/DF109 in a flange-mounted design with VLplus reinforced bearing system (G30)

ZF/DF109



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	18	300	5	17.5
	450	350	h6	22	400	5	17.5

Motor	LE										LES					
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0
k	739.0	779.0	789.5	824.5	799.5	824.5	852.5	902.5	934.5	994.5	1007.5	1037.5	1075.5	1100.5	1121.0	1181.0
kB	809.0	849.0	868.0	903.0	872.5	897.5	957.0	1007.0	1050.5	1110.5	1136.5	1166.5	1222.5	1247.5	1349.0	1409.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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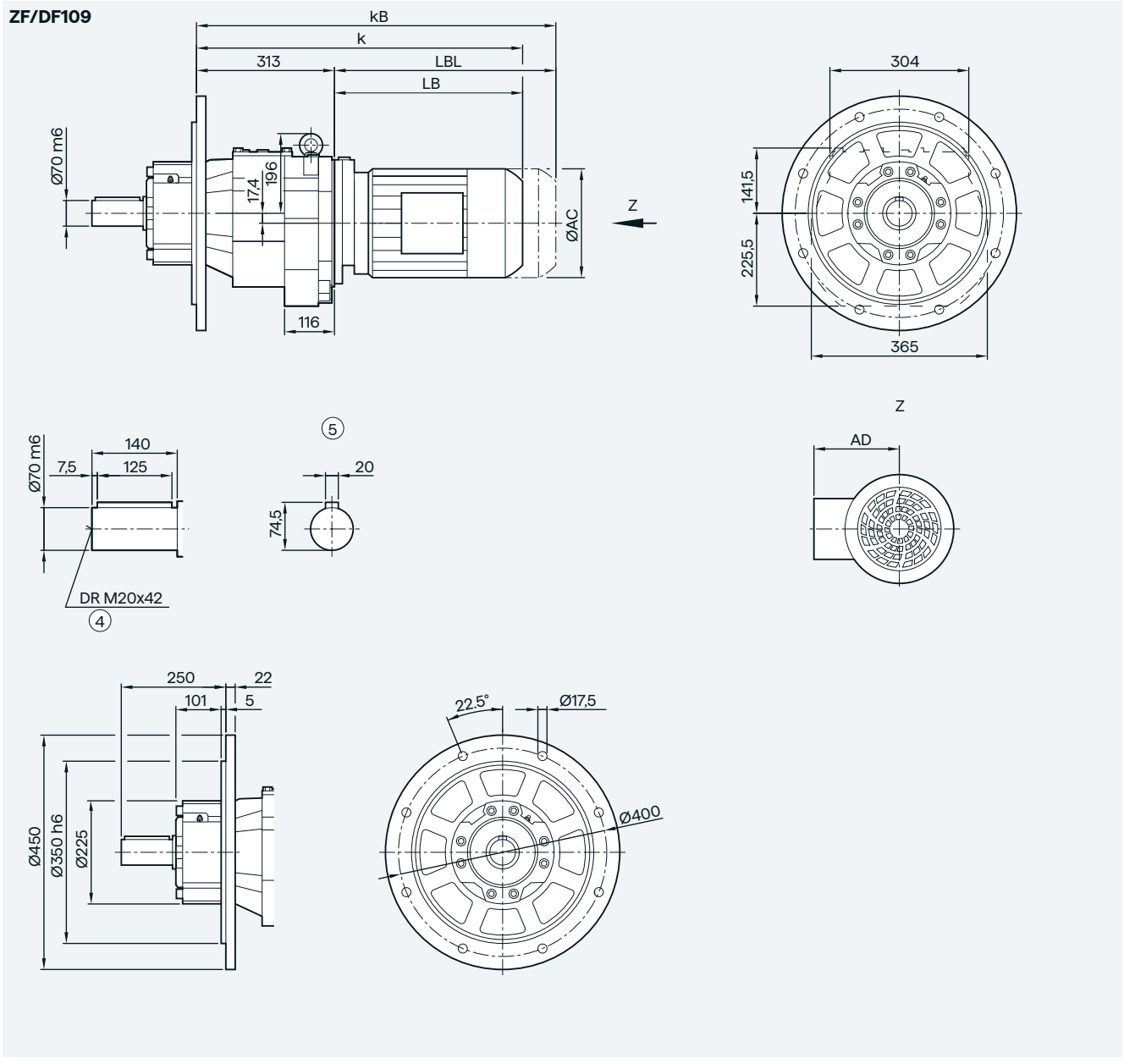
Gearbox ZF/DF109 in a flange-mounted design with XLplus reinforced bearing system (G31)



Motor	LE										LES					
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0
k	629.0	669.0	679.5	714.5	689.5	714.5	742.5	792.5	824.5	884.5	897.5	927.5	965.5	990.5	1011.0	1071.0
kB	699.0	739.0	758.0	793.0	762.5	787.5	847.0	897.0	940.5	1000.5	1026.5	1056.5	1112.5	1137.5	1239.0	1299.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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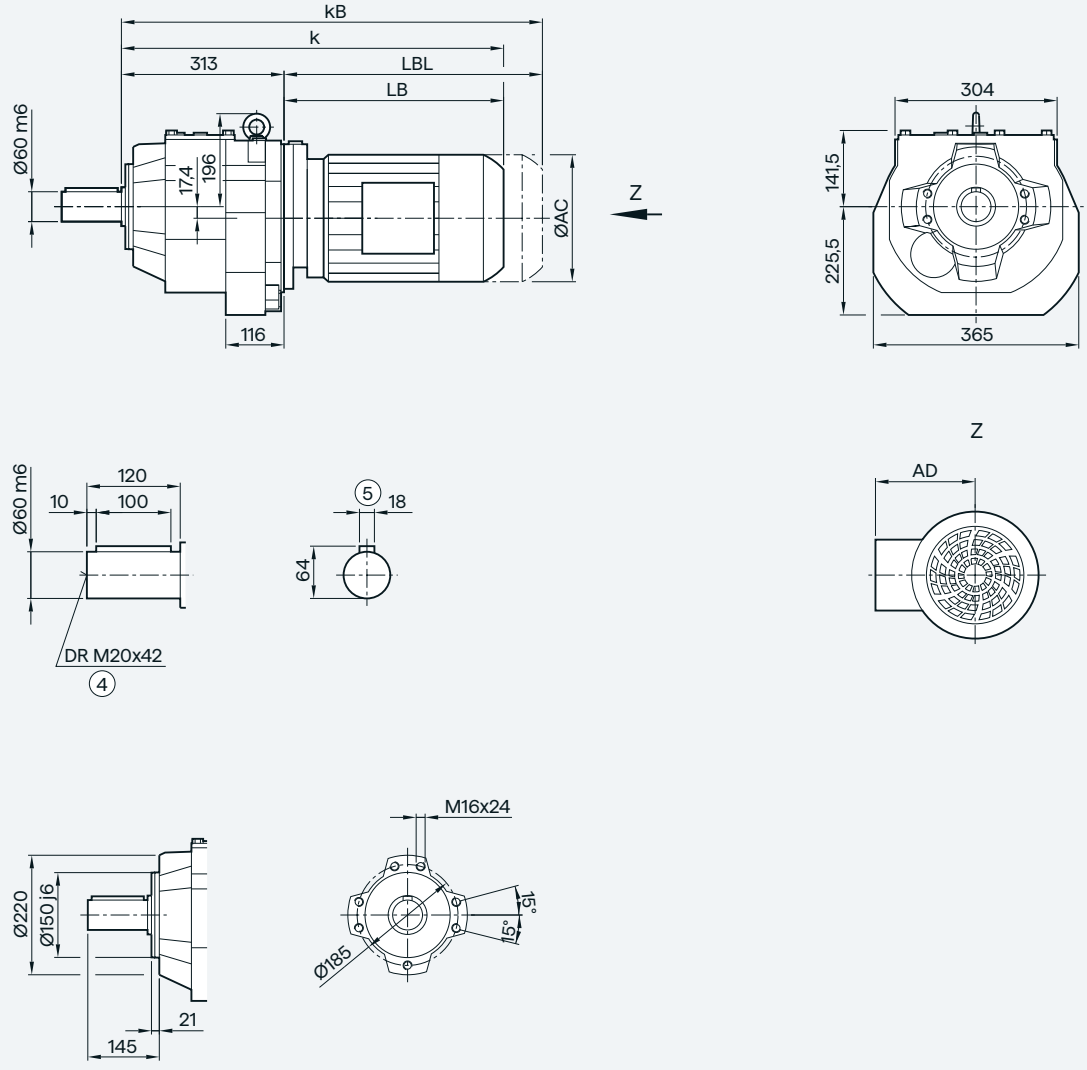
3

Gearbox ZZ/DZ109 in a housing flange design

ZZ/DZ109



Motor	LE										LES					
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0
k	629.0	669.0	679.5	714.5	689.5	714.5	742.5	792.5	824.5	884.5	897.5	927.5	965.5	990.5	1011.0	1071.0
kB	699.0	739.0	758.0	793.0	762.5	787.5	847.0	897.0	940.5	1000.5	1026.5	1056.5	1112.5	1137.5	1239.0	1299.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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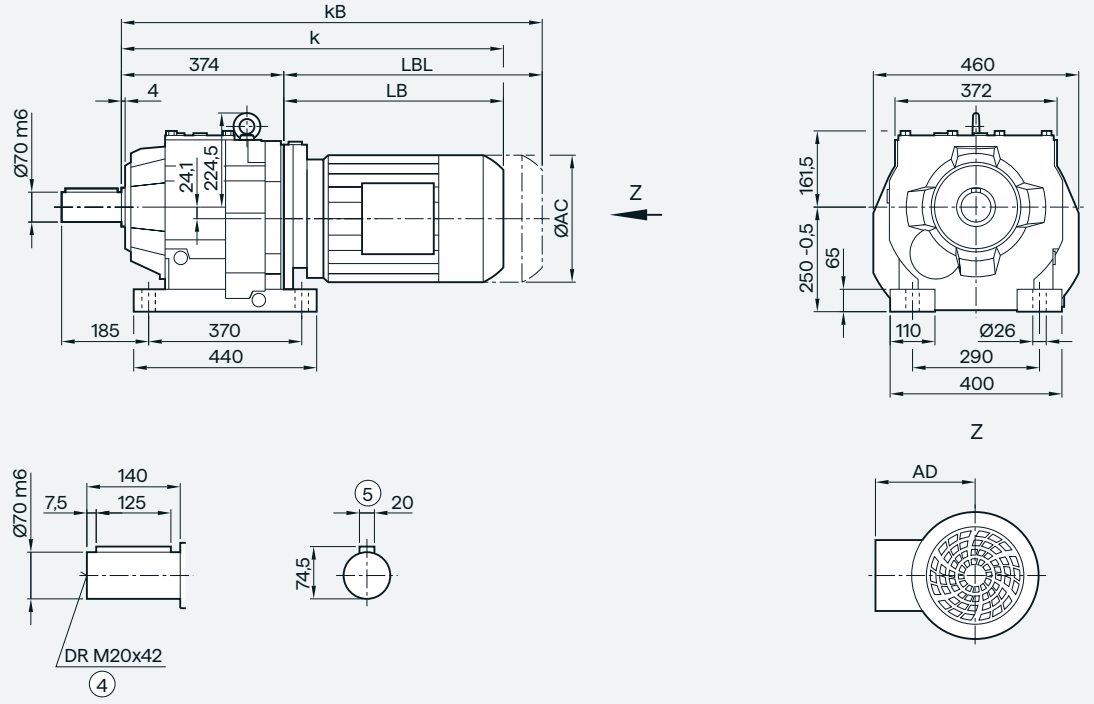
Gearbox Z/D129 in a foot-mounted design

Z/D129



Motor	LE										LES						
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	683.0	723.0	731.5	766.5	741.5	766.5	792.5	842.5	874.5	934.5	947.5	977.5	1015.5	1040.5	1061.0	1121.0	1172.5
kB	753.0	793.0	810.0	845.0	814.5	839.5	897.0	947.0	990.5	1050.5	1076.5	1106.5	1162.5	1187.5	1289.0	1349.0	1397.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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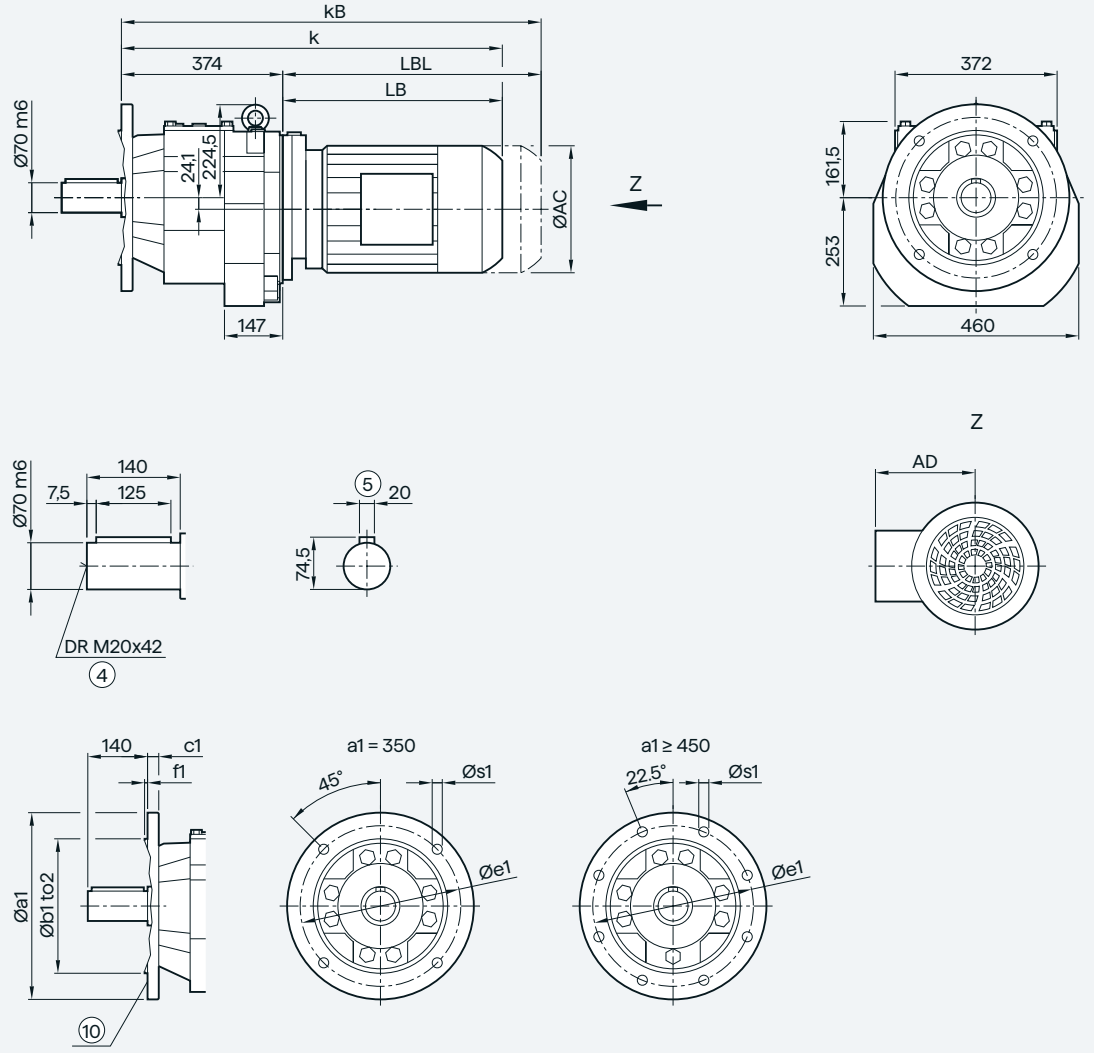
Gearbox ZF/DF129 in a flange-mounted design

ZF/DF129



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	20	300	5	17.5
	450	350	h6	22	400	5	17.5
	550	450	h6	22	500	5	17.5

Motor	LE										LES						
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	683.0	723.0	731.5	766.5	741.5	766.5	792.5	842.5	874.5	934.5	947.5	977.5	1015.5	1040.5	1061.0	1121.0	1172.5
kB	753.0	793.0	810.0	845.0	814.5	839.5	897.0	947.0	990.5	1050.5	1076.5	1106.5	1162.5	1187.5	1289.0	1349.0	1397.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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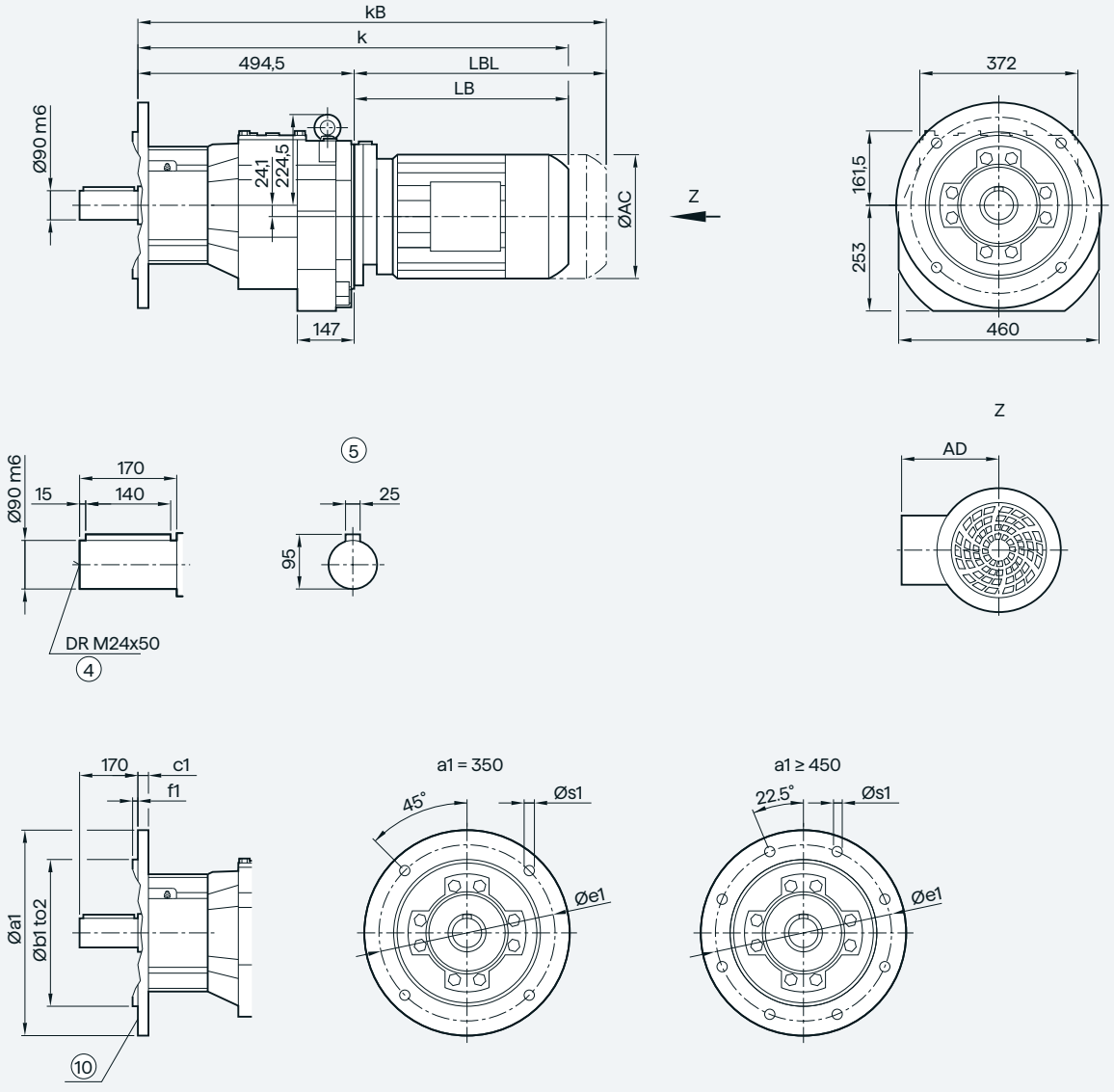
Gearbox ZF/DF129 in a flange-mounted design with VLplus reinforced bearing system (G30)

ZF/DF129



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	20	300	5	17.5
	450	350	h6	22	400	5	17.5
	550	450	h6	22	500	5	17.5

Motor	LE										LES						
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	803.0	843.0	851.5	886.5	861.5	886.5	912.5	962.5	994.5	1054.5	1067.5	1097.5	1135.5	1160.5	1181.0	1241.0	1292.5
kB	873.0	913.0	930.0	965.0	934.5	959.5	1017.0	1067.0	1110.5	1170.5	1196.5	1226.5	1282.5	1307.5	1409.0	1469.0	1517.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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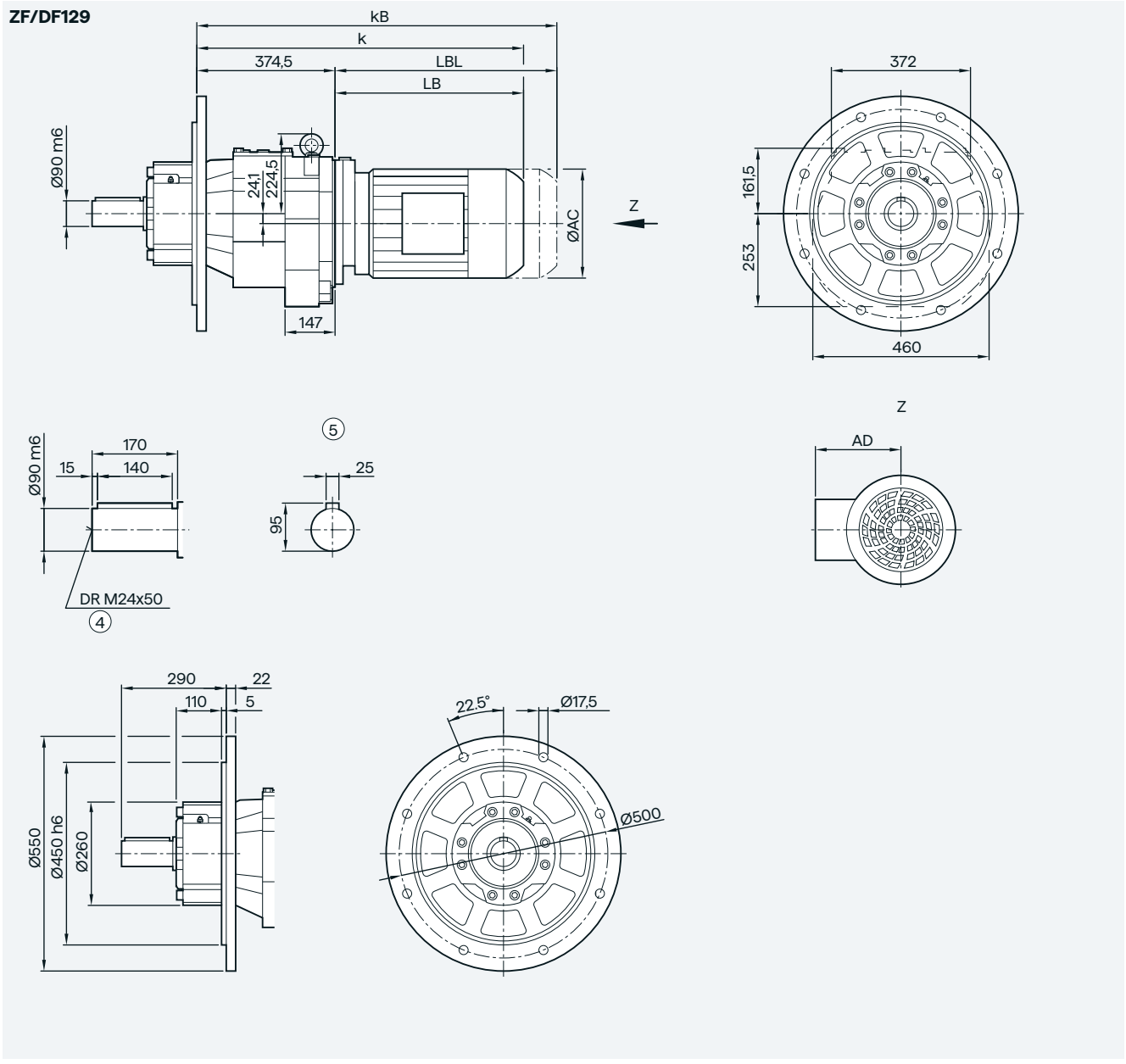
3

Gearbox ZF/DF129 in a flange-mounted design with XLplus reinforced bearing system (G31)



Motor	LE										LES						
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	683.0	723.0	731.5	766.5	741.5	766.5	792.5	842.5	874.5	934.5	947.5	977.5	1015.5	1040.5	1061.0	1121.0	1172.5
kB	753.0	793.0	810.0	845.0	814.5	839.5	897.0	947.0	990.5	1050.5	1076.5	1106.5	1162.5	1187.5	1289.0	1349.0	1397.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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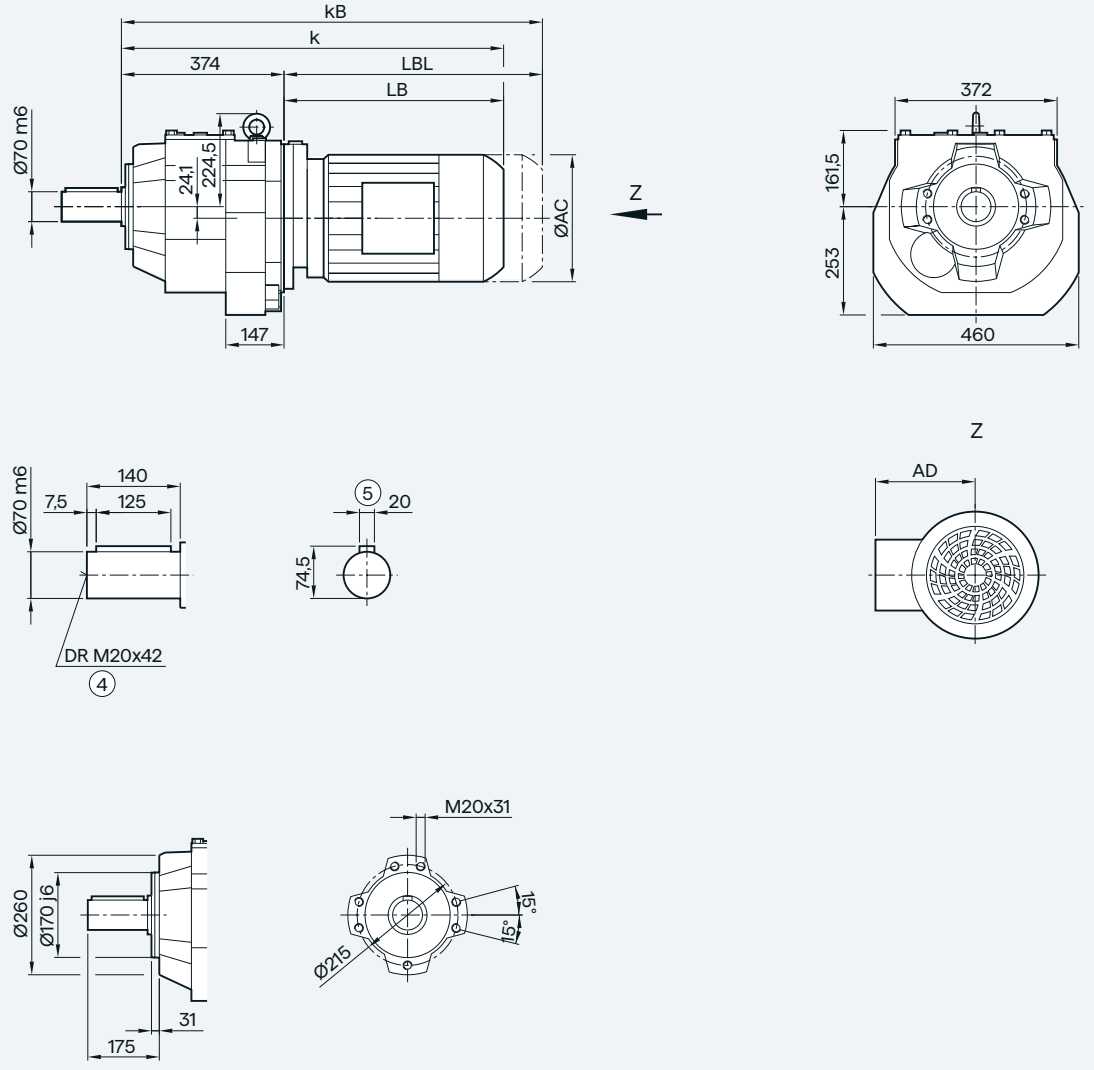
Gearbox ZZ/DZ129 in a housing flange design

ZZ/DZ129



Motor	LE										LES						
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	683.0	723.0	731.5	766.5	741.5	766.5	792.5	842.5	874.5	934.5	947.5	977.5	1015.5	1040.5	1061.0	1121.0	1172.5
kB	753.0	793.0	810.0	845.0	814.5	839.5	897.0	947.0	990.5	1050.5	1076.5	1106.5	1162.5	1187.5	1289.0	1349.0	1397.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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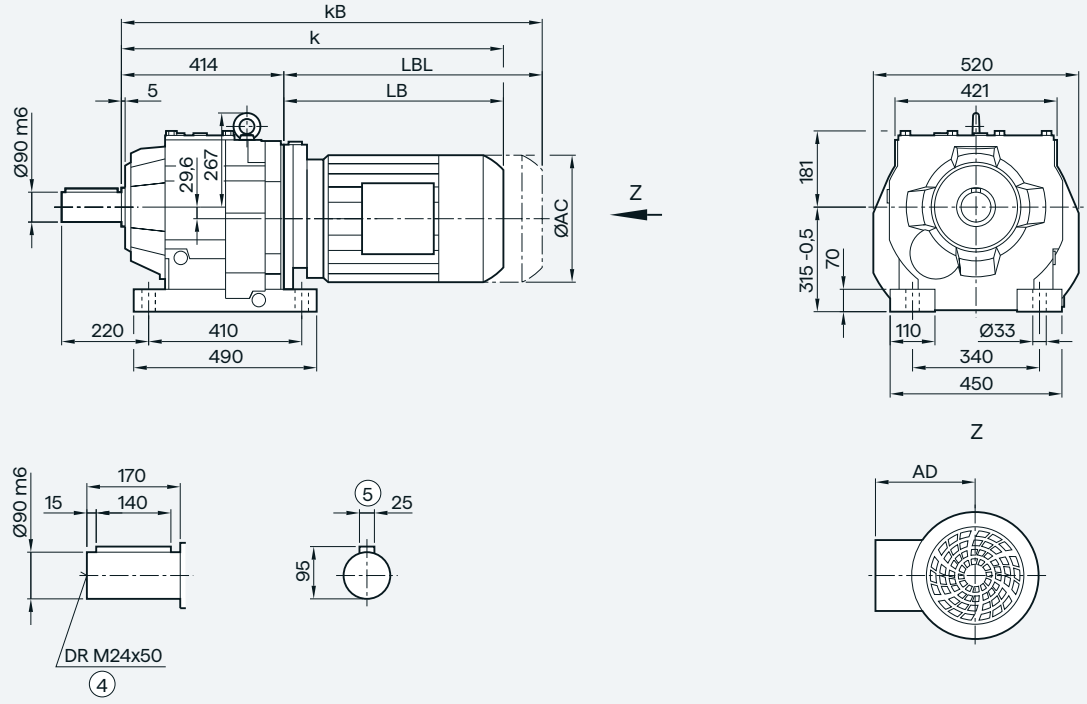
Gearbox Z/D149 in a foot-mounted design

Z/D149



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	770.0	805.0	780.0	805.0	826.0	876.0	908.0	968.0	981.0	1011.0	1049.0	1074.0	1094.5	1154.5	1206.0
kB	848.5	883.5	853.0	878.0	930.5	980.5	1024.0	1084.0	1110.0	1140.0	1196.0	1221.0	1322.5	1382.5	1431.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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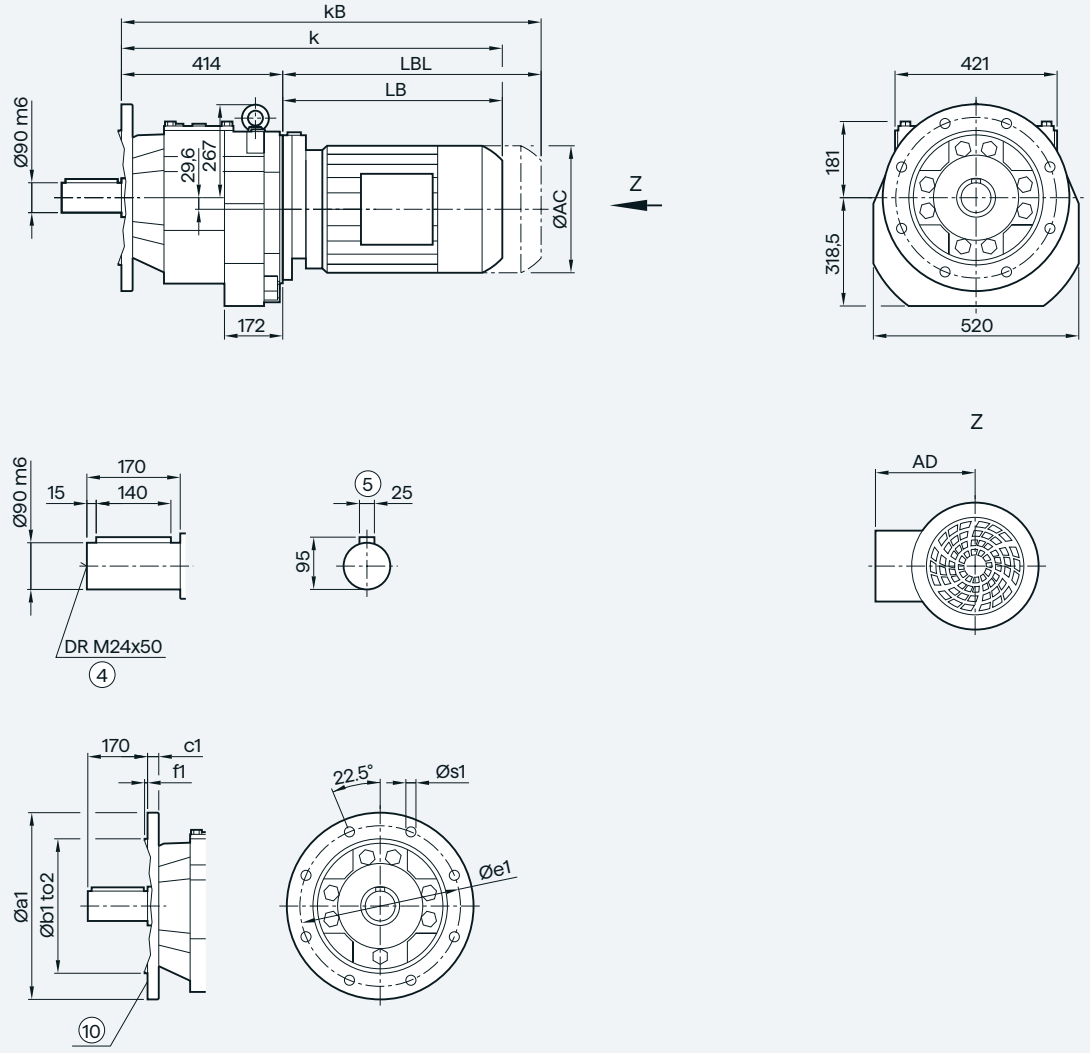
Gearbox ZF/DF149 in a flange-mounted design

ZF/DF149



Flange	a1	b1	to2	c1	e1	f1	s1
	450	350	h6	22	400	5	17.5
	550	450	h6	25	500	5	17.5

Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	770.0	805.0	780.0	805.0	826.0	876.0	908.0	968.0	981.0	1011.0	1049.0	1074.0	1094.5	1154.5	1206.0
kB	848.5	883.5	853.0	878.0	930.5	980.5	1024.0	1084.0	1110.0	1140.0	1196.0	1221.0	1322.5	1382.5	1431.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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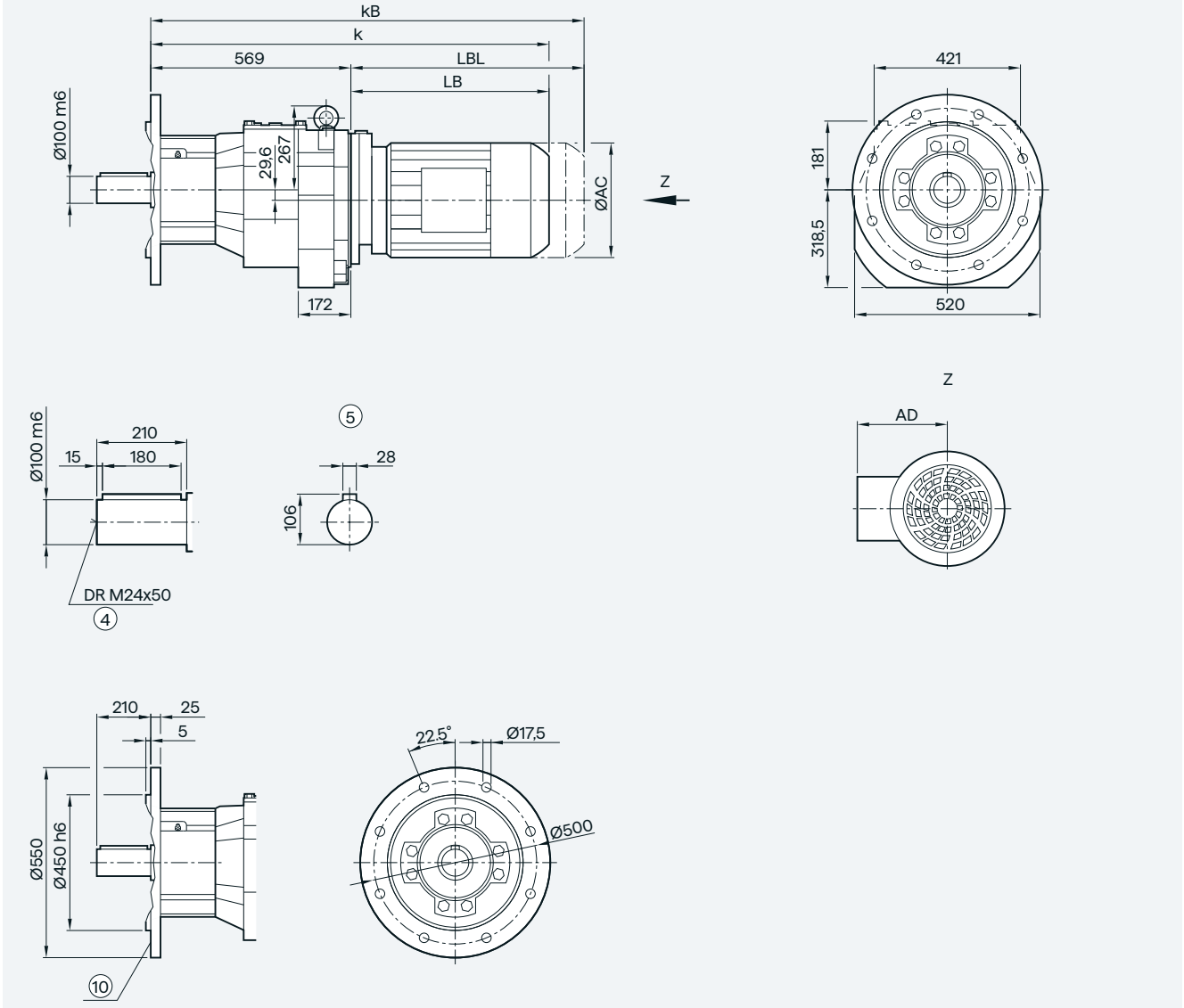
Gearbox ZF/DF149 in a flange-mounted design with VLplus reinforced bearing system (G30)

ZF/DF149



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	925.0	960.0	935.0	960.0	981.0	1031.0	1063.0	1123.0	1136.0	1166.0	1204.0	1229.0	1249.5	1309.5	1361.0
kB	1003.5	1038.5	1008.0	1033.0	1085.5	1135.5	1179.0	1239.0	1265.0	1295.0	1351.0	1376.0	1477.5	1537.5	1586.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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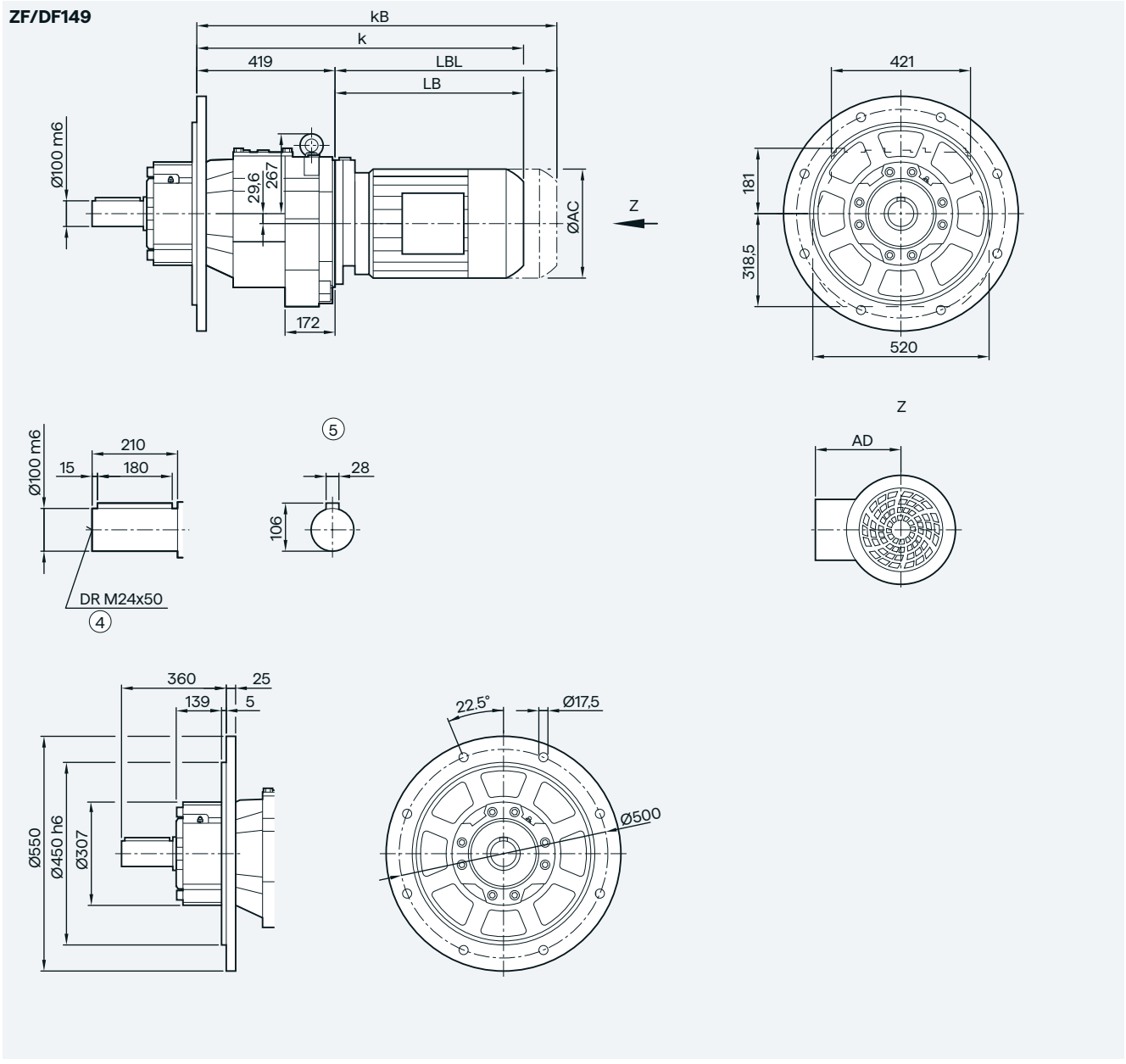
Gearbox ZF/DF149 in a flange-mounted design with XLplus reinforced bearing system (G31)



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	775.0	810.0	785.0	810.0	831.0	881.0	913.0	973.0	986.0	1016.0	1054.0	1079.0	1099.5	1159.5	1211.0
kB	853.5	888.5	858.0	883.0	935.5	985.5	1029.0	1089.0	1115.0	1145.0	1201.0	1226.0	1327.5	1387.5	1436.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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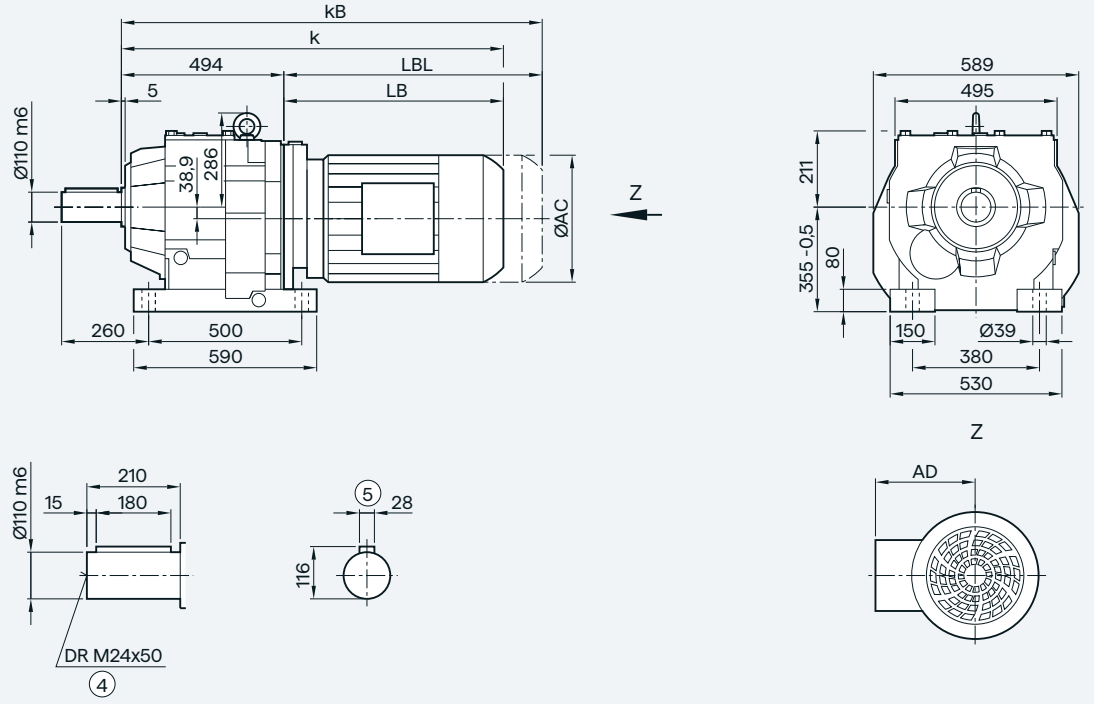
3

Gearbox Z/D169 in a foot-mounted design

Z/D169



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	847.5	872.5	893.0	943.0	975.0	1035.0	1047.5	1077.5	1115.5	1140.5	1160.0	1220.0	1267.5
kB	920.5	945.5	997.5	1047.5	1091.0	1151.0	1176.5	1206.5	1262.5	1287.5	1388.0	1448.0	1492.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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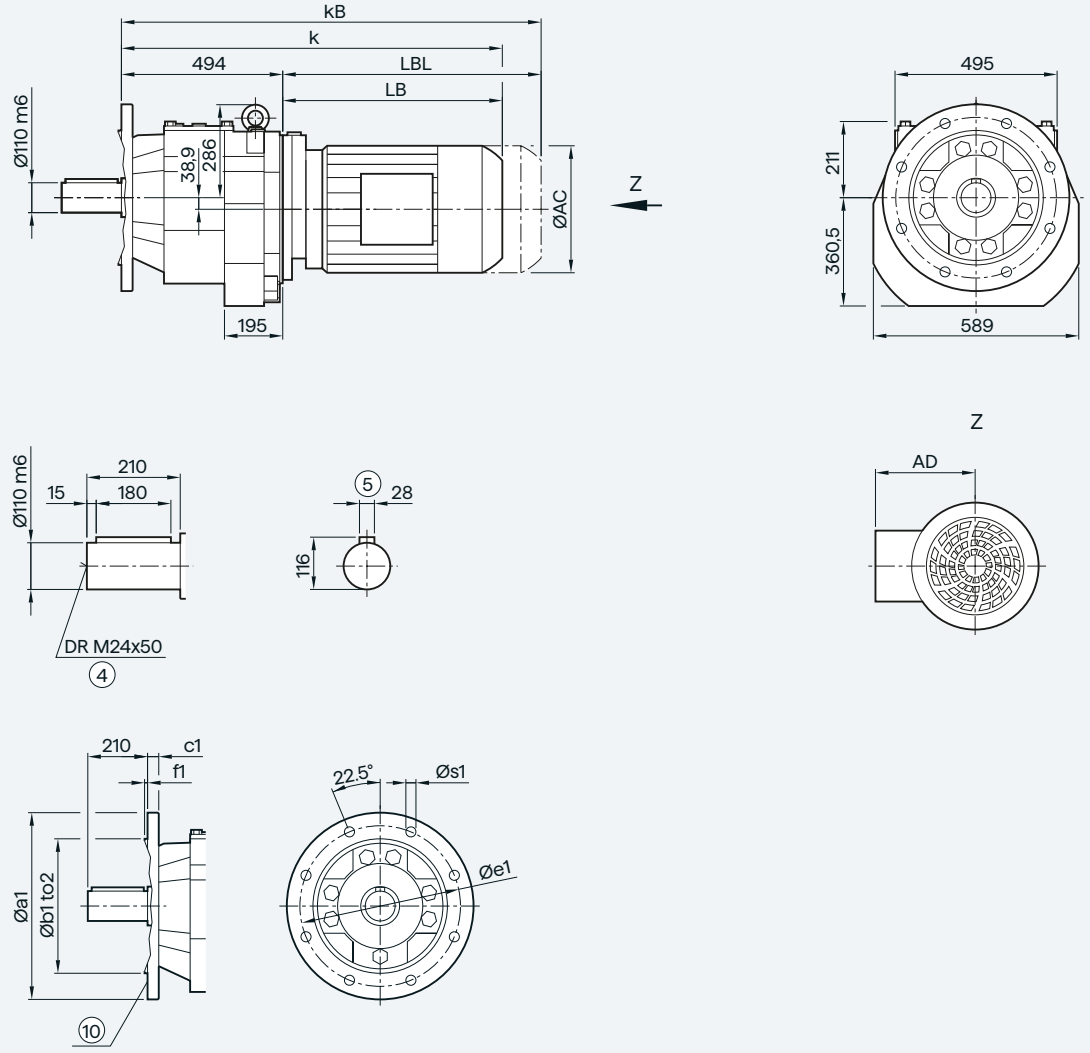
Gearbox ZF/DF169 in a flange-mounted design

ZF/DF169



Flange	a1	b1	to2	c1	e1	f1	s1
	450	350	h6	22	400	5	17.5
	550	450	h6	25	500	5	17.5
	660	550	h6	25	600	6	22.0

Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	847.5	872.5	893.0	943.0	975.0	1035.0	1047.5	1077.5	1115.5	1140.5	1160.0	1220.0	1267.5
kB	920.5	945.5	997.5	1047.5	1091.0	1151.0	1176.5	1206.5	1262.5	1287.5	1388.0	1448.0	1492.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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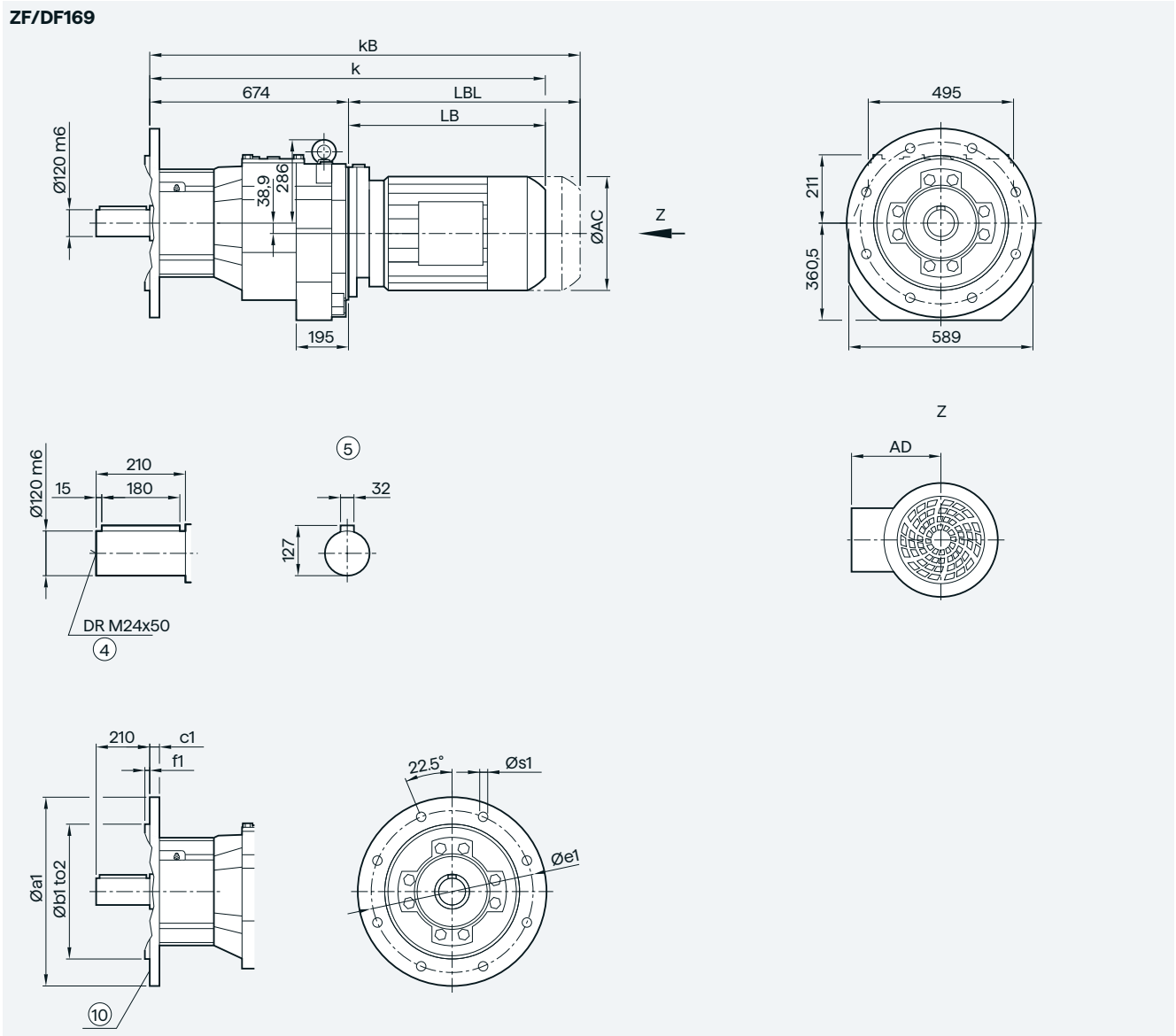
3

Gearbox ZF/DF169 in a flange-mounted design with VLplus reinforced bearing system (G30)

ZF/DF169



Flange	a1	b1	to2	c1	e1	f1	s1
	450	350	h6	22	400	5	17.5
	550	450	h6	25	500	5	17.5
	660	550	h6	25	600	6	22.0

Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	1027.5	1052.5	1073.0	1123.0	1155.0	1215.0	1227.5	1257.5	1295.5	1320.5	1340.0	1400.0	1447.5
kB	1100.5	1125.5	1177.5	1227.5	1271.0	1331.0	1356.5	1386.5	1442.5	1467.5	1568.0	1628.0	1672.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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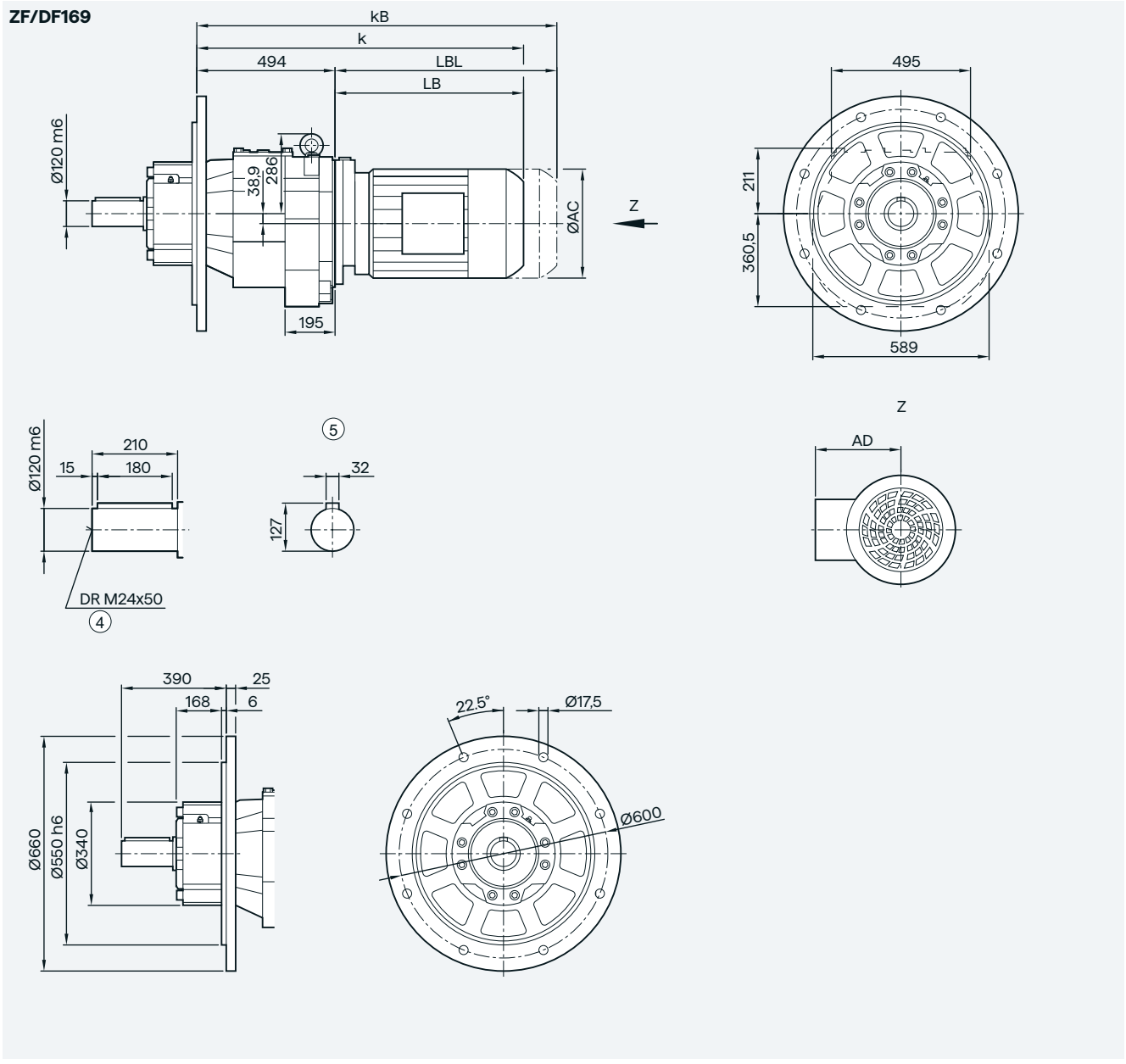
Gearbox ZF/DF169 in a flange-mounted design with XLplus reinforced bearing system (G31)



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	847.5	872.5	893.0	943.0	975.0	1035.0	1047.5	1077.5	1115.5	1140.5	1160.0	1220.0	1267.5
kB	920.5	945.5	997.5	1047.5	1091.0	1151.0	1176.5	1206.5	1262.5	1287.5	1388.0	1448.0	1492.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

[1)] AD depends on the motor options, for other dimensions, see page 9/46.

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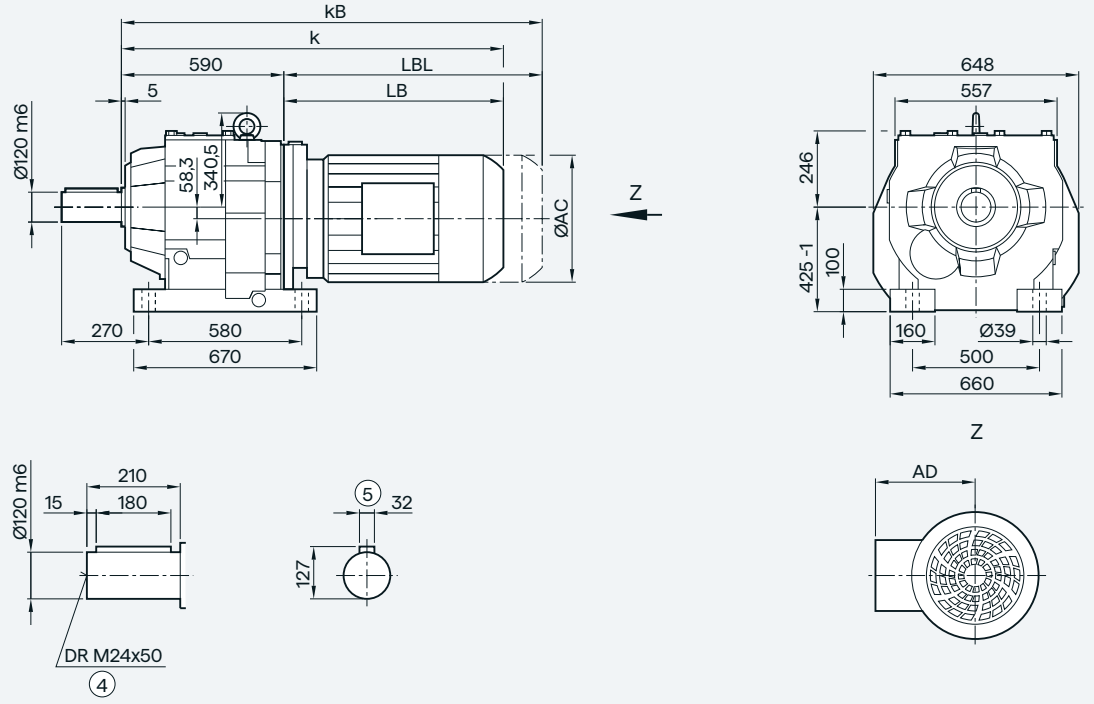
3

Gearbox Z/D189 in a foot-mounted design

Z/D189



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	943.5	968.5	989.0	1039.0	1071.0	1131.0	1143.5	1173.5	1211.5	1236.5	1256.0	1316.0	1363.5
kB	1016.5	1041.5	1093.5	1143.5	1187.0	1247.0	1272.5	1302.5	1358.5	1383.5	1484.0	1544.0	1588.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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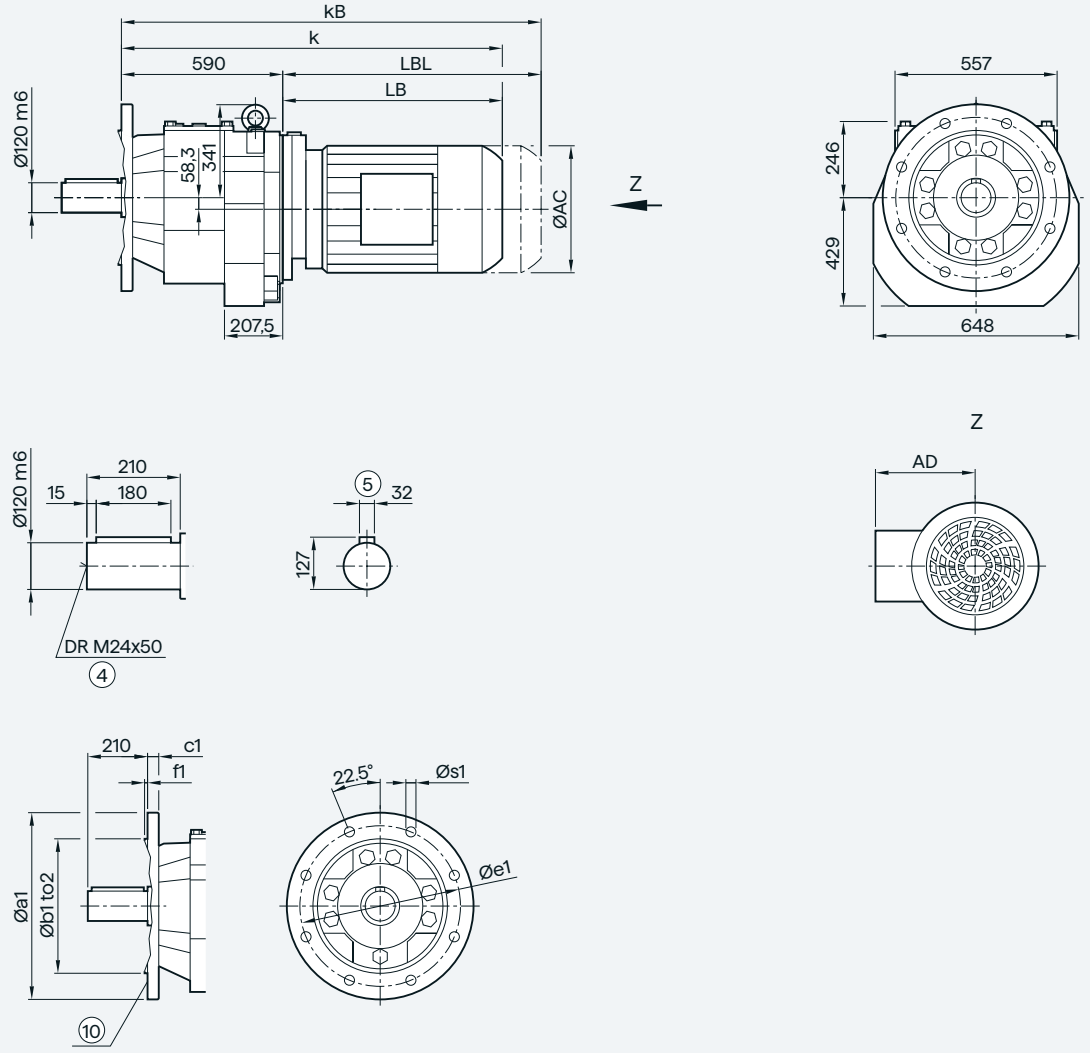
Gearbox ZF/DF189 in a flange-mounted design

ZF/DF189



Flange	a1	b1	to2	c1	e1	f1	s1
	550	450	h6	25	500	5	17.5
	660	550	h6	28	600	6	22.0

Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	943.5	968.5	989.0	1039.0	1071.0	1131.0	1143.5	1173.5	1211.5	1236.5	1256.0	1316.0	1363.5
kB	1016.5	1041.5	1093.5	1143.5	1187.0	1247.0	1272.5	1302.5	1358.5	1383.5	1484.0	1544.0	1588.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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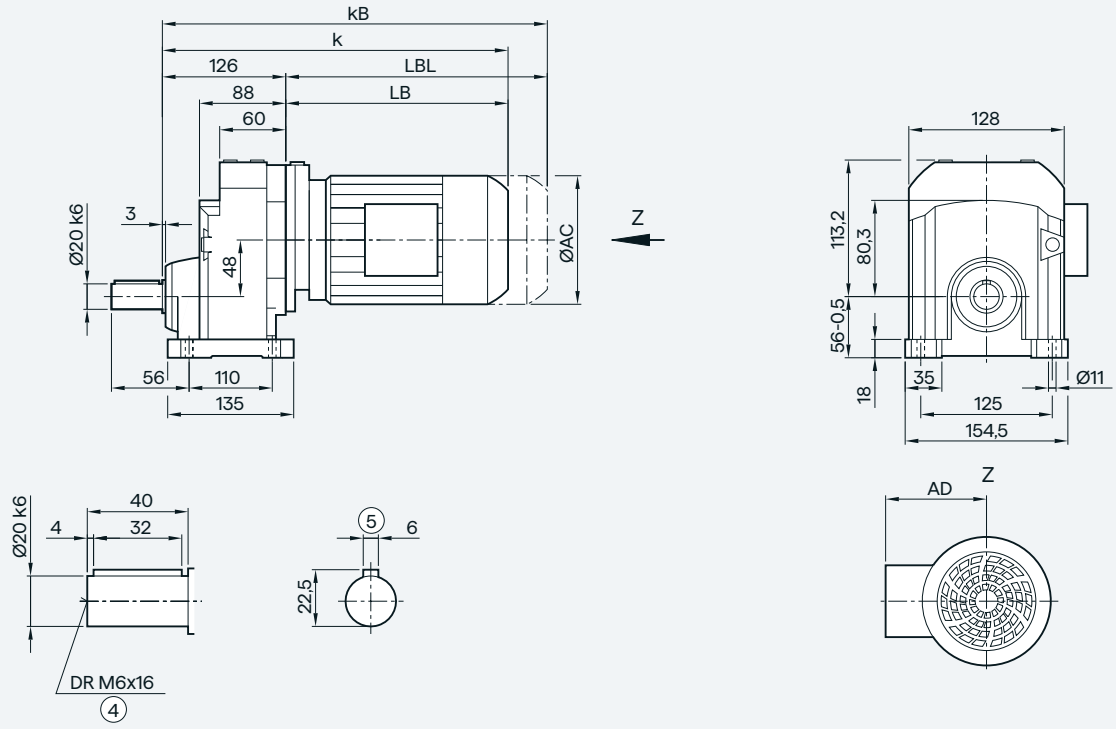
Helical geared motors

Gearbox E39 in a foot-mounted design

E39



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	320.0	346.0	352.0	371.0	411.0	416.0	451.0	477.5	517.5	534.0	569.0	544.0	569.0
kB	364.5	390.5	407.0	426.0	466.0	476.0	511.0	547.5	587.5	612.5	647.5	617.0	642.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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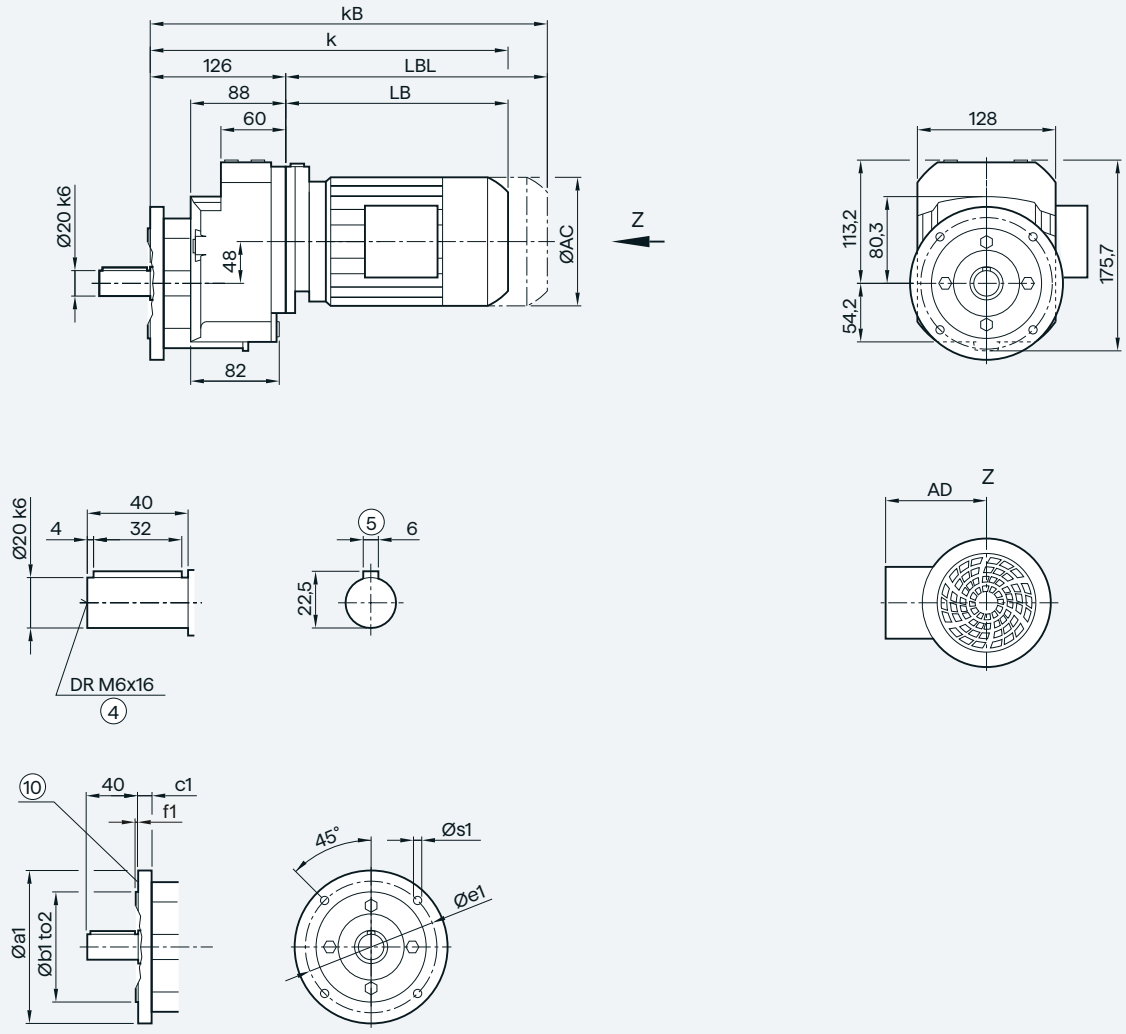
Gearbox EF39 in a flange-mounted design

EF39



Flange	a1	b1	to2	c1	e1	f1	s1
	120	80	j6	8	100	3.0	6.8
	140	95	j6	7	115	3.0	9.0
	160	110	j6	10	130	3.5	9.0
	200	130	j6	12	165	3.5	11.0

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	320.0	346.0	352.0	371.0	411.0	416.0	451.0	477.5	517.5	534.0	569.0	544.0	569.0
kB	364.5	390.5	407.0	426.0	466.0	476.0	511.0	547.5	587.5	612.5	647.5	617.0	642.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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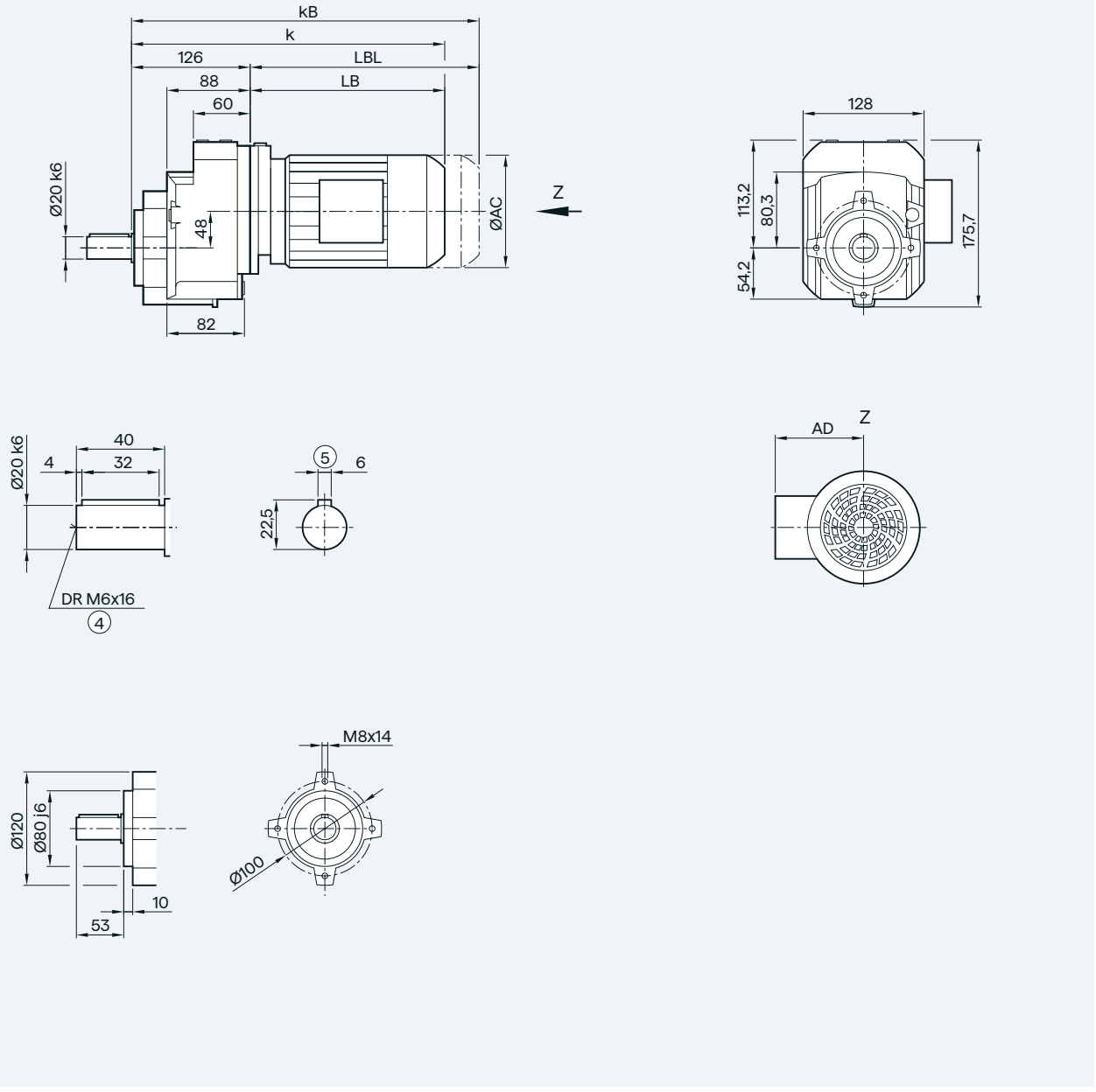
Helical geared motors

Gearbox EZ39 in a housing flange design

EZ39



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	320.0	346.0	352.0	371.0	411.0	416.0	451.0	477.5	517.5	534.0	569.0	544.0	569.0
kB	364.5	390.5	407.0	426.0	466.0	476.0	511.0	547.5	587.5	612.5	647.5	617.0	642.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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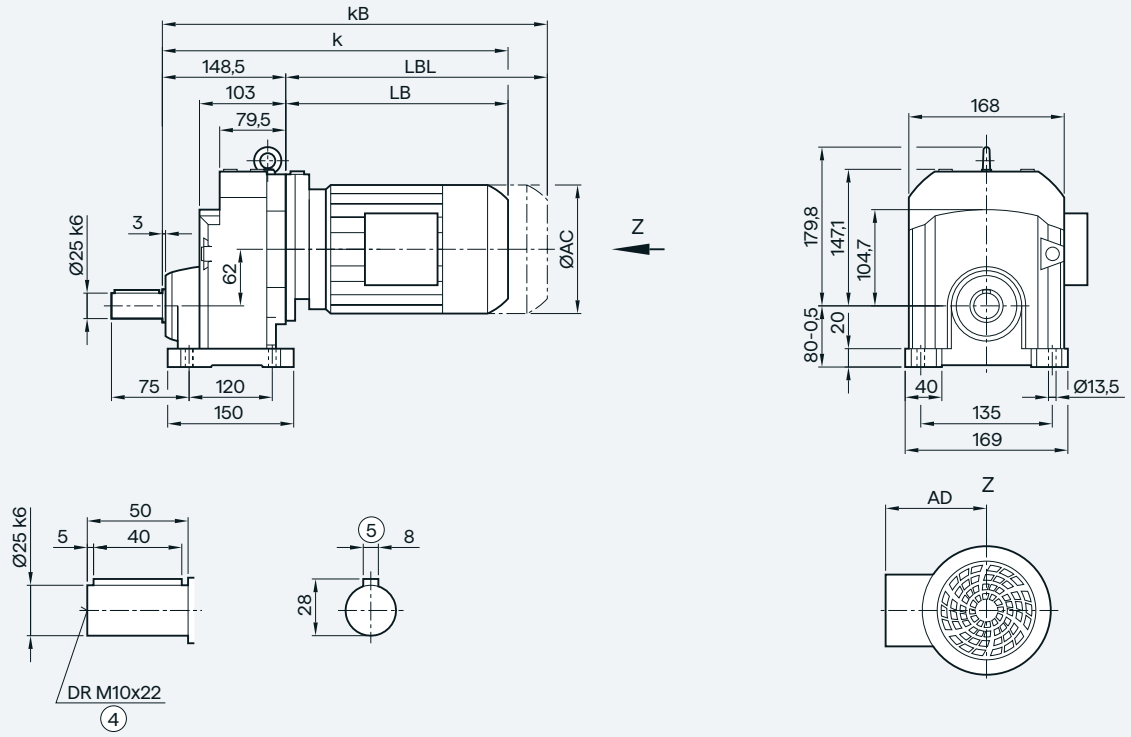
Gearbox E49 in a foot-mounted design

E49



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.0	359.0	365.0	384.0	424.0	429.0	464.0	490.5	530.5	547.0	582.0	557.0	591.5	610.0	660.0
kB	377.5	403.5	420.0	439.0	479.0	489.0	524.0	560.5	600.5	625.5	660.5	630.0	664.5	714.5	764.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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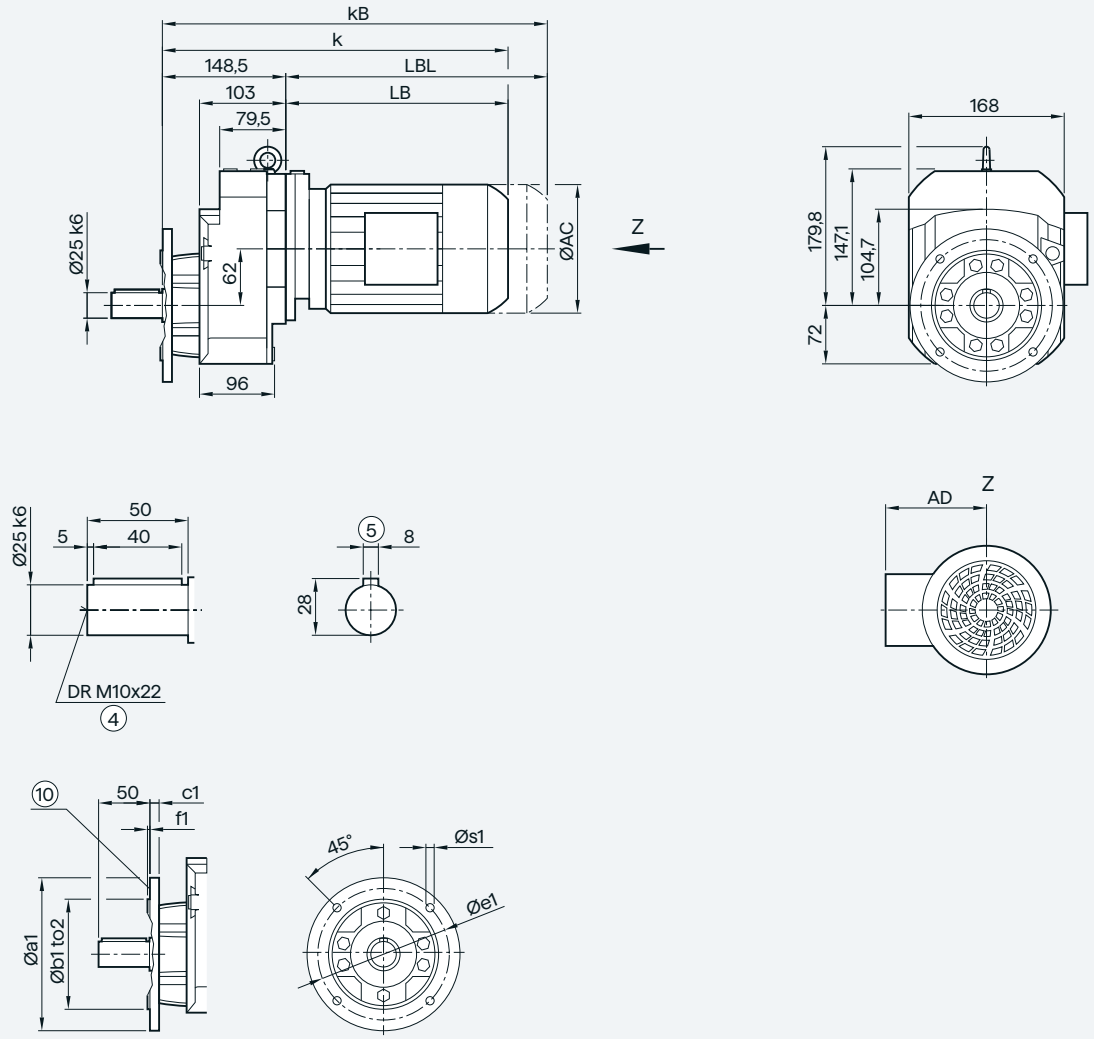
Helical geared motors

Gearbox EF49 in a flange-mounted design

EF49



Flange	a1	b1	to2	c1	e1	f1	s1
	160	110	j6	10	130	3.5	9.0
	200	130	j6	12	165	3.5	11.0
	250	180	j6	15	215	4.0	13.5

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.0	359.0	365.0	384.0	424.0	429.0	464.0	490.5	530.5	547.0	582.0	557.0	591.5	610.0	660.0
kB	377.5	403.5	420.0	439.0	479.0	489.0	524.0	560.5	600.5	625.5	660.5	630.0	664.5	714.5	764.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

⑩ For inner contour, see page 3/181

1) AD depends on the motor options, for other dimensions, see page 9/46.

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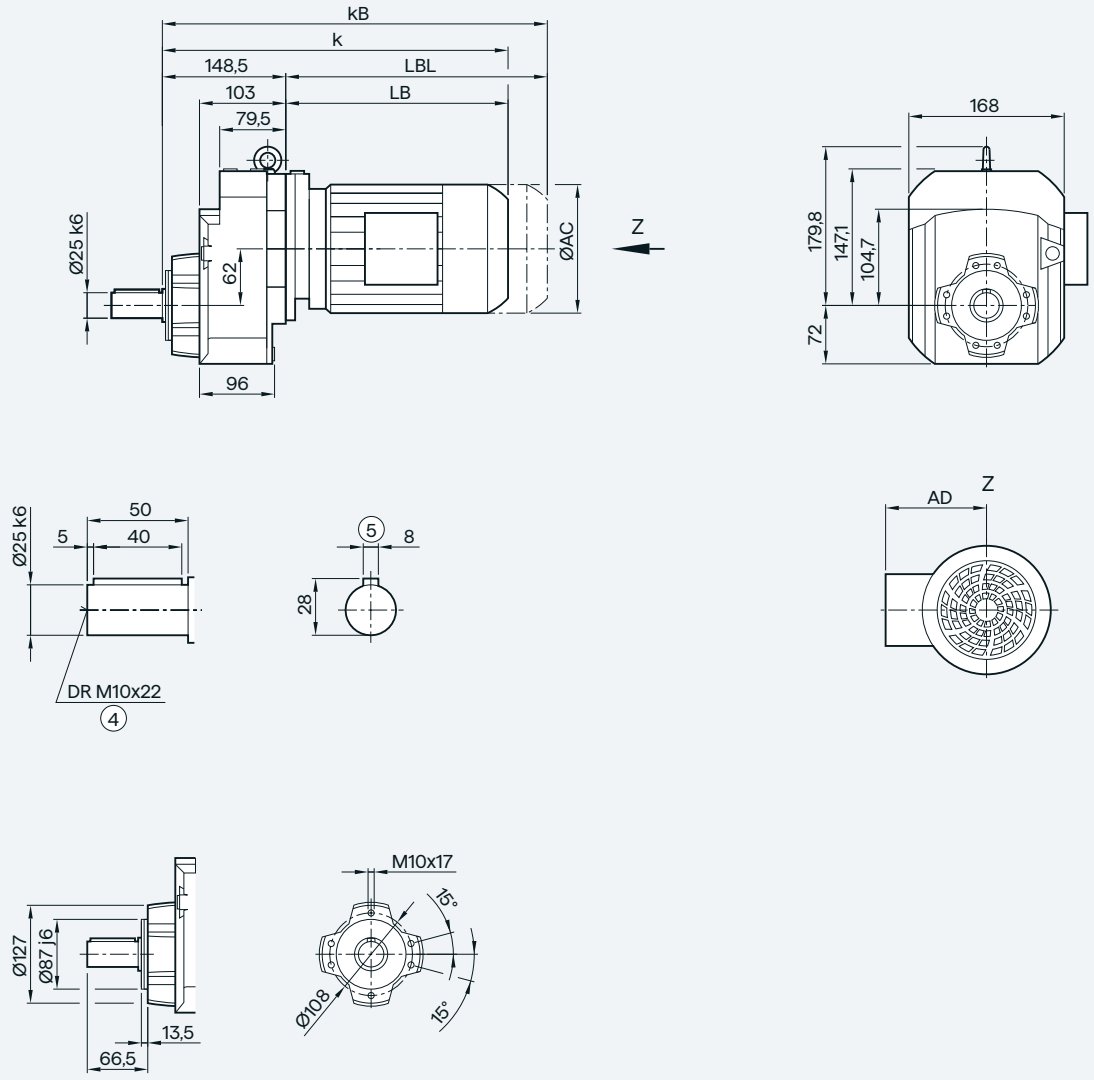
Gearbox EZ49 in a housing flange design

EZ49



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.0	359.0	365.0	384.0	424.0	429.0	464.0	490.5	530.5	547.0	582.0	557.0	591.5	610.0	660.0
kB	377.5	403.5	420.0	439.0	479.0	489.0	524.0	560.5	600.5	625.5	660.5	630.0	664.5	714.5	764.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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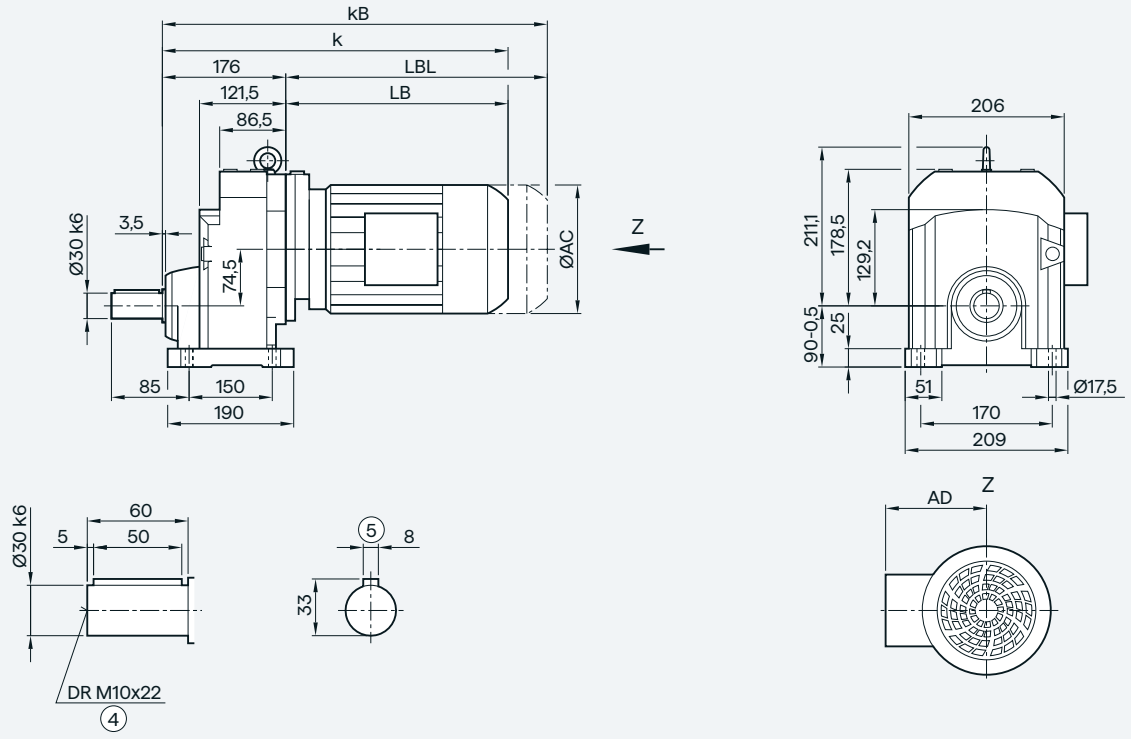
Helical geared motors

Gearbox E69 in a foot-mounted design

E69



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198	198	222	222	264	264	318	318
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207	207	241	241
k	390.5	409.5	449.5	450.5	485.5	512	552	568.5	603.5	578.5	603.5	631.5	681.5	713.5	773.5
kB	445.5	464.5	504.5	510.5	545.5	582	622	647	682	651.5	676.5	736	786	829.5	889.5
LB	214.5	233.5	273.5	274.5	309.5	336	376	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406	446	471	506	475.5	500.5	560	610	653.5	713.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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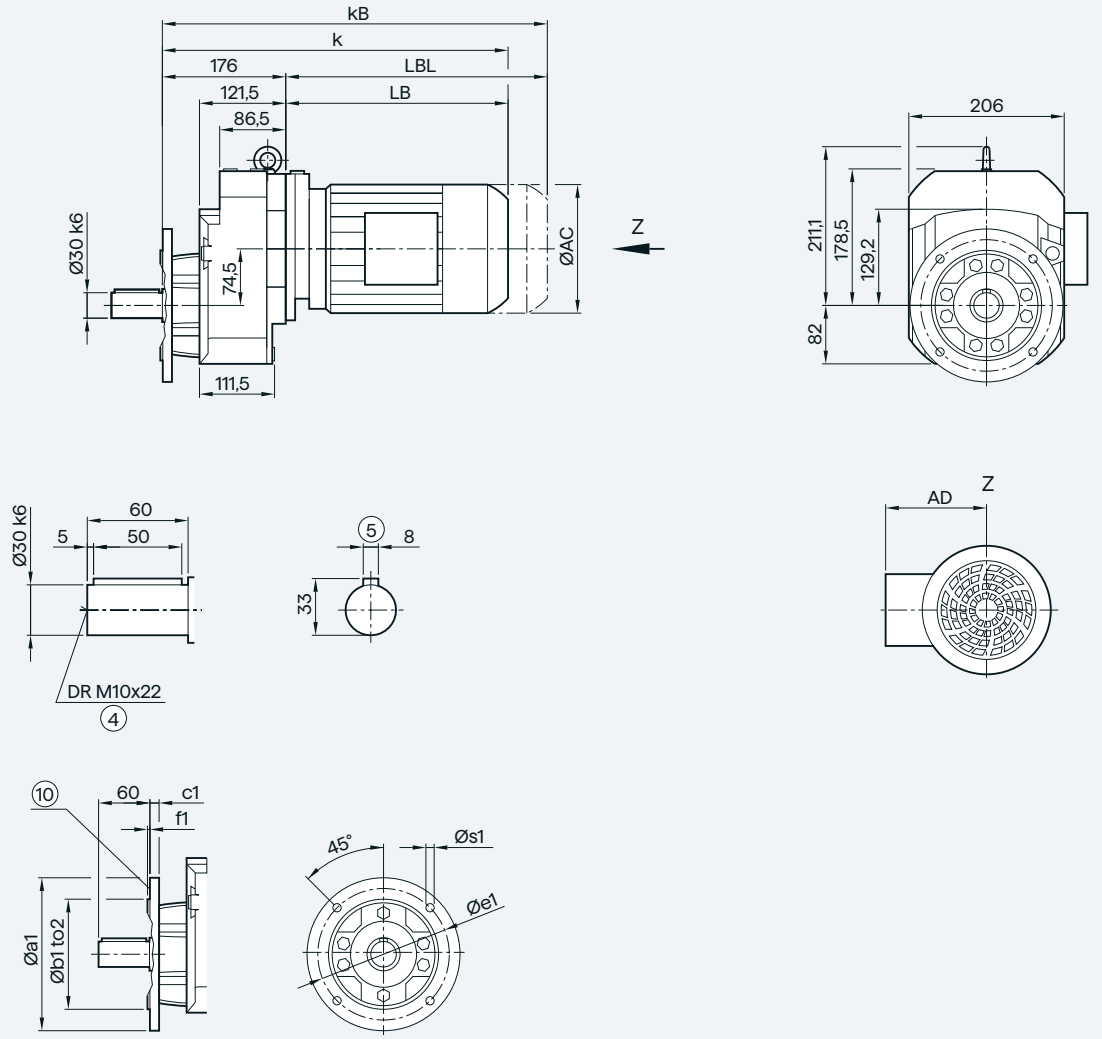
Gearbox EF69 in a flange-mounted design

EF69



Flange	a1	b1	to2	c1	e1	f1	s1
	200	130	j6	12	165	3.5	11.0
	250	180	j6	15	215	4.0	13.5

Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198	198	222	222	264	264	318	318
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207	207	241	241
k	390.5	409.5	449.5	450.5	485.5	512	552	568.5	603.5	578.5	603.5	631.5	681.5	713.5	773.5
kB	445.5	464.5	504.5	510.5	545.5	582	622	647	682	651.5	676.5	736	786	829.5	889.5
LB	214.5	233.5	273.5	274.5	309.5	336	376	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406	446	471	506	475.5	500.5	560	610	653.5	713.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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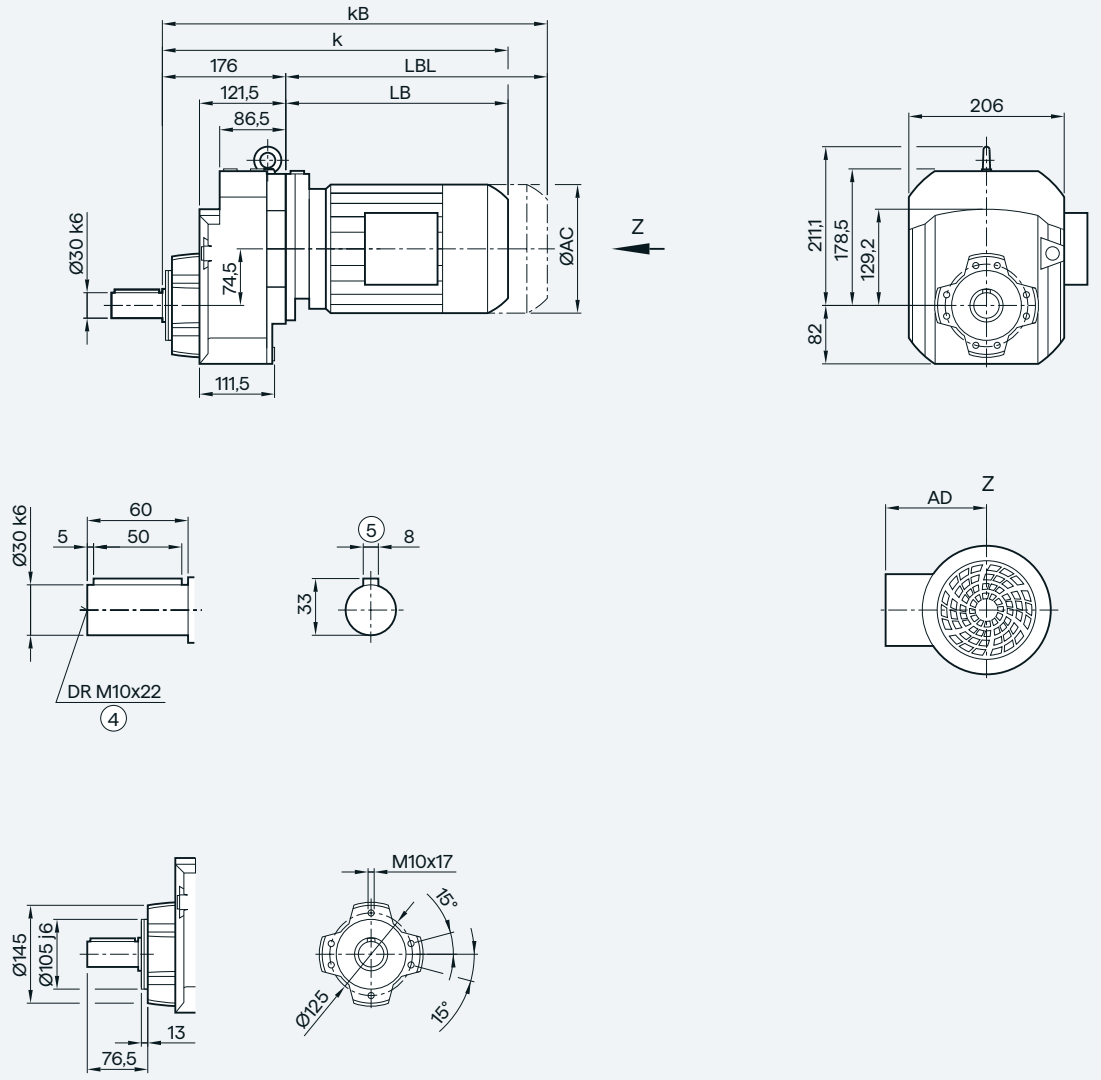
Helical geared motors

Gearbox EZ69 in a housing flange design

EZ69



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198	198	222	222	264	264	318	318
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207	207	241	241
k	390.5	409.5	449.5	450.5	485.5	512	552	568.5	603.5	578.5	603.5	631.5	681.5	713.5	773.5
kB	445.5	464.5	504.5	510.5	545.5	582	622	647	682	651.5	676.5	736	786	829.5	889.5
LB	214.5	233.5	273.5	274.5	309.5	336	376	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406	446	471	506	475.5	500.5	560	610	653.5	713.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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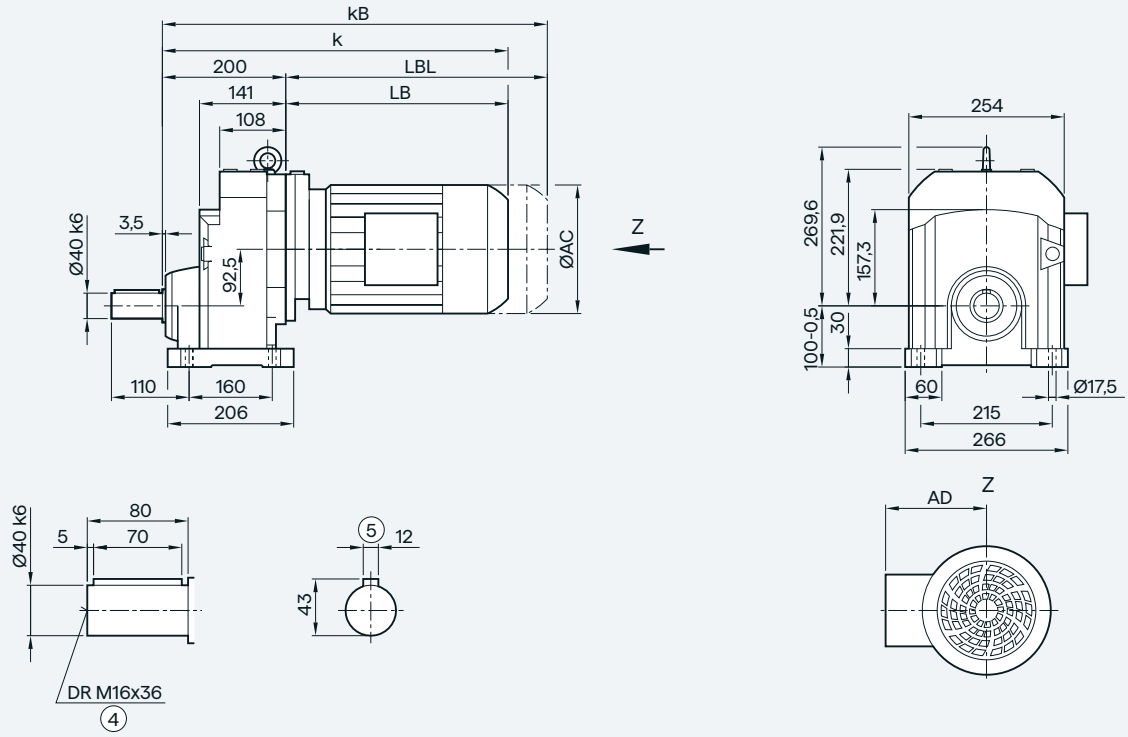
Gearbox E89 in a foot-mounted design

E89



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.5	496.5	523.0	563.0	575.5	610.5	585.5	610.5	638.5	688.5	720.5	780.5	793.5	823.5
kB	521.5	556.5	593.0	633.0	654.0	689.0	658.5	683.5	743.0	793.0	836.5	896.5	922.5	952.5
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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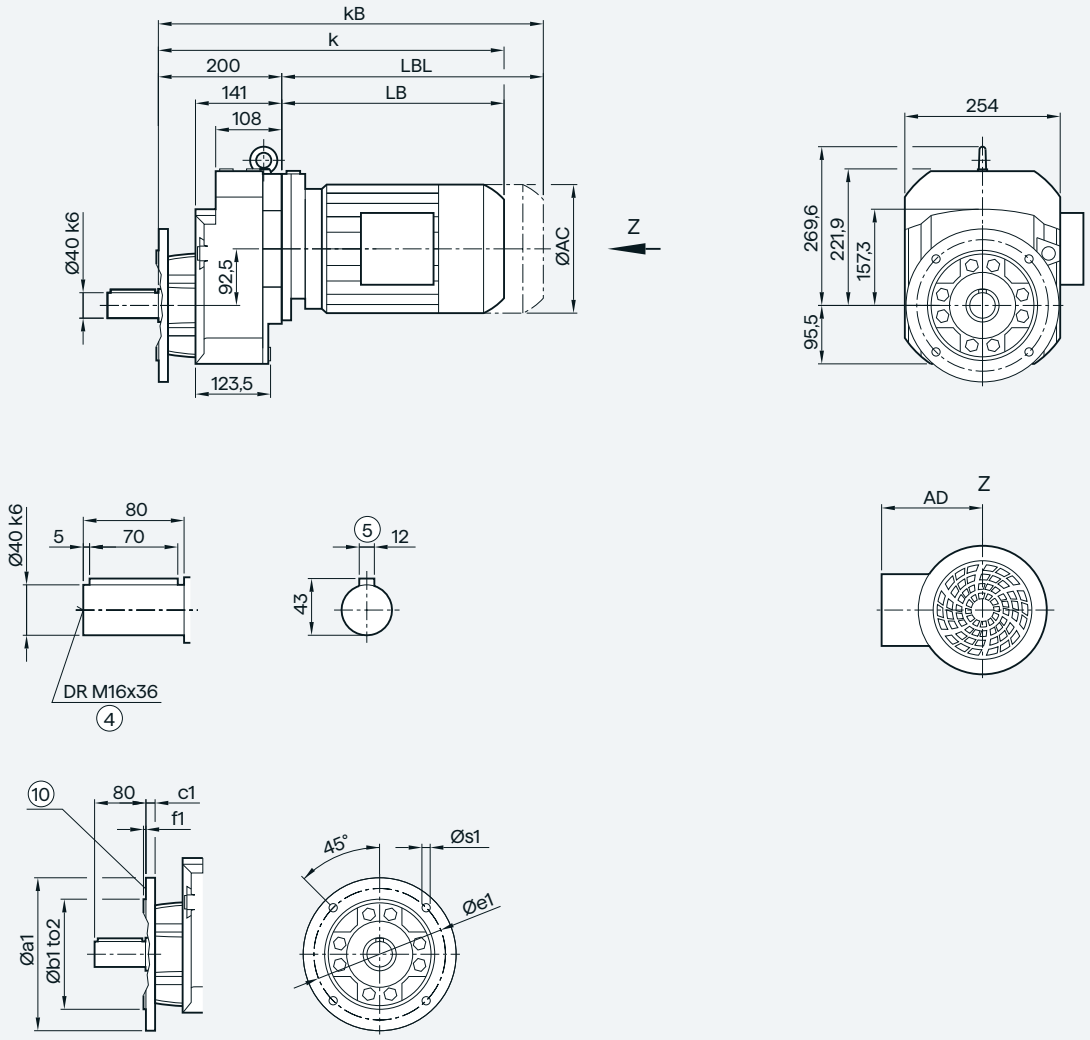
Helical geared motors

Gearbox EF89 in a flange-mounted design

EF89



Flange	a1	b1	to2	c1	e1	f1	s1
	250	180	j6	15	215	4.0	13.5
	300	230	j6	16	265	4.0	13.5
	350	250	j6	16	300	5.0	17.5

Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.5	496.5	523.0	563.0	575.5	610.5	585.5	610.5	638.5	688.5	720.5	780.5	793.5	823.5
kB	521.5	556.5	593.0	633.0	654.0	689.0	658.5	683.5	743.0	793.0	836.5	896.5	922.5	952.5
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

⑩ For inner contour, see page 3/181

1) AD depends on the motor options, for other dimensions, see page 9/46.

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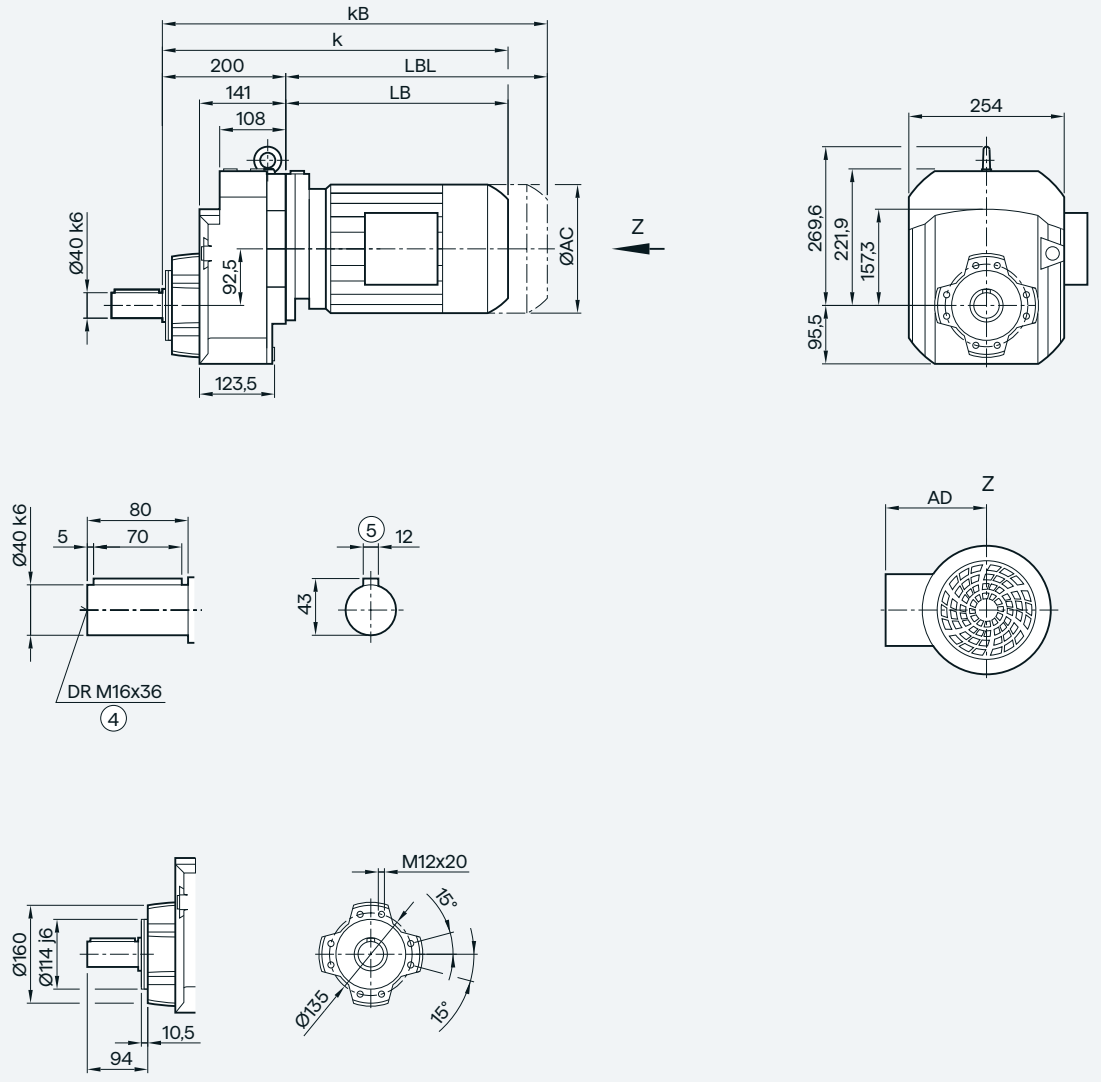
Gearbox EZ89 in a housing flange design

EZ89



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.5	496.5	523.0	563.0	575.5	610.5	585.5	610.5	638.5	688.5	720.5	780.5	793.5	823.5
kB	521.5	556.5	593.0	633.0	654.0	689.0	658.5	683.5	743.0	793.0	836.5	896.5	922.5	952.5
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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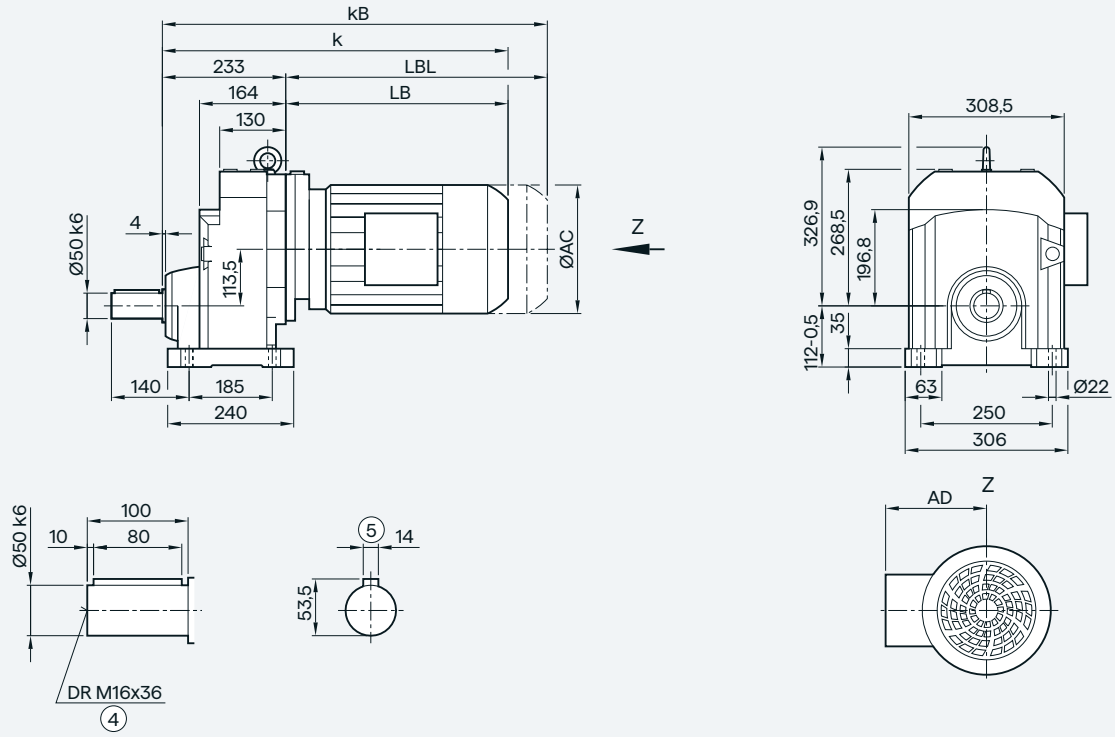
Helical geared motors

Gearbox E109 in a foot-mounted design

E109



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	549.0	589.0	599.5	634.5	609.5	634.5	662.5	712.5	744.5	804.5	817.5	847.5	885.5	910.5	931.0	991.0
kB	619.0	659.0	678.0	713.0	682.5	707.5	767.0	817.0	860.5	920.5	946.5	976.5	1032.5	1057.5	1159.0	1219.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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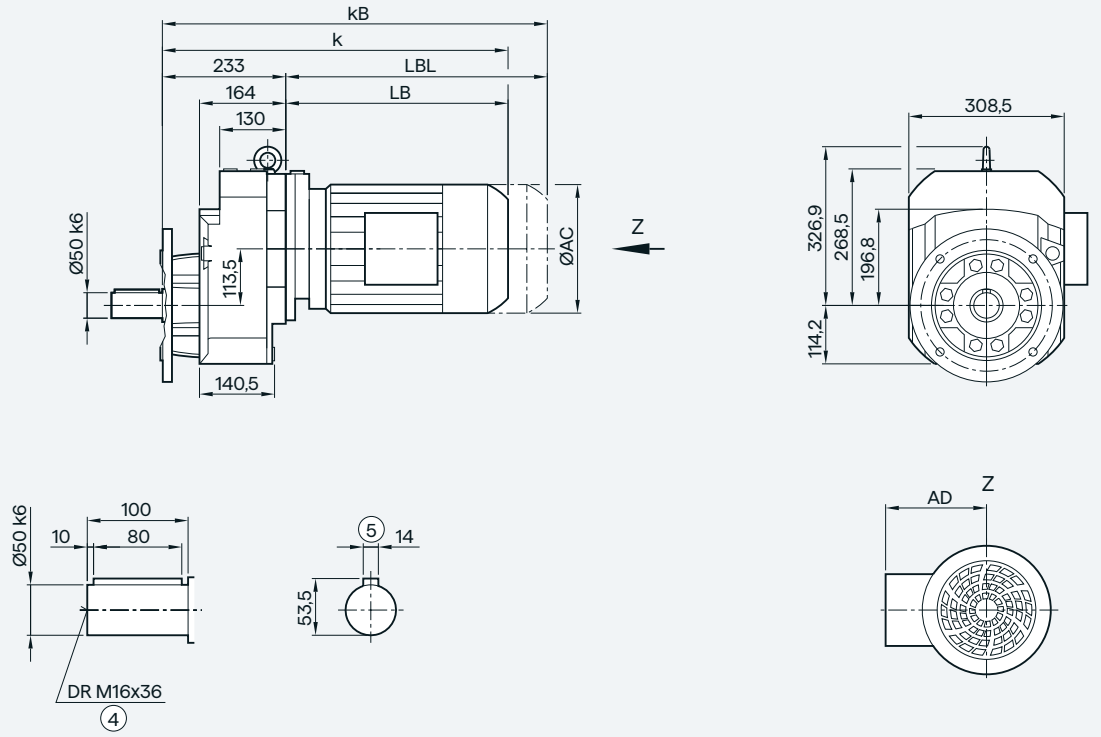
Gearbox EF109 in a flange-mounted design

EF109



Flange	a1	b1	to2	c1	e1	f1	s1
	300	230	j6	16	265	4.0	13.5
	350	250	j6	18	300	5.0	17.5
	450	350	h6	18	400	5.0	17.5

Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	549.0	589.0	599.5	634.5	609.5	634.5	662.5	712.5	744.5	804.5	817.5	847.5	885.5	910.5	931.0	991.0
kB	619.0	659.0	678.0	713.0	682.5	707.5	767.0	817.0	860.5	920.5	946.5	976.5	1032.5	1057.5	1159.0	1219.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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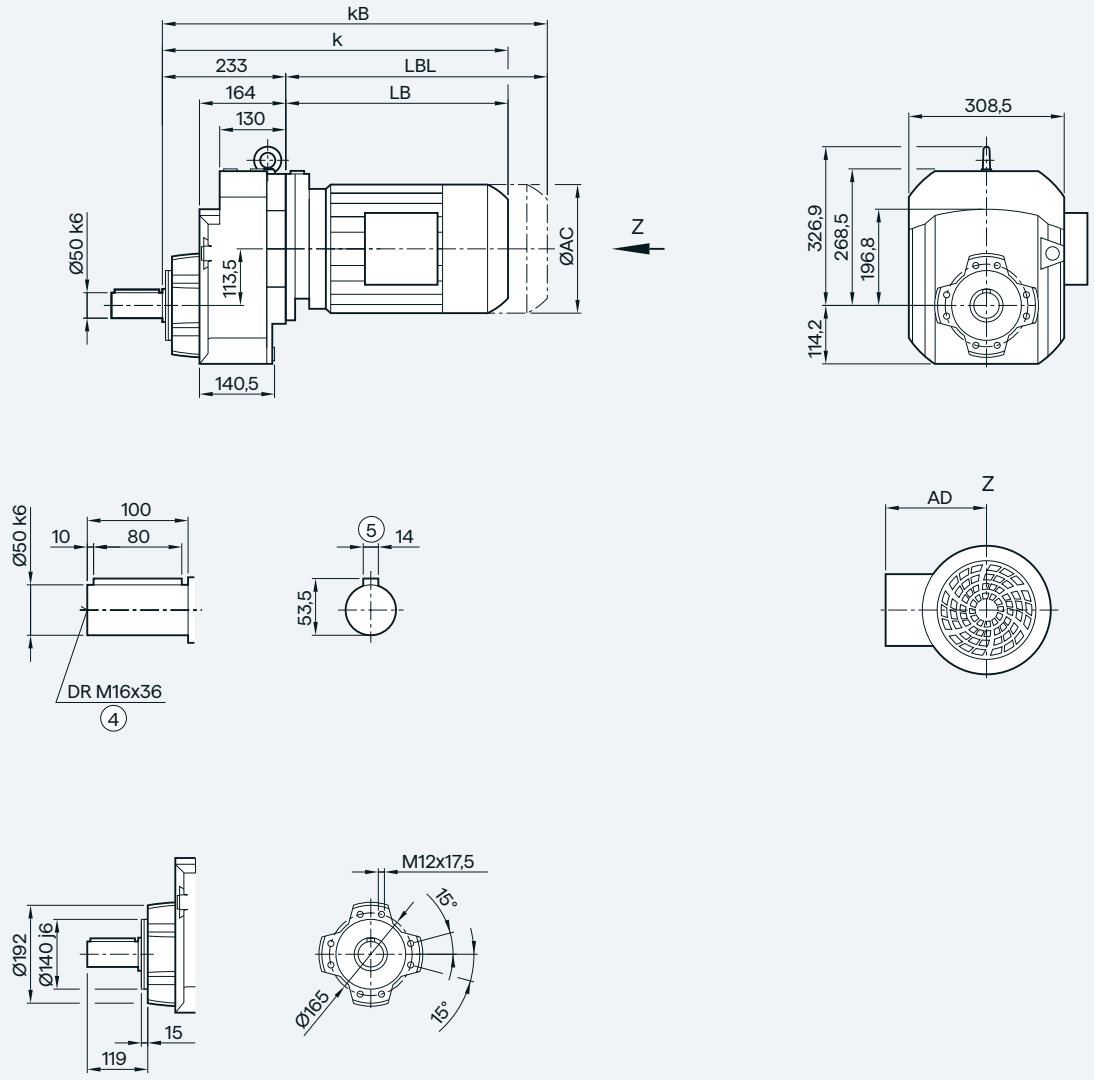
Helical geared motors

Gearbox EZ109 in a housing flange design

EZ109



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	549.0	589.0	599.5	634.5	609.5	634.5	662.5	712.5	744.5	804.5	817.5	847.5	885.5	910.5	931.0	991.0
kB	619.0	659.0	678.0	713.0	682.5	707.5	767.0	817.0	860.5	920.5	946.5	976.5	1032.5	1057.5	1159.0	1219.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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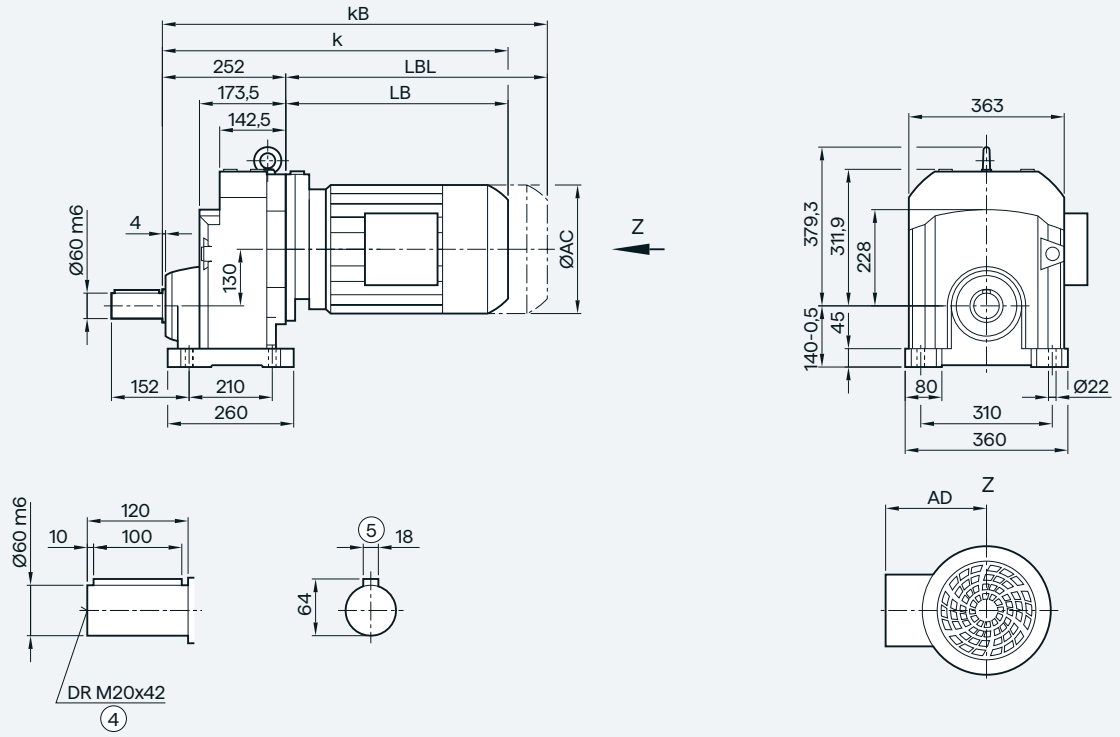
Gearbox E129 in a foot-mounted design

E129



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	561.0	601.0	609.5	644.5	619.5	644.5	670.5	720.5	752.5	812.5	825.5	855.5	893.5	918.5	945.0	1005.0	1050.5
kB	631.0	671.0	688.0	723.0	692.5	717.5	775.0	825.0	868.5	928.5	954.5	984.5	1040.5	1065.5	1173.0	1233.0	1275.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1023.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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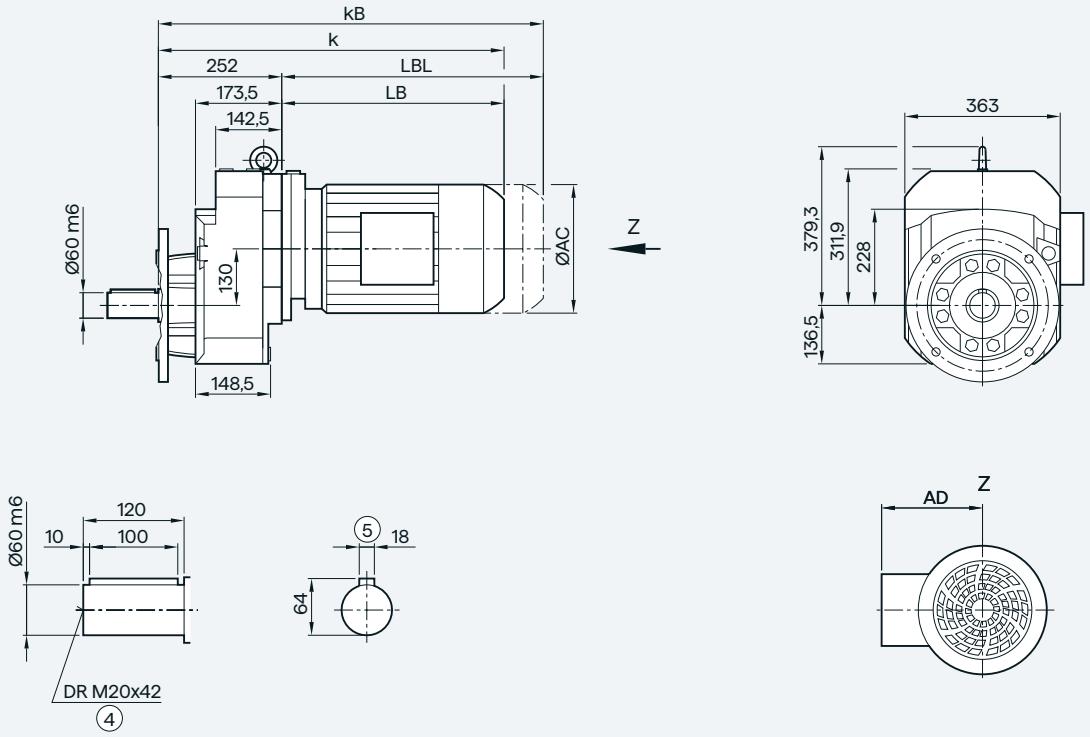
Helical geared motors

Gearbox EF129 in a flange-mounted design

EF129



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	18	300	5	17.5
	450	350	h6	22	400	5	17.5

Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	561.0	601.0	609.5	644.5	619.5	644.5	670.5	720.5	752.5	812.5	825.5	855.5	893.5	918.5	945.0	1005.0	1050.5
kB	631.0	671.0	688.0	723.0	692.5	717.5	775.0	825.0	868.5	928.5	954.5	984.5	1040.5	1065.5	1173.0	1233.0	1275.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1023.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

⑩ For inner contour, see page 3/181

1) AD depends on the motor options, for other dimensions, see page 9/46.

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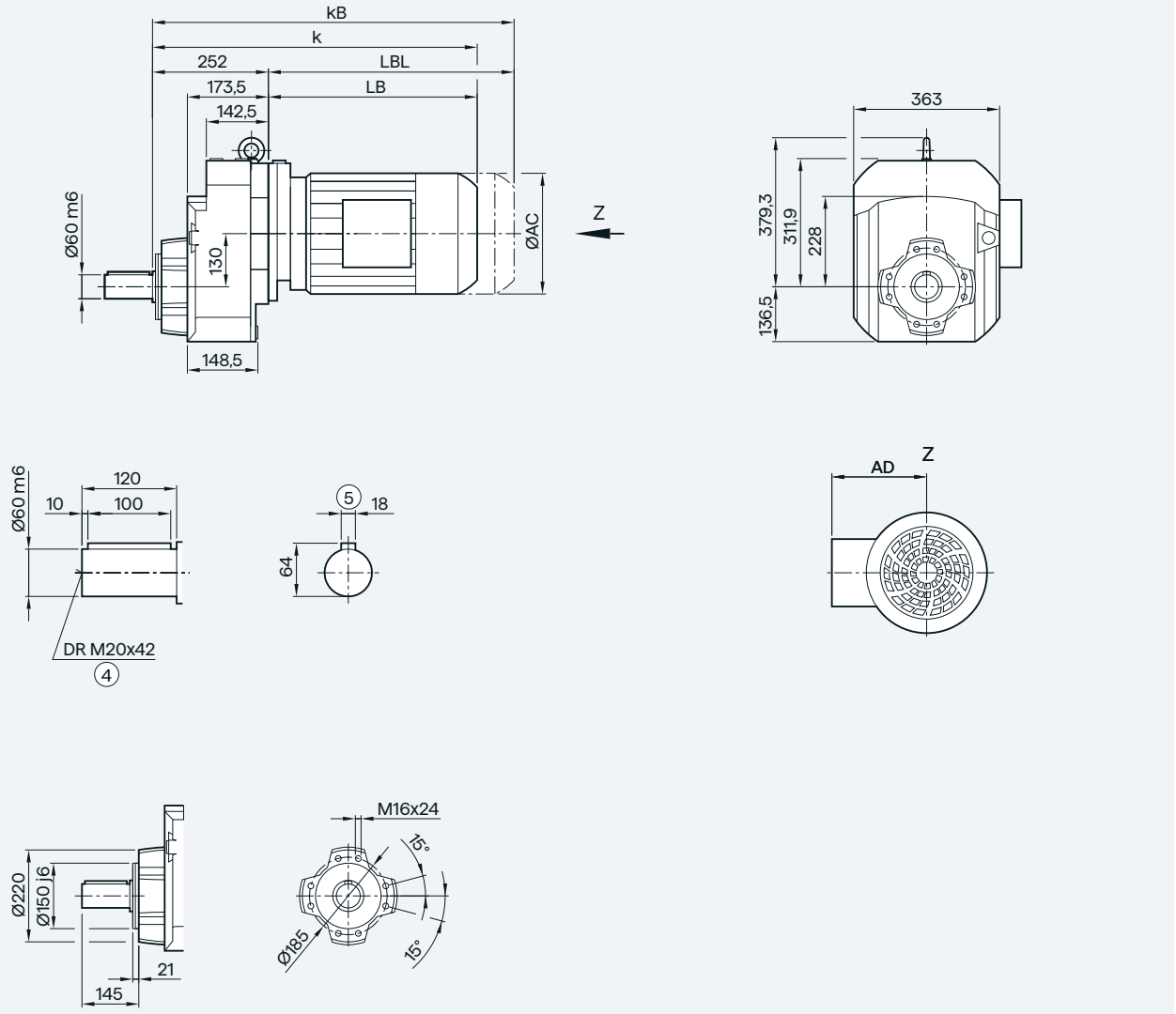
Gearbox EZ129 in a housing flange design

EZ129



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	561.0	601.0	609.5	644.5	619.5	644.5	670.5	720.5	752.5	812.5	825.5	855.5	893.5	918.5	945.0	1005.0	1050.5
kB	631.0	671.0	688.0	723.0	692.5	717.5	775.0	825.0	868.5	928.5	954.5	984.5	1040.5	1065.5	1173.0	1233.0	1275.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1023.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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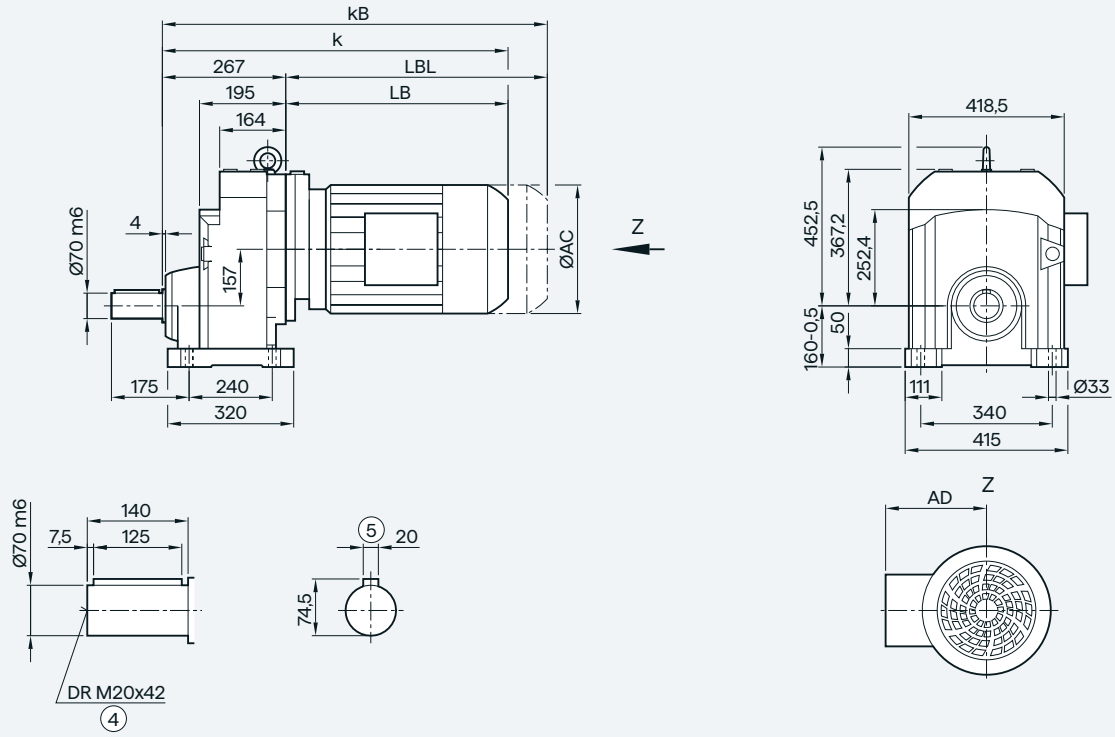
Helical geared motors

Gearbox E149 in a foot-mounted design

E149



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	623.0	658.0	633.0	658.0	679.0	729.0	761.0	821.0	834.0	864.0	902.0	927.0	947.5	1007.5	1059.0
kB	701.5	736.5	706.0	731.0	783.5	833.5	877.0	937.0	963.0	993.0	1049.0	1074.0	1175.5	1235.5	1284.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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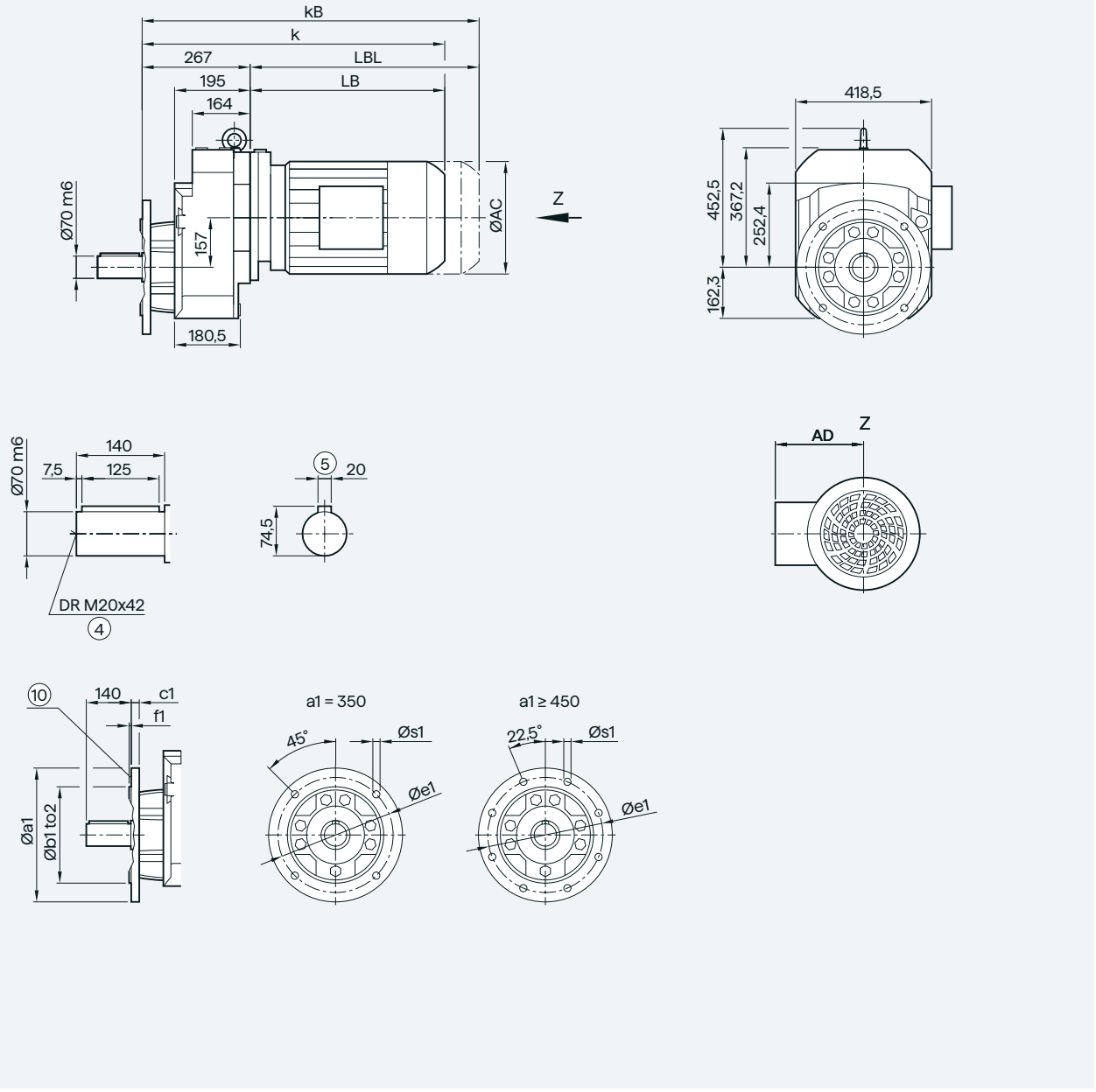
Gearbox EF149 in a flange-mounted design

EF149



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	20	300	5	17.5
	450	350	h6	22	400	5	17.5
	550	450	h6	22	500	5	17.5

Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	623.0	658.0	633.0	658.0	679.0	729.0	761.0	821.0	834.0	864.0	902.0	927.0	947.5	1007.5	1059.0
kB	701.5	736.5	706.0	731.0	783.5	833.5	877.0	937.0	963.0	993.0	1049.0	1074.0	1175.5	1235.5	1284.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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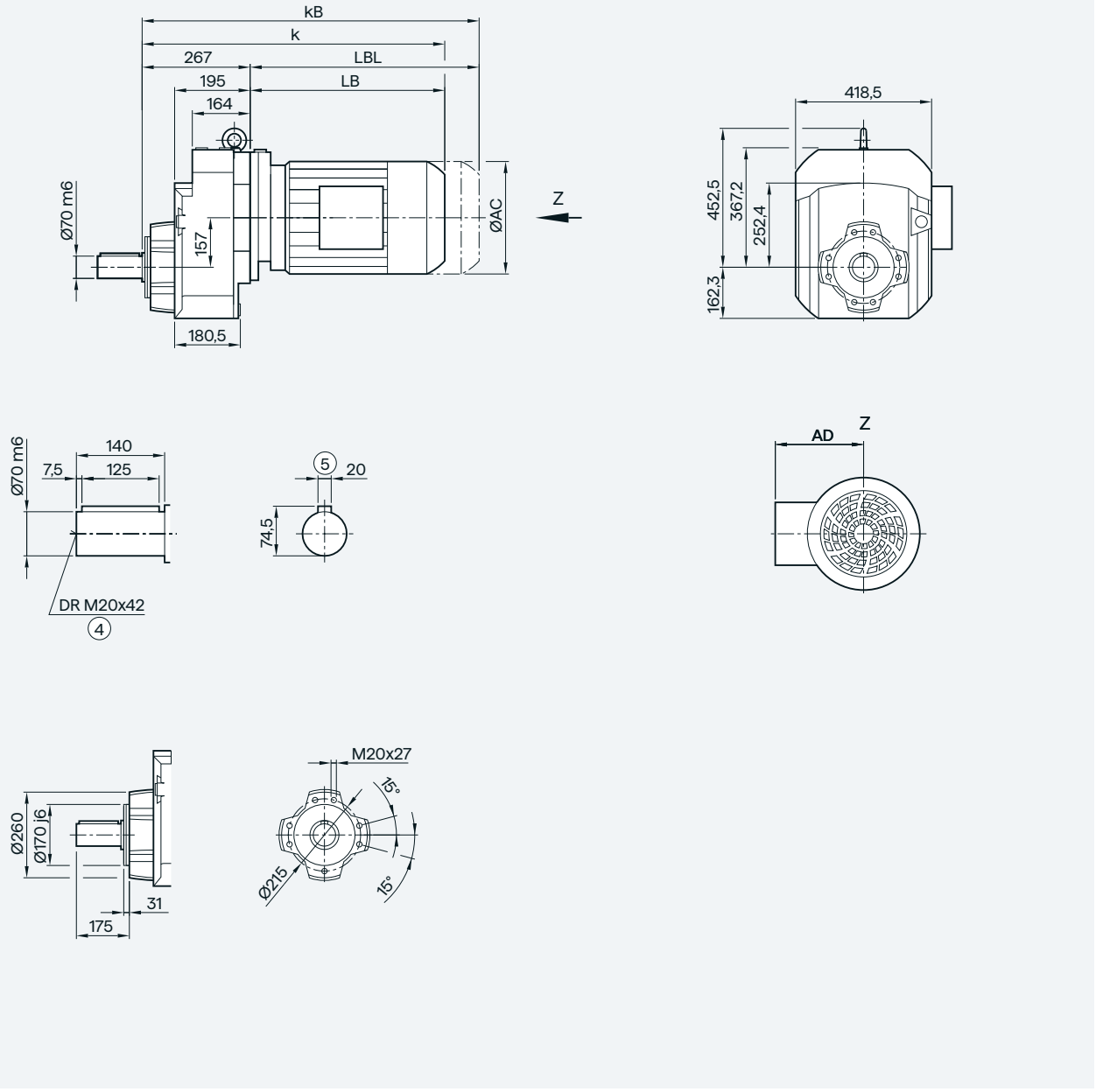
Helical geared motors

Gearbox EZ149 in a housing flange design

EZ149



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	623.0	658.0	633.0	658.0	679.0	729.0	761.0	821.0	834.0	864.0	902.0	927.0	947.5	1007.5	1059.0
kB	701.5	736.5	706.0	731.0	783.5	833.5	877.0	937.0	963.0	993.0	1049.0	1074.0	1175.5	1235.5	1284.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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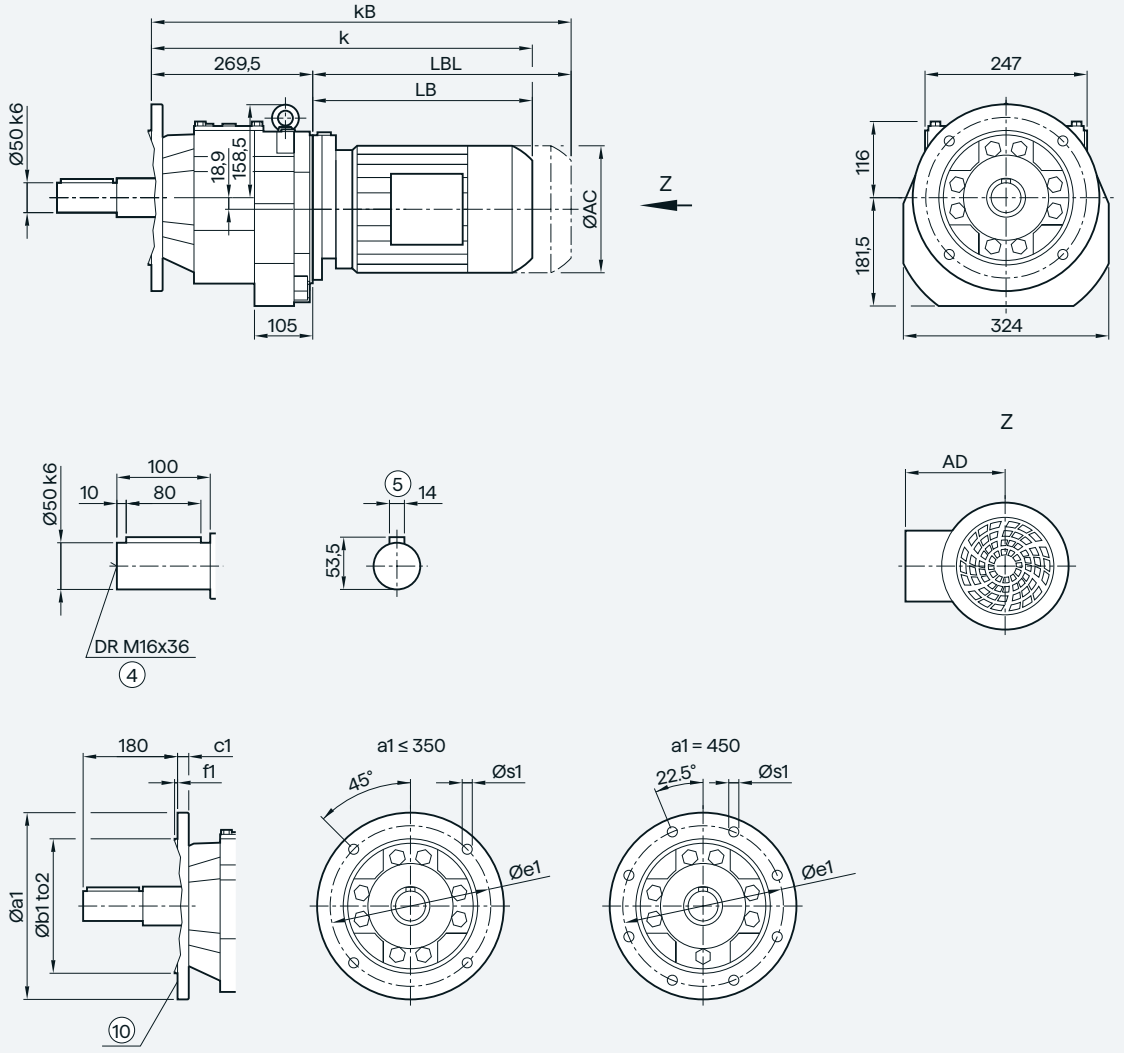
Gearbox ZKF89 in a flange-mounted design

ZKF89



Flange	a1	b1	to2	c1	e1	f1	s1
	300	230	j6	16	265	4.0	13.5
	350	250	j6	18	300	5.0	17.5
	450	350	h6	18	400	5.0	17.5

Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	531.0	566.0	592.5	632.5	645.0	680.0	655.0	680.0	708.0	758.0	790.0	850.0	863.0	893.0
kB	591.0	626.0	662.5	702.5	723.5	758.5	728.0	753.0	812.5	862.5	906.0	966.0	992.0	1022.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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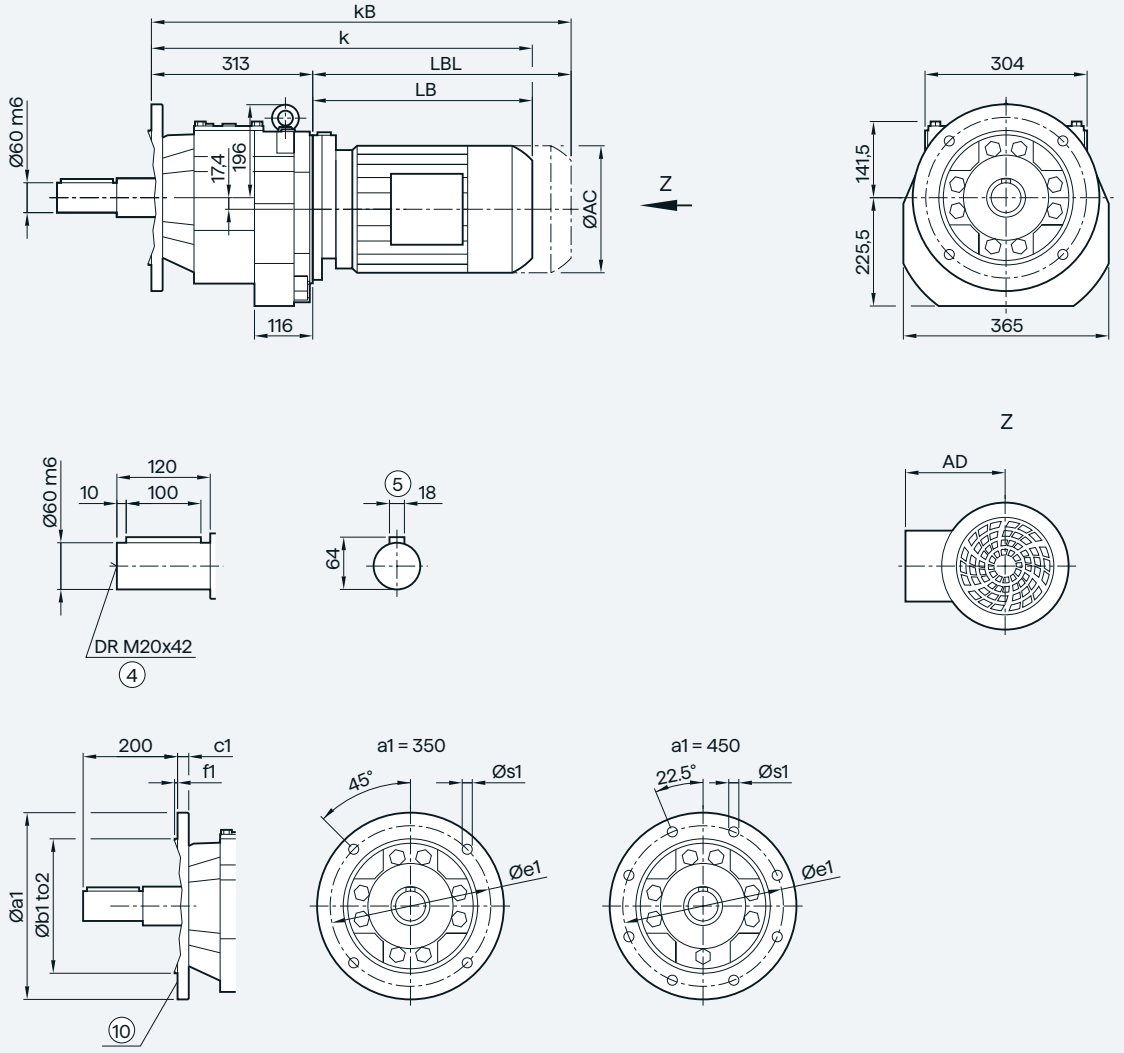
3

Gearbox ZKF109 in a flange-mounted design

ZKF109



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	18	300	5	17.5
	450	350	h6	22	400	5	17.5

Motor	LE										LES					
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0
k	629.0	669.0	679.5	714.5	689.5	714.5	742.5	792.5	824.5	884.5	897.5	927.5	965.5	990.5	1011.0	1071.0
kB	699.0	739.0	758.0	793.0	762.5	787.5	847.0	897.0	940.5	1000.5	1026.5	1056.5	1112.5	1137.5	1239.0	1299.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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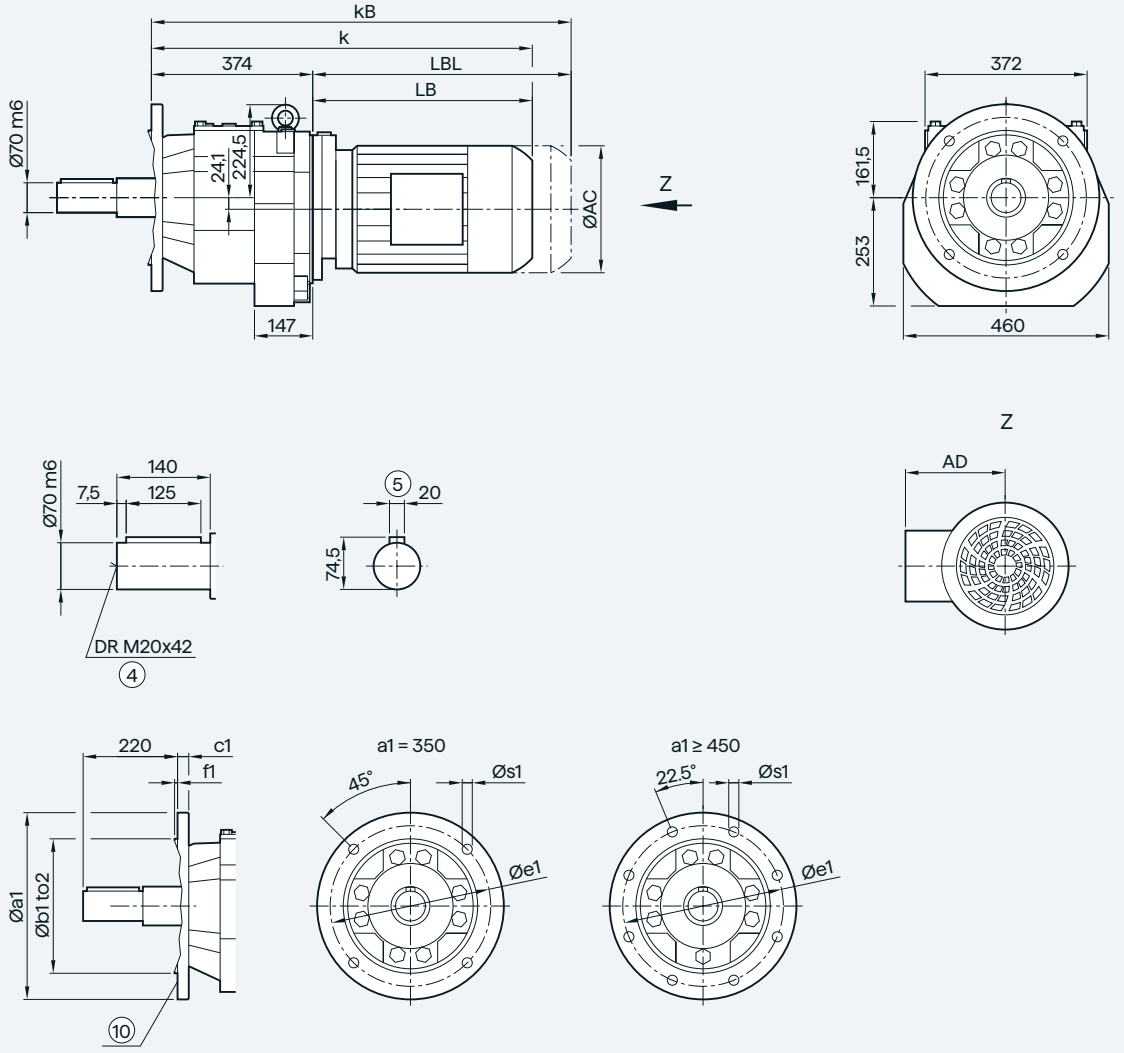
Gearbox ZKF129 in a flange-mounted design

ZKF129



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	20	300	5	17.5
	450	350	h6	22	400	5	17.5
	550	450	h6	22	500	5	17.5

Motor	LE										LES						
	90S	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	683.0	723.0	731.5	766.5	741.5	766.5	792.5	842.5	874.5	934.5	947.5	977.5	1015.5	1040.5	1067.0	1127.0	1172.5
kB	753.0	793.0	810.0	845.0	814.5	839.5	897.0	947.0	990.5	1050.5	1076.5	1106.5	1162.5	1187.5	1295.0	1355.0	1397.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1023.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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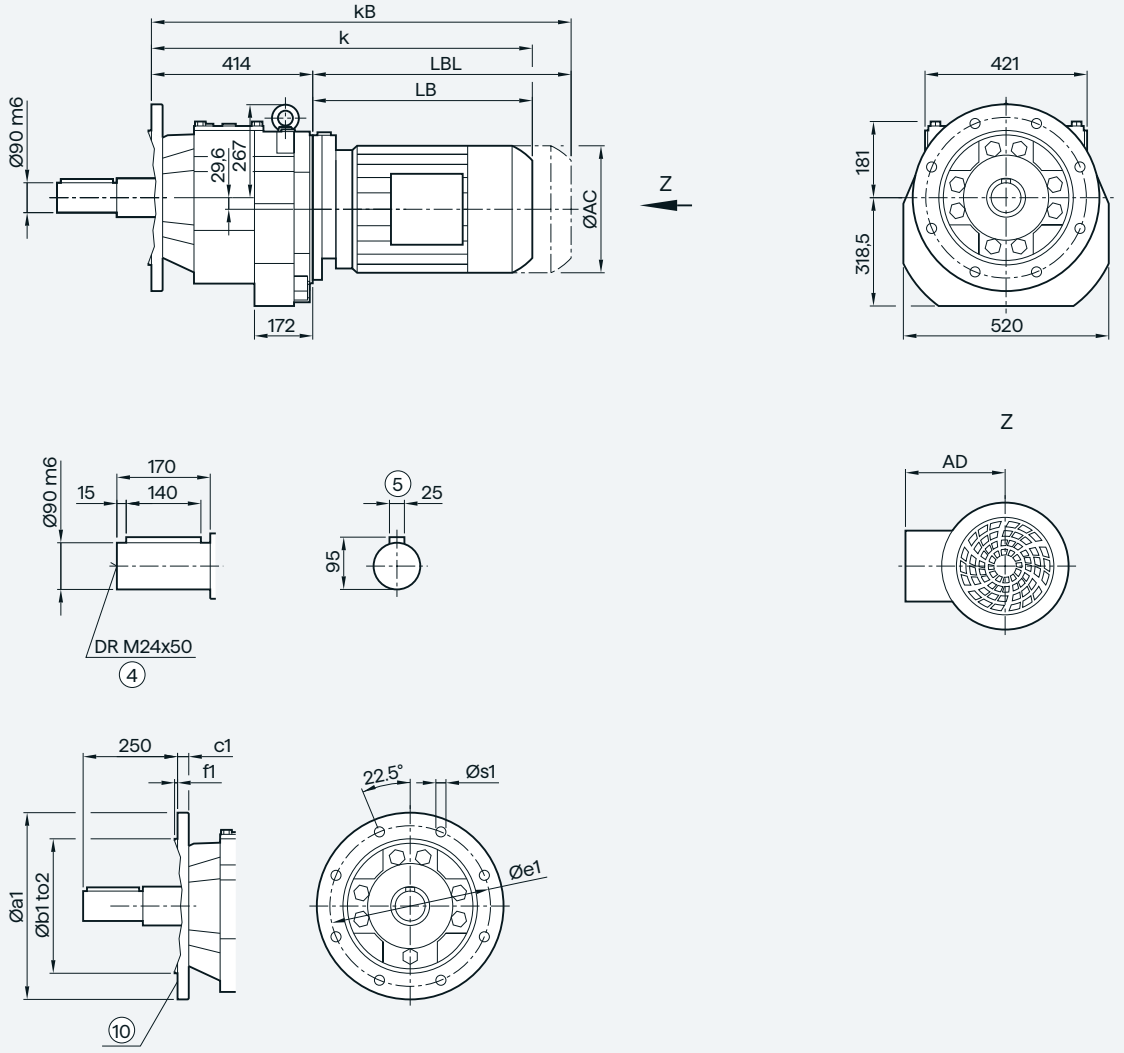
Gearbox ZKF149 in a flange-mounted design

ZKF149



Flange	a1	b1	to2	c1	e1	f1	s1
	450	350	h6	22	400	5	17.5
	550	450	h6	25	500	5	17.5

Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	770.0	805.0	780.0	805.0	826.0	876.0	908.0	968.0	981.0	1011.0	1049.0	1074.0	1094.5	1154.5	1206.0
kB	848.5	883.5	853.0	878.0	930.5	980.5	1024.0	1084.0	1110.0	1140.0	1196.0	1221.0	1322.5	1382.5	1431.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 3/181

1) AD depends on the motor options, for other dimensions, see page 9/46.

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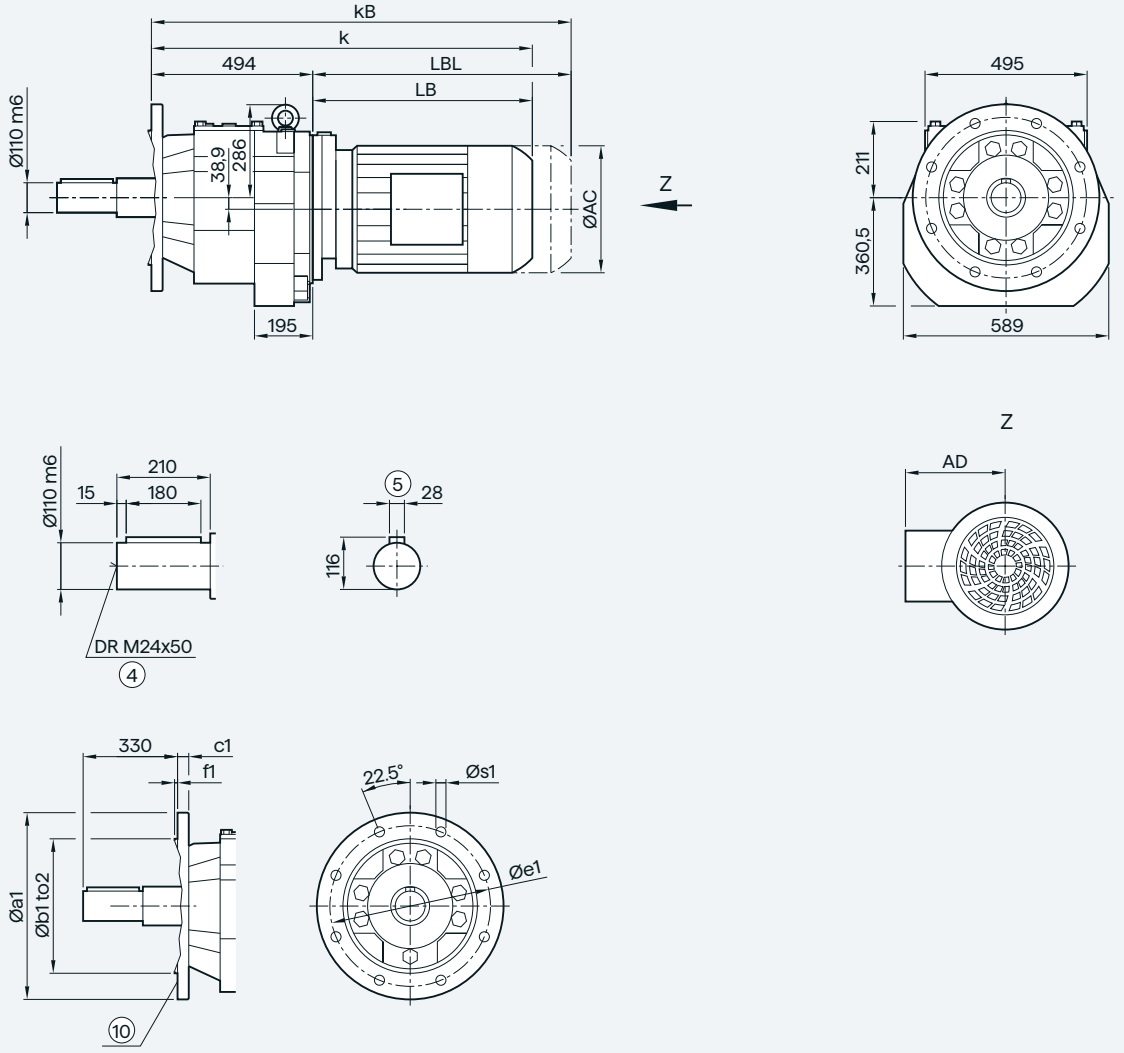
Gearbox ZKF169 in a flange-mounted design

ZKF169



Flange	a1	b1	to2	c1	e1	f1	s1
	450	350	h6	22	400	5	17.5
	550	450	h6	25	500	5	17.5
	660	550	h6	25	600	6	22.0

Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	847.5	872.5	893.0	943.0	975.0	1035.0	1047.5	1077.5	1115.5	1140.5	1160.0	1220.0	1267.5
kB	920.5	945.5	997.5	1047.5	1091.0	1151.0	1176.5	1206.5	1262.5	1287.5	1388.0	1448.0	1492.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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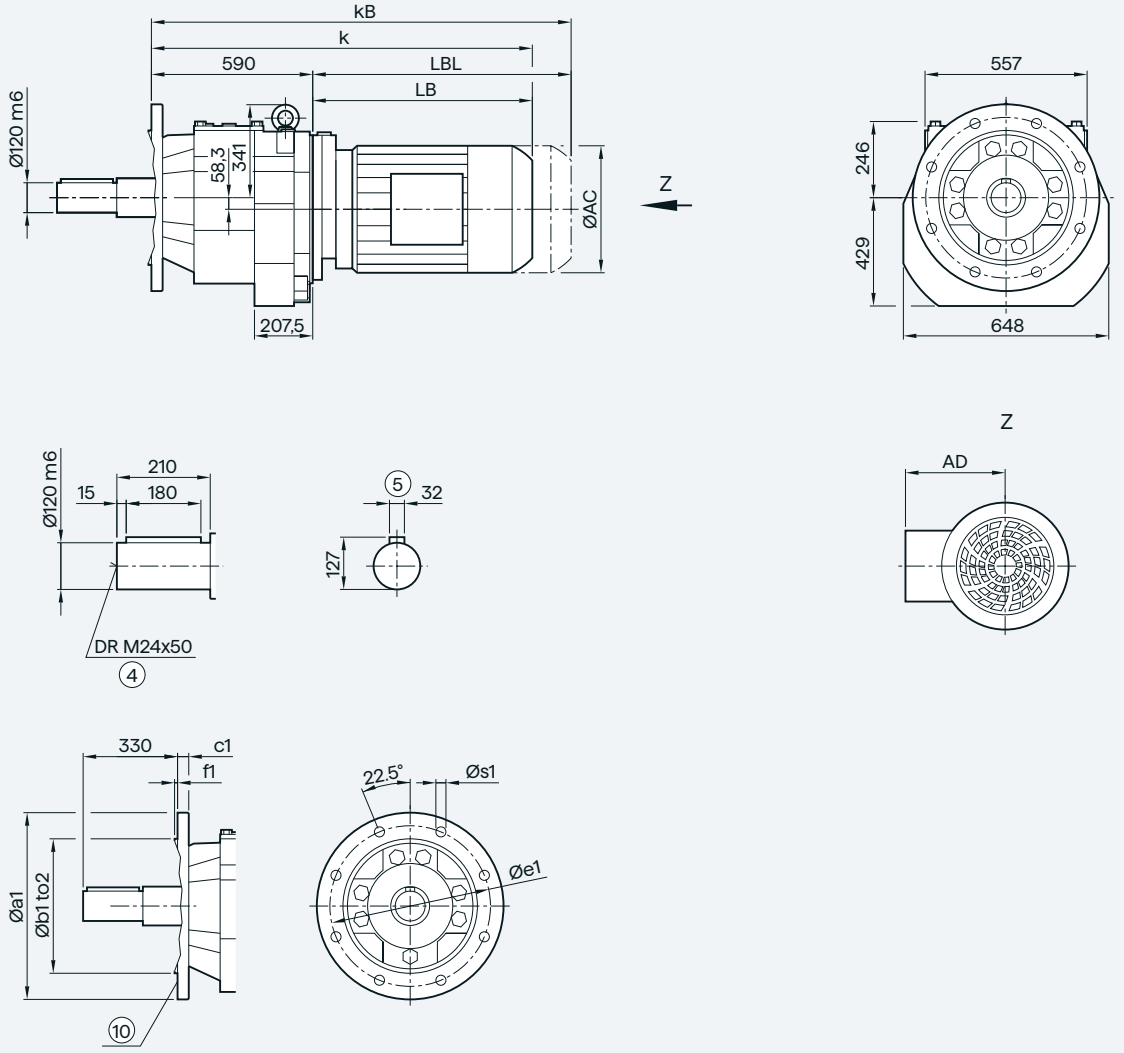
Helical geared motors

Gearbox ZKF189 in a flange-mounted design

ZKF189



Flange	a1	b1	to2	c1	e1	f1	s1
	550	450	h6	25	500	5	17.5
	660	550	h6	28	600	6	22.0

Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	337.0	337.0	407.5
k	943.5	968.5	989.0	1039.0	1071.0	1131.0	1143.5	1173.5	1211.5	1236.5	1256.0	1316.0	1363.5
kB	1016.5	1041.5	1093.5	1143.5	1187.0	1247.0	1272.5	1302.5	1358.5	1383.5	1484.0	1544.0	1588.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

⑩ For inner contour, see page 3/181

1) AD depends on the motor options, for other dimensions, see page 9/46.

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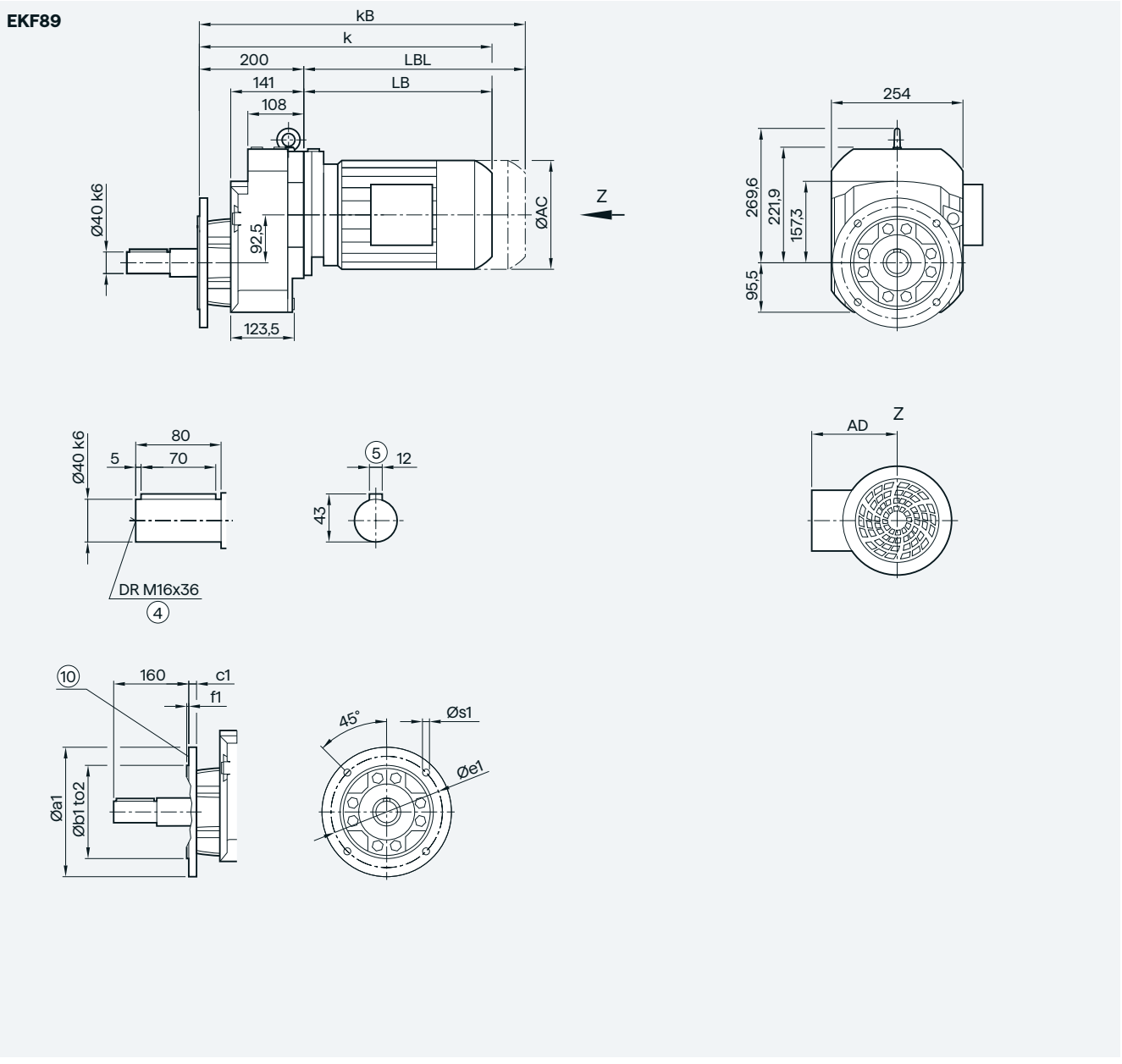
Gearbox EKF89 in a flange-mounted design

EKF89



Flange	a1	b1	to2	c1	e1	f1	s1
	250	180	j6	15	215	4.0	13.5
	300	230	j6	16	265	4.0	13.5
	350	250	j6	16	300	5.0	17.5

Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.5	496.5	523.0	563.0	575.5	610.5	585.5	610.5	638.5	688.5	720.5	780.5	793.5	823.5
kB	521.5	556.5	593.0	633.0	654.0	689.0	658.5	683.5	743.0	793.0	836.5	896.5	922.5	952.5
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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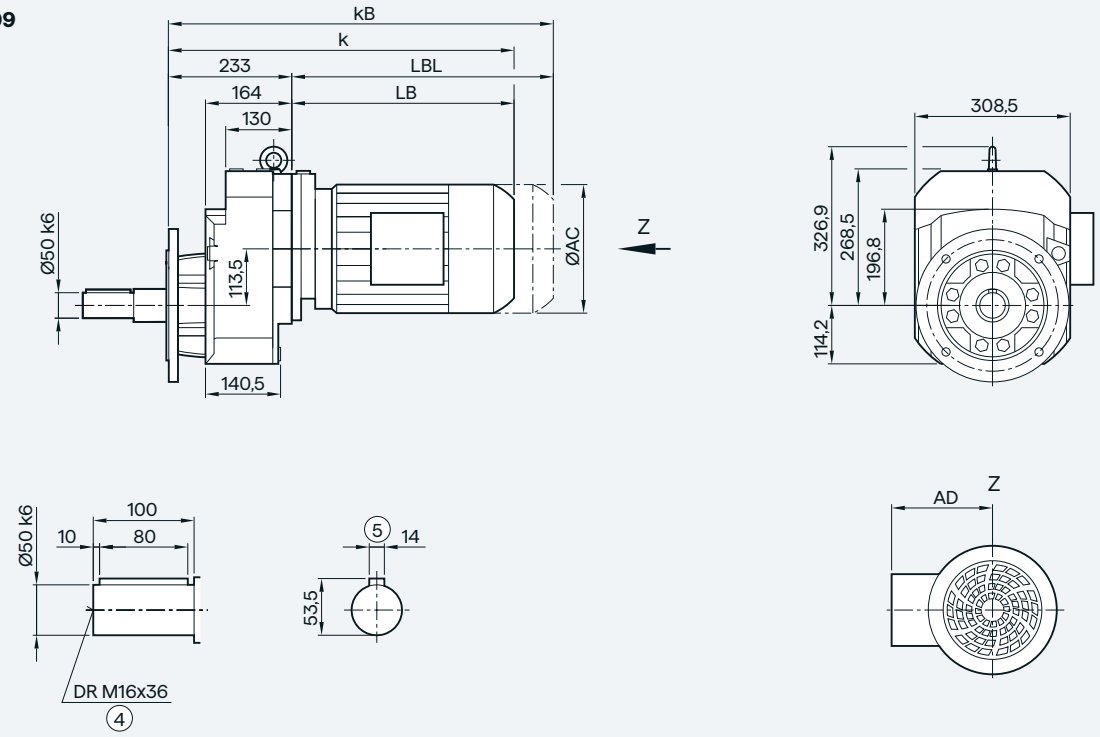
3

Gearbox EKF109 in a flange-mounted design

EKF109



Flange	a1	b1	to2	c1	e1	f1	s1
	300	230	j6	16	265	4.0	13.5
	350	250	j6	18	300	5.0	17.5
	450	350	h6	18	400	5.0	17.5

Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	549.0	589.0	599.5	634.5	609.5	634.5	662.5	712.5	744.5	804.5	817.5	847.5	885.5	910.5	931.0	991.0
kB	619.0	659.0	678.0	713.0	682.5	707.5	767.0	817.0	860.5	920.5	946.5	976.5	1032.5	1057.5	1159.0	1219.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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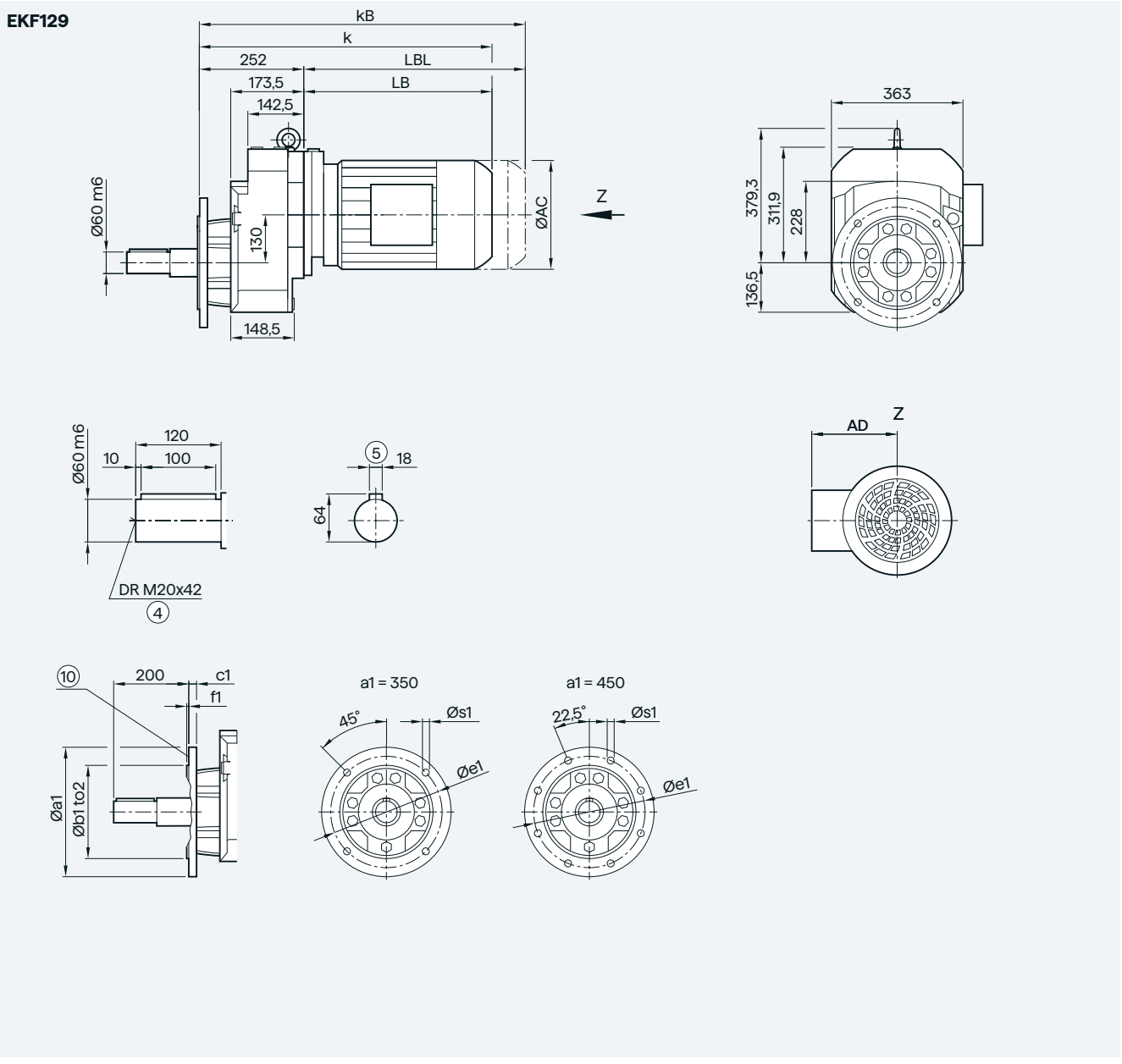
Gearbox EKF129 in a flange-mounted design

EKF129



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	18	300	5	17.5
	450	350	h6	22	400	5	17.5

Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	561.0	601.0	609.5	644.5	619.5	644.5	670.5	720.5	752.5	812.5	825.5	855.5	893.5	918.5	945.0	1005.0	1050.5
kB	631.0	671.0	688.0	723.0	692.5	717.5	775.0	825.0	868.5	928.5	954.5	984.5	1040.5	1065.5	1173.0	1233.0	1275.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1023.5

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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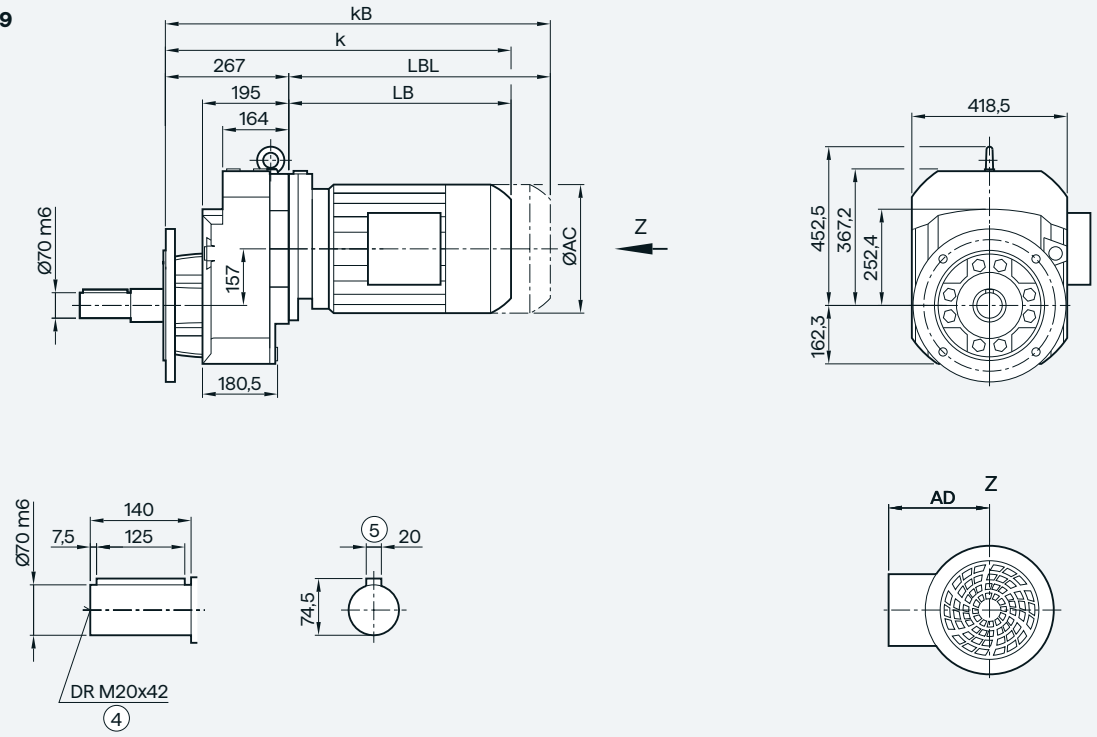
Gearbox EKF149 in a flange-mounted design

EKF149



Flange	a1	b1	to2	c1	e1	f1	s1
	350	250	h6	20	300	5	17.5
	450	350	h6	22	400	5	17.5
	550	450	h6	22	500	5	17.5

Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	623.0	658.0	633.0	658.0	679.0	729.0	761.0	821.0	834.0	864.0	902.0	927.0	947.5	1007.5	1059.0
kB	701.5	736.5	706.0	731.0	783.5	833.5	877.0	937.0	963.0	993.0	1049.0	1074.0	1175.5	1235.5	1284.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

④ DIN 332
⑤ Feather key/keyway DIN 6885-1
⑩ For inner contour, see page 3/181
1) AD depends on the motor options, for other dimensions, see page 9/46.

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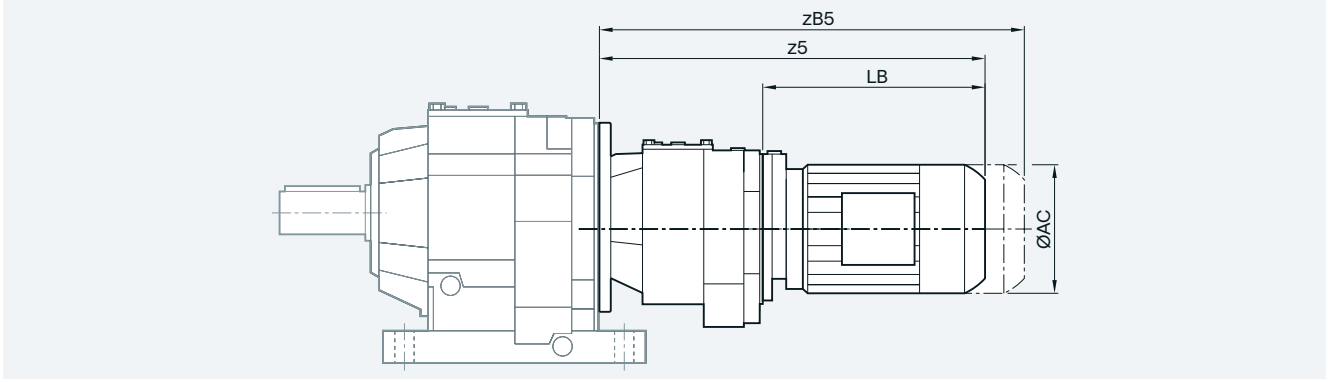
Helical tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
Z./D.29-Z/D19	LE63	117.8	331.0	375.5	160.5
	LE63Z	117.8	357.0	401.5	186.5
Z./D.39-Z/D19	LE63	117.8	331.0	375.5	160.5
	LE63Z	117.8	357.0	401.5	186.5
	LE71	138.8	363.0	418.0	184.5
	LE71Z	138.8	382.0	437.0	203.5
	LE71Y	138.8	424.0	477.0	243.5
Z./D.49-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
Z./D.59-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
Z./D.69-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
Z./D.79-Z/D39	LE63	117.8	373.5	418.0	194.0
	LE63Z	117.8	399.5	444.0	220.0
	LE71	138.8	405.5	460.5	226.0
	LE71Z	138.8	424.5	479.5	245.0
	LE71Y	138.8	464.5	519.5	285.0
	LE80	156.3	469.5	529.5	290.0
	LE80Z	156.3	504.5	564.5	325.0
Z./D.89-Z/D39	LE63	117.8	356.5	401.0	194.0
	LE63Z	117.8	382.5	427.0	220.0
	LE71	138.8	388.5	443.5	226.0
	LE71Z	138.8	407.5	462.5	245.0
	LE71Y	138.8	447.5	502.5	285.0
	LE80	156.3	452.5	512.5	290.0
	LE80Z	156.3	487.5	547.5	325.0
	LE90	173.8	514.0	584.0	351.5
	LE90Z	173.8	554.0	624.0	391.5

Gearbox	Motor	AC	z5	zB5	LB
D.109-Z/D39	LE63	117.8	347.5	392.0	194.0
	LE63Z	117.8	373.5	418.0	220.0
	LE71	138.8	379.5	434.5	226.0
	LE71Z	138.8	398.5	453.5	245.0
	LE71Y	138.8	438.5	493.5	285.0
	LE80	156.3	443.5	503.5	290.0
	LE80Z	156.3	478.5	538.5	325.0
	LE90	173.8	505.0	575.0	351.5
	LE90Z	173.8	545.0	615.0	391.5
	LE100	198.0	561.5	640.0	408.0
	LE100Z	198.0	596.5	675.0	443.0
D.129-Z/D49	LE63	117.8	376.5	421.0	184.5
	LE63Z	117.8	402.5	447.0	210.5
	LE71	138.8	408.5	463.5	216.5
	LE71Z	138.8	427.5	482.5	235.5
	LE71Y	138.8	467.5	522.5	275.5
	LE80	156.3	472.5	532.5	280.5
	LE80Z	156.3	507.5	567.5	315.5
	LE90	173.8	534.0	604.0	342.0
	LE90Z	173.8	574.0	644.0	382.0
	LE100	198.0	590.5	669.0	398.5
	LE100Z	198.0	625.5	704.0	433.5
	LE112	222.0	600.5	673.5	408.5
	LE112Z	222.0	635.0	708.0	443.0
D.149-Z/D49	LE63	117.8	366.0	410.5	184.5
	LE63Z	117.8	392.0	436.5	210.5
	LE71	138.8	398.0	453.0	216.5
	LE71Z	138.8	417.0	472.0	235.5
	LE71Y	138.8	457.0	512.0	275.5
	LE80	156.3	462.0	522.0	280.5
	LE80Z	156.3	497.0	557.0	315.5
	LE90	173.8	523.5	593.5	342.0
	LE90Z	173.8	563.5	633.5	382.0
	LE100	198.0	580.0	658.5	398.5
	LE100Z	198.0	615.0	693.5	433.5
	LE112	222.0	590.0	663.0	408.5

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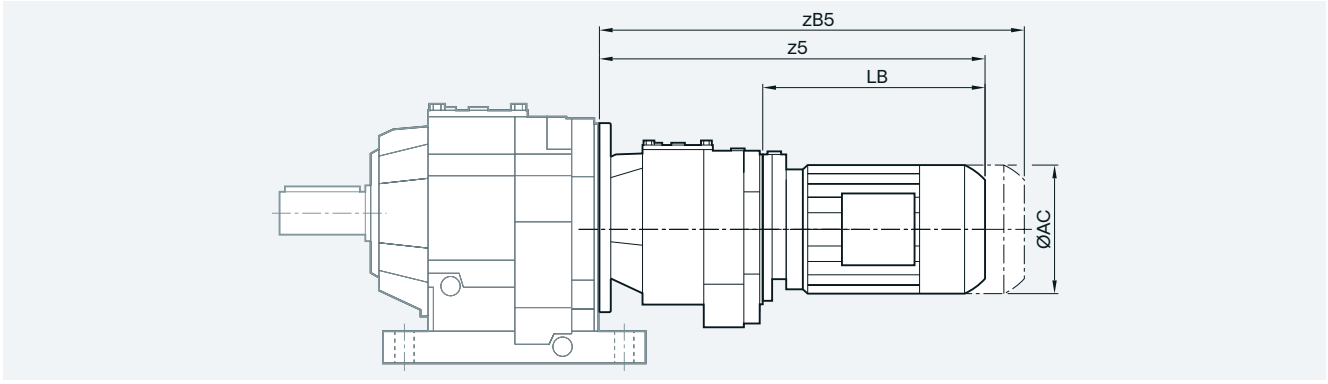
Helical tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
D.169-Z/D69	LE63	117.8	391.5	436.0	184.5
	LE63Z	117.8	417.5	462.0	210.5
	LE71	138.8	423.5	478.5	216.5
	LE71Z	138.8	442.5	497.5	235.5
	LE71Y	138.8	482.5	539.5	275.5
	LE80	156.3	487.5	547.5	280.5
	LE80Z	156.3	522.5	582.5	315.5
	LE90	173.8	549.0	619.0	342.0
	LE90Z	173.8	589.0	659.0	382.0
	LE100	198.0	605.5	684.0	398.5
	LE100Z	198.0	640.5	719.0	433.5
	LE112	222.0	615.5	688.5	408.5
	LE112Z	222.0	650.0	723.0	443.0
	LE132	264.0	668.5	773.0	461.5
	LE132Z	264.0	718.5	823.0	511.5
D.189-Z/D69	LE63	117.8	391.5	436.0	184.5
	LE63Z	117.8	417.5	462.0	210.5
	LE71	138.8	423.5	478.5	216.5
	LE71Z	138.8	442.5	497.5	235.5
	LE71Y	138.8	482.5	537.5	275.5
	LE80	156.3	487.5	547.5	280.5
	LE80Z	156.3	522.5	582.5	315.5
	LE90	173.8	549.0	619.0	342.0
	LE90Z	173.8	589.0	659.0	382.0
	LE100	198.0	605.5	684.0	398.5
	LE100Z	198.0	640.5	719.0	433.5
	LE112	222.0	615.5	688.5	408.5
	LE112Z	222.0	650.0	723.0	443.0
	LE132	264.0	668.5	773.0	461.5
	LE132Z	264.0	718.5	823.0	511.5

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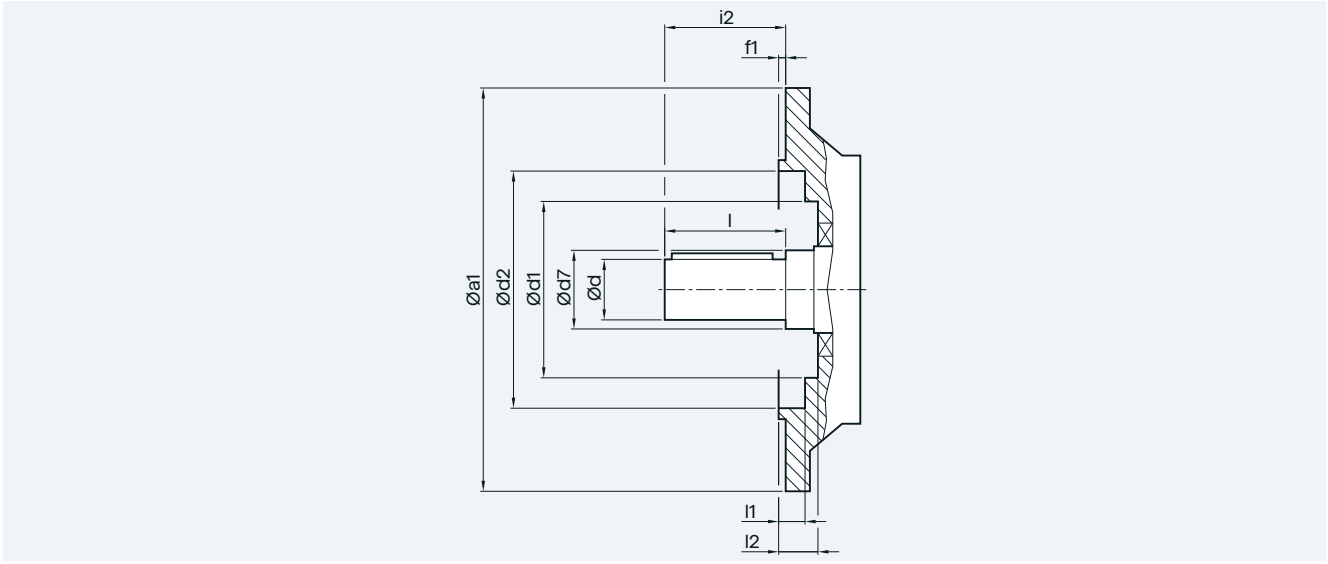
Inner contour of the flange-mounted design

Notes regarding the design of the customer's interface.



Gearbox	a1	d	d7	d1 ZF/DF	d1 ZB/DB	d2	f1	i2	l	l1 ZF/DF	l1 ZB/DB	l2
Helical gearbox ZF/DF or ZB/DB												
ZF/DF19	120	16	25	48.0	–	72.0	3.0	28	28	1.0	–	6
		16						40	40			
		20						40	40			
	140	16	25	48.0	–	87.0	3.0	28	28	1.0	–	6
		16						40	40			
		20						40	40			
	160	16	25	48.0	–	102.0	3.5	28	28	1.0	–	6.5
		16						40	40			
		20						40	40			
ZF/DF29, ZB/DB29	120	25	30	56.0	56.0	72.0	3.0	50	50	2.0	2.0	8
ZF/DF29	140	25	30	56.0	–	87.0	3.5	50	50	2.0	–	7
	160					102.0		50	50			7.5
ZF/DF39, ZB/DB39	120	25	35	69.0	66.0	72.0	3.0	50	50	4.0	4.0	9
		30						60	60			
ZF/DF39	160	25	35	66.5	–	102.0	3.5	50	50	1.5	–	6.5
		30						60	60			
	200	25	35	66.5	–	120.0	3.5	50	50	1.5	–	6.5
		30						60	60			
ZF/DF49, ZB/DB49	140	30	35	79.0	79.0	84.5	3.0	60	60	4.0	4.0	9.5
ZF/DF49	160	30	35	79.0	–	94.5	3.5	60	60	5.5	–	11
	200	30				121.0		60	60	4.5		10
ZF/DF59, ZB/DB59	160	30	40	88.0	88.0	94.5	3.5	60	60	4.5	4.5	11
		35	40					70	70			
		40	45					80	80			
ZF/DF59	200	30	40	88.0	–	115.0	3.5	60	60	4.5	–	9
		35	40					70	70			
		40	45					80	80			
	250	30	40	88.0	–	168.0	4.0	60	60	4.0	–	10.5
		35	40					70	70			
		40	45					80	80			
ZF/DF69, ZB/DB69	200	35	47	105.0	105.0	115.0	3.5	70	70	4.5	4.5	11
ZF/DF69	250	35	47	105.0	–	168.0	4.0	70	70	4.0	–	10.5

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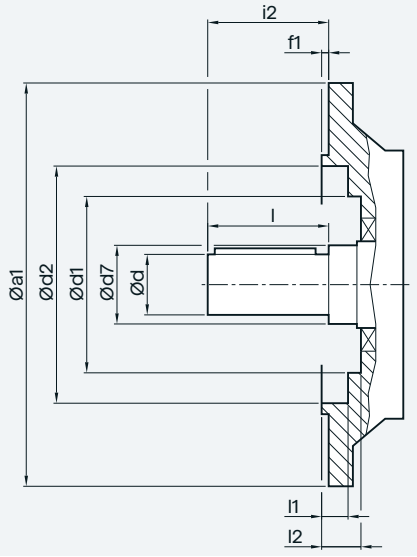
Inner contour of the flange-mounted design

Notes regarding the design of the customer's interface.



Gearbox	a1	d	d7	d1 ZF/DF	d1 ZB/DB	d2	f1	i2	l	l1 ZF/DF	l1 ZB/DB	l2
Helical gearbox ZF/DF or ZB/DB												
ZF/DF79, ZB/DB79	250	35	52	113.0	114.5	168.0	4.0	70	70	0.5	2.5	7.5
		40						80	80			
		50						100	100			
ZF/DF79	300	35	52	113.0	–	217.0	4.0	70	70	0.5	–	7.5
		40						80	80			
		50						100	100			
	350	35	52	113.0	–	238.0	5.0	70	70	0.5	–	8.5
		40						80	80			
		50						100	100			
ZF/DF89, ZB/DB89	300	50	62	143.0	143.0	218.0	4.0	100	100	1.5	1.5	8
		60						120	120			
ZF/DF89	350	50	62	143.0	–	238.0	5.0	100	100	2.5	–	9
		60						120	120			
	450	50	62	143.0	–	334.0	5.0	100	100	0.5	–	9
		60						120	120			
ZF/DF109	350	60	65	157.0	–	236.0	5.0	120	120	2.0	–	9
	450			168.0		335.0		120	120	0		
ZF/DF129	350	70	75	180.0	–	236.0	5.0	140	140	7.5	–	9
	450					330.0		140	140			
	550					428.0		140	140	5.0	–	9
ZF/DF149	450	90	100	225.0	–	330.0	5.0	170	170	2.5	–	10
	550					430.0		170	170			
ZF/DF169	450	100	120	235.0		330.0	5.0	210	210	0.5	–	10
		110						210	210			
	550	100	120	235.0		430.0	5.0	210	210	0.5	–	10
		110						210	210			
	660	100	120	235.0		530.0	6.0	210	210	0	–	11
		110						210	210			
ZF/DF189	550	120	140	274.0	–	430.0	5.0	210	210	0	–	10
	660					530.0	6.0	210	210	1.0	–	11

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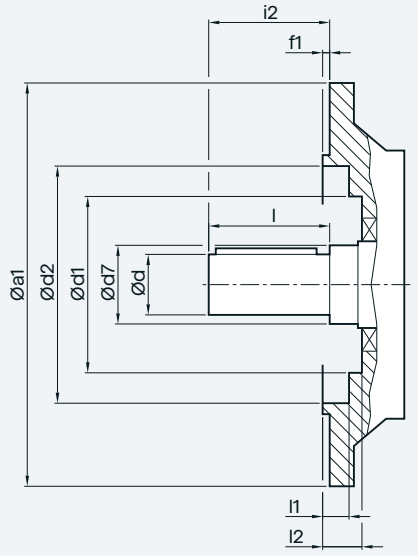
Inner contour of the flange-mounted design

Notes regarding the design of the customer's interface.



Gearbox	a1	d	d7	d1	d2	f1	i2	l	l1	l2
Helical gearbox ZF/DF with VLplus reinforced bearing system (G30)										
ZF/DF89	300	60	70	143	218.0	4.0	120	120	1.5	8.0
	350				238.0	5.0			2.5	9.0
	450				334.0				0.5	
ZF/DF109	350	70	75	157	236.0	5.0	140	140	2.0	9.0
	450			168	335.0				0	
ZF/DF129	350	90	95	180	236.0	5.0	170	170	7.5	10.0
	450				330.0				7.5	
	550				428.0				5.0	
ZF/DF149	550	100	120	225	430.0	5.0	210	210	5.5	11.0
ZF/DF169	450	120	140	235	330.0	5.0	210	210	0.5	10.0
	550				430.0					
	660				530.0	6.0			0	11.0
Helical gearbox EF										
EF39	120	20	35	–	72.0	3.0	40	40	6.0	–
	140				80.0					
	160			87	100.0	3.5	40	40	5.5	6.5
	200				121.0					
EF49	160	25	40	88	94.5	3.5	50	50	4.5	11.0
	200				115.0					9.0
	250				168.0	4.0	50	50	4.0	10.5
EF69	200	30	40	105	115.0	3.5	60	60	4.5	11.0
	250				168.0	4.0			4.0	10.5
EF89	250	40	45	113	168.0	4.0	80	80	0.5	7.5
	300				217.0					
	350				238.0	5.0				8.5
EF109	300	50	55	143	218.0	4.0	100	100	1.5	8.0
	350				238.0	5.0			2.5	9.0
	450				334.0				0.5	
EF129	350	60	65	157	236.0	5.0	120	120	2.0	9.0
	450			168	335.0				0	
EF149	350	70	75	180	236.0	5.0	140	140	7.5	9.0
	450			180	330.0					
	550			180	428.0				5.0	

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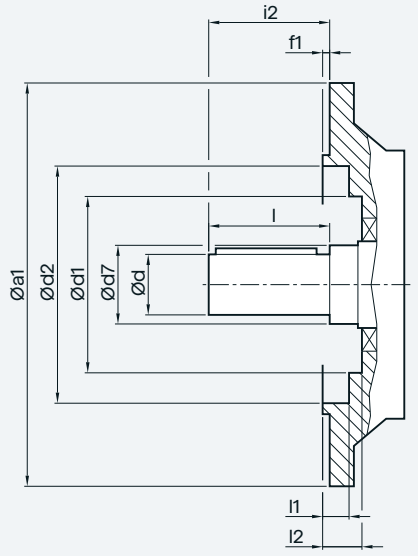
Inner contour of the flange-mounted design

Notes regarding the design of the customer's interface.



Gearbox	a1	d	d7	d1	d2	f1	i2	l	l1	l2
Cooling tower gearbox ZKF										
ZKF89	300	50	62	143	218.0	4.0	180	100	1.5	8.0
	350				238.0	5.0			2.5	9.0
	450				334.0				0.5	
ZKF109	350	60	65	157	236.0	5.0	200	120	2.0	9.0
	450			168	335.0				0	
ZKF129	350	70	75	180	236.0	5.0	220	140	7.5	9.0
	450				330.0					
	550				428.0				5.0	
ZKF149	450	90	100	225	330.0	5.0	250	170	2.5	10.0
	550				430.0					
ZKF169	450	110	120	235	330.0	5.0	330	210	0.5	10.0
	550				430.0					
	660				530.0	6.0			0	11.0
ZKF189	550	120	140	274	430.0	5.0	330	210	0	10.0
	660				530.0	6.0			1.0	11.0
Cooling tower gearbox EKF										
EKF89	250	40	45	113	168	4.0	160	80	0.5	7.5
	300				217					
	350				238	5.0				8.5
EKF109	300	50	55	143	218	4.0	180	100	1.5	8.0
	350				238	5.0			2.5	9.0
	450				334				0.5	
EKF129	350	60	65	157	236	5.0	200	120	2.0	9.0
	450			168	335				0	
EKF149	350	70	75	180	236	5.0	220	140	7.5	9.0
	450				330					
	550				428				5.0	

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Parallel shaft geared motors

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4

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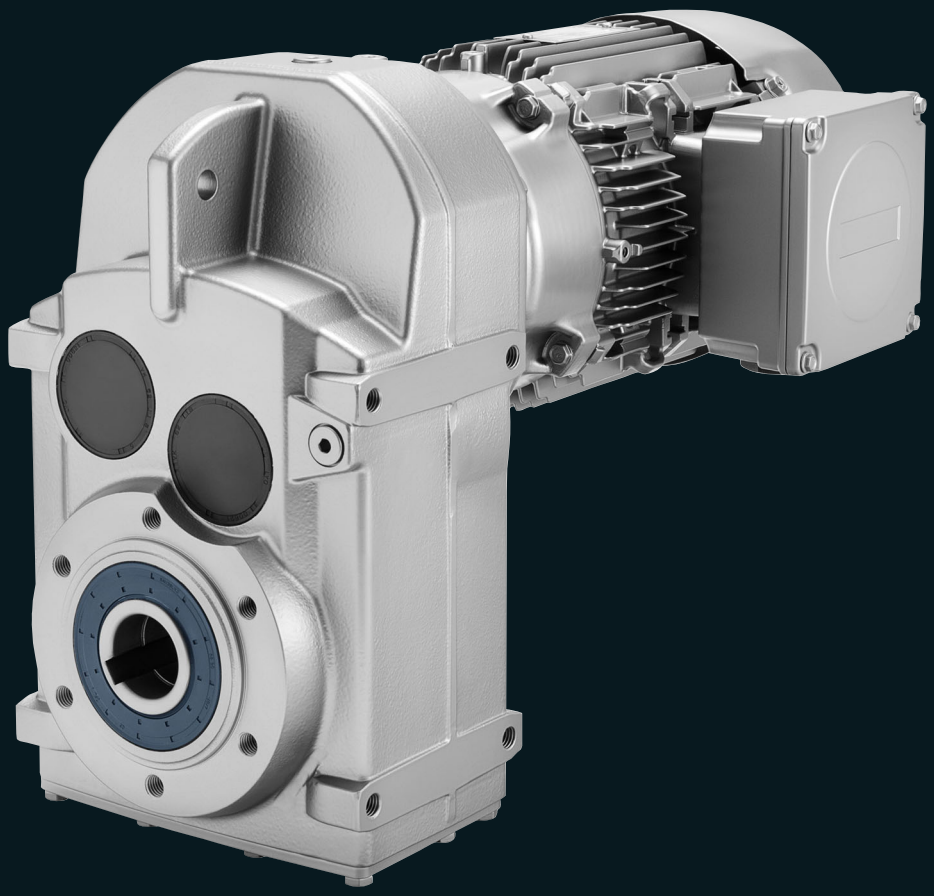

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4 Parallel shaft geared motors

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Protective covers

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Parallel shaft geared motors

Parallel shaft geared motors 2- or 3-stages
Parallel shaft tandem geared motors 4 to 6-stage for especially low output speeds

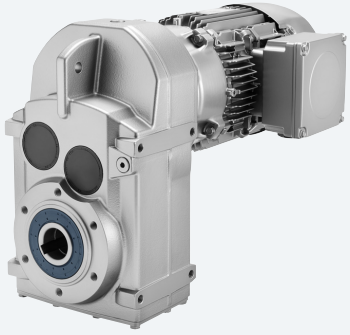

Fig. 4-1 Parallel shaft geared motor FZ/FD

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power P_1 kW	Supported motors
_ Shaft-mounted design _ Flange-mounted design with or without VLplus reinforced bearing systems _ Design with integrated housing flange _ Foot-mounted design _ Tandem geared motors	_ Hollow shaft design with feather key _ Hollow shaft design with splined shaft _ Hollow shaft design with shrink disk _ Hollow shaft design with ShaftMount assembly system _ Solid shaft design with and without feather key	FZ29 ... FZ189 FD29 ... FD189 FZ29-Z19 ... FD189-D69	150 ... 19000	3.5 ... 70.74 32 ... 413 274 ... 29900	55 7.5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.09	**FD.69-LE63MEB6**							
	2.6	335	348.40	11400	1.8	30	**2KJ3404- ■ BD21- ■ ■ S1 -Z**	**P01**
	2.9	295	309.78	11500	2	30	**2KJ3404- ■ BD21- ■ ■ R1 -Z**	**P01**
	FD.49-LE63MEB6							
	2.7	315	330.98	8510	1.5	25	**2KJ3403- ■ BD21- ■ ■ S1 -Z**	**P01**
	3	280	294.29	8610	1.7	25	**2KJ3403- ■ BD21- ■ ■ R1 -Z**	**P01**
	3.5	245	258.40	8720	1.9	25	**2KJ3403- ■ BD21- ■ ■ Q1 -Z**	**P01**
	FD.39-LE63MEB6							
	3.3	260	274.26	5930	1.1	16	**2KJ3402- ■ BD21- ■ ■ R1 -Z**	**P01**
	3.7	230	243.26	6040	1.2	16	**2KJ3402- ■ BD21- ■ ■ Q1 -Z**	**P01**
	4.2	200	211.06	6150	1.4	16	**2KJ3402- ■ BD21- ■ ■ P1 -Z**	**P01**
	4.7	184	191.87	6210	1.6	16	**2KJ3402- ■ BD21- ■ ■ N1 -Z**	**P01**
	FD.39-LE63MCA4							
	5.1	167	274.26	6270	1.7	15	**2KJ3402- ■ BB21- ■ ■ R1 -Z**	–
	5.8	148	243.26	6340	2	15	**2KJ3402- ■ BB21- ■ ■ Q1 -Z**	–
	FD.29-LE63MCA4							
	4.7	182	298.58	5220	0.82	9	**2KJ3401- ■ BB21- ■ ■ Q1 -Z**	–
	5.3	161	264.39	5220	0.93	9	**2KJ3401- ■ BB21- ■ ■ P1 -Z**	–
	6.1	140	229.72	5220	1.1	9	**2KJ3401- ■ BB21- ■ ■ N1 -Z**	–
	6.8	127	208.83	5220	1.2	9	**2KJ3401- ■ BB21- ■ ■ M1 -Z**	–
	7.9	108	177.71	5220	1.4	9	**2KJ3401- ■ BB21- ■ ■ L1 -Z**	–
	8.7	98	161.55	5220	1.5	9	**2KJ3401- ■ BB21- ■ ■ K1 -Z**	–
	10	86	140.86	5220	1.7	9	**2KJ3401- ■ BB21- ■ ■ J1 -Z**	–
	11	77	126.09	5220	2	9	**2KJ3401- ■ BB21- ■ ■ H1 -Z**	–
	13	68	111.97	5220	2.2	9	**2KJ3401- ■ BB21- ■ ■ G1 -Z**	–
	14	63	103.36	5220	2.4	9	**2KJ3401- ■ BB21- ■ ■ F1 -Z**	–
	16	55	89.78	5220	2.7	9	**2KJ3401- ■ BB21- ■ ■ E1 -Z**	–
	18	48	78.02	5220	3.2	9	**2KJ3401- ■ BB21- ■ ■ D1 -Z**	–
	20	43	70.43	5220	3.5	9	**2KJ3401- ■ BB21- ■ ■ C1 -Z**	–
	21	40	66.29	5220	3.7	9	**2KJ3401- ■ BB21- ■ ■ B1 -Z**	–
	24	35	57.79	5220	4.3	9	**2KJ3401- ■ BB21- ■ ■ A1 -Z**	–
	FZ.29-LE63MCA4							
	25	35	56.73	5220	4.3	9	**2KJ3301- ■ BB21- ■ ■ C2 -Z**	–
	28	31	50.32	5220	4.9	9	**2KJ3301- ■ BB21- ■ ■ B2 -Z**	–
	32	27	43.66	5220	5.6	9	**2KJ3301- ■ BB21- ■ ■ A2 -Z**	–
	36	24	39.69	5220	6.2	9	**2KJ3301- ■ BB21- ■ ■ X1 -Z**	–
	41	21	34.04	5220	7.2	9	**2KJ3301- ■ BB21- ■ ■ W1 -Z**	–
	46	19	30.95	5220	8	9	**2KJ3301- ■ BB21- ■ ■ V1 -Z**	–
	52	16	27.13	5220	9.1	9	**2KJ3301- ■ BB21- ■ ■ U1 -Z**	–
	58	15	24.22	5220	10	9	**2KJ3301- ■ BB21- ■ ■ T1 -Z**	–
	65	13	21.58	5220	11	9	**2KJ3301- ■ BB21- ■ ■ S1 -Z**	–
	71	12	19.92	5110	12	9	**2KJ3301- ■ BB21- ■ ■ R1 -Z**	–
	81	11	17.44	4890	14	9	**2KJ3301- ■ BB21- ■ ■ Q1 -Z**	–
	92	9.3	15.29	4690	16	9	**2KJ3301- ■ BB21- ■ ■ P1 -Z**	–
	102	8.5	13.88	4540	18	9	**2KJ3301- ■ BB21- ■ ■ N1 -Z**	–
	108	8	13.06	4460	19	9	**2KJ3301- ■ BB21- ■ ■ M1 -Z**	–
	123	7	11.51	4280	20	9	**2KJ3301- ■ BB21- ■ ■ L1 -Z**	–
	141	6.1	9.99	4080	22	9	**2KJ3301- ■ BB21- ■ ■ K1 -Z**	–
	146	5.9	9.69	4040	24	9	**2KJ3301- ■ BB21- ■ ■ J1 -Z**	–
	163	5.3	8.63	3890	25	9	**2KJ3301- ■ BB21- ■ ■ H1 -Z**	–
	177	4.9	7.97	3790	25	9	**2KJ3301- ■ BB21- ■ ■ G1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.12	**FD.49-LE63ZMH4P**							
	4.2	270	330.98	8640	1.8	26	**2KJ3403- ■ BD23- ■ ■ S1 -Z**	**–**
	4.7	240	294.29	8730	2	26	**2KJ3403- ■ BD23- ■ ■ R1 -Z**	**–**
	FD.39-LE63ZMH4P							
	5.1	225	274.26	6060	1.3	17	**2KJ3402- ■ BD23- ■ ■ R1 -Z**	**–**
	5.7	200	243.26	6150	1.4	17	**2KJ3402- ■ BD23- ■ ■ Q1 -Z**	**–**
	6.6	174	211.06	6250	1.7	17	**2KJ3402- ■ BD23- ■ ■ P1 -Z**	**–**
	7.2	158	191.87	6310	1.8	17	**2KJ3402- ■ BD23- ■ ■ N1 -Z**	**–**
	8.4	136	164.56	6390	2.1	17	**2KJ3402- ■ BD23- ■ ■ M1 -Z**	**–**
	FD.29-LE63ZMH4P							
	6.7	172	208.83	5220	0.87	11	**2KJ3401- ■ BD23- ■ ■ M1 -Z**	**–**
	7.8	147	177.71	5220	1	11	**2KJ3401- ■ BD23- ■ ■ L1 -Z**	**–**
	8.6	133	161.55	5220	1.1	11	**2KJ3401- ■ BD23- ■ ■ K1 -Z**	**–**
	9.9	116	140.86	5220	1.3	11	**2KJ3401- ■ BD23- ■ ■ J1 -Z**	**–**
	11	104	126.09	5220	1.4	11	**2KJ3401- ■ BD23- ■ ■ H1 -Z**	**–**
	12	92	111.97	5220	1.6	11	**2KJ3401- ■ BD23- ■ ■ G1 -Z**	**–**
	13	85	103.36	5220	1.8	11	**2KJ3401- ■ BD23- ■ ■ F1 -Z**	**–**
	15	74	89.78	5220	2	11	**2KJ3401- ■ BD23- ■ ■ E1 -Z**	**–**
	18	64	78.02	5220	2.3	11	**2KJ3401- ■ BD23- ■ ■ D1 -Z**	**–**
	20	58	70.43	5220	2.6	11	**2KJ3401- ■ BD23- ■ ■ C1 -Z**	**–**
	21	55	66.29	5220	2.7	11	**2KJ3401- ■ BD23- ■ ■ B1 -Z**	**–**
	24	48	57.79	5220	3.1	11	**2KJ3401- ■ BD23- ■ ■ A1 -Z**	**–**
	FZ.29-LE63ZMH4P							
	25	47	56.73	5220	3.2	11	**2KJ3301- ■ BD23- ■ ■ C2 -Z**	**–**
	28	42	50.32	5220	3.6	11	**2KJ3301- ■ BD23- ■ ■ B2 -Z**	**–**
	32	36	43.66	5220	4.2	11	**2KJ3301- ■ BD23- ■ ■ A2 -Z**	**–**
	35	33	39.69	5220	4.6	11	**2KJ3301- ■ BD23- ■ ■ X1 -Z**	**–**
	41	28	34.04	5220	5.3	11	**2KJ3301- ■ BD23- ■ ■ W1 -Z**	**–**
	45	26	30.95	5220	5.9	11	**2KJ3301- ■ BD23- ■ ■ V1 -Z**	**–**
	51	22	27.13	5220	6.7	11	**2KJ3301- ■ BD23- ■ ■ U1 -Z**	**–**
	57	20	24.22	5220	7.5	11	**2KJ3301- ■ BD23- ■ ■ T1 -Z**	**–**
	64	18	21.58	5220	8.4	11	**2KJ3301- ■ BD23- ■ ■ S1 -Z**	**–**
	70	16	19.92	5100	9.1	11	**2KJ3301- ■ BD23- ■ ■ R1 -Z**	**–**
	80	14	17.44	4890	10	11	**2KJ3301- ■ BD23- ■ ■ Q1 -Z**	**–**
	91	13	15.29	4680	12	11	**2KJ3301- ■ BD23- ■ ■ P1 -Z**	**–**
	100	11	13.88	4550	13	11	**2KJ3301- ■ BD23- ■ ■ N1 -Z**	**–**
	106	11	13.06	4450	14	11	**2KJ3301- ■ BD23- ■ ■ M1 -Z**	**–**
	121	9.5	11.51	4280	15	11	**2KJ3301- ■ BD23- ■ ■ L1 -Z**	**–**
	139	8.2	9.99	4090	16	11	**2KJ3301- ■ BD23- ■ ■ K1 -Z**	**–**
	143	8	9.69	4040	18	11	**2KJ3301- ■ BD23- ■ ■ J1 -Z**	**–**
	161	7.1	8.63	3890	18	11	**2KJ3301- ■ BD23- ■ ■ H1 -Z**	**–**
	174	6.6	7.97	3790	18	11	**2KJ3301- ■ BD23- ■ ■ G1 -Z**	**–**
	199	5.8	6.98	3630	21	11	**2KJ3301- ■ BD23- ■ ■ F1 -Z**	**–**
	227	5	6.12	3480	23	11	**2KJ3301- ■ BD23- ■ ■ E1 -Z**	**–**
	250	4.6	5.55	3370	24	11	**2KJ3301- ■ BD23- ■ ■ D1 -Z**	**–**
	266	4.3	5.22	3300	25	11	**2KJ3301- ■ BD23- ■ ■ C1 -Z**	**–**
0.18	**FD.79-LE71ZMK6P**							
	2.5	700	357.00	14200	1.4	39	**2KJ3405- ■ CC23- ■ ■ S1 -Z**	**P01**
	2.7	635	324.62	14300	1.6	39	**2KJ3405- ■ CC23- ■ ■ R1 -Z**	**P01**
	3.2	540	276.09	14500	1.8	39	**2KJ3405- ■ CC23- ■ ■ Q1 -Z**	**P01**
	3.5	490	250.99	14500	2	39	**2KJ3405- ■ CC23- ■ ■ P1 -Z**	**P01**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.18	**FD.69-LE71ZMK6P**							
	2.5	680	348.40	10600	0.88	32	**2KJ3404- ■ CC23- ■ ■ S1 -Z**	**P01**
	2.8	605	309.78	10800	0.99	32	**2KJ3404- ■ CC23- ■ ■ R1 -Z**	**P01**
	3.2	530	272.00	11000	1.1	32	**2KJ3404- ■ CC23- ■ ■ Q1 -Z**	**P01**
	3.5	485	247.27	11100	1.2	32	**2KJ3404- ■ CC23- ■ ■ P1 -Z**	**P01**
	FD.69-LE63ZMK4P							
	4	430	348.40	11200	1.4	31	**2KJ3404- ■ BE23- ■ ■ S1 -Z**	–
	4.5	380	309.78	11300	1.6	31	**2KJ3404- ■ BE23- ■ ■ R1 -Z**	–
	5.1	335	272.00	11400	1.8	31	**2KJ3404- ■ BE23- ■ ■ Q1 -Z**	–
	5.6	305	247.27	11500	2	31	**2KJ3404- ■ BE23- ■ ■ P1 -Z**	–
	FD.49-LE71ZMK6P							
	3	575	294.29	7340	0.83	27	**2KJ3403- ■ CC23- ■ ■ R1 -Z**	**P01**
	3.4	505	258.40	7790	0.95	27	**2KJ3403- ■ CC23- ■ ■ Q1 -Z**	**P01**
	3.7	460	234.91	8090	1	27	**2KJ3403- ■ CC23- ■ ■ P1 -Z**	**P01**
	FD.49-LE63ZMK4P							
	4.2	410	330.98	8240	1.2	26	**2KJ3403- ■ BE23- ■ ■ S1 -Z**	–
	4.7	365	294.29	8370	1.3	26	**2KJ3403- ■ BE23- ■ ■ R1 -Z**	–
	5.4	320	258.40	8500	1.5	26	**2KJ3403- ■ BE23- ■ ■ Q1 -Z**	–
	5.9	290	234.91	8590	1.6	26	**2KJ3403- ■ BE23- ■ ■ P1 -Z**	–
	6.9	245	200.98	8720	1.9	26	**2KJ3403- ■ BE23- ■ ■ N1 -Z**	–
	7.6	225	182.71	8770	2.1	26	**2KJ3403- ■ BE23- ■ ■ M1 -Z**	–
	FD.39-LE63ZMK4P							
	5	340	274.26	5630	0.85	17	**2KJ3402- ■ BE23- ■ ■ R1 -Z**	–
	5.7	300	243.26	5780	0.96	17	**2KJ3402- ■ BE23- ■ ■ Q1 -Z**	–
	6.6	260	211.06	5930	1.1	17	**2KJ3402- ■ BE23- ■ ■ P1 -Z**	–
	7.2	235	191.87	6020	1.2	17	**2KJ3402- ■ BE23- ■ ■ N1 -Z**	–
	8.4	200	164.56	6150	1.4	17	**2KJ3402- ■ BE23- ■ ■ M1 -Z**	–
	9.3	186	149.60	6200	1.6	17	**2KJ3402- ■ BE23- ■ ■ L1 -Z**	–
	11	163	131.17	6290	1.8	17	**2KJ3402- ■ BE23- ■ ■ K1 -Z**	–
	12	145	117.08	6360	2	17	**2KJ3402- ■ BE23- ■ ■ J1 -Z**	–
	13	130	104.34	6410	2.2	17	**2KJ3402- ■ BE23- ■ ■ H1 -Z**	–
	FD.29-LE63ZMK4P							
	9.8	175	140.86	5220	0.86	11	**2KJ3401- ■ BE23- ■ ■ J1 -Z**	–
	11	156	126.09	5220	0.96	11	**2KJ3401- ■ BE23- ■ ■ H1 -Z**	–
	12	139	111.97	5220	1.1	11	**2KJ3401- ■ BE23- ■ ■ G1 -Z**	–
	13	128	103.36	5220	1.2	11	**2KJ3401- ■ BE23- ■ ■ F1 -Z**	–
	15	111	89.78	5220	1.3	11	**2KJ3401- ■ BE23- ■ ■ E1 -Z**	–
	18	97	78.02	5220	1.5	11	**2KJ3401- ■ BE23- ■ ■ D1 -Z**	–
	20	87	70.43	5220	1.7	11	**2KJ3401- ■ BE23- ■ ■ C1 -Z**	–
	21	82	66.29	5220	1.8	11	**2KJ3401- ■ BE23- ■ ■ B1 -Z**	–
	24	72	57.79	5220	2.1	11	**2KJ3401- ■ BE23- ■ ■ A1 -Z**	–
	FZ.29-LE63ZMK4P							
	24	70	56.73	5220	2.1	11	**2KJ3301- ■ BE23- ■ ■ C2 -Z**	–
	28	62	50.32	5220	2.4	11	**2KJ3301- ■ BE23- ■ ■ B2 -Z**	–
	32	54	43.66	5220	2.8	11	**2KJ3301- ■ BE23- ■ ■ A2 -Z**	–
	35	49	39.69	5220	3	11	**2KJ3301- ■ BE23- ■ ■ X1 -Z**	–
	41	42	34.04	5220	3.6	11	**2KJ3301- ■ BE23- ■ ■ W1 -Z**	–
	45	38	30.95	5220	3.9	11	**2KJ3301- ■ BE23- ■ ■ V1 -Z**	–
	51	34	27.13	5220	4.5	11	**2KJ3301- ■ BE23- ■ ■ U1 -Z**	–
	57	30	24.22	5220	5	11	**2KJ3301- ■ BE23- ■ ■ T1 -Z**	–
	64	27	21.58	5160	5.6	11	**2KJ3301- ■ BE23- ■ ■ S1 -Z**	–
	70	25	19.92	5030	6.1	11	**2KJ3301- ■ BE23- ■ ■ R1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code -Z with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.18	**FZ.29-LE63ZMK4P**							
	79	22	17.44	4830	6.9	11	2KJ3301- ■ BE23- ■ ■ Q1 -Z	–
	91	19	15.29	4640	7.9	11	2KJ3301- ■ BE23- ■ ■ P1 -Z	–
	100	17	13.88	4500	8.7	11	2KJ3301- ■ BE23- ■ ■ N1 -Z	–
	106	16	13.06	4420	9.3	11	2KJ3301- ■ BE23- ■ ■ M1 -Z	–
	120	14	11.51	4250	10	11	2KJ3301- ■ BE23- ■ ■ L1 -Z	–
	139	12	9.99	4060	11	11	2KJ3301- ■ BE23- ■ ■ K1 -Z	–
	143	12	9.69	4000	12	11	2KJ3301- ■ BE23- ■ ■ J1 -Z	–
	160	11	8.63	3860	12	11	2KJ3301- ■ BE23- ■ ■ H1 -Z	–
	174	9.9	7.97	3760	12	11	2KJ3301- ■ BE23- ■ ■ G1 -Z	–
	198	8.7	6.98	3610	14	11	2KJ3301- ■ BE23- ■ ■ F1 -Z	–
	226	7.6	6.12	3460	15	11	2KJ3301- ■ BE23- ■ ■ E1 -Z	–
	250	6.9	5.55	3350	16	11	2KJ3301- ■ BE23- ■ ■ D1 -Z	–
	265	6.5	5.22	3290	16	11	2KJ3301- ■ BE23- ■ ■ C1 -Z	–
	301	5.7	4.60	3160	17	11	2KJ3301- ■ BE23- ■ ■ B1 -Z	–
	346	5	4.00	3020	18	11	2KJ3301- ■ BE23- ■ ■ A1 -Z	–
	FZ.29-LE63MEB2P							
	163	10	17.44	3860	14	9	2KJ3301- ■ BC23- ■ ■ Q1 -Z	P00
	186	9.2	15.29	3690	16	9	2KJ3301- ■ BC23- ■ ■ P1 -Z	P00
	205	8.4	13.88	3580	18	9	2KJ3301- ■ BC23- ■ ■ N1 -Z	P00
	218	7.9	13.06	3510	19	9	2KJ3301- ■ BC23- ■ ■ M1 -Z	P00
	248	6.9	11.51	3370	21	9	2KJ3301- ■ BC23- ■ ■ L1 -Z	P00
	285	6	9.99	3220	23	9	2KJ3301- ■ BC23- ■ ■ K1 -Z	P00
	294	5.8	9.69	3180	24	9	2KJ3301- ■ BC23- ■ ■ J1 -Z	P00
	330	5.2	8.63	3060	25	9	2KJ3301- ■ BC23- ■ ■ H1 -Z	P00
	358	4.8	7.97	2990	25	9	2KJ3301- ■ BC23- ■ ■ G1 -Z	P00
0.25	**FD.79-LE71YMS6P**							
	2.4	980	357.00	13600	1	40	2KJ3405- ■ CE23- ■ ■ S1 -Z	P01
	2.7	890	324.62	13800	1.1	40	2KJ3405- ■ CE23- ■ ■ R1 -Z	P01
	3.2	755	276.09	14100	1.3	40	2KJ3405- ■ CE23- ■ ■ Q1 -Z	P01
	3.5	685	250.99	14200	1.5	40	2KJ3405- ■ CE23- ■ ■ P1 -Z	P01
	FD.79-LE71ZMK4P							
	3.9	610	357.00	14300	1.6	39	2KJ3405- ■ CC23- ■ ■ S1 -Z	–
	4.3	555	324.62	14500	1.8	39	2KJ3405- ■ CC23- ■ ■ R1 -Z	–
	5.1	470	276.09	14500	2.1	39	2KJ3405- ■ CC23- ■ ■ Q1 -Z	–
	FD.69-LE71YMS6P							
	3.2	745	272.00	10500	0.8	33	2KJ3404- ■ CE23- ■ ■ Q1 -Z	P01
	3.5	675	247.27	10600	0.88	33	2KJ3404- ■ CE23- ■ ■ P1 -Z	P01
	FD.69-LE71ZMK4P							
	4	595	348.40	10800	1	32	2KJ3404- ■ CC23- ■ ■ S1 -Z	–
	4.5	530	309.78	11000	1.1	32	2KJ3404- ■ CC23- ■ ■ R1 -Z	–
	5.1	465	272.00	11100	1.3	32	2KJ3404- ■ CC23- ■ ■ Q1 -Z	–
	5.6	420	247.27	11200	1.4	32	2KJ3404- ■ CC23- ■ ■ P1 -Z	–
	6.6	360	211.56	11400	1.7	32	2KJ3404- ■ CC23- ■ ■ N1 -Z	–
	7.3	325	192.32	11500	1.8	32	2KJ3404- ■ CC23- ■ ■ M1 -Z	–
	8.2	290	170.00	11500	2.1	32	2KJ3404- ■ CC23- ■ ■ L1 -Z	–
	FD.49-LE71ZMK4P							
	4.2	565	330.98	7400	0.85	27	2KJ3403- ■ CC23- ■ ■ S1 -Z	–
	4.7	500	294.29	7820	0.95	27	2KJ3403- ■ CC23- ■ ■ R1 -Z	–
	5.4	440	258.40	8150	1.1	27	2KJ3403- ■ CC23- ■ ■ Q1 -Z	–
	5.9	400	234.91	8270	1.2	27	2KJ3403- ■ CC23- ■ ■ P1 -Z	–
	6.9	340	200.98	8440	1.4	27	2KJ3403- ■ CC23- ■ ■ N1 -Z	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.25	**FD.49-LE71ZMK4P**							
	7.6	310	182.71	8530	1.5	27	**2KJ3403- ■ CC23- ■ ■ M1 -Z**	–
	8.6	275	161.50	8630	1.7	27	**2KJ3403- ■ CC23- ■ ■ L1 -Z**	–
	9.5	250	146.82	8700	1.9	27	**2KJ3403- ■ CC23- ■ ■ K1 -Z**	–
	11	220	128.60	8790	2.2	27	**2KJ3403- ■ CC23- ■ ■ J1 -Z**	–
	FD.39-LE71ZMK4P							
	6.6	360	211.06	5560	0.8	18	**2KJ3402- ■ CC23- ■ ■ P1 -Z**	–
	7.3	325	191.87	5690	0.88	18	**2KJ3402- ■ CC23- ■ ■ N1 -Z**	–
	8.5	280	164.56	5850	1	18	**2KJ3402- ■ CC23- ■ ■ M1 -Z**	–
	9.3	255	149.60	5950	1.1	18	**2KJ3402- ■ CC23- ■ ■ L1 -Z**	–
	11	220	131.17	6080	1.3	18	**2KJ3402- ■ CC23- ■ ■ K1 -Z**	–
	12	200	117.08	6150	1.4	18	**2KJ3402- ■ CC23- ■ ■ J1 -Z**	–
	13	179	104.34	6230	1.6	18	**2KJ3402- ■ CC23- ■ ■ H1 -Z**	–
	14	165	96.31	6280	1.8	18	**2KJ3402- ■ CC23- ■ ■ G1 -Z**	–
	17	144	84.32	6360	2	18	**2KJ3402- ■ CC23- ■ ■ F1 -Z**	–
	19	127	73.93	6420	2.3	18	**2KJ3402- ■ CC23- ■ ■ E1 -Z**	–
	FZ.39-LE71ZMK4P							
	24	99	57.99	6530	2.3	17	**2KJ3302- ■ CC23- ■ ■ A2 -Z**	–
	FD.29-LE71ZMK4P							
	13	177	103.36	5220	0.85	11	**2KJ3401- ■ CC23- ■ ■ F1 -Z**	–
	16	154	89.78	5220	0.98	11	**2KJ3401- ■ CC23- ■ ■ E1 -Z**	–
	18	134	78.02	5220	1.1	11	**2KJ3401- ■ CC23- ■ ■ D1 -Z**	–
	20	121	70.43	5220	1.2	11	**2KJ3401- ■ CC23- ■ ■ C1 -Z**	–
	21	113	66.29	5220	1.3	11	**2KJ3401- ■ CC23- ■ ■ B1 -Z**	–
	24	99	57.79	5220	1.5	11	**2KJ3401- ■ CC23- ■ ■ A1 -Z**	–
	FZ.29-LE71ZMK4P							
	25	97	56.73	5220	1.5	11	**2KJ3301- ■ CC23- ■ ■ C2 -Z**	–
	28	86	50.32	5220	1.7	11	**2KJ3301- ■ CC23- ■ ■ B2 -Z**	–
	32	75	43.66	5220	2	11	**2KJ3301- ■ CC23- ■ ■ A2 -Z**	–
	35	68	39.69	5220	2.2	11	**2KJ3301- ■ CC23- ■ ■ X1 -Z**	–
	41	58	34.04	5220	2.6	11	**2KJ3301- ■ CC23- ■ ■ W1 -Z**	–
	45	53	30.95	5220	2.8	11	**2KJ3301- ■ CC23- ■ ■ V1 -Z**	–
	51	46	27.13	5220	3.2	11	**2KJ3301- ■ CC23- ■ ■ U1 -Z**	–
	58	42	24.22	5220	3.6	11	**2KJ3301- ■ CC23- ■ ■ T1 -Z**	–
	65	37	21.58	5060	4.1	11	**2KJ3301- ■ CC23- ■ ■ S1 -Z**	–
	70	34	19.92	4940	4.4	11	**2KJ3301- ■ CC23- ■ ■ R1 -Z**	–
	80	30	17.44	4750	5	11	**2KJ3301- ■ CC23- ■ ■ Q1 -Z**	–
	91	26	15.29	4570	5.7	11	**2KJ3301- ■ CC23- ■ ■ P1 -Z**	–
	101	24	13.88	4430	6.3	11	**2KJ3301- ■ CC23- ■ ■ N1 -Z**	–
	107	22	13.06	4360	6.7	11	**2KJ3301- ■ CC23- ■ ■ M1 -Z**	–
	121	20	11.51	4180	7.3	11	**2KJ3301- ■ CC23- ■ ■ L1 -Z**	–
	140	17	9.99	4010	8	11	**2KJ3301- ■ CC23- ■ ■ K1 -Z**	–
	144	17	9.69	3940	8.6	11	**2KJ3301- ■ CC23- ■ ■ J1 -Z**	–
	162	15	8.63	3810	8.8	11	**2KJ3301- ■ CC23- ■ ■ H1 -Z**	–
	175	14	7.97	3710	8.8	11	**2KJ3301- ■ CC23- ■ ■ G1 -Z**	–
	200	12	6.98	3560	10	11	**2KJ3301- ■ CC23- ■ ■ F1 -Z**	–
	228	10	6.12	3430	11	11	**2KJ3301- ■ CC23- ■ ■ E1 -Z**	–
	251	9.5	5.55	3320	11	11	**2KJ3301- ■ CC23- ■ ■ D1 -Z**	–
	267	8.9	5.22	3260	12	11	**2KJ3301- ■ CC23- ■ ■ C1 -Z**	–
	303	7.9	4.60	3130	12	11	**2KJ3301- ■ CC23- ■ ■ B1 -Z**	–
	349	6.8	4.00	2990	13	11	**2KJ3301- ■ CC23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.25	**FZ.29-LE63ZMH2P**							
	163	15	17.44	3820	10	11	**2KJ3301- ■ BD23- ■ ■ Q1 -Z**	**P00**
	185	13	15.29	3670	12	11	**2KJ3301- ■ BD23- ■ ■ P1 -Z**	**P00**
	204	12	13.88	3560	13	11	**2KJ3301- ■ BD23- ■ ■ N1 -Z**	**P00**
	217	11	13.06	3490	14	11	**2KJ3301- ■ BD23- ■ ■ M1 -Z**	**P00**
	246	9.7	11.51	3350	15	11	**2KJ3301- ■ BD23- ■ ■ L1 -Z**	**P00**
0.37	**FD.89-LE80MK6P**							
	2.8	1280	335.30	17400	1.4	75	**2KJ3406- ■ DE23- ■ ■ S1 -Z**	**P01**
	3	1160	304.82	17400	1.6	75	**2KJ3406- ■ DE23- ■ ■ R1 -Z**	**P01**
	3.4	1040	273.41	17400	1.8	75	**2KJ3406- ■ DE23- ■ ■ Q1 -Z**	**P01**
	3.8	935	245.82	17400	2	75	**2KJ3406- ■ DE23- ■ ■ P1 -Z**	**P01**
	FD.79-LE80MK6P							
	2.8	1240	324.62	13100	0.81	44	**2KJ3405- ■ DE23- ■ ■ R1 -Z**	**P01**
	3.4	1050	276.09	13500	0.95	44	**2KJ3405- ■ DE23- ■ ■ Q1 -Z**	**P01**
	3.7	955	250.99	13700	1	44	**2KJ3405- ■ DE23- ■ ■ P1 -Z**	**P01**
	FD.79-LE71YMS4P							
	3.9	910	357.00	13700	1.1	40	**2KJ3405- ■ CE23- ■ ■ S1 -Z**	**–**
	4.3	830	324.62	13900	1.2	40	**2KJ3405- ■ CE23- ■ ■ R1 -Z**	**–**
	5	705	276.09	14200	1.4	40	**2KJ3405- ■ CE23- ■ ■ Q1 -Z**	**–**
	5.5	640	250.99	14300	1.6	40	**2KJ3405- ■ CE23- ■ ■ P1 -Z**	**–**
	6.2	570	223.94	14400	1.7	40	**2KJ3405- ■ CE23- ■ ■ N1 -Z**	**–**
	6.9	510	200.80	14500	1.9	40	**2KJ3405- ■ CE23- ■ ■ M1 -Z**	**–**
	FD.69-LE71YMS4P							
	5.1	695	272.00	10600	0.86	33	**2KJ3404- ■ CE23- ■ ■ Q1 -Z**	**–**
	5.6	630	247.27	10700	0.95	33	**2KJ3404- ■ CE23- ■ ■ P1 -Z**	**–**
	6.5	540	211.56	11000	1.1	33	**2KJ3404- ■ CE23- ■ ■ N1 -Z**	**–**
	7.2	490	192.32	11100	1.2	33	**2KJ3404- ■ CE23- ■ ■ M1 -Z**	**–**
	8.1	435	170.00	11200	1.4	33	**2KJ3404- ■ CE23- ■ ■ L1 -Z**	**–**
	8.9	395	154.55	11300	1.5	33	**2KJ3404- ■ CE23- ■ ■ K1 -Z**	**–**
	10	345	135.37	11400	1.7	33	**2KJ3404- ■ CE23- ■ ■ J1 -Z**	**–**
	11	320	124.96	11500	1.9	33	**2KJ3404- ■ CE23- ■ ■ H1 -Z**	**–**
	12	280	110.63	11600	2.1	33	**2KJ3404- ■ CE23- ■ ■ G1 -Z**	**–**
	FD.49-LE71YMS4P							
	5.9	600	234.91	7170	0.8	28	**2KJ3403- ■ CE23- ■ ■ P1 -Z**	**–**
	6.9	515	200.98	7720	0.93	28	**2KJ3403- ■ CE23- ■ ■ N1 -Z**	**–**
	7.6	465	182.71	8060	1	28	**2KJ3403- ■ CE23- ■ ■ M1 -Z**	**–**
	8.5	410	161.50	8240	1.2	28	**2KJ3403- ■ CE23- ■ ■ L1 -Z**	**–**
	9.4	375	146.82	8340	1.3	28	**2KJ3403- ■ CE23- ■ ■ K1 -Z**	**–**
	11	325	128.60	8480	1.5	28	**2KJ3403- ■ CE23- ■ ■ J1 -Z**	**–**
	12	300	118.71	8560	1.6	28	**2KJ3403- ■ CE23- ■ ■ H1 -Z**	**–**
	13	265	105.10	8660	1.8	28	**2KJ3403- ■ CE23- ■ ■ G1 -Z**	**–**
	16	220	87.48	8790	2.1	28	**2KJ3403- ■ CE23- ■ ■ F1 -Z**	**–**
	17	210	82.33	8820	2.3	28	**2KJ3403- ■ CE23- ■ ■ E1 -Z**	**–**
	FD.39-LE71YMS4P							
	11	335	131.17	5650	0.86	19	**2KJ3402- ■ CE23- ■ ■ K1 -Z**	**–**
	12	300	117.08	5780	0.97	19	**2KJ3402- ■ CE23- ■ ■ J1 -Z**	**–**
	13	265	104.34	5910	1.1	19	**2KJ3402- ■ CE23- ■ ■ H1 -Z**	**–**
	14	245	96.31	5980	1.2	19	**2KJ3402- ■ CE23- ■ ■ G1 -Z**	**–**
	16	215	84.32	6100	1.3	19	**2KJ3402- ■ CE23- ■ ■ F1 -Z**	**–**
	19	189	73.93	6190	1.5	19	**2KJ3402- ■ CE23- ■ ■ E1 -Z**	**–**
	21	172	67.07	6260	1.7	19	**2KJ3402- ■ CE23- ■ ■ D1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.37	**FD.39-LE71YMS4P**							
	22	162	63.13	6290	1.8	19	**2KJ3402- ■ CE23- ■ ■ C1 -Z**	**–**
	25	142	55.65	6370	2	19	**2KJ3402- ■ CE23- ■ ■ B1 -Z**	**–**
	29	124	48.29	6430	2.3	19	**2KJ3402- ■ CE23- ■ ■ A1 -Z**	**–**
	FZ.39-LE71YMS4P							
	21	167	65.21	6270	1.7	19	**2KJ3302- ■ CE23- ■ ■ B2 -Z**	**–**
	24	148	57.99	6340	1.5	19	**2KJ3302- ■ CE23- ■ ■ A2 -Z**	**–**
	27	130	50.91	6410	1.8	19	**2KJ3302- ■ CE23- ■ ■ X1 -Z**	**–**
	30	119	46.29	6450	2.2	19	**2KJ3302- ■ CE23- ■ ■ W1 -Z**	**–**
	FD.29-LE71YMS4P							
	20	180	70.43	5220	0.83	13	**2KJ3401- ■ CE23- ■ ■ C1 -Z**	**–**
	21	170	66.29	5220	0.88	13	**2KJ3401- ■ CE23- ■ ■ B1 -Z**	**–**
	24	148	57.79	5220	1	13	**2KJ3401- ■ CE23- ■ ■ A1 -Z**	**–**
	FZ.29-LE71YMS4P							
	24	145	56.73	5220	1	12	**2KJ3301- ■ CE23- ■ ■ C2 -Z**	**–**
	27	129	50.32	5220	1.2	12	**2KJ3301- ■ CE23- ■ ■ B2 -Z**	**–**
	32	112	43.66	5220	1.3	12	**2KJ3301- ■ CE23- ■ ■ A2 -Z**	**–**
	35	102	39.69	5220	1.5	12	**2KJ3301- ■ CE23- ■ ■ X1 -Z**	**–**
	41	87	34.04	5220	1.7	12	**2KJ3301- ■ CE23- ■ ■ W1 -Z**	**–**
	45	79	30.95	5220	1.9	12	**2KJ3301- ■ CE23- ■ ■ V1 -Z**	**–**
	51	70	27.13	5220	2.2	12	**2KJ3301- ■ CE23- ■ ■ U1 -Z**	**–**
	57	62	24.22	5080	2.4	12	**2KJ3301- ■ CE23- ■ ■ T1 -Z**	**–**
	64	55	21.58	4930	2.7	12	**2KJ3301- ■ CE23- ■ ■ S1 -Z**	**–**
	69	51	19.92	4820	2.9	12	**2KJ3301- ■ CE23- ■ ■ R1 -Z**	**–**
	79	45	17.44	4640	3.4	12	**2KJ3301- ■ CE23- ■ ■ Q1 -Z**	**–**
	90	39	15.29	4480	3.8	12	**2KJ3301- ■ CE23- ■ ■ P1 -Z**	**–**
	99	36	13.88	4350	4.2	12	**2KJ3301- ■ CE23- ■ ■ N1 -Z**	**–**
	106	33	13.06	4280	4.5	12	**2KJ3301- ■ CE23- ■ ■ M1 -Z**	**–**
	120	30	11.51	4120	4.9	12	**2KJ3301- ■ CE23- ■ ■ L1 -Z**	**–**
	138	26	9.99	3950	5.3	12	**2KJ3301- ■ CE23- ■ ■ K1 -Z**	**–**
	142	25	9.69	3880	5.8	12	**2KJ3301- ■ CE23- ■ ■ J1 -Z**	**–**
	160	22	8.63	3750	5.9	12	**2KJ3301- ■ CE23- ■ ■ H1 -Z**	**–**
	173	20	7.97	3670	5.9	12	**2KJ3301- ■ CE23- ■ ■ G1 -Z**	**–**
	198	18	6.98	3520	6.9	12	**2KJ3301- ■ CE23- ■ ■ F1 -Z**	**–**
	225	16	6.12	3380	7.3	12	**2KJ3301- ■ CE23- ■ ■ E1 -Z**	**–**
	249	14	5.55	3290	7.6	12	**2KJ3301- ■ CE23- ■ ■ D1 -Z**	**–**
	264	13	5.22	3230	7.9	12	**2KJ3301- ■ CE23- ■ ■ C1 -Z**	**–**
	300	12	4.60	3100	8.2	12	**2KJ3301- ■ CE23- ■ ■ B1 -Z**	**–**
	345	10	4.00	2970	8.9	12	**2KJ3301- ■ CE23- ■ ■ A1 -Z**	**–**
	FZ.29-LE71ZMH2P							
	159	22	17.44	3790	6.7	10	**2KJ3301- ■ CB23- ■ ■ Q1 -Z**	**P00**
	181	20	15.29	3640	7.7	10	**2KJ3301- ■ CB23- ■ ■ P1 -Z**	**P00**
	200	18	13.88	3530	8.5	10	**2KJ3301- ■ CB23- ■ ■ N1 -Z**	**P00**
	212	17	13.06	3470	9	10	**2KJ3301- ■ CB23- ■ ■ M1 -Z**	**P00**
	241	15	11.51	3340	9.7	10	**2KJ3301- ■ CB23- ■ ■ L1 -Z**	**P00**
	277	13	9.99	3190	11	10	**2KJ3301- ■ CB23- ■ ■ K1 -Z**	**P00**
	286	12	9.69	3150	12	10	**2KJ3301- ■ CB23- ■ ■ J1 -Z**	**P00**
	321	11	8.63	3040	12	10	**2KJ3301- ■ CB23- ■ ■ H1 -Z**	**P00**
	348	10	7.97	2960	12	10	**2KJ3301- ■ CB23- ■ ■ G1 -Z**	**P00**
	397	8.9	6.98	2840	14	10	**2KJ3301- ■ CB23- ■ ■ F1 -Z**	**P00**
	453	7.8	6.12	2730	15	10	**2KJ3301- ■ CB23- ■ ■ E1 -Z**	**P00**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.37	**FZ.29-LE71ZMH2P**							
	499	7.1	5.55	2640	15	10	**2KJ3301- ■ CB23- ■ ■ D1 -Z**	**P00**
0.55	**FD.89-LE80ZMQ6P**							
	2.8	1880	335.30	17400	0.98	75	**2KJ3406- ■ DF23- ■ ■ S1 -Z**	**P01**
	3.1	1710	304.82	17400	1.1	75	**2KJ3406- ■ DF23- ■ ■ R1 -Z**	**P01**
	3.4	1530	273.41	17400	1.2	75	**2KJ3406- ■ DF23- ■ ■ Q1 -Z**	**P01**
	3.8	1380	245.82	17400	1.3	75	**2KJ3406- ■ DF23- ■ ■ P1 -Z**	**P01**
	FD.89-LE80MH4P							
	4.3	1220	335.30	17400	1.5	76	**2KJ3406- ■ DC23- ■ ■ S1 -Z**	**–**
	4.7	1110	304.82	17400	1.7	76	**2KJ3406- ■ DC23- ■ ■ R1 -Z**	**–**
	5.3	995	273.41	17400	1.9	76	**2KJ3406- ■ DC23- ■ ■ Q1 -Z**	**–**
	5.9	895	245.82	17400	2.1	76	**2KJ3406- ■ DC23- ■ ■ P1 -Z**	**–**
	FD.79-LE80MH4P							
	4.4	1180	324.62	13200	0.84	45	**2KJ3405- ■ DC23- ■ ■ R1 -Z**	**–**
	5.2	1000	276.09	13600	0.99	45	**2KJ3405- ■ DC23- ■ ■ Q1 -Z**	**–**
	5.7	915	250.99	13700	1.1	45	**2KJ3405- ■ DC23- ■ ■ P1 -Z**	**–**
	6.4	815	223.94	13900	1.2	45	**2KJ3405- ■ DC23- ■ ■ N1 -Z**	**–**
	7.2	730	200.80	14100	1.4	45	**2KJ3405- ■ DC23- ■ ■ M1 -Z**	**–**
	8	660	180.99	14200	1.5	45	**2KJ3405- ■ DC23- ■ ■ L1 -Z**	**–**
	8.6	605	167.07	14400	1.6	45	**2KJ3405- ■ DC23- ■ ■ K1 -Z**	**–**
	9.4	555	152.51	14500	1.8	45	**2KJ3405- ■ DC23- ■ ■ J1 -Z**	**–**
	11	460	126.54	14500	2.2	45	**2KJ3405- ■ DC23- ■ ■ H1 -Z**	**–**
	FD.69-LE80MH4P							
	7.5	700	192.32	10600	0.86	38	**2KJ3404- ■ DC23- ■ ■ M1 -Z**	**–**
	8.5	620	170.00	10800	0.97	38	**2KJ3404- ■ DC23- ■ ■ L1 -Z**	**–**
	9.3	560	154.55	10900	1.1	38	**2KJ3404- ■ DC23- ■ ■ K1 -Z**	**–**
	11	490	135.37	11100	1.2	38	**2KJ3404- ■ DC23- ■ ■ J1 -Z**	**–**
	12	455	124.96	11200	1.3	38	**2KJ3404- ■ DC23- ■ ■ H1 -Z**	**–**
	13	400	110.63	11300	1.5	38	**2KJ3404- ■ DC23- ■ ■ G1 -Z**	**–**
	16	335	92.08	11400	1.8	38	**2KJ3404- ■ DC23- ■ ■ F1 -Z**	**–**
	17	315	86.67	11500	1.9	38	**2KJ3404- ■ DC23- ■ ■ E1 -Z**	**–**
	19	280	77.65	11600	2.1	38	**2KJ3404- ■ DC23- ■ ■ D1 -Z**	**–**
	FD.49-LE80MH4P							
	8.9	585	161.50	7270	0.81	33	**2KJ3403- ■ DC23- ■ ■ L1 -Z**	**–**
	9.8	535	146.82	7600	0.9	33	**2KJ3403- ■ DC23- ■ ■ K1 -Z**	**–**
	11	465	128.60	8060	1	33	**2KJ3403- ■ DC23- ■ ■ J1 -Z**	**–**
	12	430	118.71	8180	1.1	33	**2KJ3403- ■ DC23- ■ ■ H1 -Z**	**–**
	14	380	105.10	8330	1.3	33	**2KJ3403- ■ DC23- ■ ■ G1 -Z**	**–**
	16	315	87.48	8510	1.5	33	**2KJ3403- ■ DC23- ■ ■ F1 -Z**	**–**
	17	300	82.33	8560	1.6	33	**2KJ3403- ■ DC23- ■ ■ E1 -Z**	**–**
	20	265	73.77	8660	1.8	33	**2KJ3403- ■ DC23- ■ ■ D1 -Z**	**–**
	23	225	62.81	8770	2.1	33	**2KJ3403- ■ DC23- ■ ■ C1 -Z**	**–**
	27	196	53.83	8450	2.4	33	**2KJ3403- ■ DC23- ■ ■ B1 -Z**	**–**
	FZ.49-LE80MH4P							
	23	220	61.43	8730	2.1	32	**2KJ3303- ■ DC23- ■ ■ X1 -Z**	**–**
	26	200	55.85	8540	2.4	32	**2KJ3303- ■ DC23- ■ ■ W1 -Z**	**–**
	FD.39-LE80MH4P							
	15	350	96.31	5590	0.83	23	**2KJ3402- ■ DC23- ■ ■ G1 -Z**	**–**
	17	305	84.32	5760	0.94	23	**2KJ3402- ■ DC23- ■ ■ F1 -Z**	**–**
	19	270	73.93	5890	1.1	23	**2KJ3402- ■ DC23- ■ ■ E1 -Z**	**–**
	21	245	67.07	5980	1.2	23	**2KJ3402- ■ DC23- ■ ■ D1 -Z**	**–**
	23	230	63.13	6040	1.3	23	**2KJ3402- ■ DC23- ■ ■ C1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.55	**FD.39-LE80MH4P**							
	26	200	55.65	6150	1.4	23	**2KJ3402- ■ DC23- ■ ■ B1 -Z**	–
	30	176	48.29	6240	1.6	23	**2KJ3402- ■ DC23- ■ ■ A1 -Z**	–
	FZ.39-LE80MH4P							
	25	210	57.99	6110	1.1	23	**2KJ3302- ■ DC23- ■ ■ A2 -Z**	–
	28	186	50.91	6200	1.3	23	**2KJ3302- ■ DC23- ■ ■ X1 -Z**	–
	31	169	46.29	6270	1.5	23	**2KJ3302- ■ DC23- ■ ■ W1 -Z**	–
	36	144	39.60	6360	2	23	**2KJ3302- ■ DC23- ■ ■ V1 -Z**	–
	40	131	36.00	6410	1.9	23	**2KJ3302- ■ DC23- ■ ■ U1 -Z**	–
	45	116	31.82	6460	2.5	23	**2KJ3302- ■ DC23- ■ ■ T1 -Z**	–
	50	106	28.93	6500	2.6	23	**2KJ3302- ■ DC23- ■ ■ S1 -Z**	–
	57	92	25.34	6390	2.9	23	**2KJ3302- ■ DC23- ■ ■ R1 -Z**	–
	62	85	23.39	6260	3	23	**2KJ3302- ■ DC23- ■ ■ Q1 -Z**	–
	FZ.29-LE80MH4P							
	29	184	50.32	5220	0.82	17	**2KJ3301- ■ DC23- ■ ■ B2 -Z**	–
	33	159	43.66	5220	0.94	17	**2KJ3301- ■ DC23- ■ ■ A2 -Z**	–
	36	145	39.69	5220	1	17	**2KJ3301- ■ DC23- ■ ■ X1 -Z**	–
	42	124	34.04	5150	1.2	17	**2KJ3301- ■ DC23- ■ ■ W1 -Z**	–
	47	113	30.95	5050	1.3	17	**2KJ3301- ■ DC23- ■ ■ V1 -Z**	–
	53	99	27.13	4910	1.5	17	**2KJ3301- ■ DC23- ■ ■ U1 -Z**	–
	59	88	24.22	4790	1.7	17	**2KJ3301- ■ DC23- ■ ■ T1 -Z**	–
	67	79	21.58	4650	1.9	17	**2KJ3301- ■ DC23- ■ ■ S1 -Z**	–
	72	73	19.92	4560	2.1	17	**2KJ3301- ■ DC23- ■ ■ R1 -Z**	–
	83	64	17.44	4410	2.4	17	**2KJ3301- ■ DC23- ■ ■ Q1 -Z**	–
	94	56	15.29	4270	2.7	17	**2KJ3301- ■ DC23- ■ ■ P1 -Z**	–
	104	51	13.88	4160	3	17	**2KJ3301- ■ DC23- ■ ■ N1 -Z**	–
	110	48	13.06	4090	3.1	17	**2KJ3301- ■ DC23- ■ ■ M1 -Z**	–
	125	42	11.51	3960	3.4	17	**2KJ3301- ■ DC23- ■ ■ L1 -Z**	–
	144	36	9.99	3810	3.7	17	**2KJ3301- ■ DC23- ■ ■ K1 -Z**	–
	149	35	9.69	3720	4	17	**2KJ3301- ■ DC23- ■ ■ J1 -Z**	–
	167	32	8.63	3600	4.1	17	**2KJ3301- ■ DC23- ■ ■ H1 -Z**	–
	181	29	7.97	3530	4.1	17	**2KJ3301- ■ DC23- ■ ■ G1 -Z**	–
0.75	**FD.129-LE90SQ6P**							
	2.3	3130	413.00	37500	1.5	171	**2KJ3408- ■ EC23- ■ ■ T1 -Z**	**P01**
	2.5	2880	381.00	37500	1.7	171	**2KJ3408- ■ EC23- ■ ■ S1 -Z**	**P01**
	2.7	2660	351.00	37500	1.8	171	**2KJ3408- ■ EC23- ■ ■ R1 -Z**	**P01**
	FD.109-LE90SQ6P							
	2.3	3100	410.00	25000	1	118	**2KJ3407- ■ EC23- ■ ■ T1 -Z**	**P01**
	2.6	2800	370.00	25000	1.1	118	**2KJ3407- ■ EC23- ■ ■ S1 -Z**	**P01**
	2.8	2540	335.70	25000	1.2	118	**2KJ3407- ■ EC23- ■ ■ R1 -Z**	**P01**
	3	2340	309.87	25000	1.3	118	**2KJ3407- ■ EC23- ■ ■ Q1 -Z**	**P01**
	FD.89-LE90SQ6P							
	3.1	2310	304.82	17400	0.8	78	**2KJ3406- ■ EC23- ■ ■ R1 -Z**	**P01**
	3.5	2070	273.41	17400	0.89	78	**2KJ3406- ■ EC23- ■ ■ Q1 -Z**	**P01**
	3.8	1860	245.82	17400	0.99	78	**2KJ3406- ■ EC23- ■ ■ P1 -Z**	**P01**
	FD.89-LE80ZMQ4P							
	4.3	1650	335.30	17400	1.1	75	**2KJ3406- ■ DF23- ■ ■ S1 -Z**	–
	4.8	1500	304.82	17400	1.2	75	**2KJ3406- ■ DF23- ■ ■ R1 -Z**	–
	5.3	1350	273.41	17400	1.4	75	**2KJ3406- ■ DF23- ■ ■ Q1 -Z**	–
	5.9	1210	245.82	17400	1.5	75	**2KJ3406- ■ DF23- ■ ■ P1 -Z**	–
	6.5	1090	222.33	17400	1.7	75	**2KJ3406- ■ DF23- ■ ■ N1 -Z**	–
	7.1	1010	205.23	17400	1.8	75	**2KJ3406- ■ DF23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**FD.89-LE80ZMQ4P**							
	7.7	925	188.00	17400	2	75	**2KJ3406- ■ DF23- ■ ■ L1 -Z**	–
	FD.79-LE80ZMQ4P							
	5.8	1240	250.99	13100	0.81	44	**2KJ3405- ■ DF23- ■ ■ P1 -Z**	–
	6.5	1100	223.94	13400	0.9	44	**2KJ3405- ■ DF23- ■ ■ N1 -Z**	–
	7.2	990	200.80	13600	1	44	**2KJ3405- ■ DF23- ■ ■ M1 -Z**	–
	8	890	180.99	13800	1.1	44	**2KJ3405- ■ DF23- ■ ■ L1 -Z**	–
	8.7	825	167.07	13900	1.2	44	**2KJ3405- ■ DF23- ■ ■ K1 -Z**	–
	9.5	750	152.51	14100	1.3	44	**2KJ3405- ■ DF23- ■ ■ J1 -Z**	–
	11	625	126.54	14300	1.6	44	**2KJ3405- ■ DF23- ■ ■ H1 -Z**	–
	12	585	119.10	14400	1.7	44	**2KJ3405- ■ DF23- ■ ■ G1 -Z**	–
	13	555	112.48	14500	1.8	44	**2KJ3405- ■ DF23- ■ ■ F1 -Z**	–
	15	470	95.71	14500	2.1	44	**2KJ3405- ■ DF23- ■ ■ E1 -Z**	–
	FD.69-LE80ZMQ4P							
	11	665	135.37	10700	0.9	37	**2KJ3404- ■ DF23- ■ ■ J1 -Z**	–
	12	615	124.96	10800	0.97	37	**2KJ3404- ■ DF23- ■ ■ H1 -Z**	–
	13	545	110.63	10900	1.1	37	**2KJ3404- ■ DF23- ■ ■ G1 -Z**	–
	16	455	92.08	11200	1.3	37	**2KJ3404- ■ DF23- ■ ■ F1 -Z**	–
	17	425	86.67	11200	1.4	37	**2KJ3404- ■ DF23- ■ ■ E1 -Z**	–
	19	380	77.65	11300	1.6	37	**2KJ3404- ■ DF23- ■ ■ D1 -Z**	–
	22	325	66.11	11400	1.8	37	**2KJ3404- ■ DF23- ■ ■ C1 -Z**	–
	26	280	56.67	11000	2.1	37	**2KJ3404- ■ DF23- ■ ■ B1 -Z**	–
	30	240	48.80	10600	2.5	37	**2KJ3404- ■ DF23- ■ ■ A1 -Z**	–
	FZ.69-LE80ZMQ4P							
	22	315	64.67	11400	1.9	36	**2KJ3304- ■ DF23- ■ ■ X1 -Z**	–
	25	290	58.79	11100	2.1	36	**2KJ3304- ■ DF23- ■ ■ W1 -Z**	–
	29	245	50.00	10700	2.4	36	**2KJ3304- ■ DF23- ■ ■ V1 -Z**	–
	FD.49-LE80ZMQ4P							
	12	585	118.71	7270	0.82	32	**2KJ3403- ■ DF23- ■ ■ H1 -Z**	–
	14	515	105.10	7720	0.92	32	**2KJ3403- ■ DF23- ■ ■ G1 -Z**	–
	17	430	87.48	8180	1.1	32	**2KJ3403- ■ DF23- ■ ■ F1 -Z**	–
	18	405	82.33	8250	1.2	32	**2KJ3403- ■ DF23- ■ ■ E1 -Z**	–
	20	360	73.77	8380	1.3	32	**2KJ3403- ■ DF23- ■ ■ D1 -Z**	–
	23	310	62.81	8190	1.5	32	**2KJ3403- ■ DF23- ■ ■ C1 -Z**	–
	27	265	53.83	7970	1.8	32	**2KJ3403- ■ DF23- ■ ■ B1 -Z**	–
	31	225	46.36	7760	2.1	32	**2KJ3403- ■ DF23- ■ ■ A1 -Z**	–
	FZ.49-LE80ZMQ4P							
	24	300	61.43	8180	1.6	31	**2KJ3303- ■ DF23- ■ ■ X1 -Z**	–
	26	275	55.85	8030	1.7	31	**2KJ3303- ■ DF23- ■ ■ W1 -Z**	–
	31	235	47.50	7770	2	31	**2KJ3303- ■ DF23- ■ ■ V1 -Z**	–
	34	210	43.18	7640	2.3	31	**2KJ3303- ■ DF23- ■ ■ U1 -Z**	–
	38	190	38.53	7440	2.5	31	**2KJ3303- ■ DF23- ■ ■ T1 -Z**	–
	FD.39-LE80ZMQ4P							
	22	330	67.07	5670	0.88	22	**2KJ3402- ■ DF23- ■ ■ D1 -Z**	–
	23	310	63.13	5740	0.93	22	**2KJ3402- ■ DF23- ■ ■ C1 -Z**	–
	26	275	55.65	5870	1.1	22	**2KJ3402- ■ DF23- ■ ■ B1 -Z**	–
	30	235	48.29	6020	1.2	22	**2KJ3402- ■ DF23- ■ ■ A1 -Z**	–
	FZ.39-LE80ZMQ4P							
	25	285	57.99	5830	0.8	22	**2KJ3302- ■ DF23- ■ ■ A2 -Z**	–
	28	250	50.91	5970	0.95	22	**2KJ3302- ■ DF23- ■ ■ X1 -Z**	–
	31	225	46.29	6060	1.1	22	**2KJ3302- ■ DF23- ■ ■ W1 -Z**	–
	37	196	39.60	6170	1.5	22	**2KJ3302- ■ DF23- ■ ■ V1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**FZ.39-LE80ZMQ4P**							
	40	178	36.00	6230	1.4	22	**2KJ3302- ■ DF23- ■ ■ U1 -Z**	–
	46	157	31.82	6310	1.8	22	**2KJ3302- ■ DF23- ■ ■ T1 -Z**	–
	50	143	28.93	6310	1.9	22	**2KJ3302- ■ DF23- ■ ■ S1 -Z**	–
	57	125	25.34	6130	2.1	22	**2KJ3302- ■ DF23- ■ ■ R1 -Z**	–
	62	116	23.39	6010	2.3	22	**2KJ3302- ■ DF23- ■ ■ Q1 -Z**	–
	70	102	20.71	5840	2.4	22	**2KJ3302- ■ DF23- ■ ■ P1 -Z**	–
	84	85	17.24	5580	2.8	22	**2KJ3302- ■ DF23- ■ ■ N1 -Z**	–
	89	80	16.22	5490	2.9	22	**2KJ3302- ■ DF23- ■ ■ M1 -Z**	–
	100	72	14.54	5330	3.1	22	**2KJ3302- ■ DF23- ■ ■ L1 -Z**	–
	117	61	12.38	5100	3.4	22	**2KJ3302- ■ DF23- ■ ■ K1 -Z**	–
	137	52	10.61	4890	3.8	22	**2KJ3302- ■ DF23- ■ ■ J1 -Z**	–
	179	40	8.10	4490	4.2	22	**2KJ3302- ■ DF23- ■ ■ G1 -Z**	–
	FZ.29-LE80ZMQ4P							
	43	168	34.04	4770	0.89	16	**2KJ3301- ■ DF23- ■ ■ W1 -Z**	–
	47	153	30.95	4700	0.98	16	**2KJ3301- ■ DF23- ■ ■ V1 -Z**	–
	53	134	27.13	4600	1.1	16	**2KJ3301- ■ DF23- ■ ■ U1 -Z**	–
	60	120	24.22	4510	1.3	16	**2KJ3301- ■ DF23- ■ ■ T1 -Z**	–
	67	107	21.58	4410	1.4	16	**2KJ3301- ■ DF23- ■ ■ S1 -Z**	–
	73	98	19.92	4340	1.5	16	**2KJ3301- ■ DF23- ■ ■ R1 -Z**	–
	83	86	17.44	4220	1.7	16	**2KJ3301- ■ DF23- ■ ■ Q1 -Z**	–
	95	76	15.29	4090	2	16	**2KJ3301- ■ DF23- ■ ■ P1 -Z**	–
	104	69	13.88	4000	2.2	16	**2KJ3301- ■ DF23- ■ ■ N1 -Z**	–
	111	64	13.06	3950	2.3	16	**2KJ3301- ■ DF23- ■ ■ M1 -Z**	–
	126	57	11.51	3820	2.5	16	**2KJ3301- ■ DF23- ■ ■ L1 -Z**	–
	145	49	9.99	3690	2.8	16	**2KJ3301- ■ DF23- ■ ■ K1 -Z**	–
	150	48	9.69	3590	3	16	**2KJ3301- ■ DF23- ■ ■ J1 -Z**	–
	168	43	8.63	3490	3	16	**2KJ3301- ■ DF23- ■ ■ H1 -Z**	–
	182	39	7.97	3420	3	16	**2KJ3301- ■ DF23- ■ ■ G1 -Z**	–
	208	34	6.98	3300	3.6	16	**2KJ3301- ■ DF23- ■ ■ F1 -Z**	–
	237	30	6.12	3190	3.8	16	**2KJ3301- ■ DF23- ■ ■ E1 -Z**	–
	261	27	5.55	3110	3.9	16	**2KJ3301- ■ DF23- ■ ■ D1 -Z**	–
	278	26	5.22	3050	4.1	16	**2KJ3301- ■ DF23- ■ ■ C1 -Z**	–
	315	23	4.60	2940	4.3	16	**2KJ3301- ■ DF23- ■ ■ B1 -Z**	–
	362	20	4.00	2820	4.6	16	**2KJ3301- ■ DF23- ■ ■ A1 -Z**	–
	FZ.29-LE80ME2P							
	163	44	17.44	3570	3.4	15	**2KJ3301- ■ DB23- ■ ■ Q1 -Z**	**P00**
	186	38	15.29	3450	3.9	15	**2KJ3301- ■ DB23- ■ ■ P1 -Z**	**P00**
	205	35	13.88	3360	4.3	15	**2KJ3301- ■ DB23- ■ ■ N1 -Z**	**P00**
1.1	**FD.149-LE100ZLSA6P**							
	2.5	4160	377.00	65000	1.9	278	**2KJ3410- ■ FN23- ■ ■ W1 -Z**	**P01**
	FD.129-LE100ZLSA6P							
	2.3	4560	413.00	37400	1.1	191	**2KJ3408- ■ FN23- ■ ■ T1 -Z**	**P01**
	2.5	4210	381.00	37500	1.2	191	**2KJ3408- ■ FN23- ■ ■ S1 -Z**	**P01**
	2.7	3880	351.00	37500	1.2	191	**2KJ3408- ■ FN23- ■ ■ R1 -Z**	**P01**
	3.2	3310	299.31	37500	1.5	191	**2KJ3408- ■ FN23- ■ ■ Q1 -Z**	**P01**
	FD.129-LE90SM4P							
	3.5	3010	413.00	37500	1.6	171	**2KJ3408- ■ EK23- ■ ■ T1 -Z**	–
	3.8	2770	381.00	37500	1.7	171	**2KJ3408- ■ EK23- ■ ■ S1 -Z**	–
	4.1	2560	351.00	37500	1.9	171	**2KJ3408- ■ EK23- ■ ■ R1 -Z**	–
	FD.109-LE100ZLSA6P							
	2.8	3710	335.70	25000	0.84	137	**2KJ3407- ■ FN23- ■ ■ R1 -Z**	**P01**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**FD.109-LE100ZLSA6P**							
	3.1	3420	309.87	25000	0.9	137	**2KJ3407- ■ FN23- ■ ■ Q1 -Z**	**P01**
	FD.109-LE90SM4P							
	3.5	2990	410.00	25000	1	118	**2KJ3407- ■ EK23- ■ ■ T1 -Z**	**–**
	3.9	2690	370.00	25000	1.1	118	**2KJ3407- ■ EK23- ■ ■ S1 -Z**	**–**
	4.3	2440	335.70	25000	1.3	118	**2KJ3407- ■ EK23- ■ ■ R1 -Z**	**–**
	4.6	2260	309.87	25000	1.4	118	**2KJ3407- ■ EK23- ■ ■ Q1 -Z**	**–**
	5.1	2050	281.68	25000	1.5	118	**2KJ3407- ■ EK23- ■ ■ P1 -Z**	**–**
	6	1740	238.52	25000	1.8	118	**2KJ3407- ■ EK23- ■ ■ N1 -Z**	**–**
	6.4	1630	224.49	25000	1.9	118	**2KJ3407- ■ EK23- ■ ■ M1 -Z**	**–**
	6.9	1510	207.31	25000	2	118	**2KJ3407- ■ EK23- ■ ■ L1 -Z**	**–**
	FD.89-LE90SM4P							
	4.7	2220	304.82	17400	0.83	78	**2KJ3406- ■ EK23- ■ ■ R1 -Z**	**–**
	5.3	1990	273.41	17400	0.93	78	**2KJ3406- ■ EK23- ■ ■ Q1 -Z**	**–**
	5.9	1790	245.82	17400	1	78	**2KJ3406- ■ EK23- ■ ■ P1 -Z**	**–**
	6.5	1620	222.33	17400	1.1	78	**2KJ3406- ■ EK23- ■ ■ N1 -Z**	**–**
	7	1490	205.23	17400	1.2	78	**2KJ3406- ■ EK23- ■ ■ M1 -Z**	**–**
	7.7	1370	188.00	17400	1.3	78	**2KJ3406- ■ EK23- ■ ■ L1 -Z**	**–**
	9.1	1150	157.74	17400	1.6	78	**2KJ3406- ■ EK23- ■ ■ K1 -Z**	**–**
	9.7	1080	148.46	17400	1.7	78	**2KJ3406- ■ EK23- ■ ■ J1 -Z**	**–**
	11	990	136.21	17400	1.9	78	**2KJ3406- ■ EK23- ■ ■ H1 -Z**	**–**
	12	865	118.98	17400	2.1	78	**2KJ3406- ■ EK23- ■ ■ G1 -Z**	**–**
	FD.79-LE90SM4P							
	8.6	1210	167.07	13200	0.82	46	**2KJ3405- ■ EK23- ■ ■ K1 -Z**	**–**
	9.4	1110	152.51	13400	0.9	46	**2KJ3405- ■ EK23- ■ ■ J1 -Z**	**–**
	11	920	126.54	13700	1.1	46	**2KJ3405- ■ EK23- ■ ■ H1 -Z**	**–**
	12	865	119.10	13800	1.2	46	**2KJ3405- ■ EK23- ■ ■ G1 -Z**	**–**
	13	820	112.48	13900	1.2	46	**2KJ3405- ■ EK23- ■ ■ F1 -Z**	**–**
	15	695	95.71	14200	1.4	46	**2KJ3405- ■ EK23- ■ ■ E1 -Z**	**–**
	18	595	81.99	14400	1.7	46	**2KJ3405- ■ EK23- ■ ■ D1 -Z**	**–**
	20	525	72.09	14500	1.9	46	**2KJ3405- ■ EK23- ■ ■ C1 -Z**	**–**
	24	440	60.82	14500	2.3	46	**2KJ3405- ■ EK23- ■ ■ B1 -Z**	**–**
	FD.69-LE90SM4P							
	16	670	92.08	10600	0.89	37	**2KJ3404- ■ EK23- ■ ■ F1 -Z**	**–**
	17	630	86.67	10700	0.95	37	**2KJ3404- ■ EK23- ■ ■ E1 -Z**	**–**
	19	565	77.65	10700	1.1	37	**2KJ3404- ■ EK23- ■ ■ D1 -Z**	**–**
	22	480	66.11	10500	1.2	37	**2KJ3404- ■ EK23- ■ ■ C1 -Z**	**–**
	25	410	56.67	10200	1.5	37	**2KJ3404- ■ EK23- ■ ■ B1 -Z**	**–**
	30	355	48.80	9980	1.7	37	**2KJ3404- ■ EK23- ■ ■ A1 -Z**	**–**
	FZ.69-LE90SM4P							
	22	470	64.67	10400	1.3	37	**2KJ3304- ■ EK23- ■ ■ X1 -Z**	**–**
	24	425	58.79	10300	1.4	37	**2KJ3304- ■ EK23- ■ ■ W1 -Z**	**–**
	29	365	50.00	10000	1.6	37	**2KJ3304- ■ EK23- ■ ■ V1 -Z**	**–**
	32	330	45.45	9850	1.8	37	**2KJ3304- ■ EK23- ■ ■ U1 -Z**	**–**
	36	295	40.56	9620	2	37	**2KJ3304- ■ EK23- ■ ■ T1 -Z**	**–**
	40	265	36.36	9400	2.3	37	**2KJ3304- ■ EK23- ■ ■ S1 -Z**	**–**
	44	235	32.78	9210	2.5	37	**2KJ3304- ■ EK23- ■ ■ R1 -Z**	**–**
	48	220	30.26	9020	2.7	37	**2KJ3304- ■ EK23- ■ ■ Q1 -Z**	**–**
	FD.49-LE90SM4P							
	17	600	82.33	7170	0.8	32	**2KJ3403- ■ EK23- ■ ■ E1 -Z**	**–**
	20	535	73.77	7310	0.89	32	**2KJ3403- ■ EK23- ■ ■ D1 -Z**	**–**
	23	455	62.81	7270	1	32	**2KJ3403- ■ EK23- ■ ■ C1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**FD.49-LE90SM4P**							
	27	390	53.83	7180	1.2	32	**2KJ3403- ■ EK23- ■ ■ B1 -Z**	–
	31	335	46.36	7060	1.4	32	**2KJ3403- ■ EK23- ■ ■ A1 -Z**	–
	FZ.49-LE90SM4P							
	23	445	61.43	7260	1.1	32	**2KJ3303- ■ EK23- ■ ■ X1 -Z**	–
	26	405	55.85	7200	1.2	32	**2KJ3303- ■ EK23- ■ ■ W1 -Z**	–
	30	345	47.50	7070	1.4	32	**2KJ3303- ■ EK23- ■ ■ V1 -Z**	–
	33	315	43.18	6980	1.5	32	**2KJ3303- ■ EK23- ■ ■ U1 -Z**	–
	37	280	38.53	6870	1.7	32	**2KJ3303- ■ EK23- ■ ■ T1 -Z**	–
	42	250	34.55	6760	1.9	32	**2KJ3303- ■ EK23- ■ ■ S1 -Z**	–
	46	225	31.14	6630	2.1	32	**2KJ3303- ■ EK23- ■ ■ R1 -Z**	–
	50	210	28.74	6520	2.3	32	**2KJ3303- ■ EK23- ■ ■ Q1 -Z**	–
	55	191	26.24	6410	2.5	32	**2KJ3303- ■ EK23- ■ ■ P1 -Z**	–
	66	159	21.77	6150	3	32	**2KJ3303- ■ EK23- ■ ■ N1 -Z**	–
	FD.39-LE90SM4P							
	30	350	48.29	5590	0.82	25	**2KJ3402- ■ EK23- ■ ■ A1 -Z**	–
	FZ.39-LE90SM4P							
	36	285	39.60	5830	1	24	**2KJ3302- ■ EK23- ■ ■ V1 -Z**	–
	40	260	36.00	5930	0.97	24	**2KJ3302- ■ EK23- ■ ■ U1 -Z**	–
	45	230	31.82	5920	1.2	24	**2KJ3302- ■ EK23- ■ ■ T1 -Z**	–
	50	210	28.93	5830	1.3	24	**2KJ3302- ■ EK23- ■ ■ S1 -Z**	–
	57	185	25.34	5700	1.4	24	**2KJ3302- ■ EK23- ■ ■ R1 -Z**	–
	62	171	23.39	5610	1.5	24	**2KJ3302- ■ EK23- ■ ■ Q1 -Z**	–
	70	151	20.71	5490	1.7	24	**2KJ3302- ■ EK23- ■ ■ P1 -Z**	–
	84	126	17.24	5280	1.9	24	**2KJ3302- ■ EK23- ■ ■ N1 -Z**	–
	89	118	16.22	5220	1.9	24	**2KJ3302- ■ EK23- ■ ■ M1 -Z**	–
	99	106	14.54	5090	2.1	24	**2KJ3302- ■ EK23- ■ ■ L1 -Z**	–
	116	90	12.38	4900	2.3	24	**2KJ3302- ■ EK23- ■ ■ K1 -Z**	–
	136	77	10.61	4720	2.6	24	**2KJ3302- ■ EK23- ■ ■ J1 -Z**	–
	158	67	9.13	4540	2.8	24	**2KJ3302- ■ EK23- ■ ■ H1 -Z**	–
	178	59	8.10	4350	2.8	24	**2KJ3302- ■ EK23- ■ ■ G1 -Z**	–
	214	49	6.74	4140	3.1	24	**2KJ3302- ■ EK23- ■ ■ F1 -Z**	–
	227	46	6.35	4080	3.2	24	**2KJ3302- ■ EK23- ■ ■ E1 -Z**	–
	253	42	5.69	3950	3.4	24	**2KJ3302- ■ EK23- ■ ■ D1 -Z**	–
	298	35	4.84	3780	3.6	24	**2KJ3302- ■ EK23- ■ ■ C1 -Z**	–
	347	30	4.15	3620	3.9	24	**2KJ3302- ■ EK23- ■ ■ B1 -Z**	–
	403	26	3.57	3460	4.1	24	**2KJ3302- ■ EK23- ■ ■ A1 -Z**	–
	FZ.39-LE80ZMJ2P							
	167	63	17.24	4470	3.7	22	**2KJ3302- ■ DM23- ■ ■ N1 -Z**	**P00**
	178	59	16.22	4400	3.9	22	**2KJ3302- ■ DM23- ■ ■ M1 -Z**	**P00**
	198	53	14.54	4270	4.2	22	**2KJ3302- ■ DM23- ■ ■ L1 -Z**	**P00**
	FZ.29-LE90SM4P							
	59	177	24.22	4050	0.85	18	**2KJ3301- ■ EK23- ■ ■ T1 -Z**	–
	67	157	21.58	4000	0.95	18	**2KJ3301- ■ EK23- ■ ■ S1 -Z**	–
	72	145	19.92	3960	1	18	**2KJ3301- ■ EK23- ■ ■ R1 -Z**	–
	83	127	17.44	3890	1.2	18	**2KJ3301- ■ EK23- ■ ■ Q1 -Z**	–
	94	112	15.29	3800	1.3	18	**2KJ3301- ■ EK23- ■ ■ P1 -Z**	–
	104	101	13.88	3740	1.5	18	**2KJ3301- ■ EK23- ■ ■ N1 -Z**	–
	110	95	13.06	3700	1.6	18	**2KJ3301- ■ EK23- ■ ■ M1 -Z**	–
	125	84	11.51	3610	1.7	18	**2KJ3301- ■ EK23- ■ ■ L1 -Z**	–
	144	73	9.99	3500	1.9	18	**2KJ3301- ■ EK23- ■ ■ K1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**FZ.29-LE90SM4P**							
	149	71	9.69	3380	2	18	**2KJ3301- ■ EK23- ■ ■ J1 -Z**	–
	167	63	8.63	3300	2.1	18	**2KJ3301- ■ EK23- ■ ■ H1 -Z**	–
	181	58	7.97	3250	2.1	18	**2KJ3301- ■ EK23- ■ ■ G1 -Z**	–
	206	51	6.98	3150	2.4	18	**2KJ3301- ■ EK23- ■ ■ F1 -Z**	–
	235	45	6.12	3050	2.6	18	**2KJ3301- ■ EK23- ■ ■ E1 -Z**	–
	259	40	5.55	2990	2.7	18	**2KJ3301- ■ EK23- ■ ■ D1 -Z**	–
	276	38	5.22	2940	2.8	18	**2KJ3301- ■ EK23- ■ ■ C1 -Z**	–
	313	34	4.60	2840	2.9	18	**2KJ3301- ■ EK23- ■ ■ B1 -Z**	–
	360	29	4.00	2740	3.1	18	**2KJ3301- ■ EK23- ■ ■ A1 -Z**	–
	FZ.29-LE80ZMJ2P							
	165	64	17.44	3390	2.4	16	**2KJ3301- ■ DM23- ■ ■ Q1 -Z**	P00
	189	56	15.29	3290	2.7	16	**2KJ3301- ■ DM23- ■ ■ P1 -Z**	P00
	208	50	13.88	3220	3	16	**2KJ3301- ■ DM23- ■ ■ N1 -Z**	P00
	221	48	13.06	3160	3.2	16	**2KJ3301- ■ DM23- ■ ■ M1 -Z**	P00
	251	42	11.51	3060	3.4	16	**2KJ3301- ■ DM23- ■ ■ L1 -Z**	P00
	289	36	9.99	2960	3.7	16	**2KJ3301- ■ DM23- ■ ■ K1 -Z**	P00
	298	35	9.69	2880	4.1	16	**2KJ3301- ■ DM23- ■ ■ J1 -Z**	P00
	334	31	8.63	2800	4.1	16	**2KJ3301- ■ DM23- ■ ■ H1 -Z**	P00
	362	29	7.97	2740	4.1	16	**2KJ3301- ■ DM23- ■ ■ G1 -Z**	P00
	413	25	6.98	2650	4.8	16	**2KJ3301- ■ DM23- ■ ■ F1 -Z**	P00
	471	22	6.12	2550	5.1	16	**2KJ3301- ■ DM23- ■ ■ E1 -Z**	P00
	520	20	5.55	2480	5.3	16	**2KJ3301- ■ DM23- ■ ■ D1 -Z**	P00
	553	19	5.22	2440	5.6	16	**2KJ3301- ■ DM23- ■ ■ C1 -Z**	P00
	627	17	4.60	2350	5.8	16	**2KJ3301- ■ DM23- ■ ■ B1 -Z**	P00
	721	15	4.00	2250	6.2	16	**2KJ3301- ■ DM23- ■ ■ A1 -Z**	P00
1.5	**FD.149-LE112ZMKA6P**							
	2.6	5530	377.00	65000	1.4	280	**2KJ3410- ■ GH23- ■ ■ W1 -Z**	P01
	3	4740	323.04	65000	1.7	280	**2KJ3410- ■ GH23- ■ ■ V1 -Z**	P01
	3.2	4460	304.03	65000	1.8	280	**2KJ3410- ■ GH23- ■ ■ U1 -Z**	P01
	3.4	4180	285.00	65000	1.9	280	**2KJ3410- ■ GH23- ■ ■ T1 -Z**	P01
	FD.129-LE112ZMKA6P							
	2.4	6060	413.00	36000	0.8	192	**2KJ3408- ■ GH23- ■ ■ T1 -Z**	P01
	2.6	5590	381.00	36400	0.87	192	**2KJ3408- ■ GH23- ■ ■ S1 -Z**	P01
	2.8	5150	351.00	36900	0.94	192	**2KJ3408- ■ GH23- ■ ■ R1 -Z**	P01
	3.3	4390	299.31	37500	1.1	192	**2KJ3408- ■ GH23- ■ ■ Q1 -Z**	P01
	FD.129-LE90ZLR4P							
	3.5	4090	413.00	37500	1.2	174	**2KJ3408- ■ EM23- ■ ■ T1 -Z**	–
	3.8	3770	381.00	37500	1.3	174	**2KJ3408- ■ EM23- ■ ■ S1 -Z**	–
	4.1	3480	351.00	37500	1.4	174	**2KJ3408- ■ EM23- ■ ■ R1 -Z**	–
	4.8	2960	299.31	37500	1.6	174	**2KJ3408- ■ EM23- ■ ■ Q1 -Z**	–
	5.1	2790	281.70	37500	1.7	174	**2KJ3408- ■ EM23- ■ ■ P1 -Z**	–
	5.5	2590	261.42	37500	1.9	174	**2KJ3408- ■ EM23- ■ ■ N1 -Z**	–
	6.3	2290	231.12	37500	2.1	174	**2KJ3408- ■ EM23- ■ ■ M1 -Z**	–
	FD.109-LE90ZLR4P							
	3.9	3660	370.00	25000	0.85	121	**2KJ3407- ■ EM23- ■ ■ S1 -Z**	–
	4.3	3320	335.70	25000	0.93	121	**2KJ3407- ■ EM23- ■ ■ R1 -Z**	–
	4.7	3070	309.87	25000	1	121	**2KJ3407- ■ EM23- ■ ■ Q1 -Z**	–
	5.1	2790	281.68	25000	1.1	121	**2KJ3407- ■ EM23- ■ ■ P1 -Z**	–
	6.1	2360	238.52	25000	1.3	121	**2KJ3407- ■ EM23- ■ ■ N1 -Z**	–
	6.4	2220	224.49	25000	1.4	121	**2KJ3407- ■ EM23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**FD.109-LE90ZLR4P**							
	7	2050	207.31	25000	1.5	121	**2KJ3407- ■ EM23- ■ ■ L1 -Z**	–
	7.8	1820	184.46	25000	1.7	121	**2KJ3407- ■ EM23- ■ ■ K1 -Z**	–
	8.8	1620	163.83	25000	1.9	121	**2KJ3407- ■ EM23- ■ ■ J1 -Z**	–
	9.9	1450	146.65	25000	2.1	121	**2KJ3407- ■ EM23- ■ ■ H1 -Z**	–
	FD.89-LE90ZLR4P							
	6.5	2200	222.33	17400	0.84	81	**2KJ3406- ■ EM23- ■ ■ N1 -Z**	–
	7	2030	205.23	17400	0.91	81	**2KJ3406- ■ EM23- ■ ■ M1 -Z**	–
	7.7	1860	188.00	17400	0.99	81	**2KJ3406- ■ EM23- ■ ■ L1 -Z**	–
	9.2	1560	157.74	17400	1.2	81	**2KJ3406- ■ EM23- ■ ■ K1 -Z**	–
	9.7	1470	148.46	17400	1.3	81	**2KJ3406- ■ EM23- ■ ■ J1 -Z**	–
	11	1350	136.21	17400	1.4	81	**2KJ3406- ■ EM23- ■ ■ H1 -Z**	–
	12	1180	118.98	17400	1.6	81	**2KJ3406- ■ EM23- ■ ■ G1 -Z**	–
	14	1050	106.52	17400	1.8	81	**2KJ3406- ■ EM23- ■ ■ F1 -Z**	–
	16	920	93.14	17400	2	81	**2KJ3406- ■ EM23- ■ ■ E1 -Z**	–
	18	790	79.95	17400	2.3	81	**2KJ3406- ■ EM23- ■ ■ D1 -Z**	–
	FD.79-LE90ZLR4P							
	11	1250	126.54	13100	0.8	49	**2KJ3405- ■ EM23- ■ ■ H1 -Z**	–
	12	1180	119.10	13200	0.85	49	**2KJ3405- ■ EM23- ■ ■ G1 -Z**	–
	13	1110	112.48	13400	0.9	49	**2KJ3405- ■ EM23- ■ ■ F1 -Z**	–
	15	945	95.71	13700	1.1	49	**2KJ3405- ■ EM23- ■ ■ E1 -Z**	–
	18	810	81.99	13900	1.2	49	**2KJ3405- ■ EM23- ■ ■ D1 -Z**	–
	20	715	72.09	14100	1.4	49	**2KJ3405- ■ EM23- ■ ■ C1 -Z**	–
	24	600	60.82	14400	1.7	49	**2KJ3405- ■ EM23- ■ ■ B1 -Z**	–
	27	525	53.01	14500	1.9	49	**2KJ3405- ■ EM23- ■ ■ A1 -Z**	–
	FZ.79-LE90ZLR4P							
	27	530	53.55	14500	1.9	48	**2KJ3305- ■ EM23- ■ ■ X1 -Z**	–
	30	475	48.03	14500	2.1	48	**2KJ3305- ■ EM23- ■ ■ W1 -Z**	–
	33	425	43.18	14500	2.3	48	**2KJ3305- ■ EM23- ■ ■ V1 -Z**	–
	37	385	39.06	14500	2.6	48	**2KJ3305- ■ EM23- ■ ■ U1 -Z**	–
	FD.69-LE90ZLR4P							
	22	655	66.11	9410	0.92	40	**2KJ3404- ■ EM23- ■ ■ C1 -Z**	–
	25	560	56.67	9320	1.1	40	**2KJ3404- ■ EM23- ■ ■ B1 -Z**	–
	30	480	48.80	9200	1.2	40	**2KJ3404- ■ EM23- ■ ■ A1 -Z**	–
	FZ.69-LE90ZLR4P							
	22	640	64.67	9410	0.94	40	**2KJ3304- ■ EM23- ■ ■ X1 -Z**	–
	25	580	58.79	9360	1	40	**2KJ3304- ■ EM23- ■ ■ W1 -Z**	–
	29	495	50.00	9200	1.2	40	**2KJ3304- ■ EM23- ■ ■ V1 -Z**	–
	32	450	45.45	9100	1.3	40	**2KJ3304- ■ EM23- ■ ■ U1 -Z**	–
	36	400	40.56	8960	1.5	40	**2KJ3304- ■ EM23- ■ ■ T1 -Z**	–
	40	360	36.36	8800	1.7	40	**2KJ3304- ■ EM23- ■ ■ S1 -Z**	–
	44	325	32.78	8640	1.8	40	**2KJ3304- ■ EM23- ■ ■ R1 -Z**	–
	48	300	30.26	8520	2	40	**2KJ3304- ■ EM23- ■ ■ Q1 -Z**	–
	52	270	27.62	8390	2.2	40	**2KJ3304- ■ EM23- ■ ■ P1 -Z**	–
	63	225	22.92	8060	2.6	40	**2KJ3304- ■ EM23- ■ ■ N1 -Z**	–
	67	210	21.57	7970	2.8	40	**2KJ3304- ■ EM23- ■ ■ M1 -Z**	–
	71	200	20.37	7850	3	40	**2KJ3304- ■ EM23- ■ ■ L1 -Z**	–
	FD.49-LE90ZLR4P							
	27	530	53.83	6250	0.9	35	**2KJ3403- ■ EM23- ■ ■ B1 -Z**	–
	31	460	46.36	6240	1	35	**2KJ3403- ■ EM23- ■ ■ A1 -Z**	–
	FZ.49-LE90ZLR4P							
	26	550	55.85	6240	0.87	35	**2KJ3303- ■ EM23- ■ ■ W1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**FZ.49-LE90ZLR4P**							
	30	470	47.50	6250	1	35	**2KJ3303- ■ EM23- ■ ■ V1 -Z**	**–**
	33	425	43.18	6250	1.1	35	**2KJ3303- ■ EM23- ■ ■ U1 -Z**	**–**
	38	380	38.53	6210	1.3	35	**2KJ3303- ■ EM23- ■ ■ T1 -Z**	**–**
	42	340	34.55	6160	1.4	35	**2KJ3303- ■ EM23- ■ ■ S1 -Z**	**–**
	46	305	31.14	6100	1.6	35	**2KJ3303- ■ EM23- ■ ■ R1 -Z**	**–**
	50	285	28.74	6020	1.7	35	**2KJ3303- ■ EM23- ■ ■ Q1 -Z**	**–**
	55	260	26.24	5950	1.8	35	**2KJ3303- ■ EM23- ■ ■ P1 -Z**	**–**
	66	215	21.77	5780	2.2	35	**2KJ3303- ■ EM23- ■ ■ N1 -Z**	**–**
	71	200	20.49	5730	2.4	35	**2KJ3303- ■ EM23- ■ ■ M1 -Z**	**–**
	75	192	19.35	5650	2.5	35	**2KJ3303- ■ EM23- ■ ■ L1 -Z**	**–**
	88	163	16.47	5480	2.9	35	**2KJ3303- ■ EM23- ■ ■ K1 -Z**	**–**
	102	140	14.11	5300	3.4	35	**2KJ3303- ■ EM23- ■ ■ J1 -Z**	**–**
	FZ.39-LE90ZLR4P							
	45	315	31.82	5280	0.9	27	**2KJ3302- ■ EM23- ■ ■ T1 -Z**	**–**
	50	285	28.93	5260	0.96	27	**2KJ3302- ■ EM23- ■ ■ S1 -Z**	**–**
	57	250	25.34	5200	1.1	27	**2KJ3302- ■ EM23- ■ ■ R1 -Z**	**–**
	62	230	23.39	5170	1.1	27	**2KJ3302- ■ EM23- ■ ■ Q1 -Z**	**–**
	70	205	20.71	5080	1.2	27	**2KJ3302- ■ EM23- ■ ■ P1 -Z**	**–**
	84	171	17.24	4940	1.4	27	**2KJ3302- ■ EM23- ■ ■ N1 -Z**	**–**
	89	161	16.22	4890	1.4	27	**2KJ3302- ■ EM23- ■ ■ M1 -Z**	**–**
	99	144	14.54	4800	1.5	27	**2KJ3302- ■ EM23- ■ ■ L1 -Z**	**–**
	117	123	12.38	4650	1.7	27	**2KJ3302- ■ EM23- ■ ■ K1 -Z**	**–**
	136	105	10.61	4500	1.9	27	**2KJ3302- ■ EM23- ■ ■ J1 -Z**	**–**
	158	90	9.13	4360	2.1	27	**2KJ3302- ■ EM23- ■ ■ H1 -Z**	**–**
	178	80	8.10	4160	2.1	27	**2KJ3302- ■ EM23- ■ ■ G1 -Z**	**–**
	214	67	6.74	3990	2.3	27	**2KJ3302- ■ EM23- ■ ■ F1 -Z**	**–**
	228	63	6.35	3930	2.4	27	**2KJ3302- ■ EM23- ■ ■ E1 -Z**	**–**
	254	56	5.69	3830	2.5	27	**2KJ3302- ■ EM23- ■ ■ D1 -Z**	**–**
	299	48	4.84	3670	2.7	27	**2KJ3302- ■ EM23- ■ ■ C1 -Z**	**–**
	348	41	4.15	3520	2.9	27	**2KJ3302- ■ EM23- ■ ■ B1 -Z**	**–**
	405	35	3.57	3390	3.1	27	**2KJ3302- ■ EM23- ■ ■ A1 -Z**	**–**
	FZ.39-LE90SM2P							
	169	85	17.24	4290	2.8	24	**2KJ3302- ■ EK23- ■ ■ N1 -Z**	**P00**
	179	80	16.22	4230	2.9	24	**2KJ3302- ■ EK23- ■ ■ M1 -Z**	**P00**
	200	72	14.54	4110	3.1	24	**2KJ3302- ■ EK23- ■ ■ L1 -Z**	**P00**
	235	61	12.38	3950	3.4	24	**2KJ3302- ■ EK23- ■ ■ K1 -Z**	**P00**
	274	52	10.61	3800	3.8	24	**2KJ3302- ■ EK23- ■ ■ J1 -Z**	**P00**
	319	45	9.13	3650	4.2	24	**2KJ3302- ■ EK23- ■ ■ H1 -Z**	**P00**
	359	40	8.10	3490	4.2	24	**2KJ3302- ■ EK23- ■ ■ G1 -Z**	**P00**
	432	33	6.74	3320	4.6	24	**2KJ3302- ■ EK23- ■ ■ F1 -Z**	**P00**
	458	31	6.35	3270	4.8	24	**2KJ3302- ■ EK23- ■ ■ E1 -Z**	**P00**
	511	28	5.69	3170	5	24	**2KJ3302- ■ EK23- ■ ■ D1 -Z**	**P00**
	601	24	4.84	3020	5.4	24	**2KJ3302- ■ EK23- ■ ■ C1 -Z**	**P00**
	701	20	4.15	2890	5.8	24	**2KJ3302- ■ EK23- ■ ■ B1 -Z**	**P00**
	815	18	3.57	2760	6.1	24	**2KJ3302- ■ EK23- ■ ■ A1 -Z**	**P00**
	FZ.29-LE90ZLR4P							
	83	173	17.44	3500	0.87	21	**2KJ3301- ■ EM23- ■ ■ Q1 -Z**	**–**
	95	152	15.29	3460	0.99	21	**2KJ3301- ■ EM23- ■ ■ P1 -Z**	**–**
	104	138	13.88	3430	1.1	21	**2KJ3301- ■ EM23- ■ ■ N1 -Z**	**–**
	111	129	13.06	3410	1.2	21	**2KJ3301- ■ EM23- ■ ■ M1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**FZ.29-LE90ZLR4P**							
	126	114	11.51	3350	1.3	21	**2KJ3301- ■ EM23- ■ ■ L1 -Z**	**–**
	145	99	9.99	3280	1.4	21	**2KJ3301- ■ EM23- ■ ■ K1 -Z**	**–**
	149	96	9.69	3130	1.5	21	**2KJ3301- ■ EM23- ■ ■ J1 -Z**	**–**
	167	86	8.63	3070	1.5	21	**2KJ3301- ■ EM23- ■ ■ H1 -Z**	**–**
	181	79	7.97	3040	1.5	21	**2KJ3301- ■ EM23- ■ ■ G1 -Z**	**–**
	207	69	6.98	2970	1.8	21	**2KJ3301- ■ EM23- ■ ■ F1 -Z**	**–**
	236	61	6.12	2890	1.9	21	**2KJ3301- ■ EM23- ■ ■ E1 -Z**	**–**
	260	55	5.55	2840	2	21	**2KJ3301- ■ EM23- ■ ■ D1 -Z**	**–**
	277	52	5.22	2800	2	21	**2KJ3301- ■ EM23- ■ ■ C1 -Z**	**–**
	314	46	4.60	2720	2.1	21	**2KJ3301- ■ EM23- ■ ■ B1 -Z**	**–**
	361	40	4.00	2630	2.3	21	**2KJ3301- ■ EM23- ■ ■ A1 -Z**	**–**
	FZ.29-LE90SM2P							
	167	86	17.44	3200	1.7	18	**2KJ3301- ■ EK23- ■ ■ Q1 -Z**	**P00**
	190	75	15.29	3120	2	18	**2KJ3301- ■ EK23- ■ ■ P1 -Z**	**P00**
	210	68	13.88	3060	2.2	18	**2KJ3301- ■ EK23- ■ ■ N1 -Z**	**P00**
	223	64	13.06	3020	2.3	18	**2KJ3301- ■ EK23- ■ ■ M1 -Z**	**P00**
	253	57	11.51	2930	2.5	18	**2KJ3301- ■ EK23- ■ ■ L1 -Z**	**P00**
	291	49	9.99	2840	2.8	18	**2KJ3301- ■ EK23- ■ ■ K1 -Z**	**P00**
	300	48	9.69	2750	3	18	**2KJ3301- ■ EK23- ■ ■ J1 -Z**	**P00**
	337	42	8.63	2690	3.1	18	**2KJ3301- ■ EK23- ■ ■ H1 -Z**	**P00**
	365	39	7.97	2630	3.1	18	**2KJ3301- ■ EK23- ■ ■ G1 -Z**	**P00**
	417	34	6.98	2550	3.6	18	**2KJ3301- ■ EK23- ■ ■ F1 -Z**	**P00**
	475	30	6.12	2470	3.8	18	**2KJ3301- ■ EK23- ■ ■ E1 -Z**	**P00**
	524	27	5.55	2410	4	18	**2KJ3301- ■ EK23- ■ ■ D1 -Z**	**P00**
	557	26	5.22	2360	4.1	18	**2KJ3301- ■ EK23- ■ ■ C1 -Z**	**P00**
	633	23	4.60	2280	4.3	18	**2KJ3301- ■ EK23- ■ ■ B1 -Z**	**P00**
	728	20	4.00	2200	4.6	18	**2KJ3301- ■ EK23- ■ ■ A1 -Z**	**P00**
2.2	**FD.169-LE132SQA6P**							
	2.6	7930	368.00	73500	1.7	455	**2KJ3411- ■ HG23- ■ ■ V1 -Z**	**P01**
	2.8	7390	343.01	73500	1.8	455	**2KJ3411- ■ HG23- ■ ■ U1 -Z**	**P01**
	FD.149-LE132SQA6P							
	2.6	8120	377.00	65000	0.98	308	**2KJ3410- ■ HG23- ■ ■ W1 -Z**	**P01**
	3	6960	323.04	65000	1.1	308	**2KJ3410- ■ HG23- ■ ■ V1 -Z**	**P01**
	3.2	6550	304.03	65000	1.2	308	**2KJ3410- ■ HG23- ■ ■ U1 -Z**	**P01**
	3.4	6140	285.00	65000	1.3	308	**2KJ3410- ■ HG23- ■ ■ T1 -Z**	**P01**
	FD.149-LE100ZLSA4P							
	3.9	5400	377.00	65000	1.5	278	**2KJ3410- ■ FN23- ■ ■ W1 -Z**	**–**
	4.5	4630	323.04	65000	1.7	278	**2KJ3410- ■ FN23- ■ ■ V1 -Z**	**–**
	4.8	4360	304.03	65000	1.8	278	**2KJ3410- ■ FN23- ■ ■ U1 -Z**	**–**
	5.1	4080	285.00	65000	2	278	**2KJ3410- ■ FN23- ■ ■ T1 -Z**	**–**
	FD.129-LE100ZLSA4P							
	3.5	5920	413.00	36100	0.82	191	**2KJ3408- ■ FN23- ■ ■ T1 -Z**	**–**
	3.8	5460	381.00	36600	0.89	191	**2KJ3408- ■ FN23- ■ ■ S1 -Z**	**–**
	4.2	5030	351.00	37000	0.96	191	**2KJ3408- ■ FN23- ■ ■ R1 -Z**	**–**
	4.9	4290	299.31	37500	1.1	191	**2KJ3408- ■ FN23- ■ ■ Q1 -Z**	**–**
	5.2	4040	281.70	37500	1.2	191	**2KJ3408- ■ FN23- ■ ■ P1 -Z**	**–**
	5.6	3740	261.42	37500	1.3	191	**2KJ3408- ■ FN23- ■ ■ N1 -Z**	**–**
	6.3	3310	231.12	37500	1.5	191	**2KJ3408- ■ FN23- ■ ■ M1 -Z**	**–**
	7.1	2950	206.32	37500	1.6	191	**2KJ3408- ■ FN23- ■ ■ L1 -Z**	**–**
	7.9	2660	185.66	37500	1.8	191	**2KJ3408- ■ FN23- ■ ■ K1 -Z**	**–**
	9.1	2310	161.14	37500	2.1	191	**2KJ3408- ■ FN23- ■ ■ J1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**FD.109-LE100ZLSA4P**							
	6.1	3420	238.52	25000	0.91	137	**2KJ3407- ■ FN23- ■ ■ N1 -Z**	–
	6.5	3210	224.49	25000	0.96	137	**2KJ3407- ■ FN23- ■ ■ M1 -Z**	–
	7.1	2970	207.31	25000	1	137	**2KJ3407- ■ FN23- ■ ■ L1 -Z**	–
	7.9	2640	184.46	25000	1.2	137	**2KJ3407- ■ FN23- ■ ■ K1 -Z**	–
	8.9	2350	163.83	25000	1.3	137	**2KJ3407- ■ FN23- ■ ■ J1 -Z**	–
	10	2100	146.65	25000	1.5	137	**2KJ3407- ■ FN23- ■ ■ H1 -Z**	–
	12	1790	125.37	25000	1.7	137	**2KJ3407- ■ FN23- ■ ■ G1 -Z**	–
	13	1600	111.95	25000	1.9	137	**2KJ3407- ■ FN23- ■ ■ F1 -Z**	–
	15	1410	98.94	25000	2.2	137	**2KJ3407- ■ FN23- ■ ■ E1 -Z**	–
	FD.89-LE100ZLSA4P							
	9.3	2260	157.74	17400	0.82	96	**2KJ3406- ■ FN23- ■ ■ K1 -Z**	–
	9.9	2120	148.46	17400	0.87	96	**2KJ3406- ■ FN23- ■ ■ J1 -Z**	–
	11	1950	136.21	17400	0.95	96	**2KJ3406- ■ FN23- ■ ■ H1 -Z**	–
	12	1700	118.98	17400	1.1	96	**2KJ3406- ■ FN23- ■ ■ G1 -Z**	–
	14	1520	106.52	17400	1.2	96	**2KJ3406- ■ FN23- ■ ■ F1 -Z**	–
	16	1330	93.14	17400	1.4	96	**2KJ3406- ■ FN23- ■ ■ E1 -Z**	–
	18	1140	79.95	17400	1.6	96	**2KJ3406- ■ FN23- ■ ■ D1 -Z**	–
	21	1010	70.67	17400	1.8	96	**2KJ3406- ■ FN23- ■ ■ C1 -Z**	–
	24	860	60.09	17400	2.1	96	**2KJ3406- ■ FN23- ■ ■ B1 -Z**	–
	28	735	51.51	17400	2.5	96	**2KJ3406- ■ FN23- ■ ■ A1 -Z**	–
	FZ.89-LE100ZLSA4P							
	24	885	61.72	17400	2.1	95	**2KJ3306- ■ FN23- ■ ■ B2 -Z**	–
	26	795	55.72	17400	2.3	95	**2KJ3306- ■ FN23- ■ ■ A2 -Z**	–
	FD.79-LE100ZLSA4P							
	18	1170	81.99	13200	0.85	65	**2KJ3405- ■ FN23- ■ ■ D1 -Z**	–
	20	1030	72.09	13500	0.97	65	**2KJ3405- ■ FN23- ■ ■ C1 -Z**	–
	24	870	60.82	13800	1.1	65	**2KJ3405- ■ FN23- ■ ■ B1 -Z**	–
	28	760	53.01	14000	1.3	65	**2KJ3405- ■ FN23- ■ ■ A1 -Z**	–
	FZ.79-LE100ZLSA4P							
	31	685	48.03	14200	1.5	64	**2KJ3305- ■ FN23- ■ ■ W1 -Z**	–
	34	615	43.18	14300	1.6	64	**2KJ3305- ■ FN23- ■ ■ V1 -Z**	–
	38	560	39.06	14400	1.8	64	**2KJ3305- ■ FN23- ■ ■ U1 -Z**	–
	41	515	36.05	14500	1.9	64	**2KJ3305- ■ FN23- ■ ■ T1 -Z**	–
	44	470	33.02	14500	2.1	64	**2KJ3305- ■ FN23- ■ ■ S1 -Z**	–
	53	395	27.71	14500	2.5	64	**2KJ3305- ■ FN23- ■ ■ R1 -Z**	–
	56	370	26.08	14500	2.7	64	**2KJ3305- ■ FN23- ■ ■ Q1 -Z**	–
	61	340	23.93	14500	2.9	64	**2KJ3305- ■ FN23- ■ ■ P1 -Z**	–
	FD.69-LE100ZLSA4P							
	30	700	48.80	7780	0.86	58	**2KJ3404- ■ FN23- ■ ■ A1 -Z**	–
	FZ.69-LE100ZLSA4P							
	36	580	40.56	7800	1	57	**2KJ3304- ■ FN23- ■ ■ T1 -Z**	–
	40	520	36.36	7760	1.2	57	**2KJ3304- ■ FN23- ■ ■ S1 -Z**	–
	45	470	32.78	7700	1.3	57	**2KJ3304- ■ FN23- ■ ■ R1 -Z**	–
	48	430	30.26	7670	1.4	57	**2KJ3304- ■ FN23- ■ ■ Q1 -Z**	–
	53	395	27.62	7570	1.5	57	**2KJ3304- ■ FN23- ■ ■ P1 -Z**	–
	64	325	22.92	7400	1.8	57	**2KJ3304- ■ FN23- ■ ■ N1 -Z**	–
	68	305	21.57	7340	1.9	57	**2KJ3304- ■ FN23- ■ ■ M1 -Z**	–
	72	290	20.37	7260	2.1	57	**2KJ3304- ■ FN23- ■ ■ L1 -Z**	–
	85	245	17.33	7060	2.4	57	**2KJ3304- ■ FN23- ■ ■ K1 -Z**	–
	99	210	14.85	6840	2.8	57	**2KJ3304- ■ FN23- ■ ■ J1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**FZ.69-LE100ZLSA4P**							
	112	187	13.06	6640	3.2	57	**2KJ3304- ■ FN23- ■ ■ H1 -Z**	–
	133	158	11.01	6390	3.8	57	**2KJ3304- ■ FN23- ■ ■ G1 -Z**	–
	165	128	8.90	6030	3.7	57	**2KJ3304- ■ FN23- ■ ■ E1 -Z**	–
	192	109	7.62	5810	4.3	57	**2KJ3304- ■ FN23- ■ ■ D1 -Z**	–
	FZ.49-LE100ZLSA4P							
	38	550	38.53	5050	0.87	53	**2KJ3303- ■ FN23- ■ ■ T1 -Z**	–
	42	495	34.55	5110	0.97	53	**2KJ3303- ■ FN23- ■ ■ S1 -Z**	–
	47	445	31.14	5150	1.1	53	**2KJ3303- ■ FN23- ■ ■ R1 -Z**	–
	51	410	28.74	5160	1.2	53	**2KJ3303- ■ FN23- ■ ■ Q1 -Z**	–
	56	375	26.24	5160	1.3	53	**2KJ3303- ■ FN23- ■ ■ P1 -Z**	–
	67	310	21.77	5120	1.5	53	**2KJ3303- ■ FN23- ■ ■ N1 -Z**	–
	71	290	20.49	5110	1.6	53	**2KJ3303- ■ FN23- ■ ■ M1 -Z**	–
	76	275	19.35	5080	1.7	53	**2KJ3303- ■ FN23- ■ ■ L1 -Z**	–
	89	235	16.47	4980	2	53	**2KJ3303- ■ FN23- ■ ■ K1 -Z**	–
	104	200	14.11	4880	2.4	53	**2KJ3303- ■ FN23- ■ ■ J1 -Z**	–
	118	178	12.40	4760	2.7	53	**2KJ3303- ■ FN23- ■ ■ H1 -Z**	–
	140	150	10.46	4620	3.2	53	**2KJ3303- ■ FN23- ■ ■ G1 -Z**	–
	161	131	9.12	4490	3.7	53	**2KJ3303- ■ FN23- ■ ■ F1 -Z**	–
	174	120	8.40	4330	3.7	53	**2KJ3303- ■ FN23- ■ ■ E1 -Z**	–
	203	103	7.20	4190	4.4	53	**2KJ3303- ■ FN23- ■ ■ D1 -Z**	–
	FZ.49-LE90ZLR2P							
	150	140	19.35	4550	3.4	35	**2KJ3303- ■ EM23- ■ ■ L1 -Z**	**P00**
	177	119	16.47	4400	4	35	**2KJ3303- ■ EM23- ■ ■ K1 -Z**	**P00**
	FZ.39-LE100ZLSA4P							
	71	295	20.71	4380	0.84	42	**2KJ3302- ■ FN23- ■ ■ P1 -Z**	–
	85	245	17.24	4360	0.95	42	**2KJ3302- ■ FN23- ■ ■ N1 -Z**	–
	90	230	16.22	4350	0.99	42	**2KJ3302- ■ FN23- ■ ■ M1 -Z**	–
	101	205	14.54	4320	1.1	42	**2KJ3302- ■ FN23- ■ ■ L1 -Z**	–
	118	178	12.38	4210	1.2	42	**2KJ3302- ■ FN23- ■ ■ K1 -Z**	–
	138	152	10.61	4130	1.3	42	**2KJ3302- ■ FN23- ■ ■ J1 -Z**	–
	160	131	9.13	4030	1.4	42	**2KJ3302- ■ FN23- ■ ■ H1 -Z**	–
	181	116	8.10	3840	1.4	42	**2KJ3302- ■ FN23- ■ ■ G1 -Z**	–
	217	97	6.74	3720	1.6	42	**2KJ3302- ■ FN23- ■ ■ F1 -Z**	–
	231	91	6.35	3670	1.6	42	**2KJ3302- ■ FN23- ■ ■ E1 -Z**	–
	257	82	5.69	3590	1.7	42	**2KJ3302- ■ FN23- ■ ■ D1 -Z**	–
	303	69	4.84	3480	1.8	42	**2KJ3302- ■ FN23- ■ ■ C1 -Z**	–
	353	60	4.15	3350	2	42	**2KJ3302- ■ FN23- ■ ■ B1 -Z**	–
	410	51	3.57	3240	2.1	42	**2KJ3302- ■ FN23- ■ ■ A1 -Z**	–
	FZ.39-LE90ZLR2P							
	169	124	17.24	4000	1.9	27	**2KJ3302- ■ EM23- ■ ■ N1 -Z**	**P00**
	179	117	16.22	3950	2	27	**2KJ3302- ■ EM23- ■ ■ M1 -Z**	**P00**
	200	105	14.54	3870	2.1	27	**2KJ3302- ■ EM23- ■ ■ L1 -Z**	**P00**
	235	89	12.38	3740	2.3	27	**2KJ3302- ■ EM23- ■ ■ K1 -Z**	**P00**
	274	77	10.61	3610	2.6	27	**2KJ3302- ■ EM23- ■ ■ J1 -Z**	**P00**
	319	66	9.13	3490	2.9	27	**2KJ3302- ■ EM23- ■ ■ H1 -Z**	**P00**
	359	58	8.10	3340	2.9	27	**2KJ3302- ■ EM23- ■ ■ G1 -Z**	**P00**
	432	49	6.74	3190	3.1	27	**2KJ3302- ■ EM23- ■ ■ F1 -Z**	**P00**
	458	46	6.35	3140	3.2	27	**2KJ3302- ■ EM23- ■ ■ E1 -Z**	**P00**
	511	41	5.69	3060	3.4	27	**2KJ3302- ■ EM23- ■ ■ D1 -Z**	**P00**
	601	35	4.84	2930	3.7	27	**2KJ3302- ■ EM23- ■ ■ C1 -Z**	**P00**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**FZ.39-LE90ZLR2P**							
	701	30	4.15	2810	3.9	27	**2KJ3302- ■ EM23- ■ ■ B1 -Z**	**P00**
	815	26	3.57	2690	4.2	27	**2KJ3302- ■ EM23- ■ ■ A1 -Z**	**P00**
	FZ.29-LE100ZLSA4P							
	112	187	13.06	2910	0.8	35	**2KJ3301- ■ FN23- ■ ■ M1 -Z**	**–**
	127	165	11.51	2910	0.87	35	**2KJ3301- ■ FN23- ■ ■ L1 -Z**	**–**
	147	143	9.99	2890	0.95	35	**2KJ3301- ■ FN23- ■ ■ K1 -Z**	**–**
	151	139	9.69	2690	1	35	**2KJ3301- ■ FN23- ■ ■ J1 -Z**	**–**
	170	124	8.63	2690	1.1	35	**2KJ3301- ■ FN23- ■ ■ H1 -Z**	**–**
	184	114	7.97	2680	1	35	**2KJ3301- ■ FN23- ■ ■ G1 -Z**	**–**
	210	100	6.98	2650	1.2	35	**2KJ3301- ■ FN23- ■ ■ F1 -Z**	**–**
	239	88	6.12	2610	1.3	35	**2KJ3301- ■ FN23- ■ ■ E1 -Z**	**–**
	264	80	5.55	2580	1.4	35	**2KJ3301- ■ FN23- ■ ■ D1 -Z**	**–**
	281	75	5.22	2560	1.4	35	**2KJ3301- ■ FN23- ■ ■ C1 -Z**	**–**
	318	66	4.60	2510	1.5	35	**2KJ3301- ■ FN23- ■ ■ B1 -Z**	**–**
	366	57	4.00	2450	1.6	35	**2KJ3301- ■ FN23- ■ ■ A1 -Z**	**–**
	FZ.29-LE90ZLR2P							
	167	126	17.44	2860	1.2	21	**2KJ3301- ■ EM23- ■ ■ Q1 -Z**	**P00**
	190	110	15.29	2830	1.4	21	**2KJ3301- ■ EM23- ■ ■ P1 -Z**	**P00**
	210	100	13.88	2790	1.5	21	**2KJ3301- ■ EM23- ■ ■ N1 -Z**	**P00**
	223	94	13.06	2770	1.6	21	**2KJ3301- ■ EM23- ■ ■ M1 -Z**	**P00**
	253	83	11.51	2710	1.7	21	**2KJ3301- ■ EM23- ■ ■ L1 -Z**	**P00**
	291	72	9.99	2650	1.9	21	**2KJ3301- ■ EM23- ■ ■ K1 -Z**	**P00**
	300	70	9.69	2530	2	21	**2KJ3301- ■ EM23- ■ ■ J1 -Z**	**P00**
	337	62	8.63	2490	2.1	21	**2KJ3301- ■ EM23- ■ ■ H1 -Z**	**P00**
	365	58	7.97	2450	2.1	21	**2KJ3301- ■ EM23- ■ ■ G1 -Z**	**P00**
	417	50	6.98	2390	2.4	21	**2KJ3301- ■ EM23- ■ ■ F1 -Z**	**P00**
	475	44	6.12	2330	2.6	21	**2KJ3301- ■ EM23- ■ ■ E1 -Z**	**P00**
	524	40	5.55	2280	2.7	21	**2KJ3301- ■ EM23- ■ ■ D1 -Z**	**P00**
	557	38	5.22	2250	2.8	21	**2KJ3301- ■ EM23- ■ ■ C1 -Z**	**P00**
	633	33	4.60	2190	2.9	21	**2KJ3301- ■ EM23- ■ ■ B1 -Z**	**P00**
	728	29	4.00	2110	3.2	21	**2KJ3301- ■ EM23- ■ ■ A1 -Z**	**P00**
3	**FD.189-LE132SQB6P**							
	2.8	10200	347.35	110900	1.9	665	**2KJ3412- ■ HH23- ■ ■ T1 -Z**	**P01**
	FD.169-LE132SQB6P							
	2.6	10800	368.00	73500	1.3	453	**2KJ3411- ■ HH23- ■ ■ V1 -Z**	**P01**
	2.8	10000	343.01	73500	1.3	453	**2KJ3411- ■ HH23- ■ ■ U1 -Z**	**P01**
	3.2	8960	304.94	73500	1.5	453	**2KJ3411- ■ HH23- ■ ■ T1 -Z**	**P01**
	3.6	8040	273.80	73500	1.7	453	**2KJ3411- ■ HH23- ■ ■ S1 -Z**	**P01**
	FD.149-LE132SQB6P							
	3	9490	323.04	65000	0.84	306	**2KJ3410- ■ HH23- ■ ■ V1 -Z**	**P01**
	3.2	8930	304.03	65000	0.9	306	**2KJ3410- ■ HH23- ■ ■ U1 -Z**	**P01**
	3.4	8370	285.00	65000	0.96	306	**2KJ3410- ■ HH23- ■ ■ T1 -Z**	**P01**
	FD.149-LE100ZLSB4P							
	3.9	7390	377.00	65000	1.1	278	**2KJ3410- ■ FP23- ■ ■ W1 -Z**	**–**
	4.5	6330	323.04	65000	1.3	278	**2KJ3410- ■ FP23- ■ ■ V1 -Z**	**–**
	4.8	5960	304.03	65000	1.3	278	**2KJ3410- ■ FP23- ■ ■ U1 -Z**	**–**
	5.1	5590	285.00	65000	1.4	278	**2KJ3410- ■ FP23- ■ ■ T1 -Z**	**–**
	5.8	4950	252.64	65000	1.6	278	**2KJ3410- ■ FP23- ■ ■ S1 -Z**	**–**
	6.5	4400	224.42	65000	1.8	278	**2KJ3410- ■ FP23- ■ ■ R1 -Z**	**–**
	7.2	3970	202.50	65000	2	278	**2KJ3410- ■ FP23- ■ ■ Q1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**FD.129-LE100ZLSB4P**							
	4.9	5870	299.31	36200	0.83	191	**2KJ3408- ■ FP23- ■ ■ Q1 -Z**	–
	5.2	5520	281.70	36500	0.88	191	**2KJ3408- ■ FP23- ■ ■ P1 -Z**	–
	5.6	5130	261.42	36900	0.95	191	**2KJ3408- ■ FP23- ■ ■ N1 -Z**	–
	6.3	4530	231.12	37500	1.1	191	**2KJ3408- ■ FP23- ■ ■ M1 -Z**	–
	7.1	4040	206.32	37500	1.2	191	**2KJ3408- ■ FP23- ■ ■ L1 -Z**	–
	7.9	3640	185.66	37500	1.3	191	**2KJ3408- ■ FP23- ■ ■ K1 -Z**	–
	9.1	3160	161.14	37500	1.5	191	**2KJ3408- ■ FP23- ■ ■ J1 -Z**	–
	10	2840	144.92	37500	1.7	191	**2KJ3408- ■ FP23- ■ ■ H1 -Z**	–
	12	2480	126.66	37500	2	191	**2KJ3408- ■ FP23- ■ ■ G1 -Z**	–
	13	2210	113.03	37500	2.2	191	**2KJ3408- ■ FP23- ■ ■ F1 -Z**	–
	FD.109-LE100ZLSB4P							
	7.9	3620	184.46	25000	0.86	137	**2KJ3407- ■ FP23- ■ ■ K1 -Z**	–
	8.9	3210	163.83	25000	0.96	137	**2KJ3407- ■ FP23- ■ ■ J1 -Z**	–
	10	2870	146.65	25000	1.1	137	**2KJ3407- ■ FP23- ■ ■ H1 -Z**	–
	12	2460	125.37	25000	1.3	137	**2KJ3407- ■ FP23- ■ ■ G1 -Z**	–
	13	2190	111.95	25000	1.4	137	**2KJ3407- ■ FP23- ■ ■ F1 -Z**	–
	15	1940	98.94	25000	1.6	137	**2KJ3407- ■ FP23- ■ ■ E1 -Z**	–
	17	1700	86.83	25000	1.8	137	**2KJ3407- ■ FP23- ■ ■ D1 -Z**	–
	19	1480	75.59	25000	2.1	137	**2KJ3407- ■ FP23- ■ ■ C1 -Z**	–
	23	1260	64.62	25000	2.4	137	**2KJ3407- ■ FP23- ■ ■ B1 -Z**	–
	21	1380	70.74	25000	2.2	134	**2KJ3307- ■ FP23- ■ ■ B2 -Z**	–
	22	1280	65.30	25000	2.4	134	**2KJ3307- ■ FP23- ■ ■ A2 -Z**	–
	FD.89-LE100ZLSB4P							
	14	2090	106.52	17400	0.89	96	**2KJ3406- ■ FP23- ■ ■ F1 -Z**	–
	16	1820	93.14	17400	1	96	**2KJ3406- ■ FP23- ■ ■ E1 -Z**	–
	18	1560	79.95	17400	1.2	96	**2KJ3406- ■ FP23- ■ ■ D1 -Z**	–
	21	1380	70.67	17400	1.3	96	**2KJ3406- ■ FP23- ■ ■ C1 -Z**	–
	24	1170	60.09	17400	1.6	96	**2KJ3406- ■ FP23- ■ ■ B1 -Z**	–
	28	1010	51.51	17400	1.8	96	**2KJ3406- ■ FP23- ■ ■ A1 -Z**	–
	FZ.89-LE100ZLSB4P							
	24	1210	61.72	17400	1.5	95	**2KJ3306- ■ FP23- ■ ■ B2 -Z**	–
	26	1090	55.72	17400	1.7	95	**2KJ3306- ■ FP23- ■ ■ A2 -Z**	–
	29	990	50.54	17400	1.9	95	**2KJ3306- ■ FP23- ■ ■ X1 -Z**	–
	31	915	46.66	17400	2	95	**2KJ3306- ■ FP23- ■ ■ W1 -Z**	–
	34	830	42.41	17400	2.2	95	**2KJ3306- ■ FP23- ■ ■ V1 -Z**	–
	41	705	35.91	17400	2.6	95	**2KJ3306- ■ FP23- ■ ■ U1 -Z**	–
	FD.79-LE100ZLSB4P							
	24	1190	60.82	13200	0.84	65	**2KJ3405- ■ FP23- ■ ■ B1 -Z**	–
	28	1040	53.01	13500	0.96	65	**2KJ3405- ■ FP23- ■ ■ A1 -Z**	–
	FZ.79-LE100ZLSB4P							
	30	940	48.03	13700	1.1	64	**2KJ3305- ■ FP23- ■ ■ W1 -Z**	–
	34	845	43.18	13900	1.2	64	**2KJ3305- ■ FP23- ■ ■ V1 -Z**	–
	37	765	39.06	14000	1.3	64	**2KJ3305- ■ FP23- ■ ■ U1 -Z**	–
	40	705	36.05	14200	1.4	64	**2KJ3305- ■ FP23- ■ ■ T1 -Z**	–
	44	645	33.02	14300	1.5	64	**2KJ3305- ■ FP23- ■ ■ S1 -Z**	–
	53	540	27.71	14500	1.8	64	**2KJ3305- ■ FP23- ■ ■ R1 -Z**	–
	56	510	26.08	14500	2	64	**2KJ3305- ■ FP23- ■ ■ Q1 -Z**	–
	61	470	23.93	14500	2.1	64	**2KJ3305- ■ FP23- ■ ■ P1 -Z**	–
	70	410	20.90	14500	2.4	64	**2KJ3305- ■ FP23- ■ ■ N1 -Z**	–
	78	365	18.71	14500	2.7	64	**2KJ3305- ■ FP23- ■ ■ M1 -Z**	–
	89	320	16.36	14500	3.1	64	**2KJ3305- ■ FP23- ■ ■ L1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**FZ.69-LE100ZLSB4P**							
	40	710	36.36	6600	0.84	57	**2KJ3304- ■ FP23- ■ ■ S1 -Z**	–
	45	640	32.78	6660	0.93	57	**2KJ3304- ■ FP23- ■ ■ R1 -Z**	–
	48	590	30.26	6690	1	57	**2KJ3304- ■ FP23- ■ ■ Q1 -Z**	–
	53	540	27.62	6690	1.1	57	**2KJ3304- ■ FP23- ■ ■ P1 -Z**	–
	64	450	22.92	6640	1.3	57	**2KJ3304- ■ FP23- ■ ■ N1 -Z**	–
	68	420	21.57	6640	1.4	57	**2KJ3304- ■ FP23- ■ ■ M1 -Z**	–
	72	400	20.37	6590	1.5	57	**2KJ3304- ■ FP23- ■ ■ L1 -Z**	–
	84	340	17.33	6480	1.8	57	**2KJ3304- ■ FP23- ■ ■ K1 -Z**	–
	98	290	14.85	6360	2.1	57	**2KJ3304- ■ FP23- ■ ■ J1 -Z**	–
	112	255	13.06	6230	2.3	57	**2KJ3304- ■ FP23- ■ ■ H1 -Z**	–
	133	215	11.01	6050	2.8	57	**2KJ3304- ■ FP23- ■ ■ G1 -Z**	–
	152	188	9.60	5890	3.2	57	**2KJ3304- ■ FP23- ■ ■ F1 -Z**	–
	164	175	8.90	5730	2.7	57	**2KJ3304- ■ FP23- ■ ■ E1 -Z**	–
	192	150	7.62	5550	3.1	57	**2KJ3304- ■ FP23- ■ ■ D1 -Z**	–
	218	131	6.70	5400	3.3	57	**2KJ3304- ■ FP23- ■ ■ C1 -Z**	–
	258	111	5.66	5190	3.7	57	**2KJ3304- ■ FP23- ■ ■ B1 -Z**	–
	296	97	4.93	5010	4	57	**2KJ3304- ■ FP23- ■ ■ A1 -Z**	–
	FZ.49-LE100ZLSB4P							
	51	560	28.74	4190	0.85	53	**2KJ3303- ■ FP23- ■ ■ Q1 -Z**	–
	56	515	26.24	4250	0.93	53	**2KJ3303- ■ FP23- ■ ■ P1 -Z**	–
	67	425	21.77	4380	1.1	53	**2KJ3303- ■ FP23- ■ ■ N1 -Z**	–
	71	400	20.49	4400	1.2	53	**2KJ3303- ■ FP23- ■ ■ M1 -Z**	–
	75	380	19.35	4400	1.3	53	**2KJ3303- ■ FP23- ■ ■ L1 -Z**	–
	89	320	16.47	4430	1.5	53	**2KJ3303- ■ FP23- ■ ■ K1 -Z**	–
	103	275	14.11	4400	1.7	53	**2KJ3303- ■ FP23- ■ ■ J1 -Z**	–
	118	240	12.40	4370	2	53	**2KJ3303- ■ FP23- ■ ■ H1 -Z**	–
	140	205	10.46	4270	2.3	53	**2KJ3303- ■ FP23- ■ ■ G1 -Z**	–
	160	179	9.12	4190	2.7	53	**2KJ3303- ■ FP23- ■ ■ F1 -Z**	–
	174	165	8.40	4010	2.7	53	**2KJ3303- ■ FP23- ■ ■ E1 -Z**	–
	203	141	7.20	3920	3.2	53	**2KJ3303- ■ FP23- ■ ■ D1 -Z**	–
	231	124	6.33	3840	3.5	53	**2KJ3303- ■ FP23- ■ ■ C1 -Z**	–
	273	105	5.34	3720	3.8	53	**2KJ3303- ■ FP23- ■ ■ B1 -Z**	–
	314	91	4.65	3620	4.1	53	**2KJ3303- ■ FP23- ■ ■ A1 -Z**	–
	FZ.39-LE100ZLSB4P							
	118	240	12.38	3760	0.86	42	**2KJ3302- ■ FP23- ■ ■ K1 -Z**	–
	138	205	10.61	3740	0.96	42	**2KJ3302- ■ FP23- ■ ■ J1 -Z**	–
	160	179	9.13	3680	1.1	42	**2KJ3302- ■ FP23- ■ ■ H1 -Z**	–
	180	159	8.10	3490	1.1	42	**2KJ3302- ■ FP23- ■ ■ G1 -Z**	–
	217	132	6.74	3430	1.1	42	**2KJ3302- ■ FP23- ■ ■ F1 -Z**	–
	230	125	6.35	3400	1.2	42	**2KJ3302- ■ FP23- ■ ■ E1 -Z**	–
	257	112	5.69	3340	1.3	42	**2KJ3302- ■ FP23- ■ ■ D1 -Z**	–
	302	95	4.84	3260	1.3	42	**2KJ3302- ■ FP23- ■ ■ C1 -Z**	–
	352	81	4.15	3180	1.4	42	**2KJ3302- ■ FP23- ■ ■ B1 -Z**	–
	409	70	3.57	3080	1.5	42	**2KJ3302- ■ FP23- ■ ■ A1 -Z**	–
	FZ.29-LE100ZLSB4P							
	209	137	6.98	2300	0.9	35	**2KJ3301- ■ FP23- ■ ■ F1 -Z**	–
	239	120	6.12	2310	0.95	35	**2KJ3301- ■ FP23- ■ ■ E1 -Z**	–
	263	109	5.55	2300	0.99	35	**2KJ3301- ■ FP23- ■ ■ D1 -Z**	–
	280	102	5.22	2300	1	35	**2KJ3301- ■ FP23- ■ ■ C1 -Z**	–
	317	90	4.60	2280	1.1	35	**2KJ3301- ■ FP23- ■ ■ B1 -Z**	–
	365	78	4.00	2250	1.2	35	**2KJ3301- ■ FP23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**FD.189-LE132MJ6P**							
	2.8	13600	347.35	110900	1.4	665	**2KJ3412- ■ HK23- ■ ■ T1 -Z**	**P01**
	3.1	12100	310.76	110900	1.6	665	**2KJ3412- ■ HK23- ■ ■ S1 -Z**	**P01**
	3.5	10900	280.27	110900	1.7	665	**2KJ3412- ■ HK23- ■ ■ R1 -Z**	**P01**
	3.9	9700	247.71	110900	2	665	**2KJ3412- ■ HK23- ■ ■ Q1 -Z**	**P01**
	FD.169-LE132MJ6P							
	2.6	14400	368.00	73500	0.94	453	**2KJ3411- ■ HK23- ■ ■ V1 -Z**	**P01**
	2.8	13400	343.01	73500	1	453	**2KJ3411- ■ HK23- ■ ■ U1 -Z**	**P01**
	3.2	11900	304.94	73500	1.1	453	**2KJ3411- ■ HK23- ■ ■ T1 -Z**	**P01**
	3.6	10700	273.80	73500	1.3	453	**2KJ3411- ■ HK23- ■ ■ S1 -Z**	**P01**
	FD.169-LE112ZMKB4P							
	4	9620	368.00	73500	1.4	426	**2KJ3411- ■ GJ23- ■ ■ V1 -Z**	**–**
	4.3	8970	343.01	73500	1.5	426	**2KJ3411- ■ GJ23- ■ ■ U1 -Z**	**–**
	4.8	7970	304.94	73500	1.7	426	**2KJ3411- ■ GJ23- ■ ■ T1 -Z**	**–**
	5.3	7160	273.80	73500	1.9	426	**2KJ3411- ■ GJ23- ■ ■ S1 -Z**	**–**
	5.9	6480	247.84	73500	2.1	426	**2KJ3411- ■ GJ23- ■ ■ R1 -Z**	**–**
	FD.149-LE112ZMKB4P							
	3.9	9860	377.00	65000	0.81	280	**2KJ3410- ■ GJ23- ■ ■ W1 -Z**	**–**
	4.5	8450	323.04	65000	0.95	280	**2KJ3410- ■ GJ23- ■ ■ V1 -Z**	**–**
	4.8	7950	304.03	65000	1	280	**2KJ3410- ■ GJ23- ■ ■ U1 -Z**	**–**
	5.1	7450	285.00	65000	1.1	280	**2KJ3410- ■ GJ23- ■ ■ T1 -Z**	**–**
	5.8	6610	252.64	65000	1.2	280	**2KJ3410- ■ GJ23- ■ ■ S1 -Z**	**–**
	6.5	5870	224.42	65000	1.4	280	**2KJ3410- ■ GJ23- ■ ■ R1 -Z**	**–**
	7.2	5290	202.50	65000	1.5	280	**2KJ3410- ■ GJ23- ■ ■ Q1 -Z**	**–**
	8.1	4690	179.44	65000	1.7	280	**2KJ3410- ■ GJ23- ■ ■ P1 -Z**	**–**
	9.2	4150	158.91	65000	1.9	280	**2KJ3410- ■ GJ23- ■ ■ N1 -Z**	**–**
	10	3700	141.43	65000	2.2	280	**2KJ3410- ■ GJ23- ■ ■ M1 -Z**	**–**
	FD.129-LE112ZMKB4P							
	6.3	6040	231.12	36000	0.8	192	**2KJ3408- ■ GJ23- ■ ■ M1 -Z**	**–**
	7.1	5390	206.32	36600	0.9	192	**2KJ3408- ■ GJ23- ■ ■ L1 -Z**	**–**
	7.9	4850	185.66	37200	1	192	**2KJ3408- ■ GJ23- ■ ■ K1 -Z**	**–**
	9.1	4210	161.14	37500	1.2	192	**2KJ3408- ■ GJ23- ■ ■ J1 -Z**	**–**
	10	3790	144.92	37500	1.3	192	**2KJ3408- ■ GJ23- ■ ■ H1 -Z**	**–**
	12	3310	126.66	37500	1.5	192	**2KJ3408- ■ GJ23- ■ ■ G1 -Z**	**–**
	13	2950	113.03	37500	1.6	192	**2KJ3408- ■ GJ23- ■ ■ F1 -Z**	**–**
	15	2600	99.58	37500	1.9	192	**2KJ3408- ■ GJ23- ■ ■ E1 -Z**	**–**
	17	2280	87.25	37500	2.1	192	**2KJ3408- ■ GJ23- ■ ■ D1 -Z**	**–**
	FD.109-LE112ZMKB4P							
	10	3830	146.65	25000	0.81	137	**2KJ3407- ■ GJ23- ■ ■ H1 -Z**	**–**
	12	3280	125.37	25000	0.95	137	**2KJ3407- ■ GJ23- ■ ■ G1 -Z**	**–**
	13	2920	111.95	25000	1.1	137	**2KJ3407- ■ GJ23- ■ ■ F1 -Z**	**–**
	15	2580	98.94	25000	1.2	137	**2KJ3407- ■ GJ23- ■ ■ E1 -Z**	**–**
	17	2270	86.83	25000	1.4	137	**2KJ3407- ■ GJ23- ■ ■ D1 -Z**	**–**
	19	1970	75.59	25000	1.6	137	**2KJ3407- ■ GJ23- ■ ■ C1 -Z**	**–**
	23	1690	64.62	25000	1.8	137	**2KJ3407- ■ GJ23- ■ ■ B1 -Z**	**–**
	26	1440	55.31	25000	2.1	137	**2KJ3407- ■ GJ23- ■ ■ A1 -Z**	**–**
	FZ.109-LE112ZMKB4P							
	21	1850	70.74	25000	1.7	134	**2KJ3307- ■ GJ23- ■ ■ B2 -Z**	**–**
	22	1700	65.30	25000	1.8	134	**2KJ3307- ■ GJ23- ■ ■ A2 -Z**	**–**
	24	1570	60.12	25000	2	134	**2KJ3307- ■ GJ23- ■ ■ X1 -Z**	**–**
	28	1340	51.27	25000	2.3	134	**2KJ3307- ■ GJ23- ■ ■ W1 -Z**	**–**
	30	1260	48.25	25000	2.5	134	**2KJ3307- ■ GJ23- ■ ■ V1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**FZ.109-LE112ZMKB4P**							
	33	1170	44.78	25000	2.6	134	**2KJ3307- ■ GJ23- ■ ■ U1 -Z**	–
	FD.89-LE112ZMKB4P							
	18	2090	79.95	17400	0.88	96	**2KJ3406- ■ GJ23- ■ ■ D1 -Z**	–
	21	1840	70.67	17400	1	96	**2KJ3406- ■ GJ23- ■ ■ C1 -Z**	–
	24	1570	60.09	17400	1.2	96	**2KJ3406- ■ GJ23- ■ ■ B1 -Z**	–
	28	1340	51.51	17400	1.4	96	**2KJ3406- ■ GJ23- ■ ■ A1 -Z**	–
	FZ.89-LE112ZMKB4P							
	24	1610	61.72	17400	1.1	95	**2KJ3306- ■ GJ23- ■ ■ B2 -Z**	–
	26	1450	55.72	17400	1.3	95	**2KJ3306- ■ GJ23- ■ ■ A2 -Z**	–
	29	1320	50.54	17400	1.4	95	**2KJ3306- ■ GJ23- ■ ■ X1 -Z**	–
	31	1220	46.66	17400	1.5	95	**2KJ3306- ■ GJ23- ■ ■ W1 -Z**	–
	34	1110	42.41	17400	1.7	95	**2KJ3306- ■ GJ23- ■ ■ V1 -Z**	–
	41	940	35.91	17400	2	95	**2KJ3306- ■ GJ23- ■ ■ U1 -Z**	–
	43	880	33.80	17400	2.1	95	**2KJ3306- ■ GJ23- ■ ■ T1 -Z**	–
	47	815	31.21	17400	2.3	95	**2KJ3306- ■ GJ23- ■ ■ S1 -Z**	–
	53	725	27.77	17400	2.5	95	**2KJ3306- ■ GJ23- ■ ■ R1 -Z**	–
	59	645	24.67	17400	2.9	95	**2KJ3306- ■ GJ23- ■ ■ Q1 -Z**	–
	FZ.79-LE112ZMKB4P							
	30	1250	48.03	13100	0.8	65	**2KJ3305- ■ GJ23- ■ ■ W1 -Z**	–
	34	1130	43.18	13300	0.89	65	**2KJ3305- ■ GJ23- ■ ■ V1 -Z**	–
	37	1020	39.06	13500	0.98	65	**2KJ3305- ■ GJ23- ■ ■ U1 -Z**	–
	40	940	36.05	13700	1.1	65	**2KJ3305- ■ GJ23- ■ ■ T1 -Z**	–
	44	860	33.02	13800	1.2	65	**2KJ3305- ■ GJ23- ■ ■ S1 -Z**	–
	53	725	27.71	14100	1.4	65	**2KJ3305- ■ GJ23- ■ ■ R1 -Z**	–
	56	680	26.08	14200	1.5	65	**2KJ3305- ■ GJ23- ■ ■ Q1 -Z**	–
	61	625	23.93	14300	1.6	65	**2KJ3305- ■ GJ23- ■ ■ P1 -Z**	–
	70	545	20.90	14500	1.8	65	**2KJ3305- ■ GJ23- ■ ■ N1 -Z**	–
	78	490	18.71	14500	2	65	**2KJ3305- ■ GJ23- ■ ■ M1 -Z**	–
	89	425	16.36	14500	2.3	65	**2KJ3305- ■ GJ23- ■ ■ L1 -Z**	–
	104	365	14.04	14500	2.7	65	**2KJ3305- ■ GJ23- ■ ■ K1 -Z**	–
	118	325	12.41	14400	3.1	65	**2KJ3305- ■ GJ23- ■ ■ J1 -Z**	–
	138	275	10.56	13900	3.6	65	**2KJ3305- ■ GJ23- ■ ■ H1 -Z**	–
	172	220	8.51	13100	3.2	65	**2KJ3305- ■ GJ23- ■ ■ F1 -Z**	–
	196	195	7.44	12700	3.7	65	**2KJ3305- ■ GJ23- ■ ■ E1 -Z**	–
	228	167	6.39	12200	4.3	65	**2KJ3305- ■ GJ23- ■ ■ D1 -Z**	–
	259	148	5.64	11800	4.7	65	**2KJ3305- ■ GJ23- ■ ■ C1 -Z**	–
	FZ.69-LE112ZMKB4P							
	53	720	27.62	5580	0.83	58	**2KJ3304- ■ GJ23- ■ ■ P1 -Z**	–
	64	600	22.92	5710	1	58	**2KJ3304- ■ GJ23- ■ ■ N1 -Z**	–
	68	560	21.57	5770	1.1	58	**2KJ3304- ■ GJ23- ■ ■ M1 -Z**	–
	72	530	20.37	5780	1.1	58	**2KJ3304- ■ GJ23- ■ ■ L1 -Z**	–
	84	450	17.33	5800	1.3	58	**2KJ3304- ■ GJ23- ■ ■ K1 -Z**	–
	98	385	14.85	5770	1.5	58	**2KJ3304- ■ GJ23- ■ ■ J1 -Z**	–
	112	340	13.06	5710	1.8	58	**2KJ3304- ■ GJ23- ■ ■ H1 -Z**	–
	133	285	11.01	5620	2.1	58	**2KJ3304- ■ GJ23- ■ ■ G1 -Z**	–
	152	250	9.60	5500	2.4	58	**2KJ3304- ■ GJ23- ■ ■ F1 -Z**	–
	164	230	8.90	5380	2	58	**2KJ3304- ■ GJ23- ■ ■ E1 -Z**	–
	192	199	7.62	5230	2.3	58	**2KJ3304- ■ GJ23- ■ ■ D1 -Z**	–
	218	175	6.70	5110	2.5	58	**2KJ3304- ■ GJ23- ■ ■ C1 -Z**	–
	258	148	5.66	4950	2.8	58	**2KJ3304- ■ GJ23- ■ ■ B1 -Z**	–
	296	129	4.93	4800	3	58	**2KJ3304- ■ GJ23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**FZ.49-LE112ZMKB4P**							
	67	570	21.77	3430	0.84	53	**2KJ3303- ■ GJ23- ■ ■ N1 -Z**	**–**
	71	535	20.49	3520	0.9	53	**2KJ3303- ■ GJ23- ■ ■ M1 -Z**	**–**
	75	505	19.35	3580	0.95	53	**2KJ3303- ■ GJ23- ■ ■ L1 -Z**	**–**
	89	430	16.47	3710	1.1	53	**2KJ3303- ■ GJ23- ■ ■ K1 -Z**	**–**
	103	365	14.11	3810	1.3	53	**2KJ3303- ■ GJ23- ■ ■ J1 -Z**	**–**
	118	320	12.40	3840	1.5	53	**2KJ3303- ■ GJ23- ■ ■ H1 -Z**	**–**
	140	270	10.46	3840	1.8	53	**2KJ3303- ■ GJ23- ■ ■ G1 -Z**	**–**
	160	235	9.12	3820	2	53	**2KJ3303- ■ GJ23- ■ ■ F1 -Z**	**–**
	174	220	8.40	3610	2	53	**2KJ3303- ■ GJ23- ■ ■ E1 -Z**	**–**
	203	188	7.20	3580	2.4	53	**2KJ3303- ■ GJ23- ■ ■ D1 -Z**	**–**
	231	166	6.33	3530	2.6	53	**2KJ3303- ■ GJ23- ■ ■ C1 -Z**	**–**
	273	140	5.34	3460	2.9	53	**2KJ3303- ■ GJ23- ■ ■ B1 -Z**	**–**
	314	122	4.65	3390	3.1	53	**2KJ3303- ■ GJ23- ■ ■ A1 -Z**	**–**
	FZ.39-LE112ZMKB4P							
	217	176	6.74	3060	0.86	45	**2KJ3302- ■ GJ23- ■ ■ F1 -Z**	**–**
	230	166	6.35	3050	0.9	45	**2KJ3302- ■ GJ23- ■ ■ E1 -Z**	**–**
	257	149	5.69	3040	0.94	45	**2KJ3302- ■ GJ23- ■ ■ D1 -Z**	**–**
	302	127	4.84	3000	1	45	**2KJ3302- ■ GJ23- ■ ■ C1 -Z**	**–**
	352	109	4.15	2940	1.1	45	**2KJ3302- ■ GJ23- ■ ■ B1 -Z**	**–**
	409	93	3.57	2890	1.2	45	**2KJ3302- ■ GJ23- ■ ■ A1 -Z**	**–**
5.5	**FD.189-LE132ZMS6P**							
	2.8	18700	347.35	110900	1	667	**2KJ3412- ■ HL23- ■ ■ T1 -Z**	**P01**
	3.1	16700	310.76	110900	1.1	667	**2KJ3412- ■ HL23- ■ ■ S1 -Z**	**P01**
	3.5	15000	280.27	110900	1.3	667	**2KJ3412- ■ HL23- ■ ■ R1 -Z**	**P01**
	3.9	13300	247.71	110900	1.4	667	**2KJ3412- ■ HL23- ■ ■ Q1 -Z**	**P01**
	FD.189-LE132ZST4P							
	4.2	12400	347.35	110900	1.5	667	**2KJ3412- ■ HJ23- ■ ■ T1 -Z**	**–**
	4.7	11100	310.76	110900	1.7	667	**2KJ3412- ■ HJ23- ■ ■ S1 -Z**	**–**
	5.2	10000	280.27	110900	1.9	667	**2KJ3412- ■ HJ23- ■ ■ R1 -Z**	**–**
	5.9	8850	247.71	110900	2.1	667	**2KJ3412- ■ HJ23- ■ ■ Q1 -Z**	**–**
	FD.169-LE132ZMS6P							
	3.2	16400	304.94	73500	0.83	455	**2KJ3411- ■ HL23- ■ ■ T1 -Z**	**P01**
	3.6	14700	273.80	73500	0.92	455	**2KJ3411- ■ HL23- ■ ■ S1 -Z**	**P01**
	FD.169-LE132ZST4P							
	4	13100	368.00	73500	1	455	**2KJ3411- ■ HJ23- ■ ■ V1 -Z**	**–**
	4.3	12200	343.01	73500	1.1	455	**2KJ3411- ■ HJ23- ■ ■ U1 -Z**	**–**
	4.8	10800	304.94	73500	1.2	455	**2KJ3411- ■ HJ23- ■ ■ T1 -Z**	**–**
	5.4	9780	273.80	73500	1.4	455	**2KJ3411- ■ HJ23- ■ ■ S1 -Z**	**–**
	5.9	8850	247.84	73500	1.5	455	**2KJ3411- ■ HJ23- ■ ■ R1 -Z**	**–**
	6.8	7770	217.70	73500	1.7	455	**2KJ3411- ■ HJ23- ■ ■ Q1 -Z**	**–**
	7.5	7040	197.27	73500	1.9	455	**2KJ3411- ■ HJ23- ■ ■ P1 -Z**	**–**
	FD.149-LE132ZST4P							
	5.8	9020	252.64	65000	0.89	308	**2KJ3410- ■ HJ23- ■ ■ S1 -Z**	**–**
	6.6	8010	224.42	65000	1	308	**2KJ3410- ■ HJ23- ■ ■ R1 -Z**	**–**
	7.3	7230	202.50	65000	1.1	308	**2KJ3410- ■ HJ23- ■ ■ Q1 -Z**	**–**
	8.2	6410	179.44	65000	1.2	308	**2KJ3410- ■ HJ23- ■ ■ P1 -Z**	**–**
	9.3	5670	158.91	65000	1.4	308	**2KJ3410- ■ HJ23- ■ ■ N1 -Z**	**–**
	10	5050	141.43	65000	1.6	308	**2KJ3410- ■ HJ23- ■ ■ M1 -Z**	**–**
	12	4520	126.73	65000	1.8	308	**2KJ3410- ■ HJ23- ■ ■ L1 -Z**	**–**
	13	4010	112.36	65000	2	308	**2KJ3410- ■ HJ23- ■ ■ K1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
5.5	**FD.129-LE132ZST4P**							
	9.1	5750	161.14	36300	0.84	222	**2KJ3408- ■ HJ23- ■ ■ J1 -Z**	–
	10	5170	144.92	36800	0.94	222	**2KJ3408- ■ HJ23- ■ ■ H1 -Z**	–
	12	4520	126.66	37500	1.1	222	**2KJ3408- ■ HJ23- ■ ■ G1 -Z**	–
	13	4030	113.03	37500	1.2	222	**2KJ3408- ■ HJ23- ■ ■ F1 -Z**	–
	15	3550	99.58	37500	1.4	222	**2KJ3408- ■ HJ23- ■ ■ E1 -Z**	–
	17	3110	87.25	37500	1.6	222	**2KJ3408- ■ HJ23- ■ ■ D1 -Z**	–
	19	2710	76.04	37500	1.8	222	**2KJ3408- ■ HJ23- ■ ■ C1 -Z**	–
	21	2480	69.40	37500	2	222	**2KJ3408- ■ HJ23- ■ ■ B1 -Z**	–
	25	2130	59.75	37500	2.3	222	**2KJ3408- ■ HJ23- ■ ■ A1 -Z**	–
	FZ.129-LE132ZST4P							
	21	2470	69.20	37500	2	217	**2KJ3308- ■ HJ23- ■ ■ A2 -Z**	–
	25	2110	59.22	37500	2.3	217	**2KJ3308- ■ HJ23- ■ ■ X1 -Z**	–
	26	1990	55.74	37500	2.4	217	**2KJ3308- ■ HJ23- ■ ■ W1 -Z**	–
	FD.109-LE132ZST4P							
	15	3530	98.94	25000	0.88	168	**2KJ3407- ■ HJ23- ■ ■ E1 -Z**	–
	17	3100	86.83	25000	1	168	**2KJ3407- ■ HJ23- ■ ■ D1 -Z**	–
	19	2700	75.59	25000	1.1	168	**2KJ3407- ■ HJ23- ■ ■ C1 -Z**	–
	23	2300	64.62	25000	1.3	168	**2KJ3407- ■ HJ23- ■ ■ B1 -Z**	–
	27	1970	55.31	25000	1.6	168	**2KJ3407- ■ HJ23- ■ ■ A1 -Z**	–
	FZ.109-LE132ZST4P							
	24	2140	60.12	25000	1.4	164	**2KJ3307- ■ HJ23- ■ ■ X1 -Z**	–
	29	1830	51.27	25000	1.7	164	**2KJ3307- ■ HJ23- ■ ■ W1 -Z**	–
	30	1720	48.25	25000	1.8	164	**2KJ3307- ■ HJ23- ■ ■ V1 -Z**	–
	33	1600	44.78	25000	1.9	164	**2KJ3307- ■ HJ23- ■ ■ U1 -Z**	–
	37	1410	39.59	25000	2.2	164	**2KJ3307- ■ HJ23- ■ ■ T1 -Z**	–
	42	1260	35.34	25000	2.5	164	**2KJ3307- ■ HJ23- ■ ■ S1 -Z**	–
	46	1130	31.80	25000	2.7	164	**2KJ3307- ■ HJ23- ■ ■ R1 -Z**	–
	FD.89-LE132ZST4P							
	24	2140	60.09	17400	0.86	127	**2KJ3406- ■ HJ23- ■ ■ B1 -Z**	–
	29	1840	51.51	17400	1	127	**2KJ3406- ■ HJ23- ■ ■ A1 -Z**	–
	FZ.89-LE132ZST4P							
	35	1510	42.41	17400	1.2	126	**2KJ3306- ■ HJ23- ■ ■ V1 -Z**	–
	41	1280	35.91	17400	1.4	126	**2KJ3306- ■ HJ23- ■ ■ U1 -Z**	–
	43	1200	33.80	17400	1.5	126	**2KJ3306- ■ HJ23- ■ ■ T1 -Z**	–
	47	1110	31.21	17400	1.7	126	**2KJ3306- ■ HJ23- ■ ■ S1 -Z**	–
	53	990	27.77	17400	1.9	126	**2KJ3306- ■ HJ23- ■ ■ R1 -Z**	–
	60	880	24.67	17400	2.1	126	**2KJ3306- ■ HJ23- ■ ■ Q1 -Z**	–
	67	785	22.08	17400	2.3	126	**2KJ3306- ■ HJ23- ■ ■ P1 -Z**	–
	78	675	18.88	17400	2.7	126	**2KJ3306- ■ HJ23- ■ ■ N1 -Z**	–
	87	600	16.86	17400	3.1	126	**2KJ3306- ■ HJ23- ■ ■ M1 -Z**	–
	99	530	14.90	17400	3.5	126	**2KJ3306- ■ HJ23- ■ ■ L1 -Z**	–
	193	270	7.60	17400	4.1	126	**2KJ3306- ■ HJ23- ■ ■ F1 -Z**	–
	FZ.79-LE132ZST4P							
	45	1180	33.02	13200	0.85	96	**2KJ3305- ■ HJ23- ■ ■ S1 -Z**	–
	53	990	27.71	13600	1	96	**2KJ3305- ■ HJ23- ■ ■ R1 -Z**	–
	56	930	26.08	13700	1.1	96	**2KJ3305- ■ HJ23- ■ ■ Q1 -Z**	–
	61	855	23.93	13900	1.2	96	**2KJ3305- ■ HJ23- ■ ■ P1 -Z**	–
	70	745	20.90	14100	1.3	96	**2KJ3305- ■ HJ23- ■ ■ N1 -Z**	–
	79	665	18.71	14200	1.5	96	**2KJ3305- ■ HJ23- ■ ■ M1 -Z**	–
	90	585	16.36	14300	1.7	96	**2KJ3305- ■ HJ23- ■ ■ L1 -Z**	–
	105	500	14.04	14000	2	96	**2KJ3305- ■ HJ23- ■ ■ K1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
5.5	**FZ.79-LE132ZST4P**							
	118	440	12.41	13700	2.3	96	**2KJ3305- ■ HJ23- ■ ■ J1 -Z**	–
	139	375	10.56	13300	2.7	96	**2KJ3305- ■ HJ23- ■ ■ H1 -Z**	–
	162	320	9.05	12900	3.1	96	**2KJ3305- ■ HJ23- ■ ■ G1 -Z**	–
	173	300	8.51	12600	2.4	96	**2KJ3305- ■ HJ23- ■ ■ F1 -Z**	–
	198	265	7.44	12300	2.7	96	**2KJ3305- ■ HJ23- ■ ■ E1 -Z**	–
	230	225	6.39	11900	3.2	96	**2KJ3305- ■ HJ23- ■ ■ D1 -Z**	–
	261	200	5.64	11500	3.5	96	**2KJ3305- ■ HJ23- ■ ■ C1 -Z**	–
	306	172	4.80	11100	3.8	96	**2KJ3305- ■ HJ23- ■ ■ B1 -Z**	–
	358	147	4.11	10700	4.1	96	**2KJ3305- ■ HJ23- ■ ■ A1 -Z**	–
	FZ.69-LE132ZST4P							
	72	725	20.37	4560	0.82	88	**2KJ3304- ■ HJ23- ■ ■ L1 -Z**	–
	85	615	17.33	4760	0.97	88	**2KJ3304- ■ HJ23- ■ ■ K1 -Z**	–
	99	530	14.85	4860	1.1	88	**2KJ3304- ■ HJ23- ■ ■ J1 -Z**	–
	113	465	13.06	4920	1.3	88	**2KJ3304- ■ HJ23- ■ ■ H1 -Z**	–
	134	390	11.01	4950	1.5	88	**2KJ3304- ■ HJ23- ■ ■ G1 -Z**	–
	153	340	9.60	4930	1.7	88	**2KJ3304- ■ HJ23- ■ ■ F1 -Z**	–
	165	315	8.90	4810	1.5	88	**2KJ3304- ■ HJ23- ■ ■ E1 -Z**	–
	193	270	7.62	4760	1.7	88	**2KJ3304- ■ HJ23- ■ ■ D1 -Z**	–
	219	235	6.70	4710	1.8	88	**2KJ3304- ■ HJ23- ■ ■ C1 -Z**	–
	260	200	5.66	4590	2	88	**2KJ3304- ■ HJ23- ■ ■ B1 -Z**	–
	298	176	4.93	4490	2.2	88	**2KJ3304- ■ HJ23- ■ ■ A1 -Z**	–
	FZ.49-LE132ZST4P							
	89	585	16.47	2680	0.82	81	**2KJ3303- ■ HJ23- ■ ■ K1 -Z**	–
	104	500	14.11	2910	0.95	81	**2KJ3303- ■ HJ23- ■ ■ J1 -Z**	–
	119	440	12.40	3040	1.1	81	**2KJ3303- ■ HJ23- ■ ■ H1 -Z**	–
	141	370	10.46	3180	1.3	81	**2KJ3303- ■ HJ23- ■ ■ G1 -Z**	–
	161	325	9.12	3220	1.5	81	**2KJ3303- ■ HJ23- ■ ■ F1 -Z**	–
	175	300	8.40	3020	1.5	81	**2KJ3303- ■ HJ23- ■ ■ E1 -Z**	–
	204	255	7.20	3080	1.7	81	**2KJ3303- ■ HJ23- ■ ■ D1 -Z**	–
	232	225	6.33	3090	1.9	81	**2KJ3303- ■ HJ23- ■ ■ C1 -Z**	–
	275	191	5.34	3080	2.1	81	**2KJ3303- ■ HJ23- ■ ■ B1 -Z**	–
	316	166	4.65	3060	2.3	81	**2KJ3303- ■ HJ23- ■ ■ A1 -Z**	–
7.5	**FD.189-LE132ZMS4P**							
	4.2	16900	347.35	110900	1.1	667	**2KJ3412- ■ HL23- ■ ■ T1 -Z**	–
	4.2	16900	347.35	110900	1.1	667	**2KJ3412- ■ HL23- ■ ■ T1 -Z**	–
	4.7	15100	310.76	110900	1.3	667	**2KJ3412- ■ HL23- ■ ■ S1 -Z**	–
	4.7	15100	310.76	110900	1.3	667	**2KJ3412- ■ HL23- ■ ■ S1 -Z**	–
	5.2	13600	280.27	110900	1.4	667	**2KJ3412- ■ HL23- ■ ■ R1 -Z**	–
	5.2	13700	280.27	110900	1.4	667	**2KJ3412- ■ HL23- ■ ■ R1 -Z**	–
	5.9	12000	247.71	110900	1.6	667	**2KJ3412- ■ HL23- ■ ■ Q1 -Z**	–
	5.9	12100	247.71	110900	1.6	667	**2KJ3412- ■ HL23- ■ ■ Q1 -Z**	–
	6.5	11000	226.42	110900	1.7	667	**2KJ3412- ■ HL23- ■ ■ P1 -Z**	–
	6.5	11000	226.42	110900	1.7	667	**2KJ3412- ■ HL23- ■ ■ P1 -Z**	–
	7.2	9920	203.69	110900	1.9	667	**2KJ3412- ■ HL23- ■ ■ N1 -Z**	–
	7.2	9950	203.69	110900	1.9	667	**2KJ3412- ■ HL23- ■ ■ N1 -Z**	–
	8	8900	182.03	110900	2.1	667	**2KJ3412- ■ HL23- ■ ■ M1 -Z**	–
	8.1	8860	182.03	110900	2.1	667	**2KJ3412- ■ HL23- ■ ■ M1 -Z**	–
	FD.169-LE132ZMS4P							
	4.3	16700	343.01	73500	0.81	455	**2KJ3411- ■ HL23- ■ ■ U1 -Z**	–
	4.8	14900	304.94	73500	0.91	455	**2KJ3411- ■ HL23- ■ ■ T1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
7.5	**FD.169-LE132ZMS4P**							
	5.4	13300	273.80	73500	1	455	**2KJ3411- ■ HL23- ■ ■ S1 -Z**	–
	5.9	12100	247.84	73500	1.1	455	**2KJ3411- ■ HL23- ■ ■ R1 -Z**	–
	6.7	10600	217.70	73500	1.3	455	**2KJ3411- ■ HL23- ■ ■ Q1 -Z**	–
	7.4	9640	197.27	73500	1.4	455	**2KJ3411- ■ HL23- ■ ■ P1 -Z**	–
	8.3	8590	175.69	73500	1.6	455	**2KJ3411- ■ HL23- ■ ■ N1 -Z**	–
	9.3	7710	157.76	73500	1.8	455	**2KJ3411- ■ HL23- ■ ■ M1 -Z**	–
	10	6880	140.77	73500	2	455	**2KJ3411- ■ HL23- ■ ■ L1 -Z**	–
	12	6130	125.49	73500	2.2	455	**2KJ3411- ■ HL23- ■ ■ K1 -Z**	–
	FD.149-LE132ZMS4P							
	7.2	9900	202.50	65000	0.81	308	**2KJ3410- ■ HL23- ■ ■ Q1 -Z**	–
	8.2	8770	179.44	65000	0.91	308	**2KJ3410- ■ HL23- ■ ■ P1 -Z**	–
	9.2	7760	158.91	65000	1	308	**2KJ3410- ■ HL23- ■ ■ N1 -Z**	–
	10	6910	141.43	65000	1.2	308	**2KJ3410- ■ HL23- ■ ■ M1 -Z**	–
	12	6190	126.73	65000	1.3	308	**2KJ3410- ■ HL23- ■ ■ L1 -Z**	–
	13	5490	112.36	65000	1.5	308	**2KJ3410- ■ HL23- ■ ■ K1 -Z**	–
	15	4840	99.18	65000	1.6	308	**2KJ3410- ■ HL23- ■ ■ J1 -Z**	–
	17	4260	87.20	64000	1.9	308	**2KJ3410- ■ HL23- ■ ■ H1 -Z**	–
	19	3860	78.98	62800	2.1	308	**2KJ3410- ■ HL23- ■ ■ G1 -Z**	–
	21	3360	68.76	61100	2.4	308	**2KJ3410- ■ HL23- ■ ■ F1 -Z**	–
	FD.129-LE132ZMS4P							
	13	5520	113.03	36500	0.88	222	**2KJ3408- ■ HL23- ■ ■ F1 -Z**	–
	15	4860	99.58	37100	1	222	**2KJ3408- ■ HL23- ■ ■ E1 -Z**	–
	17	4260	87.25	37500	1.1	222	**2KJ3408- ■ HL23- ■ ■ D1 -Z**	–
	19	3710	76.04	37500	1.3	222	**2KJ3408- ■ HL23- ■ ■ C1 -Z**	–
	21	3390	69.40	37500	1.4	222	**2KJ3408- ■ HL23- ■ ■ B1 -Z**	–
	25	2920	59.75	37500	1.7	222	**2KJ3408- ■ HL23- ■ ■ A1 -Z**	–
	FZ.129-LE132ZMS4P							
	21	3380	69.20	37500	1.4	217	**2KJ3308- ■ HL23- ■ ■ A2 -Z**	–
	25	2890	59.22	37500	1.7	217	**2KJ3308- ■ HL23- ■ ■ X1 -Z**	–
	26	2720	55.74	37500	1.8	217	**2KJ3308- ■ HL23- ■ ■ W1 -Z**	–
	28	2550	52.25	37500	1.9	217	**2KJ3308- ■ HL23- ■ ■ V1 -Z**	–
	32	2260	46.32	37500	2.1	217	**2KJ3308- ■ HL23- ■ ■ U1 -Z**	–
	36	2010	41.14	37500	2.4	217	**2KJ3308- ■ HL23- ■ ■ T1 -Z**	–
	39	1810	37.12	37500	2.7	217	**2KJ3308- ■ HL23- ■ ■ S1 -Z**	–
	FD.109-LE132ZMS4P							
	19	3690	75.59	25000	0.84	168	**2KJ3407- ■ HL23- ■ ■ C1 -Z**	–
	23	3150	64.62	25000	0.98	168	**2KJ3407- ■ HL23- ■ ■ B1 -Z**	–
	26	2700	55.31	25000	1.1	168	**2KJ3407- ■ HL23- ■ ■ A1 -Z**	–
	FZ.109-LE132ZMS4P							
	24	2930	60.12	25000	1.1	164	**2KJ3307- ■ HL23- ■ ■ X1 -Z**	–
	29	2500	51.27	25000	1.2	164	**2KJ3307- ■ HL23- ■ ■ W1 -Z**	–
	30	2350	48.25	25000	1.3	164	**2KJ3307- ■ HL23- ■ ■ V1 -Z**	–
	33	2180	44.78	25000	1.4	164	**2KJ3307- ■ HL23- ■ ■ U1 -Z**	–
	37	1930	39.59	25000	1.6	164	**2KJ3307- ■ HL23- ■ ■ T1 -Z**	–
	41	1720	35.34	25000	1.8	164	**2KJ3307- ■ HL23- ■ ■ S1 -Z**	–
	46	1550	31.80	25000	2	164	**2KJ3307- ■ HL23- ■ ■ R1 -Z**	–
	53	1340	27.60	25000	2.3	164	**2KJ3307- ■ HL23- ■ ■ Q1 -Z**	–
	59	1210	24.82	25000	2.6	164	**2KJ3307- ■ HL23- ■ ■ P1 -Z**	–
	68	1060	21.70	25000	2.9	164	**2KJ3307- ■ HL23- ■ ■ N1 -Z**	–
	FZ.89-LE132ZMS4P							
	35	2070	42.41	17400	0.89	126	**2KJ3306- ■ HL23- ■ ■ V1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
7.5	**FZ.89-LE132ZMS4P**							
	41	1750	35.91	17400	1.1	126	**2KJ3306- ■ HL23- ■ ■ U1 -Z**	–
	43	1650	33.80	17400	1.1	126	**2KJ3306- ■ HL23- ■ ■ T1 -Z**	–
	47	1520	31.21	17400	1.2	126	**2KJ3306- ■ HL23- ■ ■ S1 -Z**	–
	53	1350	27.77	17400	1.4	126	**2KJ3306- ■ HL23- ■ ■ R1 -Z**	–
	59	1200	24.67	17400	1.5	126	**2KJ3306- ■ HL23- ■ ■ Q1 -Z**	–
	66	1080	22.08	17400	1.7	126	**2KJ3306- ■ HL23- ■ ■ P1 -Z**	–
	78	920	18.88	17400	2	126	**2KJ3306- ■ HL23- ■ ■ N1 -Z**	–
	87	820	16.86	17400	2.2	126	**2KJ3306- ■ HL23- ■ ■ M1 -Z**	–
	98	725	14.90	17400	2.5	126	**2KJ3306- ■ HL23- ■ ■ L1 -Z**	–
	112	635	13.07	17400	2.9	126	**2KJ3306- ■ HL23- ■ ■ K1 -Z**	–
	129	555	11.38	17400	3.3	126	**2KJ3306- ■ HL23- ■ ■ J1 -Z**	–
	151	475	9.73	17400	3.9	126	**2KJ3306- ■ HL23- ■ ■ H1 -Z**	–
	193	370	7.60	17300	3	126	**2KJ3306- ■ HL23- ■ ■ F1 -Z**	–
	218	325	6.72	16800	3.4	126	**2KJ3306- ■ HL23- ■ ■ E1 -Z**	–
	248	285	5.90	16200	3.8	126	**2KJ3306- ■ HL23- ■ ■ D1 -Z**	–
	286	250	5.13	15700	4.4	126	**2KJ3306- ■ HL23- ■ ■ C1 -Z**	–
	334	215	4.39	15100	4.9	126	**2KJ3306- ■ HL23- ■ ■ B1 -Z**	–
	390	184	3.76	14500	5.4	126	**2KJ3306- ■ HL23- ■ ■ A1 -Z**	–
	FZ.79-LE132ZMS4P							
	61	1170	23.93	13200	0.85	96	**2KJ3305- ■ HL23- ■ ■ P1 -Z**	–
	70	1020	20.90	13400	0.98	96	**2KJ3305- ■ HL23- ■ ■ N1 -Z**	–
	78	915	18.71	13300	1.1	96	**2KJ3305- ■ HL23- ■ ■ M1 -Z**	–
	90	800	16.36	13200	1.3	96	**2KJ3305- ■ HL23- ■ ■ L1 -Z**	–
	104	685	14.04	13100	1.5	96	**2KJ3305- ■ HL23- ■ ■ K1 -Z**	–
	118	605	12.41	12900	1.6	96	**2KJ3305- ■ HL23- ■ ■ J1 -Z**	–
	139	515	10.56	12600	1.9	96	**2KJ3305- ■ HL23- ■ ■ H1 -Z**	–
	162	440	9.05	12300	2.3	96	**2KJ3305- ■ HL23- ■ ■ G1 -Z**	–
	172	415	8.51	12000	1.7	96	**2KJ3305- ■ HL23- ■ ■ F1 -Z**	–
	197	360	7.44	11700	2	96	**2KJ3305- ■ HL23- ■ ■ E1 -Z**	–
	229	310	6.39	11400	2.3	96	**2KJ3305- ■ HL23- ■ ■ D1 -Z**	–
	260	275	5.64	11100	2.5	96	**2KJ3305- ■ HL23- ■ ■ C1 -Z**	–
	305	235	4.80	10700	2.8	96	**2KJ3305- ■ HL23- ■ ■ B1 -Z**	–
	356	200	4.11	10400	3	96	**2KJ3305- ■ HL23- ■ ■ A1 -Z**	–
	FZ.69-LE132ZMS4P							
	99	725	14.85	3660	0.83	88	**2KJ3304- ■ HL23- ■ ■ J1 -Z**	–
	112	635	13.06	3880	0.94	88	**2KJ3304- ■ HL23- ■ ■ H1 -Z**	–
	133	535	11.01	4060	1.1	88	**2KJ3304- ■ HL23- ■ ■ G1 -Z**	–
	153	465	9.60	4170	1.3	88	**2KJ3304- ■ HL23- ■ ■ F1 -Z**	–
	165	435	8.90	4040	1.1	88	**2KJ3304- ■ HL23- ■ ■ E1 -Z**	–
	192	370	7.62	4120	1.2	88	**2KJ3304- ■ HL23- ■ ■ D1 -Z**	–
	219	325	6.70	4130	1.3	88	**2KJ3304- ■ HL23- ■ ■ C1 -Z**	–
	259	275	5.66	4110	1.5	88	**2KJ3304- ■ HL23- ■ ■ B1 -Z**	–
	297	240	4.93	4080	1.6	88	**2KJ3304- ■ HL23- ■ ■ A1 -Z**	–
	FZ.49-LE132ZMS4P							
	140	510	10.46	2270	0.94	84	**2KJ3303- ■ HL23- ■ ■ G1 -Z**	–
	161	445	9.12	2440	1.1	84	**2KJ3303- ■ HL23- ■ ■ F1 -Z**	–
	174	410	8.40	2230	1.1	84	**2KJ3303- ■ HL23- ■ ■ E1 -Z**	–
	203	350	7.20	2400	1.3	84	**2KJ3303- ■ HL23- ■ ■ D1 -Z**	–
	231	305	6.33	2520	1.4	84	**2KJ3303- ■ HL23- ■ ■ C1 -Z**	–
	274	260	5.34	2580	1.5	84	**2KJ3303- ■ HL23- ■ ■ B1 -Z**	–
	315	225	4.65	2640	1.6	84	**2KJ3303- ■ HL23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
9.2	**FD.189-LE160MPA4P**							
	4.3	20600	347.35	110900	0.92	684	**2KJ3412- ■ JQ23- ■ ■ T1 -Z**	–
	4.8	18400	310.76	110900	1	684	**2KJ3412- ■ JQ23- ■ ■ S1 -Z**	–
	5.3	16600	280.27	110900	1.1	684	**2KJ3412- ■ JQ23- ■ ■ R1 -Z**	–
	6	14700	247.71	110900	1.3	684	**2KJ3412- ■ JQ23- ■ ■ Q1 -Z**	–
	6.5	13400	226.42	110900	1.4	684	**2KJ3412- ■ JQ23- ■ ■ P1 -Z**	–
	7.3	12000	203.69	110900	1.6	684	**2KJ3412- ■ JQ23- ■ ■ N1 -Z**	–
	8.1	10800	182.03	110900	1.8	684	**2KJ3412- ■ JQ23- ■ ■ M1 -Z**	–
	9	9770	164.61	110900	1.9	684	**2KJ3412- ■ JQ23- ■ ■ L1 -Z**	–
	10	8620	145.28	110900	2.2	684	**2KJ3412- ■ JQ23- ■ ■ K1 -Z**	–
	FD.169-LE160MPA4P							
	5.4	16200	273.80	73500	0.84	472	**2KJ3411- ■ JQ23- ■ ■ S1 -Z**	–
	6	14700	247.84	73500	0.92	472	**2KJ3411- ■ JQ23- ■ ■ R1 -Z**	–
	6.8	12900	217.70	73500	1.1	472	**2KJ3411- ■ JQ23- ■ ■ Q1 -Z**	–
	7.5	11700	197.27	73500	1.2	472	**2KJ3411- ■ JQ23- ■ ■ P1 -Z**	–
	8.4	10400	175.69	73500	1.3	472	**2KJ3411- ■ JQ23- ■ ■ N1 -Z**	–
	9.4	9360	157.76	73500	1.5	472	**2KJ3411- ■ JQ23- ■ ■ M1 -Z**	–
	11	8350	140.77	73500	1.6	472	**2KJ3411- ■ JQ23- ■ ■ L1 -Z**	–
	12	7450	125.49	73500	1.8	472	**2KJ3411- ■ JQ23- ■ ■ K1 -Z**	–
	13	6600	111.30	73500	2.1	472	**2KJ3411- ■ JQ23- ■ ■ J1 -Z**	–
	14	6060	102.18	73500	2.2	472	**2KJ3411- ■ JQ23- ■ ■ H1 -Z**	–
	FD.149-LE160MPA4P							
	9.3	9430	158.91	65000	0.85	325	**2KJ3410- ■ JQ23- ■ ■ N1 -Z**	–
	10	8390	141.43	65000	0.95	325	**2KJ3410- ■ JQ23- ■ ■ M1 -Z**	–
	12	7520	126.73	64400	1.1	325	**2KJ3410- ■ JQ23- ■ ■ L1 -Z**	–
	13	6670	112.36	63600	1.2	325	**2KJ3410- ■ JQ23- ■ ■ K1 -Z**	–
	15	5880	99.18	62600	1.4	325	**2KJ3410- ■ JQ23- ■ ■ J1 -Z**	–
	17	5170	87.20	61500	1.5	325	**2KJ3410- ■ JQ23- ■ ■ H1 -Z**	–
	19	4680	78.98	60500	1.7	325	**2KJ3410- ■ JQ23- ■ ■ G1 -Z**	–
	22	4080	68.76	59100	2	325	**2KJ3410- ■ JQ23- ■ ■ F1 -Z**	–
	26	3340	56.37	56900	2.4	325	**2KJ3410- ■ JQ23- ■ ■ E1 -Z**	–
	FD.129-LE160MPA4P							
	15	5910	99.58	36100	0.82	239	**2KJ3408- ■ JQ23- ■ ■ E1 -Z**	–
	17	5180	87.25	36800	0.94	239	**2KJ3408- ■ JQ23- ■ ■ D1 -Z**	–
	19	4510	76.04	37500	1.1	239	**2KJ3408- ■ JQ23- ■ ■ C1 -Z**	–
	21	4120	69.40	37500	1.2	239	**2KJ3408- ■ JQ23- ■ ■ B1 -Z**	–
	25	3540	59.75	37500	1.4	239	**2KJ3408- ■ JQ23- ■ ■ A1 -Z**	–
	FZ.129-LE160MPA4P							
	21	4100	69.20	37500	1.2	234	**2KJ3308- ■ JQ23- ■ ■ A2 -Z**	–
	25	3510	59.22	37500	1.4	234	**2KJ3308- ■ JQ23- ■ ■ X1 -Z**	–
	27	3300	55.74	37500	1.5	234	**2KJ3308- ■ JQ23- ■ ■ W1 -Z**	–
	28	3100	52.25	37500	1.6	234	**2KJ3308- ■ JQ23- ■ ■ V1 -Z**	–
	32	2750	46.32	37500	1.8	234	**2KJ3308- ■ JQ23- ■ ■ U1 -Z**	–
	36	2440	41.14	37500	2	234	**2KJ3308- ■ JQ23- ■ ■ T1 -Z**	–
	40	2200	37.12	37500	2.2	234	**2KJ3308- ■ JQ23- ■ ■ S1 -Z**	–
	45	1950	32.90	37500	2.5	234	**2KJ3308- ■ JQ23- ■ ■ R1 -Z**	–
	51	1720	29.13	37000	2.8	234	**2KJ3308- ■ JQ23- ■ ■ Q1 -Z**	–
	FD.109-LE160MPA4P							
	23	3830	64.62	25000	0.81	185	**2KJ3407- ■ JQ23- ■ ■ B1 -Z**	–
	27	3280	55.31	25000	0.94	185	**2KJ3407- ■ JQ23- ■ ■ A1 -Z**	–
	FZ.109-LE160MPA4P							
	25	3560	60.12	25000	0.87	182	**2KJ3307- ■ JQ23- ■ ■ X1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
9.2	**FZ.109-LE160MPA4P**							
	29	3040	51.27	25000	1	182	**2KJ3307- ■ JQ23- ■ ■ W1 -Z**	–
	31	2860	48.25	25000	1.1	182	**2KJ3307- ■ JQ23- ■ ■ V1 -Z**	–
	33	2650	44.78	25000	1.2	182	**2KJ3307- ■ JQ23- ■ ■ U1 -Z**	–
	37	2350	39.59	25000	1.3	182	**2KJ3307- ■ JQ23- ■ ■ T1 -Z**	–
	42	2090	35.34	25000	1.5	182	**2KJ3307- ■ JQ23- ■ ■ S1 -Z**	–
	47	1880	31.80	25000	1.6	182	**2KJ3307- ■ JQ23- ■ ■ R1 -Z**	–
	54	1630	27.60	25000	1.9	182	**2KJ3307- ■ JQ23- ■ ■ Q1 -Z**	–
	60	1470	24.82	25000	2.1	182	**2KJ3307- ■ JQ23- ■ ■ P1 -Z**	–
	68	1280	21.70	25000	2.4	182	**2KJ3307- ■ JQ23- ■ ■ N1 -Z**	–
	76	1140	19.36	25000	2.7	182	**2KJ3307- ■ JQ23- ■ ■ M1 -Z**	–
	87	1010	17.06	24500	3.1	182	**2KJ3307- ■ JQ23- ■ ■ L1 -Z**	–
	99	885	14.95	23900	3.5	182	**2KJ3307- ■ JQ23- ■ ■ K1 -Z**	–
	164	535	9.02	21200	3.9	182	**2KJ3307- ■ JQ23- ■ ■ F1 -Z**	–
	186	470	7.94	20600	4.2	182	**2KJ3307- ■ JQ23- ■ ■ E1 -Z**	–
	FZ.89-LE160MPA4P							
	41	2130	35.91	17400	0.87	145	**2KJ3306- ■ JQ23- ■ ■ U1 -Z**	–
	44	2000	33.80	17400	0.92	145	**2KJ3306- ■ JQ23- ■ ■ T1 -Z**	–
	47	1850	31.21	17400	1	145	**2KJ3306- ■ JQ23- ■ ■ S1 -Z**	–
	53	1640	27.77	17400	1.1	145	**2KJ3306- ■ JQ23- ■ ■ R1 -Z**	–
	60	1460	24.67	17400	1.3	145	**2KJ3306- ■ JQ23- ■ ■ Q1 -Z**	–
	67	1310	22.08	17400	1.4	145	**2KJ3306- ■ JQ23- ■ ■ P1 -Z**	–
	78	1120	18.88	17400	1.7	145	**2KJ3306- ■ JQ23- ■ ■ N1 -Z**	–
	88	1000	16.86	17400	1.8	145	**2KJ3306- ■ JQ23- ■ ■ M1 -Z**	–
	99	885	14.90	17400	2.1	145	**2KJ3306- ■ JQ23- ■ ■ L1 -Z**	–
	113	775	13.07	17400	2.4	145	**2KJ3306- ■ JQ23- ■ ■ K1 -Z**	–
	130	675	11.38	17400	2.7	145	**2KJ3306- ■ JQ23- ■ ■ J1 -Z**	–
	152	575	9.73	17400	3.2	145	**2KJ3306- ■ JQ23- ■ ■ H1 -Z**	–
	178	495	8.33	17300	3.5	145	**2KJ3306- ■ JQ23- ■ ■ G1 -Z**	–
	195	450	7.60	16900	2.4	145	**2KJ3306- ■ JQ23- ■ ■ F1 -Z**	–
	220	395	6.72	16400	2.8	145	**2KJ3306- ■ JQ23- ■ ■ E1 -Z**	–
	251	350	5.90	15900	3.2	145	**2KJ3306- ■ JQ23- ■ ■ D1 -Z**	–
	288	305	5.13	15400	3.6	145	**2KJ3306- ■ JQ23- ■ ■ C1 -Z**	–
	337	260	4.39	14800	4.1	145	**2KJ3306- ■ JQ23- ■ ■ B1 -Z**	–
	394	220	3.76	14300	4.4	145	**2KJ3306- ■ JQ23- ■ ■ A1 -Z**	–
	FZ.79-LE160MPA4P							
	71	1240	20.90	12200	0.81	114	**2KJ3305- ■ JQ23- ■ ■ N1 -Z**	–
	79	1110	18.71	12300	0.9	114	**2KJ3305- ■ JQ23- ■ ■ M1 -Z**	–
	90	970	16.36	12300	1	114	**2KJ3305- ■ JQ23- ■ ■ L1 -Z**	–
	105	830	14.04	12200	1.2	114	**2KJ3305- ■ JQ23- ■ ■ K1 -Z**	–
	119	735	12.41	12100	1.4	114	**2KJ3305- ■ JQ23- ■ ■ J1 -Z**	–
	140	625	10.56	12000	1.6	114	**2KJ3305- ■ JQ23- ■ ■ H1 -Z**	–
	164	535	9.05	11700	1.9	114	**2KJ3305- ■ JQ23- ■ ■ G1 -Z**	–
	174	505	8.51	11500	1.4	114	**2KJ3305- ■ JQ23- ■ ■ F1 -Z**	–
	199	440	7.44	11300	1.6	114	**2KJ3305- ■ JQ23- ■ ■ E1 -Z**	–
	232	375	6.39	11000	1.9	114	**2KJ3305- ■ JQ23- ■ ■ D1 -Z**	–
	262	335	5.64	10700	2.1	114	**2KJ3305- ■ JQ23- ■ ■ C1 -Z**	–
	308	285	4.80	10400	2.3	114	**2KJ3305- ■ JQ23- ■ ■ B1 -Z**	–
	360	240	4.11	10100	2.5	114	**2KJ3305- ■ JQ23- ■ ■ A1 -Z**	–
11	**FD.189-LE160MPB4P**							
	4.7	22100	310.76	110800	0.86	676	**2KJ3412- ■ JR23- ■ ■ S1 -Z**	–
	5.3	19900	280.27	110900	0.95	676	**2KJ3412- ■ JR23- ■ ■ R1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
11	**FD.189-LE160MPB4P**							
	6	17600	247.71	110900	1.1	676	**2KJ3412- ■ JR23- ■ ■ Q1 -Z**	–
	6.5	16100	226.42	110900	1.2	676	**2KJ3412- ■ JR23- ■ ■ P1 -Z**	–
	7.2	14500	203.69	110900	1.3	676	**2KJ3412- ■ JR23- ■ ■ N1 -Z**	–
	8.1	12900	182.03	110900	1.5	676	**2KJ3412- ■ JR23- ■ ■ M1 -Z**	–
	9	11700	164.61	110900	1.6	676	**2KJ3412- ■ JR23- ■ ■ L1 -Z**	–
	10	10300	145.28	110900	1.8	676	**2KJ3412- ■ JR23- ■ ■ K1 -Z**	–
	11	9210	129.45	110900	2.1	676	**2KJ3412- ■ JR23- ■ ■ J1 -Z**	–
	FD.169-LE160MPB4P							
	6.8	15500	217.70	73500	0.88	464	**2KJ3411- ■ JR23- ■ ■ Q1 -Z**	–
	7.5	14000	197.27	73500	0.97	464	**2KJ3411- ■ JR23- ■ ■ P1 -Z**	–
	8.4	12500	175.69	73500	1.1	464	**2KJ3411- ■ JR23- ■ ■ N1 -Z**	–
	9.3	11200	157.76	73500	1.2	464	**2KJ3411- ■ JR23- ■ ■ M1 -Z**	–
	10	10000	140.77	73500	1.4	464	**2KJ3411- ■ JR23- ■ ■ L1 -Z**	–
	12	8930	125.49	73500	1.5	464	**2KJ3411- ■ JR23- ■ ■ K1 -Z**	–
	13	7920	111.30	73500	1.7	464	**2KJ3411- ■ JR23- ■ ■ J1 -Z**	–
	14	7270	102.18	73500	1.9	464	**2KJ3411- ■ JR23- ■ ■ H1 -Z**	–
	16	6410	90.03	73500	2.1	464	**2KJ3411- ■ JR23- ■ ■ G1 -Z**	–
	FD.149-LE160MPB4P							
	12	9020	126.73	60700	0.89	317	**2KJ3410- ■ JR23- ■ ■ L1 -Z**	–
	13	8000	112.36	60300	1	317	**2KJ3410- ■ JR23- ■ ■ K1 -Z**	–
	15	7060	99.18	59700	1.1	317	**2KJ3410- ■ JR23- ■ ■ J1 -Z**	–
	17	6210	87.20	58900	1.3	317	**2KJ3410- ■ JR23- ■ ■ H1 -Z**	–
	19	5620	78.98	58200	1.4	317	**2KJ3410- ■ JR23- ■ ■ G1 -Z**	–
	21	4890	68.76	57100	1.6	317	**2KJ3410- ■ JR23- ■ ■ F1 -Z**	–
	26	4010	56.37	55300	2	317	**2KJ3410- ■ JR23- ■ ■ E1 -Z**	–
	29	3560	50.01	54100	2.2	317	**2KJ3410- ■ JR23- ■ ■ D1 -Z**	–
	33	3220	45.30	53100	2.5	317	**2KJ3410- ■ JR23- ■ ■ C1 -Z**	–
	FZ.149-LE160MPB4P							
	30	3450	48.48	53800	2.3	311	**2KJ3310- ■ JR23- ■ ■ T1 -Z**	–
	34	3120	43.89	52800	2.6	311	**2KJ3310- ■ JR23- ■ ■ S1 -Z**	–
	FD.129-LE160MPB4P							
	19	5410	76.04	36600	0.9	231	**2KJ3408- ■ JR23- ■ ■ C1 -Z**	–
	21	4940	69.40	37100	0.98	231	**2KJ3408- ■ JR23- ■ ■ B1 -Z**	–
	25	4250	59.75	37500	1.1	231	**2KJ3408- ■ JR23- ■ ■ A1 -Z**	–
	FZ.129-LE160MPB4P							
	21	4920	69.20	37100	0.98	226	**2KJ3308- ■ JR23- ■ ■ A2 -Z**	–
	25	4210	59.22	37500	1.1	226	**2KJ3308- ■ JR23- ■ ■ X1 -Z**	–
	26	3970	55.74	37500	1.2	226	**2KJ3308- ■ JR23- ■ ■ W1 -Z**	–
	28	3720	52.25	37500	1.3	226	**2KJ3308- ■ JR23- ■ ■ V1 -Z**	–
	32	3290	46.32	37500	1.5	226	**2KJ3308- ■ JR23- ■ ■ U1 -Z**	–
	36	2930	41.14	37500	1.7	226	**2KJ3308- ■ JR23- ■ ■ T1 -Z**	–
	40	2640	37.12	37500	1.8	226	**2KJ3308- ■ JR23- ■ ■ S1 -Z**	–
	45	2340	32.90	36900	2.1	226	**2KJ3308- ■ JR23- ■ ■ R1 -Z**	–
	51	2070	29.13	36100	2.3	226	**2KJ3308- ■ JR23- ■ ■ Q1 -Z**	–
	57	1840	25.93	35300	2.6	226	**2KJ3308- ■ JR23- ■ ■ P1 -Z**	–
	63	1650	23.23	34500	2.9	226	**2KJ3308- ■ JR23- ■ ■ N1 -Z**	–
	FZ.109-LE160MPB4P							
	29	3650	51.27	25000	0.85	174	**2KJ3307- ■ JR23- ■ ■ W1 -Z**	–
	31	3430	48.25	25000	0.9	174	**2KJ3307- ■ JR23- ■ ■ V1 -Z**	–
	33	3180	44.78	25000	0.97	174	**2KJ3307- ■ JR23- ■ ■ U1 -Z**	–
	37	2820	39.59	25000	1.1	174	**2KJ3307- ■ JR23- ■ ■ T1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
11	**FZ.109-LE160MPB4P**							
	42	2510	35.34	25000	1.2	174	**2KJ3307- ■ JR23- ■ ■ S1 -Z**	–
	46	2260	31.80	25000	1.4	174	**2KJ3307- ■ JR23- ■ ■ R1 -Z**	–
	53	1960	27.60	25000	1.6	174	**2KJ3307- ■ JR23- ■ ■ Q1 -Z**	–
	59	1760	24.82	25000	1.8	174	**2KJ3307- ■ JR23- ■ ■ P1 -Z**	–
	68	1540	21.70	24900	2	174	**2KJ3307- ■ JR23- ■ ■ N1 -Z**	–
	76	1370	19.36	24500	2.2	174	**2KJ3307- ■ JR23- ■ ■ M1 -Z**	–
	86	1210	17.06	23900	2.6	174	**2KJ3307- ■ JR23- ■ ■ L1 -Z**	–
	99	1060	14.95	23300	2.9	174	**2KJ3307- ■ JR23- ■ ■ K1 -Z**	–
	113	925	13.03	22700	3.3	174	**2KJ3307- ■ JR23- ■ ■ J1 -Z**	–
	124	845	11.89	22200	3.6	174	**2KJ3307- ■ JR23- ■ ■ H1 -Z**	–
	164	640	9.02	20900	3.3	174	**2KJ3307- ■ JR23- ■ ■ F1 -Z**	–
	186	565	7.94	20300	3.5	174	**2KJ3307- ■ JR23- ■ ■ E1 -Z**	–
	212	495	6.96	19600	3.8	174	**2KJ3307- ■ JR23- ■ ■ D1 -Z**	–
	243	430	6.07	19000	4.2	174	**2KJ3307- ■ JR23- ■ ■ C1 -Z**	–
	266	395	5.54	18500	4.4	174	**2KJ3307- ■ JR23- ■ ■ B1 -Z**	–
	309	340	4.77	17900	4.8	174	**2KJ3307- ■ JR23- ■ ■ A1 -Z**	–
	FZ.89-LE160MPB4P							
	47	2220	31.21	17400	0.83	137	**2KJ3306- ■ JR23- ■ ■ S1 -Z**	–
	53	1970	27.77	17400	0.94	137	**2KJ3306- ■ JR23- ■ ■ R1 -Z**	–
	60	1750	24.67	17400	1.1	137	**2KJ3306- ■ JR23- ■ ■ Q1 -Z**	–
	67	1570	22.08	17400	1.2	137	**2KJ3306- ■ JR23- ■ ■ P1 -Z**	–
	78	1340	18.88	17400	1.4	137	**2KJ3306- ■ JR23- ■ ■ N1 -Z**	–
	87	1200	16.86	17400	1.5	137	**2KJ3306- ■ JR23- ■ ■ M1 -Z**	–
	99	1060	14.90	17400	1.7	137	**2KJ3306- ■ JR23- ■ ■ L1 -Z**	–
	113	930	13.07	17400	2	137	**2KJ3306- ■ JR23- ■ ■ K1 -Z**	–
	130	810	11.38	17400	2.3	137	**2KJ3306- ■ JR23- ■ ■ J1 -Z**	–
	152	690	9.73	17400	2.7	137	**2KJ3306- ■ JR23- ■ ■ H1 -Z**	–
	177	590	8.33	16900	2.9	137	**2KJ3306- ■ JR23- ■ ■ G1 -Z**	–
	194	540	7.60	16500	2	137	**2KJ3306- ■ JR23- ■ ■ F1 -Z**	–
	219	475	6.72	16100	2.3	137	**2KJ3306- ■ JR23- ■ ■ E1 -Z**	–
	250	420	5.90	15600	2.6	137	**2KJ3306- ■ JR23- ■ ■ D1 -Z**	–
	288	365	5.13	15100	3	137	**2KJ3306- ■ JR23- ■ ■ C1 -Z**	–
	336	310	4.39	14600	3.4	137	**2KJ3306- ■ JR23- ■ ■ B1 -Z**	–
	392	265	3.76	14100	3.7	137	**2KJ3306- ■ JR23- ■ ■ A1 -Z**	–
	FZ.79-LE160MPB4P							
	90	1160	16.36	11300	0.86	106	**2KJ3305- ■ JR23- ■ ■ L1 -Z**	–
	105	1000	14.04	11400	1	106	**2KJ3305- ■ JR23- ■ ■ K1 -Z**	–
	119	880	12.41	11400	1.1	106	**2KJ3305- ■ JR23- ■ ■ J1 -Z**	–
	140	750	10.56	11300	1.3	106	**2KJ3305- ■ JR23- ■ ■ H1 -Z**	–
	163	645	9.05	11200	1.6	106	**2KJ3305- ■ JR23- ■ ■ G1 -Z**	–
	173	605	8.51	10900	1.2	106	**2KJ3305- ■ JR23- ■ ■ F1 -Z**	–
	198	530	7.44	10800	1.4	106	**2KJ3305- ■ JR23- ■ ■ E1 -Z**	–
	231	455	6.39	10600	1.6	106	**2KJ3305- ■ JR23- ■ ■ D1 -Z**	–
	262	400	5.64	10400	1.7	106	**2KJ3305- ■ JR23- ■ ■ C1 -Z**	–
	307	340	4.80	10100	1.9	106	**2KJ3305- ■ JR23- ■ ■ B1 -Z**	–
	359	290	4.11	9910	2.1	106	**2KJ3305- ■ JR23- ■ ■ A1 -Z**	–
15	**FD.189-LE160ZLL4P**							
	6.5	21900	226.42	110900	0.86	701	**2KJ3412- ■ JU23- ■ ■ P1 -Z**	–
	7.2	19700	203.69	110900	0.96	701	**2KJ3412- ■ JU23- ■ ■ N1 -Z**	–
	8.1	17600	182.03	110900	1.1	701	**2KJ3412- ■ JU23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
15	**FD.189-LE160ZLL4P**							
	9	15900	164.61	110900	1.2	701	**2KJ3412- ■ JU23- ■ ■ L1 -Z**	–
	10	14100	145.28	110900	1.3	701	**2KJ3412- ■ JU23- ■ ■ K1 -Z**	–
	11	12500	129.45	110900	1.5	701	**2KJ3412- ■ JU23- ■ ■ J1 -Z**	–
	13	11300	117.27	110900	1.7	701	**2KJ3412- ■ JU23- ■ ■ H1 -Z**	–
	14	10200	105.48	110900	1.9	701	**2KJ3412- ■ JU23- ■ ■ G1 -Z**	–
	17	8510	87.65	110900	2.2	701	**2KJ3412- ■ JU23- ■ ■ F1 -Z**	–
	FD.169-LE160ZLL4P							
	8.4	17000	175.69	73500	0.8	489	**2KJ3411- ■ JU23- ■ ■ N1 -Z**	–
	9.3	15300	157.76	73500	0.89	489	**2KJ3411- ■ JU23- ■ ■ M1 -Z**	–
	10	13600	140.77	73500	0.99	489	**2KJ3411- ■ JU23- ■ ■ L1 -Z**	–
	12	12100	125.49	73500	1.1	489	**2KJ3411- ■ JU23- ■ ■ K1 -Z**	–
	13	10800	111.30	73500	1.3	489	**2KJ3411- ■ JU23- ■ ■ J1 -Z**	–
	14	9920	102.18	73500	1.4	489	**2KJ3411- ■ JU23- ■ ■ H1 -Z**	–
	16	8740	90.03	73500	1.6	489	**2KJ3411- ■ JU23- ■ ■ G1 -Z**	–
	20	7170	73.85	73500	1.9	489	**2KJ3411- ■ JU23- ■ ■ F1 -Z**	–
	23	6280	64.75	73500	2.2	489	**2KJ3411- ■ JU23- ■ ■ E1 -Z**	–
	FD.149-LE160ZLL4P							
	15	9630	99.18	53300	0.83	342	**2KJ3410- ■ JU23- ■ ■ J1 -Z**	–
	17	8460	87.20	53300	0.94	342	**2KJ3410- ■ JU23- ■ ■ H1 -Z**	–
	19	7670	78.98	53100	1	342	**2KJ3410- ■ JU23- ■ ■ G1 -Z**	–
	21	6670	68.76	52700	1.2	342	**2KJ3410- ■ JU23- ■ ■ F1 -Z**	–
	26	5470	56.37	51600	1.5	342	**2KJ3410- ■ JU23- ■ ■ E1 -Z**	–
	29	4850	50.01	50900	1.6	342	**2KJ3410- ■ JU23- ■ ■ D1 -Z**	–
	33	4390	45.30	50200	1.8	342	**2KJ3410- ■ JU23- ■ ■ C1 -Z**	–
	37	3820	39.43	49100	2.1	342	**2KJ3410- ■ JU23- ■ ■ B1 -Z**	–
	46	3140	32.33	47400	2.4	342	**2KJ3410- ■ JU23- ■ ■ A1 -Z**	–
	FZ.149-LE160ZLL4P							
	30	4700	48.48	50700	1.7	336	**2KJ3310- ■ JU23- ■ ■ T1 -Z**	–
	34	4260	43.89	49900	1.9	336	**2KJ3310- ■ JU23- ■ ■ S1 -Z**	–
	38	3740	38.55	48900	2.1	336	**2KJ3310- ■ JU23- ■ ■ R1 -Z**	–
	42	3390	34.93	48100	2.4	336	**2KJ3310- ■ JU23- ■ ■ Q1 -Z**	–
	47	3020	31.11	47100	2.6	336	**2KJ3310- ■ JU23- ■ ■ P1 -Z**	–
	53	2710	27.94	46100	2.9	336	**2KJ3310- ■ JU23- ■ ■ N1 -Z**	–
	FD.129-LE160ZLL4P							
	25	5800	59.75	35800	0.84	256	**2KJ3408- ■ JU23- ■ ■ A1 -Z**	–
	FZ.129-LE160ZLL4P							
	25	5750	59.22	35800	0.84	251	**2KJ3308- ■ JU23- ■ ■ X1 -Z**	–
	26	5410	55.74	35800	0.9	251	**2KJ3308- ■ JU23- ■ ■ W1 -Z**	–
	28	5070	52.25	35800	0.96	251	**2KJ3308- ■ JU23- ■ ■ V1 -Z**	–
	32	4490	46.32	35600	1.1	251	**2KJ3308- ■ JU23- ■ ■ U1 -Z**	–
	36	3990	41.14	35300	1.2	251	**2KJ3308- ■ JU23- ■ ■ T1 -Z**	–
	40	3600	37.12	35000	1.3	251	**2KJ3308- ■ JU23- ■ ■ S1 -Z**	–
	45	3190	32.90	34600	1.5	251	**2KJ3308- ■ JU23- ■ ■ R1 -Z**	–
	51	2820	29.13	34000	1.7	251	**2KJ3308- ■ JU23- ■ ■ Q1 -Z**	–
	57	2510	25.93	33400	1.9	251	**2KJ3308- ■ JU23- ■ ■ P1 -Z**	–
	63	2250	23.23	32900	2.1	251	**2KJ3308- ■ JU23- ■ ■ N1 -Z**	–
	72	2000	20.60	32200	2.4	251	**2KJ3308- ■ JU23- ■ ■ M1 -Z**	–
	81	1760	18.18	31500	2.7	251	**2KJ3308- ■ JU23- ■ ■ L1 -Z**	–
	92	1550	15.99	30700	3.1	251	**2KJ3308- ■ JU23- ■ ■ K1 -Z**	–
	102	1400	14.48	30000	3.3	251	**2KJ3308- ■ JU23- ■ ■ J1 -Z**	–
	117	1220	12.61	29200	3.7	251	**2KJ3308- ■ JU23- ■ ■ H1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
15	**FZ.129-LE160ZLL4P**							
	151	950	9.80	27300	3.8	251	**2KJ3308- ■ JU23- ■ ■ F1 -Z**	**–**
	FZ.109-LE160ZLL4P							
	37	3840	39.59	23300	0.81	199	**2KJ3307- ■ JU23- ■ ■ T1 -Z**	**–**
	42	3430	35.34	23400	0.9	199	**2KJ3307- ■ JU23- ■ ■ S1 -Z**	**–**
	46	3080	31.80	23500	1	199	**2KJ3307- ■ JU23- ■ ■ R1 -Z**	**–**
	53	2680	27.60	23400	1.2	199	**2KJ3307- ■ JU23- ■ ■ Q1 -Z**	**–**
	59	2410	24.82	23300	1.3	199	**2KJ3307- ■ JU23- ■ ■ P1 -Z**	**–**
	68	2100	21.70	23100	1.5	199	**2KJ3307- ■ JU23- ■ ■ N1 -Z**	**–**
	76	1880	19.36	22800	1.6	199	**2KJ3307- ■ JU23- ■ ■ M1 -Z**	**–**
	86	1650	17.06	22500	1.9	199	**2KJ3307- ■ JU23- ■ ■ L1 -Z**	**–**
	99	1450	14.95	22000	2.1	199	**2KJ3307- ■ JU23- ■ ■ K1 -Z**	**–**
	113	1260	13.03	21600	2.4	199	**2KJ3307- ■ JU23- ■ ■ J1 -Z**	**–**
	124	1150	11.89	21200	2.6	199	**2KJ3307- ■ JU23- ■ ■ H1 -Z**	**–**
	144	990	10.23	20700	2.9	199	**2KJ3307- ■ JU23- ■ ■ G1 -Z**	**–**
	164	875	9.02	20100	2.4	199	**2KJ3307- ■ JU23- ■ ■ F1 -Z**	**–**
	186	770	7.94	19600	2.6	199	**2KJ3307- ■ JU23- ■ ■ E1 -Z**	**–**
	212	675	6.96	19000	2.8	199	**2KJ3307- ■ JU23- ■ ■ D1 -Z**	**–**
	243	590	6.07	18400	3.1	199	**2KJ3307- ■ JU23- ■ ■ C1 -Z**	**–**
	266	535	5.54	18100	3.2	199	**2KJ3307- ■ JU23- ■ ■ B1 -Z**	**–**
	309	460	4.77	17500	3.5	199	**2KJ3307- ■ JU23- ■ ■ A1 -Z**	**–**
	FZ.89-LE160ZLL4P							
	67	2140	22.08	17100	0.86	162	**2KJ3306- ■ JU23- ■ ■ P1 -Z**	**–**
	78	1830	18.88	17200	1	162	**2KJ3306- ■ JU23- ■ ■ N1 -Z**	**–**
	87	1630	16.86	17200	1.1	162	**2KJ3306- ■ JU23- ■ ■ M1 -Z**	**–**
	99	1440	14.90	17100	1.3	162	**2KJ3306- ■ JU23- ■ ■ L1 -Z**	**–**
	113	1260	13.07	17000	1.5	162	**2KJ3306- ■ JU23- ■ ■ K1 -Z**	**–**
	130	1100	11.38	16700	1.7	162	**2KJ3306- ■ JU23- ■ ■ J1 -Z**	**–**
	152	945	9.73	16400	2	162	**2KJ3306- ■ JU23- ■ ■ H1 -Z**	**–**
	177	805	8.33	16000	2.2	162	**2KJ3306- ■ JU23- ■ ■ G1 -Z**	**–**
	194	735	7.60	15600	1.5	162	**2KJ3306- ■ JU23- ■ ■ F1 -Z**	**–**
	219	650	6.72	15300	1.7	162	**2KJ3306- ■ JU23- ■ ■ E1 -Z**	**–**
	250	570	5.90	15000	1.9	162	**2KJ3306- ■ JU23- ■ ■ D1 -Z**	**–**
	288	495	5.13	14600	2.2	162	**2KJ3306- ■ JU23- ■ ■ C1 -Z**	**–**
	336	425	4.39	14100	2.5	162	**2KJ3306- ■ JU23- ■ ■ B1 -Z**	**–**
	392	365	3.76	13600	2.7	162	**2KJ3306- ■ JU23- ■ ■ A1 -Z**	**–**
	FZ.79-LE160ZLL4P							
	119	1200	12.41	9750	0.83	131	**2KJ3305- ■ JU23- ■ ■ J1 -Z**	**–**
	140	1020	10.56	9930	0.98	131	**2KJ3305- ■ JU23- ■ ■ H1 -Z**	**–**
	163	875	9.05	10000	1.1	131	**2KJ3305- ■ JU23- ■ ■ G1 -Z**	**–**
	173	825	8.51	9720	0.87	131	**2KJ3305- ■ JU23- ■ ■ F1 -Z**	**–**
	198	720	7.44	9740	1	131	**2KJ3305- ■ JU23- ■ ■ E1 -Z**	**–**
	231	620	6.39	9680	1.2	131	**2KJ3305- ■ JU23- ■ ■ D1 -Z**	**–**
	262	545	5.64	9630	1.3	131	**2KJ3305- ■ JU23- ■ ■ C1 -Z**	**–**
	307	465	4.80	9470	1.4	131	**2KJ3305- ■ JU23- ■ ■ B1 -Z**	**–**
	359	395	4.11	9320	1.5	131	**2KJ3305- ■ JU23- ■ ■ A1 -Z**	**–**
18.5	**FD.189-LES180MQ4P**							
	8.1	21800	182.03	110900	0.87	776	**2KJ3412- ■ KL33- ■ ■ M1 -Z**	**–**
	8.9	19700	164.61	110900	0.96	776	**2KJ3412- ■ KL33- ■ ■ L1 -Z**	**–**
	10	17400	145.28	110900	1.1	776	**2KJ3412- ■ KL33- ■ ■ K1 -Z**	**–**
	11	15500	129.45	110900	1.2	776	**2KJ3412- ■ KL33- ■ ■ J1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
18.5	**FD.189-LES180MQ4P**							
	13	14000	117.27	110900	1.3	776	**2KJ3412- ■ KL33- ■ ■ H1 -Z**	–
	14	12600	105.48	110900	1.5	776	**2KJ3412- ■ KL33- ■ ■ G1 -Z**	–
	17	10500	87.65	110900	1.8	776	**2KJ3412- ■ KL33- ■ ■ F1 -Z**	–
	19	9360	77.92	110900	2	776	**2KJ3412- ■ KL33- ■ ■ E1 -Z**	–
	FD.169-LES180MQ4P							
	10	16900	140.77	73500	0.8	558	**2KJ3411- ■ KL33- ■ ■ L1 -Z**	–
	12	15000	125.49	73500	0.9	558	**2KJ3411- ■ KL33- ■ ■ K1 -Z**	–
	13	13300	111.30	73500	1	558	**2KJ3411- ■ KL33- ■ ■ J1 -Z**	–
	14	12200	102.18	73500	1.1	558	**2KJ3411- ■ KL33- ■ ■ H1 -Z**	–
	16	10800	90.03	73500	1.3	558	**2KJ3411- ■ KL33- ■ ■ G1 -Z**	–
	20	8870	73.85	73500	1.5	558	**2KJ3411- ■ KL33- ■ ■ F1 -Z**	–
	23	7780	64.75	73500	1.7	558	**2KJ3411- ■ KL33- ■ ■ E1 -Z**	–
	29	6080	50.63	73500	2.2	558	**2KJ3411- ■ KL33- ■ ■ D1 -Z**	–
	32	5590	46.55	73500	2.4	558	**2KJ3411- ■ KL33- ■ ■ C1 -Z**	–
	FD.149-LES180MQ4P							
	19	9490	78.98	48600	0.84	417	**2KJ3410- ■ KL33- ■ ■ G1 -Z**	–
	21	8260	68.76	48700	0.97	417	**2KJ3410- ■ KL33- ■ ■ F1 -Z**	–
	26	6770	56.37	48500	1.2	417	**2KJ3410- ■ KL33- ■ ■ E1 -Z**	–
	29	6010	50.01	48100	1.3	417	**2KJ3410- ■ KL33- ■ ■ D1 -Z**	–
	32	5440	45.30	47600	1.5	417	**2KJ3410- ■ KL33- ■ ■ C1 -Z**	–
	37	4730	39.43	46900	1.7	417	**2KJ3410- ■ KL33- ■ ■ B1 -Z**	–
	45	3880	32.33	45600	1.9	417	**2KJ3410- ■ KL33- ■ ■ A1 -Z**	–
	FZ.149-LES180MQ4P							
	42	4190	34.93	46200	1.9	416	**2KJ3310- ■ KL33- ■ ■ Q1 -Z**	–
	47	3730	31.11	45400	2.1	416	**2KJ3310- ■ KL33- ■ ■ P1 -Z**	–
	53	3350	27.94	44600	2.4	416	**2KJ3310- ■ KL33- ■ ■ N1 -Z**	–
	59	2990	24.93	43700	2.7	416	**2KJ3310- ■ KL33- ■ ■ M1 -Z**	–
	66	2670	22.22	42800	3	416	**2KJ3310- ■ KL33- ■ ■ L1 -Z**	–
	FZ.129-LES180MQ4P							
	50	3500	29.13	32200	1.4	328	**2KJ3308- ■ KL33- ■ ■ Q1 -Z**	–
	57	3110	25.93	31800	1.6	328	**2KJ3308- ■ KL33- ■ ■ P1 -Z**	–
	63	2790	23.23	31400	1.7	328	**2KJ3308- ■ KL33- ■ ■ N1 -Z**	–
	71	2470	20.60	30900	2	328	**2KJ3308- ■ KL33- ■ ■ M1 -Z**	–
	81	2180	18.18	30300	2.2	328	**2KJ3308- ■ KL33- ■ ■ L1 -Z**	–
	92	1920	15.99	29700	2.5	328	**2KJ3308- ■ KL33- ■ ■ K1 -Z**	–
	102	1740	14.48	29100	2.7	328	**2KJ3308- ■ KL33- ■ ■ J1 -Z**	–
	117	1510	12.61	28400	3	328	**2KJ3308- ■ KL33- ■ ■ H1 -Z**	–
	142	1240	10.34	27300	3.5	328	**2KJ3308- ■ KL33- ■ ■ G1 -Z**	–
	150	1170	9.80	26700	3.1	328	**2KJ3308- ■ KL33- ■ ■ F1 -Z**	–
	170	1040	8.65	26000	3.5	328	**2KJ3308- ■ KL33- ■ ■ E1 -Z**	–
	193	910	7.60	25200	4	328	**2KJ3308- ■ KL33- ■ ■ D1 -Z**	–
	213	825	6.89	24700	4.4	328	**2KJ3308- ■ KL33- ■ ■ C1 -Z**	–
	FZ.109-LES180MQ4P							
	59	2980	24.82	21500	1	277	**2KJ3307- ■ KL33- ■ ■ P1 -Z**	–
	68	2600	21.70	21500	1.2	277	**2KJ3307- ■ KL33- ■ ■ N1 -Z**	–
	76	2320	19.36	21400	1.3	277	**2KJ3307- ■ KL33- ■ ■ M1 -Z**	–
	86	2050	17.06	21200	1.5	277	**2KJ3307- ■ KL33- ■ ■ L1 -Z**	–
	98	1790	14.95	20900	1.7	277	**2KJ3307- ■ KL33- ■ ■ K1 -Z**	–
	113	1560	13.03	20600	2	277	**2KJ3307- ■ KL33- ■ ■ J1 -Z**	–
	124	1420	11.89	20400	2.1	277	**2KJ3307- ■ KL33- ■ ■ H1 -Z**	–
	144	1230	10.23	19900	2.3	277	**2KJ3307- ■ KL33- ■ ■ G1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
18.5	**FZ.109-LES180MQ4P**							
	163	1080	9.02	19400	1.9	277	**2KJ3307- ■ KL33- ■ ■ F1 -Z**	–
	185	950	7.94	19000	2.1	277	**2KJ3307- ■ KL33- ■ ■ E1 -Z**	–
	211	835	6.96	18500	2.3	277	**2KJ3307- ■ KL33- ■ ■ D1 -Z**	–
	242	730	6.07	18000	2.5	277	**2KJ3307- ■ KL33- ■ ■ C1 -Z**	–
	265	665	5.54	17700	2.6	277	**2KJ3307- ■ KL33- ■ ■ B1 -Z**	–
	308	570	4.77	17100	2.8	277	**2KJ3307- ■ KL33- ■ ■ A1 -Z**	–
	FZ.89-LES180MQ4P							
	87	2020	16.86	15600	0.91	238	**2KJ3306- ■ KL33- ■ ■ M1 -Z**	–
	99	1790	14.90	15700	1	238	**2KJ3306- ■ KL33- ■ ■ L1 -Z**	–
	112	1570	13.07	15700	1.2	238	**2KJ3306- ■ KL33- ■ ■ K1 -Z**	–
	129	1360	11.38	15700	1.4	238	**2KJ3306- ■ KL33- ■ ■ J1 -Z**	–
	151	1160	9.73	15500	1.6	238	**2KJ3306- ■ KL33- ■ ■ H1 -Z**	–
	176	1000	8.33	15200	1.7	238	**2KJ3306- ■ KL33- ■ ■ G1 -Z**	–
	193	910	7.60	14900	1.2	238	**2KJ3306- ■ KL33- ■ ■ F1 -Z**	–
	219	805	6.72	14600	1.4	238	**2KJ3306- ■ KL33- ■ ■ E1 -Z**	–
	249	705	5.90	14400	1.6	238	**2KJ3306- ■ KL33- ■ ■ D1 -Z**	–
	287	615	5.13	14100	1.8	238	**2KJ3306- ■ KL33- ■ ■ C1 -Z**	–
	335	525	4.39	13700	2	238	**2KJ3306- ■ KL33- ■ ■ B1 -Z**	–
	391	450	3.76	13300	2.2	238	**2KJ3306- ■ KL33- ■ ■ A1 -Z**	–
22	**FD.189-LES180ZLN4P**							
	8.9	23500	164.61	110000	0.81	781	**2KJ3412- ■ KN33- ■ ■ L1 -Z**	–
	10	20700	145.28	110900	0.92	781	**2KJ3412- ■ KN33- ■ ■ K1 -Z**	–
	11	18500	129.45	110900	1	781	**2KJ3412- ■ KN33- ■ ■ J1 -Z**	–
	13	16700	117.27	110900	1.1	781	**2KJ3412- ■ KN33- ■ ■ H1 -Z**	–
	14	15000	105.48	110900	1.3	781	**2KJ3412- ■ KN33- ■ ■ G1 -Z**	–
	17	12500	87.65	110900	1.5	781	**2KJ3412- ■ KN33- ■ ■ F1 -Z**	–
	19	11100	77.92	110900	1.7	781	**2KJ3412- ■ KN33- ■ ■ E1 -Z**	–
	24	8870	62.11	110900	2.1	781	**2KJ3412- ■ KN33- ■ ■ D1 -Z**	–
	FD.169-LES180ZLN4P							
	13	15900	111.30	73500	0.85	563	**2KJ3411- ■ KN33- ■ ■ J1 -Z**	–
	14	14600	102.18	73500	0.93	563	**2KJ3411- ■ KN33- ■ ■ H1 -Z**	–
	16	12800	90.03	73500	1.1	563	**2KJ3411- ■ KN33- ■ ■ G1 -Z**	–
	20	10500	73.85	73500	1.3	563	**2KJ3411- ■ KN33- ■ ■ F1 -Z**	–
	23	9250	64.75	73500	1.5	563	**2KJ3411- ■ KN33- ■ ■ E1 -Z**	–
	29	7230	50.63	73500	1.9	563	**2KJ3411- ■ KN33- ■ ■ D1 -Z**	–
	32	6650	46.55	72600	2	563	**2KJ3411- ■ KN33- ■ ■ C1 -Z**	–
	36	5830	40.82	71000	2.3	563	**2KJ3411- ■ KN33- ■ ■ B1 -Z**	–
	FZ.169-LES180ZLN4P							
	36	5870	41.07	71100	2.3	555	**2KJ3311- ■ KN33- ■ ■ R1 -Z**	–
	40	5280	36.94	69700	2.6	555	**2KJ3311- ■ KN33- ■ ■ Q1 -Z**	–
	FD.149-LES180ZLN4P							
	21	9820	68.76	44800	0.81	422	**2KJ3410- ■ KN33- ■ ■ F1 -Z**	–
	26	8050	56.37	45300	0.99	422	**2KJ3410- ■ KN33- ■ ■ E1 -Z**	–
	29	7140	50.01	45200	1.1	422	**2KJ3410- ■ KN33- ■ ■ D1 -Z**	–
	32	6470	45.30	45100	1.2	422	**2KJ3410- ■ KN33- ■ ■ C1 -Z**	–
	37	5630	39.43	44700	1.4	422	**2KJ3410- ■ KN33- ■ ■ B1 -Z**	–
	45	4620	32.33	43800	1.6	422	**2KJ3410- ■ KN33- ■ ■ A1 -Z**	–
	FZ.149-LES180ZLN4P							
	42	4990	34.93	44200	1.6	421	**2KJ3310- ■ KN33- ■ ■ Q1 -Z**	–
	47	4440	31.11	43600	1.8	421	**2KJ3310- ■ KN33- ■ ■ P1 -Z**	–
	53	3990	27.94	43000	2	421	**2KJ3310- ■ KN33- ■ ■ N1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
22	**FZ.149-LES180ZLN4P**							
	59	3560	24.93	42300	2.2	421	**2KJ3310- ■ KN33- ■ ■ M1 -Z**	–
	66	3170	22.22	41500	2.5	421	**2KJ3310- ■ KN33- ■ ■ L1 -Z**	–
	75	2810	19.71	40700	2.8	421	**2KJ3310- ■ KN33- ■ ■ K1 -Z**	–
	81	2580	18.10	40000	3.1	421	**2KJ3310- ■ KN33- ■ ■ J1 -Z**	–
	FZ.129-LES180ZLN4P							
	50	4160	29.13	30300	1.2	333	**2KJ3308- ■ KN33- ■ ■ Q1 -Z**	–
	57	3700	25.93	30200	1.3	333	**2KJ3308- ■ KN33- ■ ■ P1 -Z**	–
	63	3320	23.23	29900	1.5	333	**2KJ3308- ■ KN33- ■ ■ N1 -Z**	–
	71	2940	20.60	29600	1.6	333	**2KJ3308- ■ KN33- ■ ■ M1 -Z**	–
	81	2590	18.18	29200	1.9	333	**2KJ3308- ■ KN33- ■ ■ L1 -Z**	–
	92	2280	15.99	28700	2.1	333	**2KJ3308- ■ KN33- ■ ■ K1 -Z**	–
	102	2070	14.48	28200	2.3	333	**2KJ3308- ■ KN33- ■ ■ J1 -Z**	–
	117	1800	12.61	27600	2.5	333	**2KJ3308- ■ KN33- ■ ■ H1 -Z**	–
	142	1470	10.34	26600	2.9	333	**2KJ3308- ■ KN33- ■ ■ G1 -Z**	–
	150	1400	9.80	26000	2.6	333	**2KJ3308- ■ KN33- ■ ■ F1 -Z**	–
	170	1230	8.65	25400	2.9	333	**2KJ3308- ■ KN33- ■ ■ E1 -Z**	–
	193	1080	7.60	24700	3.3	333	**2KJ3308- ■ KN33- ■ ■ D1 -Z**	–
	213	985	6.89	24200	3.7	333	**2KJ3308- ■ KN33- ■ ■ C1 -Z**	–
	245	855	6.00	23500	4.2	333	**2KJ3308- ■ KN33- ■ ■ B1 -Z**	–
	299	700	4.92	22400	4.3	333	**2KJ3308- ■ KN33- ■ ■ A1 -Z**	–
	FZ.109-LES180ZLN4P							
	59	3540	24.82	19600	0.87	282	**2KJ3307- ■ KN33- ■ ■ P1 -Z**	–
	68	3100	21.70	19800	1	282	**2KJ3307- ■ KN33- ■ ■ N1 -Z**	–
	76	2760	19.36	19900	1.1	282	**2KJ3307- ■ KN33- ■ ■ M1 -Z**	–
	86	2430	17.06	19900	1.3	282	**2KJ3307- ■ KN33- ■ ■ L1 -Z**	–
	98	2130	14.95	19800	1.5	282	**2KJ3307- ■ KN33- ■ ■ K1 -Z**	–
	113	1860	13.03	19600	1.7	282	**2KJ3307- ■ KN33- ■ ■ J1 -Z**	–
	124	1690	11.89	19500	1.8	282	**2KJ3307- ■ KN33- ■ ■ H1 -Z**	–
	144	1460	10.23	19100	2	282	**2KJ3307- ■ KN33- ■ ■ G1 -Z**	–
	163	1280	9.02	18700	1.6	282	**2KJ3307- ■ KN33- ■ ■ F1 -Z**	–
	185	1130	7.94	18400	1.8	282	**2KJ3307- ■ KN33- ■ ■ E1 -Z**	–
	211	995	6.96	18000	1.9	282	**2KJ3307- ■ KN33- ■ ■ D1 -Z**	–
	242	865	6.07	17500	2.1	282	**2KJ3307- ■ KN33- ■ ■ C1 -Z**	–
	265	790	5.54	17200	2.2	282	**2KJ3307- ■ KN33- ■ ■ B1 -Z**	–
	308	680	4.77	16700	2.4	282	**2KJ3307- ■ KN33- ■ ■ A1 -Z**	–
	FZ.89-LES180ZLN4P							
	99	2130	14.90	14300	0.87	243	**2KJ3306- ■ KN33- ■ ■ L1 -Z**	–
	112	1860	13.07	14500	0.99	243	**2KJ3306- ■ KN33- ■ ■ K1 -Z**	–
	129	1620	11.38	14600	1.1	243	**2KJ3306- ■ KN33- ■ ■ J1 -Z**	–
	151	1390	9.73	14600	1.3	243	**2KJ3306- ■ KN33- ■ ■ H1 -Z**	–
	176	1190	8.33	14500	1.5	243	**2KJ3306- ■ KN33- ■ ■ G1 -Z**	–
	193	1080	7.60	14100	1	243	**2KJ3306- ■ KN33- ■ ■ F1 -Z**	–
	219	960	6.72	14000	1.2	243	**2KJ3306- ■ KN33- ■ ■ E1 -Z**	–
	249	840	5.90	13800	1.3	243	**2KJ3306- ■ KN33- ■ ■ D1 -Z**	–
	287	730	5.13	13600	1.5	243	**2KJ3306- ■ KN33- ■ ■ C1 -Z**	–
	335	625	4.39	13200	1.7	243	**2KJ3306- ■ KN33- ■ ■ B1 -Z**	–
	391	535	3.76	12900	1.8	243	**2KJ3306- ■ KN33- ■ ■ A1 -Z**	–
30	**FD.189-LES200ZLU4P**							
	13	22800	117.27	110400	0.83	851	**2KJ3412- ■ LN33- ■ ■ H1 -Z**	–
	14	20500	105.48	110900	0.92	851	**2KJ3412- ■ LN33- ■ ■ G1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
30	**FD.189-LES200ZLU4P**							
	17	17000	87.65	110900	1.1	851	**2KJ3412- ■ LN33- ■ ■ F1 -Z**	–
	19	15100	77.92	110200	1.3	851	**2KJ3412- ■ LN33- ■ ■ E1 -Z**	–
	24	12100	62.11	106800	1.6	851	**2KJ3412- ■ LN33- ■ ■ D1 -Z**	–
	30	9630	49.43	102900	2	851	**2KJ3412- ■ LN33- ■ ■ C1 -Z**	–
	36	7910	40.61	99200	2.4	851	**2KJ3412- ■ LN33- ■ ■ B1 -Z**	–
	FZ.189-LES200ZLU4P							
	39	7390	37.93	97900	2.6	830	**2KJ3312- ■ LN33- ■ ■ L1 -Z**	–
	FD.169-LES200ZLU4P							
	20	14300	73.85	69500	0.94	633	**2KJ3411- ■ LN33- ■ ■ F1 -Z**	–
	23	12600	64.75	69200	1.1	633	**2KJ3411- ■ LN33- ■ ■ E1 -Z**	–
	29	9860	50.63	68100	1.4	633	**2KJ3411- ■ LN33- ■ ■ D1 -Z**	–
	32	9070	46.55	67600	1.5	633	**2KJ3411- ■ LN33- ■ ■ C1 -Z**	–
	36	7950	40.82	66600	1.7	633	**2KJ3411- ■ LN33- ■ ■ B1 -Z**	–
	46	6220	31.92	64300	2.2	633	**2KJ3411- ■ LN33- ■ ■ A1 -Z**	–
	FZ.169-LES200ZLU4P							
	40	7200	36.94	65700	1.9	631	**2KJ3311- ■ LN33- ■ ■ Q1 -Z**	–
	45	6430	33.02	64600	2.1	631	**2KJ3311- ■ LN33- ■ ■ P1 -Z**	–
	49	5820	29.86	63600	2.3	631	**2KJ3311- ■ LN33- ■ ■ N1 -Z**	–
	56	5130	26.35	62200	2.6	631	**2KJ3311- ■ LN33- ■ ■ M1 -Z**	–
	63	4570	23.48	60900	3	631	**2KJ3311- ■ LN33- ■ ■ L1 -Z**	–
	FD.149-LES200ZLU4P							
	29	9740	50.01	38700	0.82	492	**2KJ3410- ■ LN33- ■ ■ D1 -Z**	–
	32	8820	45.30	39200	0.91	492	**2KJ3410- ■ LN33- ■ ■ C1 -Z**	–
	37	7680	39.43	39500	1	492	**2KJ3410- ■ LN33- ■ ■ B1 -Z**	–
	45	6300	32.33	39600	1.2	492	**2KJ3410- ■ LN33- ■ ■ A1 -Z**	–
	FZ.149-LES200ZLU4P							
	47	6060	31.11	39500	1.3	495	**2KJ3310- ■ LN33- ■ ■ P1 -Z**	–
	53	5440	27.94	39400	1.5	495	**2KJ3310- ■ LN33- ■ ■ N1 -Z**	–
	59	4850	24.93	39000	1.6	495	**2KJ3310- ■ LN33- ■ ■ M1 -Z**	–
	66	4330	22.22	38600	1.8	495	**2KJ3310- ■ LN33- ■ ■ L1 -Z**	–
	75	3840	19.71	38100	2.1	495	**2KJ3310- ■ LN33- ■ ■ K1 -Z**	–
	81	3520	18.10	37700	2.3	495	**2KJ3310- ■ LN33- ■ ■ J1 -Z**	–
	92	3100	15.94	37000	2.6	495	**2KJ3310- ■ LN33- ■ ■ H1 -Z**	–
	112	2540	13.08	35800	3	495	**2KJ3310- ■ LN33- ■ ■ G1 -Z**	–
	128	2230	11.47	35000	3.3	495	**2KJ3310- ■ LN33- ■ ■ F1 -Z**	–
	164	1740	8.97	33300	3.9	495	**2KJ3310- ■ LN33- ■ ■ E1 -Z**	–
	182	1570	8.09	32300	3.6	495	**2KJ3310- ■ LN33- ■ ■ D1 -Z**	–
	221	1290	6.64	31000	4.4	495	**2KJ3310- ■ LN33- ■ ■ C1 -Z**	–
	FZ.129-LES200ZLU4P							
	57	5050	25.93	26400	0.96	408	**2KJ3308- ■ LN33- ■ ■ P1 -Z**	–
	63	4520	23.23	26600	1.1	408	**2KJ3308- ■ LN33- ■ ■ N1 -Z**	–
	71	4010	20.60	26600	1.2	408	**2KJ3308- ■ LN33- ■ ■ M1 -Z**	–
	81	3540	18.18	26500	1.4	408	**2KJ3308- ■ LN33- ■ ■ L1 -Z**	–
	92	3110	15.99	26300	1.5	408	**2KJ3308- ■ LN33- ■ ■ K1 -Z**	–
	102	2820	14.48	26100	1.7	408	**2KJ3308- ■ LN33- ■ ■ J1 -Z**	–
	117	2450	12.61	25800	1.8	408	**2KJ3308- ■ LN33- ■ ■ H1 -Z**	–
	142	2010	10.34	25100	2.1	408	**2KJ3308- ■ LN33- ■ ■ G1 -Z**	–
	150	1910	9.80	24400	1.9	408	**2KJ3308- ■ LN33- ■ ■ F1 -Z**	–
	170	1680	8.65	24000	2.2	408	**2KJ3308- ■ LN33- ■ ■ E1 -Z**	–
	193	1480	7.60	23500	2.4	408	**2KJ3308- ■ LN33- ■ ■ D1 -Z**	–
	213	1340	6.89	23100	2.7	408	**2KJ3308- ■ LN33- ■ ■ C1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
30	**FZ.129-LES200ZLU4P**							
	245	1160	6.00	22600	3.1	408	**2KJ3308- ■ LN33- ■ ■ B1 -Z**	–
	299	955	4.92	21700	3.2	408	**2KJ3308- ■ LN33- ■ ■ A1 -Z**	–
	FZ.109-LES200ZLU4P							
	76	3770	19.36	16600	0.82	357	**2KJ3307- ■ LN33- ■ ■ M1 -Z**	–
	86	3320	17.06	17000	0.93	357	**2KJ3307- ■ LN33- ■ ■ L1 -Z**	–
	98	2910	14.95	17300	1.1	357	**2KJ3307- ■ LN33- ■ ■ K1 -Z**	–
	113	2540	13.03	17400	1.2	357	**2KJ3307- ■ LN33- ■ ■ J1 -Z**	–
	124	2310	11.89	17500	1.3	357	**2KJ3307- ■ LN33- ■ ■ H1 -Z**	–
	144	1990	10.23	17400	1.4	357	**2KJ3307- ■ LN33- ■ ■ G1 -Z**	–
	163	1750	9.02	17200	1.2	357	**2KJ3307- ■ LN33- ■ ■ F1 -Z**	–
	185	1540	7.94	17000	1.3	357	**2KJ3307- ■ LN33- ■ ■ E1 -Z**	–
	211	1350	6.96	16800	1.4	357	**2KJ3307- ■ LN33- ■ ■ D1 -Z**	–
	242	1180	6.07	16500	1.5	357	**2KJ3307- ■ LN33- ■ ■ C1 -Z**	–
	265	1080	5.54	16300	1.6	357	**2KJ3307- ■ LN33- ■ ■ B1 -Z**	–
	308	930	4.77	15900	1.7	357	**2KJ3307- ■ LN33- ■ ■ A1 -Z**	–
37	**FD.189-LES225SD4P**							
	17	20900	87.65	103900	0.91	901	**2KJ3412- ■ MF33- ■ ■ F1 -Z**	–
	19	18600	77.92	103300	1	901	**2KJ3412- ■ MF33- ■ ■ E1 -Z**	–
	24	14800	62.11	101400	1.3	901	**2KJ3412- ■ MF33- ■ ■ D1 -Z**	–
	30	11800	49.43	98600	1.6	901	**2KJ3412- ■ MF33- ■ ■ C1 -Z**	–
	36	9700	40.61	95600	2	901	**2KJ3412- ■ MF33- ■ ■ B1 -Z**	–
	46	7720	32.32	91800	2.5	901	**2KJ3412- ■ MF33- ■ ■ A1 -Z**	–
	FZ.189-LES225SD4P							
	39	9060	37.93	94500	2.1	873	**2KJ3312- ■ MF33- ■ ■ L1 -Z**	–
	43	8130	34.03	92700	2.3	873	**2KJ3312- ■ MF33- ■ ■ K1 -Z**	–
	49	7270	30.41	90800	2.6	873	**2KJ3312- ■ MF33- ■ ■ J1 -Z**	–
	54	6490	27.17	88800	2.9	873	**2KJ3312- ■ MF33- ■ ■ H1 -Z**	–
	FD.169-LES225SD4P							
	23	15400	64.75	63200	0.88	689	**2KJ3411- ■ MF33- ■ ■ E1 -Z**	–
	29	12100	50.63	63300	1.1	689	**2KJ3411- ■ MF33- ■ ■ D1 -Z**	–
	32	11100	46.55	63200	1.2	689	**2KJ3411- ■ MF33- ■ ■ C1 -Z**	–
	36	9750	40.82	62700	1.4	689	**2KJ3411- ■ MF33- ■ ■ B1 -Z**	–
	46	7630	31.92	61200	1.8	689	**2KJ3411- ■ MF33- ■ ■ A1 -Z**	–
	FZ.169-LES225SD4P							
	45	7890	33.02	61400	1.7	674	**2KJ3311- ■ MF33- ■ ■ P1 -Z**	–
	49	7130	29.86	60700	1.9	674	**2KJ3311- ■ MF33- ■ ■ N1 -Z**	–
	56	6300	26.35	59700	2.2	674	**2KJ3311- ■ MF33- ■ ■ M1 -Z**	–
	63	5610	23.48	58600	2.4	674	**2KJ3311- ■ MF33- ■ ■ L1 -Z**	–
	69	5080	21.27	57700	2.7	674	**2KJ3311- ■ MF33- ■ ■ K1 -Z**	–
	77	4570	19.13	56600	3	674	**2KJ3311- ■ MF33- ■ ■ J1 -Z**	–
	183	1920	8.07	46200	4.3	674	**2KJ3311- ■ MF33- ■ ■ D1 -Z**	–
	FD.149-LES225SD4P							
	37	9420	39.43	35100	0.85	545	**2KJ3410- ■ MF33- ■ ■ B1 -Z**	–
	46	7720	32.33	35900	0.97	545	**2KJ3410- ■ MF33- ■ ■ A1 -Z**	–
	FZ.149-LES225SD4P							
	53	6680	27.94	36200	1.2	540	**2KJ3310- ■ MF33- ■ ■ N1 -Z**	–
	59	5960	24.93	36200	1.3	540	**2KJ3310- ■ MF33- ■ ■ M1 -Z**	–
	67	5310	22.22	36100	1.5	540	**2KJ3310- ■ MF33- ■ ■ L1 -Z**	–
	75	4710	19.71	35800	1.7	540	**2KJ3310- ■ MF33- ■ ■ K1 -Z**	–
	82	4320	18.10	35600	1.8	540	**2KJ3310- ■ MF33- ■ ■ J1 -Z**	–
	93	3810	15.94	35100	2.1	540	**2KJ3310- ■ MF33- ■ ■ H1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
37	**FZ.149-LES225SD4P**							
	113	3120	13.08	34300	2.4	540	**2KJ3310- ■ MF33- ■ ■ G1 -Z**	–
	129	2740	11.47	33600	2.7	540	**2KJ3310- ■ MF33- ■ ■ F1 -Z**	–
	165	2140	8.97	32200	3.2	540	**2KJ3310- ■ MF33- ■ ■ E1 -Z**	–
	183	1930	8.09	31300	2.9	540	**2KJ3310- ■ MF33- ■ ■ D1 -Z**	–
	223	1580	6.64	30100	3.6	540	**2KJ3310- ■ MF33- ■ ■ C1 -Z**	–
	254	1390	5.82	29300	4.1	540	**2KJ3310- ■ MF33- ■ ■ B1 -Z**	–
	FZ.129-LES225SD4P							
	64	5550	23.23	23600	0.87	451	**2KJ3308- ■ MF33- ■ ■ N1 -Z**	–
	72	4920	20.60	24000	0.98	451	**2KJ3308- ■ MF33- ■ ■ M1 -Z**	–
	81	4340	18.18	24200	1.1	451	**2KJ3308- ■ MF33- ■ ■ L1 -Z**	–
	92	3820	15.99	24300	1.3	451	**2KJ3308- ■ MF33- ■ ■ K1 -Z**	–
	102	3460	14.48	24300	1.4	451	**2KJ3308- ■ MF33- ■ ■ J1 -Z**	–
	117	3010	12.61	24200	1.5	451	**2KJ3308- ■ MF33- ■ ■ H1 -Z**	–
	143	2470	10.34	23800	1.7	451	**2KJ3308- ■ MF33- ■ ■ G1 -Z**	–
	151	2340	9.80	23100	1.5	451	**2KJ3308- ■ MF33- ■ ■ F1 -Z**	–
	171	2060	8.65	22800	1.8	451	**2KJ3308- ■ MF33- ■ ■ E1 -Z**	–
	194	1810	7.60	22500	2	451	**2KJ3308- ■ MF33- ■ ■ D1 -Z**	–
	215	1640	6.89	22200	2.2	451	**2KJ3308- ■ MF33- ■ ■ C1 -Z**	–
	246	1430	6.00	21700	2.5	451	**2KJ3308- ■ MF33- ■ ■ B1 -Z**	–
	300	1170	4.92	21000	2.6	451	**2KJ3308- ■ MF33- ■ ■ A1 -Z**	–
	FZ.109-LES225SD4P							
	99	3570	14.95	15100	0.87	399	**2KJ3307- ■ MF33- ■ ■ K1 -Z**	–
	113	3110	13.03	15500	1	399	**2KJ3307- ■ MF33- ■ ■ J1 -Z**	–
	124	2840	11.89	15700	1.1	399	**2KJ3307- ■ MF33- ■ ■ H1 -Z**	–
	144	2440	10.23	15900	1.2	399	**2KJ3307- ■ MF33- ■ ■ G1 -Z**	–
	164	2150	9.02	15800	0.97	399	**2KJ3307- ■ MF33- ■ ■ F1 -Z**	–
	186	1890	7.94	15800	1.1	399	**2KJ3307- ■ MF33- ■ ■ E1 -Z**	–
	212	1660	6.96	15700	1.1	399	**2KJ3307- ■ MF33- ■ ■ D1 -Z**	–
	243	1450	6.07	15500	1.2	399	**2KJ3307- ■ MF33- ■ ■ C1 -Z**	–
	267	1320	5.54	15400	1.3	399	**2KJ3307- ■ MF33- ■ ■ B1 -Z**	–
	310	1140	4.77	15200	1.4	399	**2KJ3307- ■ MF33- ■ ■ A1 -Z**	–
45	**FD.189-LES225YMF4P**							
	19	22600	77.92	95700	0.84	946	**2KJ3412- ■ MT33- ■ ■ E1 -Z**	–
	24	18000	62.11	95300	1.1	946	**2KJ3412- ■ MT33- ■ ■ D1 -Z**	–
	30	14300	49.43	93800	1.3	946	**2KJ3412- ■ MT33- ■ ■ C1 -Z**	–
	36	11800	40.61	91600	1.6	946	**2KJ3412- ■ MT33- ■ ■ B1 -Z**	–
	46	9390	32.32	88700	2	946	**2KJ3412- ■ MT33- ■ ■ A1 -Z**	–
	FZ.189-LES225YMF4P							
	39	11000	37.93	90800	1.7	918	**2KJ3312- ■ MT33- ■ ■ L1 -Z**	–
	43	9890	34.03	89400	1.9	918	**2KJ3312- ■ MT33- ■ ■ K1 -Z**	–
	49	8840	30.41	87800	2.1	918	**2KJ3312- ■ MT33- ■ ■ J1 -Z**	–
	54	7900	27.17	86100	2.4	918	**2KJ3312- ■ MT33- ■ ■ H1 -Z**	–
	59	7220	24.85	84700	2.6	918	**2KJ3312- ■ MT33- ■ ■ G1 -Z**	–
	67	6420	22.09	82800	3	918	**2KJ3312- ■ MT33- ■ ■ F1 -Z**	–
	FD.169-LES225YMF4P							
	29	14700	50.63	57800	0.92	734	**2KJ3411- ■ MT33- ■ ■ D1 -Z**	–
	32	13500	46.55	58100	1	734	**2KJ3411- ■ MT33- ■ ■ C1 -Z**	–
	36	11800	40.82	58400	1.1	734	**2KJ3411- ■ MT33- ■ ■ B1 -Z**	–
	46	9280	31.92	57700	1.5	734	**2KJ3411- ■ MT33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Parallel shaft geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
45	**FZ.169-LES225YMF4P**							
	45	9600	33.02	57800	1.4	719	**2KJ3311- ■ MT33- ■ ■ P1 -Z**	–
	49	8680	29.86	57500	1.6	719	**2KJ3311- ■ MT33- ■ ■ N1 -Z**	–
	56	7660	26.35	56800	1.8	719	**2KJ3311- ■ MT33- ■ ■ M1 -Z**	–
	63	6820	23.48	56100	2	719	**2KJ3311- ■ MT33- ■ ■ L1 -Z**	–
	69	6180	21.27	55400	2.2	719	**2KJ3311- ■ MT33- ■ ■ K1 -Z**	–
	77	5560	19.13	54500	2.4	719	**2KJ3311- ■ MT33- ■ ■ J1 -Z**	–
	93	4620	15.90	52900	2.9	719	**2KJ3311- ■ MT33- ■ ■ H1 -Z**	–
	105	4100	14.13	51800	3.1	719	**2KJ3311- ■ MT33- ■ ■ G1 -Z**	–
	131	3270	11.26	49600	3.6	719	**2KJ3311- ■ MT33- ■ ■ F1 -Z**	–
	165	2600	8.97	47300	4	719	**2KJ3311- ■ MT33- ■ ■ E1 -Z**	–
	183	2340	8.07	45200	3.6	719	**2KJ3311- ■ MT33- ■ ■ D1 -Z**	–
	206	2080	7.18	44100	4	719	**2KJ3311- ■ MT33- ■ ■ C1 -Z**	–
	FD.149-LES225YMF4P							
	46	9400	32.33	31700	0.8	590	**2KJ3410- ■ MT33- ■ ■ A1 -Z**	–
	FZ.149-LES225YMF4P							
	53	8120	27.94	32600	0.98	585	**2KJ3310- ■ MT33- ■ ■ N1 -Z**	–
	59	7240	24.93	33000	1.1	585	**2KJ3310- ■ MT33- ■ ■ M1 -Z**	–
	67	6460	22.22	33200	1.2	585	**2KJ3310- ■ MT33- ■ ■ L1 -Z**	–
	75	5730	19.71	33300	1.4	585	**2KJ3310- ■ MT33- ■ ■ K1 -Z**	–
	82	5260	18.10	33300	1.5	585	**2KJ3310- ■ MT33- ■ ■ J1 -Z**	–
	93	4630	15.94	33100	1.7	585	**2KJ3310- ■ MT33- ■ ■ H1 -Z**	–
	113	3800	13.08	32600	2	585	**2KJ3310- ■ MT33- ■ ■ G1 -Z**	–
	129	3330	11.47	32100	2.2	585	**2KJ3310- ■ MT33- ■ ■ F1 -Z**	–
	165	2600	8.97	31100	2.6	585	**2KJ3310- ■ MT33- ■ ■ E1 -Z**	–
	183	2350	8.09	30200	2.4	585	**2KJ3310- ■ MT33- ■ ■ D1 -Z**	–
	223	1930	6.64	29200	2.9	585	**2KJ3310- ■ MT33- ■ ■ C1 -Z**	–
	254	1690	5.82	28500	3.4	585	**2KJ3310- ■ MT33- ■ ■ B1 -Z**	–
	325	1320	4.55	27100	4.3	585	**2KJ3310- ■ MT33- ■ ■ A1 -Z**	–
	FZ.129-LES225YMF4P							
	72	5990	20.60	21000	0.81	496	**2KJ3308- ■ MT33- ■ ■ M1 -Z**	–
	81	5280	18.18	21600	0.92	496	**2KJ3308- ■ MT33- ■ ■ L1 -Z**	–
	92	4640	15.99	22000	1	496	**2KJ3308- ■ MT33- ■ ■ K1 -Z**	–
	102	4210	14.48	22200	1.1	496	**2KJ3308- ■ MT33- ■ ■ J1 -Z**	–
	117	3660	12.61	22300	1.2	496	**2KJ3308- ■ MT33- ■ ■ H1 -Z**	–
	143	3000	10.34	22300	1.4	496	**2KJ3308- ■ MT33- ■ ■ G1 -Z**	–
	151	2840	9.80	21600	1.3	496	**2KJ3308- ■ MT33- ■ ■ F1 -Z**	–
	171	2510	8.65	21400	1.4	496	**2KJ3308- ■ MT33- ■ ■ E1 -Z**	–
	194	2210	7.60	21300	1.6	496	**2KJ3308- ■ MT33- ■ ■ D1 -Z**	–
	215	2000	6.89	21100	1.8	496	**2KJ3308- ■ MT33- ■ ■ C1 -Z**	–
	246	1740	6.00	20800	2.1	496	**2KJ3308- ■ MT33- ■ ■ B1 -Z**	–
	300	1430	4.92	20200	2.1	496	**2KJ3308- ■ MT33- ■ ■ A1 -Z**	–
	FZ.109-LES225YMF4P							
	113	3780	13.03	13300	0.82	444	**2KJ3307- ■ MT33- ■ ■ J1 -Z**	–
	124	3450	11.89	13700	0.89	444	**2KJ3307- ■ MT33- ■ ■ H1 -Z**	–
	144	2970	10.23	14200	0.97	444	**2KJ3307- ■ MT33- ■ ■ G1 -Z**	–
	164	2620	9.02	14200	0.8	444	**2KJ3307- ■ MT33- ■ ■ F1 -Z**	–
	186	2300	7.94	14400	0.87	444	**2KJ3307- ■ MT33- ■ ■ E1 -Z**	–
	212	2020	6.96	14500	0.94	444	**2KJ3307- ■ MT33- ■ ■ D1 -Z**	–
	243	1760	6.07	14500	1	444	**2KJ3307- ■ MT33- ■ ■ C1 -Z**	–
	267	1610	5.54	14500	1.1	444	**2KJ3307- ■ MT33- ■ ■ B1 -Z**	–
	310	1380	4.77	14300	1.2	444	**2KJ3307- ■ MT33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
55	**FD.189-LES250MD4P**							
	24	22000	62.11	87600	0.86	1049	**2KJ3412- ■ NM33- ■ ■ D1 -Z**	–
	30	17500	49.43	87600	1.1	1049	**2KJ3412- ■ NM33- ■ ■ C1 -Z**	–
	36	14300	40.61	86800	1.3	1049	**2KJ3412- ■ NM33- ■ ■ B1 -Z**	–
	46	11400	32.32	84700	1.7	1049	**2KJ3412- ■ NM33- ■ ■ A1 -Z**	–
	FZ.189-LES250MD4P							
	49	10700	30.41	84100	1.8	1021	**2KJ3312- ■ NM33- ■ ■ J1 -Z**	–
	55	9630	27.17	82700	2	1021	**2KJ3312- ■ NM33- ■ ■ H1 -Z**	–
	60	8800	24.85	81600	2.2	1021	**2KJ3312- ■ NM33- ■ ■ G1 -Z**	–
	67	7820	22.09	80100	2.4	1021	**2KJ3312- ■ NM33- ■ ■ F1 -Z**	–
	79	6640	18.75	77800	2.9	1021	**2KJ3312- ■ NM33- ■ ■ E1 -Z**	–
	91	5740	16.21	75600	3.3	1021	**2KJ3312- ■ NM33- ■ ■ D1 -Z**	–
	FD.169-LES250MD4P							
	32	16400	46.55	52000	0.82	838	**2KJ3411- ■ NM33- ■ ■ C1 -Z**	–
	36	14400	40.82	52900	0.94	838	**2KJ3411- ■ NM33- ■ ■ B1 -Z**	–
	46	11300	31.92	53400	1.2	838	**2KJ3411- ■ NM33- ■ ■ A1 -Z**	–
	FZ.169-LES250MD4P							
	56	9330	26.35	53300	1.5	822	**2KJ3311- ■ NM33- ■ ■ M1 -Z**	–
	63	8320	23.48	52900	1.6	822	**2KJ3311- ■ NM33- ■ ■ L1 -Z**	–
	70	7530	21.27	52500	1.8	822	**2KJ3311- ■ NM33- ■ ■ K1 -Z**	–
	77	6780	19.13	51900	2	822	**2KJ3311- ■ NM33- ■ ■ J1 -Z**	–
	93	5630	15.90	50800	2.4	822	**2KJ3311- ■ NM33- ■ ■ H1 -Z**	–
	105	5000	14.13	49900	2.6	822	**2KJ3311- ■ NM33- ■ ■ G1 -Z**	–
	132	3990	11.26	48000	2.9	822	**2KJ3311- ■ NM33- ■ ■ F1 -Z**	–
	165	3170	8.97	46000	3.3	822	**2KJ3311- ■ NM33- ■ ■ E1 -Z**	–
	184	2860	8.07	43800	2.9	822	**2KJ3311- ■ NM33- ■ ■ D1 -Z**	–
	206	2540	7.18	42900	3.3	822	**2KJ3311- ■ NM33- ■ ■ C1 -Z**	–
	259	2020	5.72	40900	4	822	**2KJ3311- ■ NM33- ■ ■ B1 -Z**	–
	326	1610	4.55	38900	4.5	822	**2KJ3311- ■ NM33- ■ ■ A1 -Z**	–
	FZ.149-LES250MD4P							
	67	7870	22.22	29600	1	687	**2KJ3310- ■ NM33- ■ ■ L1 -Z**	–
	75	6980	19.71	30100	1.1	687	**2KJ3310- ■ NM33- ■ ■ K1 -Z**	–
	82	6410	18.10	30300	1.2	687	**2KJ3310- ■ NM33- ■ ■ J1 -Z**	–
	93	5640	15.94	30500	1.4	687	**2KJ3310- ■ NM33- ■ ■ H1 -Z**	–
	113	4630	13.08	30500	1.6	687	**2KJ3310- ■ NM33- ■ ■ G1 -Z**	–
	129	4060	11.47	30300	1.8	687	**2KJ3310- ■ NM33- ■ ■ F1 -Z**	–
	165	3170	8.97	29600	2.1	687	**2KJ3310- ■ NM33- ■ ■ E1 -Z**	–
	183	2860	8.09	28800	2	687	**2KJ3310- ■ NM33- ■ ■ D1 -Z**	–
	223	2350	6.64	28000	2.4	687	**2KJ3310- ■ NM33- ■ ■ C1 -Z**	–
	255	2060	5.82	27500	2.8	687	**2KJ3310- ■ NM33- ■ ■ B1 -Z**	–
	326	1610	4.55	26300	3.5	687	**2KJ3310- ■ NM33- ■ ■ A1 -Z**	–
	FZ.129-LES250MD4P							
	93	5660	15.99	19200	0.85	598	**2KJ3308- ■ NM33- ■ ■ K1 -Z**	–
	102	5130	14.48	19600	0.91	598	**2KJ3308- ■ NM33- ■ ■ J1 -Z**	–
	118	4460	12.61	20100	1	598	**2KJ3308- ■ NM33- ■ ■ H1 -Z**	–
	143	3660	10.34	20400	1.2	598	**2KJ3308- ■ NM33- ■ ■ G1 -Z**	–
	171	3060	8.65	19800	1.2	598	**2KJ3308- ■ NM33- ■ ■ E1 -Z**	–
	195	2690	7.60	19800	1.3	598	**2KJ3308- ■ NM33- ■ ■ D1 -Z**	–
	215	2440	6.89	19700	1.5	598	**2KJ3308- ■ NM33- ■ ■ C1 -Z**	–
	247	2120	6.00	19600	1.7	598	**2KJ3308- ■ NM33- ■ ■ B1 -Z**	–
	301	1740	4.92	19200	1.7	598	**2KJ3308- ■ NM33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.29																			
56.73	26	150	5220	7.6	0.04	851/15	✓	✓											**2KJ3301 - ■ ■■■■ - ■■ C2**
50.32	29	150	5220	8.0	0.05	1258/25	✓	✓	✓	✓									**2KJ3301 - ■ ■■■■ - ■■ B2**
43.66	33	150	5220	8.0	0.06	2183/50	✓	✓	✓	✓									**2KJ3301 - ■ ■■■■ - ■■ A2**
39.69	37	150	5220	8.0	0.08	2183/55	✓	✓	✓	✓									**2KJ3301 - ■ ■■■■ - ■■ X1**
34.04	43	150	4910	8.1	0.10	851/25	✓	✓	✓	✓									**2KJ3301 - ■ ■■■■ - ■■ W1**
30.95	47	150	4720	8.1	0.12	1702/55	✓	✓	✓	✓									**2KJ3301 - ■ ■■■■ - ■■ V1**
27.13	53	150	4460	8.2	0.14	407/15	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ U1**
24.22	60	150	4250	8.3	0.17	1332/55	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ T1**
21.58	67	150	4040	8.4	0.20	259/12	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ S1**
19.92	73	150	3910	8.4	0.24	259/13	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ R1**
17.44	83	150	3680	8.6	0.28	1221/70	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ Q1**
15.29	95	150	3470	8.8	0.30	1147/75	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ P1**
13.88	104	150	3320	8.9	0.38	111/8	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ N1**
13.06	111	150	3230	8.9	0.44	222/17	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ M1**
11.51	126	143	3100	8.6	0.50	518/45	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ L1**
9.99	145	136	2960	8.8	0.67	999/100	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ K1**
9.69	150	143	2660	13.8	0.26	2664/275	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ J1**
8.63	168	130	2640	14.0	0.32	259/30	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ H1**
7.97	182	120	2630	14.0	0.38	518/65	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ G1**
6.98	208	123	2440	14.5	0.46	1221/175	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ F1**
6.12	237	114	2370	15.0	0.53	2294/375	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ E1**
5.55	261	108	2320	15.3	0.66	111/20	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ D1**
5.22	278	106	2300	15.3	0.76	444/85	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ C1**
4.60	315	97	2280	15.3	0.92	1036/225	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ B1**
4.00	362	91	2250	15.0	1.21	999/250	✓	✓	✓	✓	✓								**2KJ3301 - ■ ■■■■ - ■■ A1**
FD.29																			
298.58	4.9	150	5220	7.9	0.02	94054/315	✓	✓											**2KJ3401 - ■ ■■■■ - ■■ Q1**
264.39	5.5	150	5220	8.0	0.03	92537/350	✓	✓	✓	✓									**2KJ3401 - ■ ■■■■ - ■■ P1**
229.72	6.3	150	5220	8.0	0.04	80401/350	✓	✓	✓	✓									**2KJ3401 - ■ ■■■■ - ■■ N1**
208.83	6.9	150	5220	8.0	0.05	80401/385	✓	✓	✓	✓									**2KJ3401 - ■ ■■■■ - ■■ M1**
177.71	8.2	150	5220	8.0	0.06	62197/350	✓	✓	✓	✓									**2KJ3401 - ■ ■■■■ - ■■ L1**
161.55	9	150	5220	8.0	0.08	62197/385	✓	✓	✓	✓									**2KJ3401 - ■ ■■■■ - ■■ K1**
140.86	10	150	5220	8.0	0.09	19721/140	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ J1**
126.09	11	150	5220	8.0	0.12	48544/385	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ H1**
111.97	13	150	5220	8.0	0.14	47027/420	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ G1**
103.36	14	150	5220	8.0	0.17	47027/455	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ F1**
89.78	16	150	5220	8.1	0.19	43993/490	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ E1**
78.02	19	150	5220	8.0	0.19	13653/175	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ D1**
70.43	21	150	5220	8.1	0.25	19721/280	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ C1**
66.29	22	150	5220	8.1	0.29	39442/595	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ B1**
57.79	25	150	5220	8.1	0.33	6068/105	✓	✓	✓	✓	✓								**2KJ3401 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.39																			
65.21	22	290	6040	6.3	0.06	913/14	✓	✓											**2KJ3302 - ■ ■■■■ - ■■ B2**
57.99	25	230	6000	6.6	0.08	4059/70	✓	✓	✓	✓									**2KJ3302 - ■ ■■■■ - ■■ A2**
50.91	28	240	5950	6.6	0.09	1782/35	✓	✓	✓	✓									**2KJ3302 - ■ ■■■■ - ■■ X1**
46.29	31	255	5820	6.6	0.11	324/7	✓	✓	✓	✓									**2KJ3302 - ■ ■■■■ - ■■ W1**
39.60	37	290	5950	6.7	0.13	198/5	✓	✓	✓	✓									**2KJ3302 - ■ ■■■■ - ■■ V1**
36.00	40	255	5480	6.7	0.16	36/1	✓	✓	✓	✓									**2KJ3302 - ■ ■■■■ - ■■ U1**
31.82	46	285	5320	6.8	0.19	891/28	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ T1**
28.93	50	275	5080	6.8	0.26	405/14	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ S1**
25.34	57	265	4930	6.9	0.30	1419/56	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ R1**
23.39	62	260	4730	6.9	0.36	4257/182	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ Q1**
20.71	70	250	4730	7.0	0.42	4059/196	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ P1**
17.24	84	235	4450	7.2	0.57	3861/224	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ N1**
16.22	89	230	4360	7.2	0.66	3861/238	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ M1**
14.54	100	220	4220	7.3	0.74	407/28	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ L1**
12.38	117	210	3990	7.5	0.97	99/8	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ K1**
10.61	137	199	3790	7.7	1.28	297/28			✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ J1**
9.13	159	189	3610	7.9	1.65	1023/112			✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ H1**
8.10	179	167	3430	12.1	0.70	3403/420	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ G1**
6.74	215	152	3270	12.5	0.96	1079/160	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ F1**
6.35	228	149	3200	12.5	1.11	1079/170	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ E1**
5.69	255	140	3120	12.9	1.29	3071/540	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ D1**
4.84	300	128	3000	13.4	1.73	581/120	✓	✓	✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ C1**
4.15	349	118	2950	13.9	2.30	83/20			✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ B1**
3.57	406	108	2890	14.5	3.00	2573/720			✓	✓	✓	✓							**2KJ3302 - ■ ■■■■ - ■■ A1**
FD.39																			
274.26	5.3	290	5820	6.9	0.04	32637/119	✓	✓											**2KJ3402 - ■ ■■■■ - ■■ R1**
243.26	6	290	5820	7.0	0.05	8514/35	✓	✓	✓	✓									**2KJ3402 - ■ ■■■■ - ■■ Q1**
211.06	6.9	290	5820	7.0	0.06	251163/1190	✓	✓	✓	✓									**2KJ3402 - ■ ■■■■ - ■■ P1**
191.87	7.6	290	5820	7.0	0.07	22833/119	✓	✓	✓	✓									**2KJ3402 - ■ ■■■■ - ■■ N1**
164.56	8.8	290	5820	7.0	0.09	97911/595	✓	✓	✓	✓									**2KJ3402 - ■ ■■■■ - ■■ M1**
149.60	9.7	290	5820	7.0	0.11	17802/119	✓	✓	✓	✓									**2KJ3402 - ■ ■■■■ - ■■ L1**
131.17	11	290	5820	7.0	0.12	15609/119	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ K1**
117.08	12	290	5820	7.0	0.15	13932/119	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ J1**
104.34	14	290	5820	7.0	0.18	7095/68	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ H1**
96.31	15	290	5820	7.0	0.21	21285/221	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ G1**
84.32	17	290	5820	7.1	0.25	140481/1666	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ F1**
73.93	20	290	5820	7.1	0.24	43989/595	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ E1**
67.07	22	290	5820	7.2	0.34	63855/952	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ D1**
63.13	23	290	5820	7.2	0.40	127710/2023	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ C1**
55.65	26	290	5820	7.2	0.44	946/17	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ B1**
48.29	30	290	5820	7.2	0.59	114939/2380	✓	✓	✓	✓	✓	✓							**2KJ3402 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Parallel shaft geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm^2	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.49																			
61.43	24	480	6990	6.0	0.18	1843/30	✓	✓	✓	✓									**2KJ3303 - ■ ■■■■ - ■■ X1**
55.85	26	480	6680	6.0	0.22	1843/33	✓	✓	✓	✓									**2KJ3303 - ■ ■■■■ - ■■ W1**
47.50	31	480	6160	6.0	0.27	95/2	✓	✓	✓	✓									**2KJ3303 - ■ ■■■■ - ■■ V1**
43.18	34	480	5870	6.0	0.33	475/11	✓	✓	✓	✓									**2KJ3303 - ■ ■■■■ - ■■ U1**
38.53	38	480	5530	6.1	0.39	1387/36	✓	✓	✓	✓	✓	✓							**2KJ3303 - ■ ■■■■ - ■■ T1**
34.55	42	480	5220	6.1	0.47	380/11	✓	✓	✓	✓	✓	✓							**2KJ3303 - ■ ■■■■ - ■■ S1**
31.14	47	480	4940	6.2	0.55	1121/36	✓	✓	✓	✓	✓	✓							**2KJ3303 - ■ ■■■■ - ■■ R1**
28.74	50	480	4730	6.1	0.65	1121/39	✓	✓	✓	✓	✓	✓							**2KJ3303 - ■ ■■■■ - ■■ Q1**
26.24	55	480	4490	6.2	0.77	551/21	✓	✓	✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ P1**
21.77	67	480	4030	6.3	0.99	1045/48	✓	✓	✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ N1**
20.49	71	480	3890	6.3	1.15	1045/51	✓	✓	✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ M1**
19.35	75	480	3750	6.3	1.30	1045/54	✓	✓	✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ L1**
16.47	88	480	3390	6.4	1.61	247/15	✓	✓	✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ K1**
14.11	103	480	3060	6.6	1.99	931/66			✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ J1**
12.40	117	480	3010	6.7	2.50	893/72			✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ H1**
10.46	139	480	3140	6.8	3.10	722/69			✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ G1**
9.12	159	480	3210	7.4	4.20	228/25			✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ F1**
8.40	173	450	3010	9.3	2.20	42/5	✓	✓	✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ E1**
7.20	201	450	3070	9.6	2.80	1029/143			✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ D1**
6.33	229	430	3090	9.9	3.50	329/52			✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ C1**
5.34	272	400	3080	10.2	4.60	1596/299			✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ B1**
4.65	312	375	3060	11.3	6.10	1512/325			✓	✓	✓	✓	✓						**2KJ3303 - ■ ■■■■ - ■■ A1**
FD.49																			
330.98	4.4	480	7960	6.2	0.06	26809/81	✓	✓											**2KJ3403 - ■ ■■■■ - ■■ S1**
294.29	4.9	480	7960	6.3	0.07	13243/45	✓	✓	✓	✓									**2KJ3403 - ■ ■■■■ - ■■ R1**
258.40	5.6	480	7960	6.3	0.08	1292/5	✓	✓	✓	✓									**2KJ3403 - ■ ■■■■ - ■■ Q1**
234.91	6.2	480	7960	6.3	0.10	2584/11	✓	✓	✓	✓									**2KJ3403 - ■ ■■■■ - ■■ P1**
200.98	7.2	480	7960	6.3	0.12	9044/45	✓	✓	✓	✓									**2KJ3403 - ■ ■■■■ - ■■ N1**
182.71	7.9	480	7960	6.3	0.14	18088/99	✓	✓	✓	✓									**2KJ3403 - ■ ■■■■ - ■■ M1**
161.50	9	480	7960	6.3	0.17	323/2	✓	✓	✓	✓	✓	✓							**2KJ3403 - ■ ■■■■ - ■■ L1**
146.82	9.9	480	7960	6.3	0.22	1615/11	✓	✓	✓	✓	✓	✓							**2KJ3403 - ■ ■■■■ - ■■ K1**
128.60	11	480	7960	6.3	0.26	13889/108	✓	✓	✓	✓	✓	✓							**2KJ3403 - ■ ■■■■ - ■■ J1**
118.71	12	480	7960	6.3	0.31	13889/117	✓	✓	✓	✓	✓	✓							**2KJ3403 - ■ ■■■■ - ■■ H1**
105.10	14	480	7960	6.4	0.37	13243/126	✓	✓	✓	✓	✓	✓	✓						**2KJ3403 - ■ ■■■■ - ■■ G1**
87.48	17	480	7960	6.4	0.50	4199/48	✓	✓	✓	✓	✓	✓	✓						**2KJ3403 - ■ ■■■■ - ■■ F1**
82.33	18	480	7960	6.4	0.59	247/3	✓	✓	✓	✓	✓	✓	✓						**2KJ3403 - ■ ■■■■ - ■■ E1**
73.77	20	480	7630	6.4	0.66	11951/162	✓	✓	✓	✓	✓	✓	✓						**2KJ3403 - ■ ■■■■ - ■■ D1**
62.81	23	480	7070	6.4	0.86	2261/36	✓	✓	✓	✓	✓	✓	✓						**2KJ3403 - ■ ■■■■ - ■■ C1**
53.83	27	480	6560	6.5	1.13	323/6			✓	✓	✓	✓	✓						**2KJ3403 - ■ ■■■■ - ■■ B1**
46.36	31	480	6080	6.5	1.46	10013/216			✓	✓	✓	✓	✓						**2KJ3403 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.69																			
64.67	22	600	9620	5.7	0.19	194/3	✓	✓	✓	✓									**2KJ3304 - ■ ■■■■ - ■■ X1**
58.79	25	600	9210	5.7	0.23	1940/33	✓	✓	✓	✓									**2KJ3304 - ■ ■■■■ - ■■ W1**
50.00	29	600	8530	5.8	0.29	50/1	✓	✓	✓	✓									**2KJ3304 - ■ ■■■■ - ■■ V1**
45.45	32	600	8140	5.8	0.35	500/11	✓	✓	✓	✓									**2KJ3304 - ■ ■■■■ - ■■ U1**
40.56	36	600	7700	5.8	0.41	365/9	✓	✓	✓	✓	✓	✓							**2KJ3304 - ■ ■■■■ - ■■ T1**
36.36	40	600	7290	5.9	0.49	400/11	✓	✓	✓	✓	✓	✓							**2KJ3304 - ■ ■■■■ - ■■ S1**
32.78	44	600	6920	5.9	0.58	295/9	✓	✓	✓	✓	✓	✓							**2KJ3304 - ■ ■■■■ - ■■ R1**
30.26	48	600	6640	5.9	0.69	1180/39	✓	✓	✓	✓	✓	✓							**2KJ3304 - ■ ■■■■ - ■■ Q1**
27.62	52	600	6330	5.9	0.83	580/21	✓	✓	✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ P1**
22.92	63	600	5720	6.0	1.07	275/12	✓	✓	✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ N1**
21.57	67	600	5540	6.0	1.23	1100/51	✓	✓	✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ M1**
20.37	71	600	5360	6.0	1.39	550/27	✓	✓	✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ L1**
17.33	84	600	4890	6.2	1.74	52/3	✓	✓	✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ K1**
14.85	98	600	4450	6.2	2.20	490/33			✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ J1**
13.06	111	600	4110	6.2	2.70	235/18			✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ H1**
11.01	132	600	4040	6.2	3.50	760/69			✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ G1**
9.60	151	600	4140	6.2	4.60	48/5			✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ F1**
8.90	163	475	4040	8.9	2.40	89/10	✓	✓	✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ E1**
7.62	190	465	4100	8.9	3.10	4361/572			✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ D1**
6.70	216	440	4120	8.9	3.90	4183/624			✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ C1**
5.66	256	410	4110	8.9	5.10	1691/299			✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ B1**
4.93	294	385	4070	8.9	6.80	1602/325			✓	✓	✓	✓	✓						**2KJ3304 - ■ ■■■■ - ■■ A1**
FD.69																			
348.40	4.2	600	10800	6.0	0.06	28220/81	✓	✓											**2KJ3404 - ■ ■■■■ - ■■ S1**
309.78	4.7	600	10800	6.0	0.07	2788/9	✓	✓	✓	✓									**2KJ3404 - ■ ■■■■ - ■■ R1**
272.00	5.3	600	10800	6.0	0.08	272/1	✓	✓	✓	✓									**2KJ3404 - ■ ■■■■ - ■■ Q1**
247.27	5.9	600	10800	6.0	0.10	2720/11	✓	✓	✓	✓									**2KJ3404 - ■ ■■■■ - ■■ P1**
211.56	6.9	600	10800	6.0	0.12	1904/9	✓	✓	✓	✓									**2KJ3404 - ■ ■■■■ - ■■ N1**
192.32	7.5	600	10800	6.0	0.14	19040/99	✓	✓	✓	✓									**2KJ3404 - ■ ■■■■ - ■■ M1**
170.00	8.5	600	10800	6.1	0.17	170/1	✓	✓	✓	✓	✓	✓							**2KJ3404 - ■ ■■■■ - ■■ L1**
154.55	9.4	600	10800	6.1	0.22	1700/11	✓	✓	✓	✓	✓	✓							**2KJ3404 - ■ ■■■■ - ■■ K1**
135.37	11	600	10800	6.1	0.26	3655/27	✓	✓	✓	✓	✓	✓							**2KJ3404 - ■ ■■■■ - ■■ J1**
124.96	12	600	10800	6.1	0.31	14620/117	✓	✓	✓	✓	✓	✓							**2KJ3404 - ■ ■■■■ - ■■ H1**
110.63	13	600	10800	6.1	0.38	6970/63	✓	✓	✓	✓	✓	✓	✓						**2KJ3404 - ■ ■■■■ - ■■ G1**
92.08	16	600	10800	6.1	0.51	1105/12	✓	✓	✓	✓	✓	✓	✓						**2KJ3404 - ■ ■■■■ - ■■ F1**
86.67	17	600	10800	6.1	0.60	260/3	✓	✓	✓	✓	✓	✓	✓						**2KJ3404 - ■ ■■■■ - ■■ E1**
77.65	19	600	10400	6.2	0.66	6290/81	✓	✓	✓	✓	✓	✓	✓						**2KJ3404 - ■ ■■■■ - ■■ D1**
66.11	22	600	9720	6.2	0.87	595/9	✓	✓	✓	✓	✓	✓	✓						**2KJ3404 - ■ ■■■■ - ■■ C1**
56.67	26	600	9050	6.2	1.15	170/3			✓	✓	✓	✓	✓						**2KJ3404 - ■ ■■■■ - ■■ B1**
48.80	30	600	8430	6.2	1.47	2635/54			✓	✓	✓	✓	✓						**2KJ3404 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Parallel shaft geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.79																			
53.55	27	1000	13600	5.6	0.56	589/11		✓	✓	✓									**2KJ3305 - ■ ■■■■ - ■■ X1**
48.03	30	1000	13600	5.6	0.77	1729/36		✓	✓	✓	✓	✓							**2KJ3305 - ■ ■■■■ - ■■ W1**
43.18	34	1000	13600	5.7	0.87	475/11		✓	✓	✓	✓	✓							**2KJ3305 - ■ ■■■■ - ■■ V1**
39.06	37	1000	13600	5.7	0.97	703/18		✓	✓	✓	✓	✓							**2KJ3305 - ■ ■■■■ - ■■ U1**
36.05	40	1000	13600	5.7	1.15	1406/39		✓	✓	✓	✓	✓							**2KJ3305 - ■ ■■■■ - ■■ T1**
33.02	44	1000	13600	5.7	1.49	1387/42		✓	✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ S1**
27.71	52	1000	13600	5.7	1.62	665/24		✓	✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ R1**
26.08	56	1000	13600	5.7	1.85	1330/51		✓	✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ Q1**
23.93	61	1000	13600	5.7	2.0	646/27		✓	✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ P1**
20.90	69	1000	13600	5.7	2.9	209/10		✓	✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ N1**
18.71	77	1000	12900	5.7	3.6	1235/66			✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ M1**
16.36	89	1000	12200	5.7	4.2	589/36			✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ L1**
14.04	103	1000	11400	5.8	4.7	323/23			✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ K1**
12.41	117	1000	10800	6.2	6.0	931/75			✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ J1**
10.56	137	1000	10100	6.3	7.8	95/9					✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ H1**
9.05	160	1000	9980	6.5	10	190/21					✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ G1**
8.51	170	720	10300	8.9	4.6	468/55			✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ F1**
7.44	195	725	9770	9.2	5.5	186/25			✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ E1**
6.39	227	720	9690	9.3	6.5	3672/575			✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ D1**
5.64	257	700	9620	10.2	8.3	3528/625			✓	✓	✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ C1**
4.80	302	650	9480	10.6	11	24/5					✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ B1**
4.11	353	605	9310	11.0	15	144/35					✓	✓	✓	✓					**2KJ3305 - ■ ■■■■ - ■■ A1**
FD.79																			
357.00	4.1	1000	13600	5.6	0.17	57133/160		✓	✓	✓									**2KJ3405 - ■ ■■■■ - ■■ S1**
324.62	4.5	1000	13600	5.6	0.20	57133/176		✓	✓	✓									**2KJ3405 - ■ ■■■■ - ■■ R1**
276.09	5.3	1000	13600	5.6	0.25	8835/32		✓	✓	✓									**2KJ3405 - ■ ■■■■ - ■■ Q1**
250.99	5.8	1000	13600	5.6	0.30	44175/176		✓	✓	✓									**2KJ3405 - ■ ■■■■ - ■■ P1**
223.94	6.5	1000	13600	5.6	0.35	42997/192		✓	✓	✓	✓	✓							**2KJ3405 - ■ ■■■■ - ■■ N1**
200.80	7.2	1000	13600	5.6	0.42	8835/44		✓	✓	✓	✓	✓							**2KJ3405 - ■ ■■■■ - ■■ M1**
180.99	8	1000	13600	5.6	0.49	34751/192		✓	✓	✓	✓	✓							**2KJ3405 - ■ ■■■■ - ■■ L1**
167.07	8.7	1000	13600	5.6	0.58	34751/208		✓	✓	✓	✓	✓							**2KJ3405 - ■ ■■■■ - ■■ K1**
152.51	9.5	1000	13600	5.6	0.69	17081/112		✓	✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ J1**
126.54	11	1000	13600	5.7	0.87	32395/256		✓	✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ H1**
119.10	12	1000	13600	5.7	1.01	32395/272		✓	✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ G1**
112.48	13	1000	13600	5.7	1.15	32395/288		✓	✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ F1**
95.71	15	1000	13600	5.7	1.39	7657/80		✓	✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ E1**
81.99	18	1000	13600	5.7	1.70	28861/352			✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ D1**
72.09	20	1000	13600	5.7	2.10	27683/384			✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ C1**
60.82	24	1000	13600	5.7	2.60	11191/184			✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ B1**
53.01	27	1000	13600	5.8	3.50	5301/100			✓	✓	✓	✓	✓	✓					**2KJ3405 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.89																			
61.72	23	1850	17400	4.8	1.38	2407/39			✓	✓	✓	✓							**2KJ3306 - ■ ■■■■ - ■■ B2**
55.72	26	1850	17400	4.8	1.51	7968/143			✓	✓	✓	✓							**2KJ3306 - ■ ■■■■ - ■■ A2**
50.54	29	1850	17400	4.8	1.77	7885/156			✓	✓	✓	✓							**2KJ3306 - ■ ■■■■ - ■■ X1**
46.66	31	1850	17400	4.8	2.1	7885/169			✓	✓	✓	✓							**2KJ3306 - ■ ■■■■ - ■■ W1**
42.41	34	1850	17400	4.9	2.4	7719/182			✓	✓	✓	✓	✓	✓					**2KJ3306 - ■ ■■■■ - ■■ V1**
35.91	40	1850	17400	4.9	2.9	3735/104			✓	✓	✓	✓	✓	✓					**2KJ3306 - ■ ■■■■ - ■■ U1**
33.80	43	1850	17400	4.9	3.0	7470/221			✓	✓	✓	✓	✓	✓					**2KJ3306 - ■ ■■■■ - ■■ T1**
31.21	46	1850	17400	5.0	4.5	3652/117			✓	✓	✓	✓	✓	✓					**2KJ3306 - ■ ■■■■ - ■■ S1**
27.77	52	1850	17400	5.0	5.5	7221/260			✓	✓	✓	✓	✓	✓					**2KJ3306 - ■ ■■■■ - ■■ R1**
24.67	59	1850	17400	5.0	6.7	7055/286			✓	✓	✓	✓	✓	✓					**2KJ3306 - ■ ■■■■ - ■■ Q1**
22.08	66	1850	17400	5.1	6.7	6889/312			✓	✓	✓	✓	✓	✓					**2KJ3306 - ■ ■■■■ - ■■ P1**
18.88	77	1850	17200	5.1	7.9	5644/299			✓	✓	✓	✓	✓	✓					**2KJ3306 - ■ ■■■■ - ■■ N1**
16.86	86	1850	16400	5.4	10	5478/325			✓	✓	✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ M1**
14.90	97	1850	15500	5.5	12	581/39					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ L1**
13.07	111	1850	14600	5.3	16	3569/273					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ K1**
11.38	127	1850	14600	5.3	20	3403/299					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ J1**
9.73	149	1850	14600	5.5	26	2656/273					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ H1**
8.33	174	1740	14500	5.6	33	2490/299					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ G1**
7.60	191	1100	14100	9.0	14	4752/625			✓	✓	✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ F1**
6.72	216	1110	14000	9.2	17	168/25					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ E1**
5.90	246	1110	13800	9.2	23	1032/175					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ D1**
5.13	283	1110	13600	9.2	28	2952/575					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ C1**
4.39	330	1060	13300	9.2	39	768/175					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ B1**
3.76	386	985	12900	9.5	50	432/115					✓	✓	✓	✓	✓				**2KJ3306 - ■ ■■■■ - ■■ A1**
FD.89																			
335.30	4.3	1850	17400	5.1	0.42	370512/1105			✓	✓									**2KJ3406 - ■ ■■■■ - ■■ S1**
304.82	4.8	1850	17400	5.1	0.51	741024/2431			✓	✓									**2KJ3406 - ■ ■■■■ - ■■ R1**
273.41	5.3	1850	17400	5.1	0.71	4648/17			✓	✓	✓	✓							**2KJ3406 - ■ ■■■■ - ■■ Q1**
245.82	5.9	1850	17400	5.1	0.79	597600/2431			✓	✓	✓	✓							**2KJ3406 - ■ ■■■■ - ■■ P1**
222.33	6.5	1850	17400	5.1	0.88	49136/221			✓	✓	✓	✓							**2KJ3406 - ■ ■■■■ - ■■ N1**
205.23	7.1	1850	17400	5.1	1.03	589632/2873			✓	✓	✓	✓							**2KJ3406 - ■ ■■■■ - ■■ M1**
188.00	7.7	1850	17400	5.1	1.35	290832/1547			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ L1**
157.74	9.2	1850	17400	5.1	1.43	34860/221			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ K1**
148.46	9.8	1850	17400	5.1	1.64	557760/3757			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ J1**
136.21	11	1850	17400	5.1	1.79	5312/39			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ H1**
118.98	12	1850	17400	5.1	2.6	131472/1105			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ G1**
106.52	14	1850	17400	5.1	3.1	19920/187			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ F1**
93.14	16	1850	17400	5.1	3.7	20584/221			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ E1**
79.95	18	1850	17400	5.2	4.0	23904/299			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ D1**
70.67	21	1850	17400	5.2	5.1	390432/5525			✓	✓	✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ C1**
60.09	24	1850	17400	5.3	6.5	13280/221					✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ B1**
51.51	28	1850	17400	5.3	8.5	79680/1547					✓	✓	✓	✓					**2KJ3406 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.109																			
70.74	20	3100	25000	4.6	3.6	12733/180				✓	✓	✓							**2KJ3307 - ■ ■■■■ - ■■ B2**
65.30	22	3100	25000	4.6	4.3	12733/195				✓	✓	✓							**2KJ3307 - ■ ■■■■ - ■■ A2**
60.12	24	3100	25000	4.6	4.9	6313/105				✓	✓	✓	✓	✓					**2KJ3307 - ■ ■■■■ - ■■ X1**
51.27	28	3100	25000	4.6	6.3	2461/48				✓	✓	✓	✓	✓					**2KJ3307 - ■ ■■■■ - ■■ W1**
48.25	30	3100	25000	4.6	7.1	2461/51				✓	✓	✓	✓	✓					**2KJ3307 - ■ ■■■■ - ■■ V1**
44.78	32	3100	25000	4.6	7.8	12091/270				✓	✓	✓	✓	✓					**2KJ3307 - ■ ■■■■ - ■■ U1**
39.59	37	3100	25000	4.6	9.5	3959/100				✓	✓	✓	✓	✓					**2KJ3307 - ■ ■■■■ - ■■ T1**
35.34	41	3100	24700	4.7	11	11663/330				✓	✓	✓	✓	✓					**2KJ3307 - ■ ■■■■ - ■■ S1**
31.80	46	3100	23600	4.7	13	11449/360				✓	✓	✓	✓	✓					**2KJ3307 - ■ ■■■■ - ■■ R1**
27.60	53	3100	22200	4.7	16	9523/345				✓	✓	✓	✓	✓					**2KJ3307 - ■ ■■■■ - ■■ Q1**
24.82	58	3100	21200	4.9	19	3103/125				✓	✓	✓	✓	✓	✓				**2KJ3307 - ■ ■■■■ - ■■ P1**
21.70	67	3100	19900	5.0	23	7811/360					✓	✓	✓	✓	✓	✓			**2KJ3307 - ■ ■■■■ - ■■ N1**
19.36	75	3100	18900	5.0	27	2033/105					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ M1**
17.06	85	3100	17800	5.0	33	1177/69					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ L1**
14.95	97	3100	16700	5.1	40	4708/315					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ K1**
13.03	111	3100	15600	5.2	48	1498/115					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ J1**
11.89	122	3060	15600	5.2	56	107/9					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ H1**
10.23	142	2880	15900	5.3	70	1177/115							✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ G1**
9.02	161	2090	16100	7.6	36	1767/196					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ F1**
7.94	183	2000	15800	7.8	44	5115/644					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ E1**
6.96	208	1900	15700	7.9	54	341/49					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ D1**
6.07	239	1800	15600	8.1	68	279/46					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ C1**
5.54	262	1730	15400	8.2	79	155/28					✓	✓	✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ B1**
4.77	304	1620	15200	8.4	102	3069/644							✓	✓	✓	✓	✓		**2KJ3307 - ■ ■■■■ - ■■ A1**
FD.109																			
410.00	3.5	3100	25000	6.5	1.27	332021/810				✓	✓	✓							**2KJ3407 - ■ ■■■■ - ■■ T1**
370.00	3.9	3100	25000	6.5	1.37	183184/495				✓	✓	✓							**2KJ3407 - ■ ■■■■ - ■■ S1**
335.70	4.3	3100	25000	6.5	1.61	217531/648				✓	✓	✓							**2KJ3407 - ■ ■■■■ - ■■ R1**
309.87	4.7	3100	25000	6.5	1.89	217531/702				✓	✓	✓							**2KJ3407 - ■ ■■■■ - ■■ Q1**
281.68	5.1	3100	25000	6.5	2.2	354919/1260				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ P1**
238.52	6.1	3100	25000	6.5	2.6	11449/48				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ N1**
224.49	6.5	3100	25000	6.5	2.6	11449/51				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ M1**
207.31	7	3100	25000	6.5	4.0	251878/1215				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ L1**
184.46	7.9	3100	25000	6.5	5.0	332021/1800				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ K1**
163.83	8.9	3100	25000	6.5	5.9	194633/1188				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ J1**
146.65	9.9	3100	25000	6.5	5.9	950267/6480				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ H1**
125.37	12	3100	25000	6.5	6.7	389266/3105				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ G1**
111.95	13	3100	25000	6.5	8.6	125939/1125				✓	✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ F1**
98.94	15	3100	25000	6.5	9.6	80143/810					✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ E1**
86.83	17	3100	25000	6.5	14	492307/5670					✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ D1**
75.59	19	3100	25000	6.5	16	469409/6210					✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ C1**
64.62	22	3100	25000	6.5	21	183184/2835					✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ B1**
55.31	26	3100	25000	6.5	25	11449/207					✓	✓	✓	✓					**2KJ3407 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.129																			
69.20	21	4850	37200	5.1	7.7	13563/196				✓	✓	✓	✓	✓					**2KJ3308 - ■ ■■■■ - ■■ A2**
59.22	24	4850	37200	5.1	9.7	6633/112				✓	✓	✓	✓	✓					**2KJ3308 - ■ ■■■■ - ■■ X1**
55.74	26	4850	37200	5.1	11	6633/119				✓	✓	✓	✓	✓					**2KJ3308 - ■ ■■■■ - ■■ W1**
52.25	28	4850	36600	5.1	12	209/4				✓	✓	✓	✓	✓					**2KJ3308 - ■ ■■■■ - ■■ V1**
46.32	31	4850	34800	5.1	15	12969/280				✓	✓	✓	✓	✓					**2KJ3308 - ■ ■■■■ - ■■ U1**
41.14	35	4850	33100	5.1	18	288/7				✓	✓	✓	✓	✓					**2KJ3308 - ■ ■■■■ - ■■ T1**
37.12	39	4850	31700	5.1	21	297/8				✓	✓	✓	✓	✓					**2KJ3308 - ■ ■■■■ - ■■ S1**
32.90	44	4850	30100	5.2	26	10593/322				✓	✓	✓	✓	✓					**2KJ3308 - ■ ■■■■ - ■■ R1**
29.13	50	4850	28500	5.3	29	10197/350				✓	✓	✓	✓	✓	✓				**2KJ3308 - ■ ■■■■ - ■■ Q1**
25.93	56	4850	27100	5.3	35	363/14					✓	✓	✓	✓	✓	✓			**2KJ3308 - ■ ■■■■ - ■■ P1**
23.23	62	4850	25800	5.3	41	2277/98					✓	✓	✓	✓	✓	✓	✓		**2KJ3308 - ■ ■■■■ - ■■ N1**
20.60	70	4850	24400	5.3	49	6633/322					✓	✓	✓	✓	✓	✓	✓		**2KJ3308 - ■ ■■■■ - ■■ M1**
18.18	80	4850	23000	5.4	60	891/49					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ L1**
15.99	91	4800	21700	5.4	73	2574/161					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ K1**
14.48	100	4690	21000	5.5	83	1419/98					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ J1**
12.61	115	4530	20100	5.5	101	4059/322							✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ H1**
10.34	140	4320	20400	5.5	135	1881/182							✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ G1**
9.80	148	3630	19600	8.1	64	2479/253					✓	✓	✓	✓	✓	✓	✓		**2KJ3308 - ■ ■■■■ - ■■ F1**
8.65	168	3640	19700	8.1	79	666/77					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ E1**
7.60	191	3620	19800	8.1	97	1924/253					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ D1**
6.89	210	3630	19700	8.2	112	1591/231					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ C1**
6.00	242	3640	19600	8.3	140	1517/253							✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ B1**
4.92	295	3030	19300	8.5	192	703/143							✓	✓	✓	✓	✓	✓	**2KJ3308 - ■ ■■■■ - ■■ A1**
FD.129																			
413.00	3.5	4850	37200	5.5	3.3	9911/24				✓	✓	✓							**2KJ3408 - ■ ■■■■ - ■■ T1**
381.00	3.8	4850	37200	5.5	3.9	9911/26				✓	✓	✓							**2KJ3408 - ■ ■■■■ - ■■ S1**
351.00	4.1	4850	37200	5.5	4.5	34397/98				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ R1**
299.31	4.8	4850	37200	5.5	5.6	67045/224				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ Q1**
281.70	5.1	4850	37200	5.5	6.4	67045/238				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ P1**
261.42	5.5	4850	37200	5.5	6.9	65879/252				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ N1**
231.12	6.3	4850	37200	5.5	8.4	64713/280				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ M1**
206.32	7	4850	37200	5.5	10	5777/28				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ L1**
185.66	7.8	4850	37200	5.5	12	62381/336				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ K1**
161.14	9	4850	37200	5.5	14	51887/322				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ J1**
144.92	10	4850	37200	5.5	16	50721/350				✓	✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ H1**
126.66	11	4850	37200	5.5	19	42559/336					✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ G1**
113.03	13	4850	37200	5.5	23	11077/98					✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ F1**
99.58	15	4850	37200	5.5	27	32065/322					✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ E1**
87.25	17	4850	37200	5.5	32	12826/147					✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ D1**
76.04	19	4850	37200	5.5	37	1749/23					✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ C1**
69.40	21	4850	37200	5.5	44	2915/42					✓	✓	✓	✓					**2KJ3408 - ■ ■■■■ - ■■ B1**
59.75	24	4850	37200	5.5	53	19239/322							✓	✓					**2KJ3408 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Parallel shaft geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.149																			
48.48	30	8000	42700	4.6	31	1600/33					✓	✓	✓	✓					**2KJ3310 - ■ ■■■■ - ■■ T1**
43.89	33	8000	40800	4.6	36	395/9					✓	✓	✓	✓					**2KJ3310 - ■ ■■■■ - ■■ S1**
38.55	38	8000	38500	4.6	44	2660/69					✓	✓	✓	✓					**2KJ3310 - ■ ■■■■ - ■■ R1**
34.93	42	8000	36800	4.6	51	524/15					✓	✓	✓	✓	✓				**2KJ3310 - ■ ■■■■ - ■■ Q1**
31.11	47	8000	34900	4.7	60	280/9					✓	✓	✓	✓	✓	✓			**2KJ3310 - ■ ■■■■ - ■■ P1**
27.94	52	8000	33100	4.7	72	1760/63					✓	✓	✓	✓	✓	✓	✓		**2KJ3310 - ■ ■■■■ - ■■ N1**
24.93	58	8000	31300	4.7	84	1720/69					✓	✓	✓	✓	✓	✓	✓		**2KJ3310 - ■ ■■■■ - ■■ M1**
22.22	65	8000	29600	4.7	98	200/9					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ L1**
19.71	74	8000	27800	4.7	117	1360/69					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ K1**
18.10	80	8000	26600	4.8	132	380/21					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ J1**
15.94	91	8000	24900	4.8	156	1100/69							✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ H1**
13.08	111	7620	23200	4.9	212	170/13							✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ G1**
11.47	126	7320	23700	4.9	241	172/15							✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ F1**
8.97	162	6770	24500	6.2	379	260/29							✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ E1**
8.09	179	5690	23900	6.2	200	2420/299							✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ D1**
6.64	218	5690	24000	6.3	277	1122/169							✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ C1**
5.82	249	5680	24000	6.6	325	1892/325							✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ B1**
4.55	319	5650	23600	7.3	517	132/29							✓	✓	✓	✓	✓	✓	**2KJ3310 - ■ ■■■■ - ■■ A1**
FD.149																			
377.00	3.8	8000	65000	4.8	7.1	18495/49					✓	✓	✓	✓					**2KJ3410 - ■ ■■■■ - ■■ W1**
323.04	4.5	8000	65000	4.8	9	9045/28					✓	✓	✓	✓					**2KJ3410 - ■ ■■■■ - ■■ V1**
304.03	4.8	8000	65000	4.8	10	36180/119					✓	✓	✓	✓					**2KJ3410 - ■ ■■■■ - ■■ U1**
285.00	5.1	8000	65000	4.8	11	285/1					✓	✓	✓	✓					**2KJ3410 - ■ ■■■■ - ■■ T1**
252.64	5.7	8000	65000	4.8	14	3537/14					✓	✓	✓	✓					**2KJ3410 - ■ ■■■■ - ■■ S1**
224.42	6.5	8000	65000	4.8	16	17280/77					✓	✓	✓	✓					**2KJ3410 - ■ ■■■■ - ■■ R1**
202.50	7.2	8000	65000	4.8	19	405/2					✓	✓	✓	✓					**2KJ3410 - ■ ■■■■ - ■■ Q1**
179.44	8.1	8000	65000	4.8	23	28890/161					✓	✓	✓	✓					**2KJ3410 - ■ ■■■■ - ■■ P1**
158.91	9.1	8000	65000	4.8	26	5562/35					✓	✓	✓	✓	✓				**2KJ3410 - ■ ■■■■ - ■■ N1**
141.43	10	8000	65000	4.8	31	990/7					✓	✓	✓	✓	✓	✓			**2KJ3410 - ■ ■■■■ - ■■ M1**
126.73	11	8000	65000	4.8	37	6210/49					✓	✓	✓	✓	✓	✓	✓		**2KJ3410 - ■ ■■■■ - ■■ L1**
112.36	13	8000	63600	4.8	43	18090/161					✓	✓	✓	✓	✓	✓	✓		**2KJ3410 - ■ ■■■■ - ■■ K1**
99.18	15	8000	60700	4.8	53	4860/49					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ J1**
87.20	17	8000	57700	4.8	63	14040/161					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ H1**
78.98	18	8000	54800	4.8	71	3870/49					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ G1**
68.76	21	8000	52600	4.9	85	11070/161							✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ F1**
56.37	26	8000	49600	4.9	111	5130/91							✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ E1**
50.01	29	8000	45600	5.2	73	37960/759					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ D1**
45.30	32	8000	43300	5.2	83	31390/693					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ C1**
39.43	37	7970	41400	5.2	102	29930/759							✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ B1**
32.33	45	7510	39000	5.2	135	13870/429							✓	✓	✓	✓	✓	✓	**2KJ3410 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.169																			
44.93	32	12400	59900	4.2	68	3100/69						✓	✓	✓					**2KJ3311 - ■ ■■■■ - ■■ S1**
41.07	35	13600	55100	4.3	80	616/15						✓	✓	✓	✓				**2KJ3311 - ■ ■■■■ - ■■ R1**
36.94	39	13600	52500	4.3	95	665/18						✓	✓	✓	✓	✓			**2KJ3311 - ■ ■■■■ - ■■ Q1**
33.02	44	13600	49800	4.4	111	2080/63						✓	✓	✓	✓	✓	✓		**2KJ3311 - ■ ■■■■ - ■■ P1**
29.86	49	13600	47500	4.4	133	2060/69						✓	✓	✓	✓	✓	✓		**2KJ3311 - ■ ■■■■ - ■■ N1**
26.35	55	13600	44700	4.4	157	1660/63						✓	✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ M1**
23.48	62	13600	42200	4.4	186	540/23						✓	✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ L1**
21.27	68	13600	42300	4.3	206	1340/63						✓	✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ K1**
19.13	76	13600	42800	4.3	249	440/23							✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ J1**
15.90	91	13500	43200	4.4	314	620/39							✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ H1**
14.13	103	12900	43200	4.4	386	212/15							✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ G1**
11.26	129	11700	42800	4.6	534	980/87							✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ F1**
8.97	162	10400	41900	4.8	710	260/29									✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ E1**
8.07	180	8350	39300	5.9	396	1364/169							✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ D1**
7.18	202	8310	38900	5.9	489	2332/325							✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ C1**
5.72	253	8210	37800	6.4	697	2156/377							✓	✓	✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ B1**
4.55	319	7300	36400	6.8	967	132/29									✓	✓	✓	✓	**2KJ3311 - ■ ■■■■ - ■■ A1**
FD.169																			
368.00	3.9	13600	73500	4.4	18	106240/289						✓	✓	✓					**2KJ3411 - ■ ■■■■ - ■■ V1**
343.01	4.2	13600	73500	4.4	19	52480/153						✓	✓	✓					**2KJ3411 - ■ ■■■■ - ■■ U1**
304.94	4.8	13600	73500	4.4	24	5184/17						✓	✓	✓					**2KJ3411 - ■ ■■■■ - ■■ T1**
273.80	5.3	13600	73500	4.4	28	51200/187						✓	✓	✓					**2KJ3411 - ■ ■■■■ - ■■ S1**
247.84	5.9	13600	73500	4.4	33	12640/51						✓	✓	✓					**2KJ3411 - ■ ■■■■ - ■■ R1**
217.70	6.7	13600	73500	4.4	40	85120/391						✓	✓	✓					**2KJ3411 - ■ ■■■■ - ■■ Q1**
197.27	7.4	13600	73500	4.4	46	16768/85						✓	✓	✓	✓				**2KJ3411 - ■ ■■■■ - ■■ P1**
175.69	8.3	13600	73500	4.4	54	8960/51						✓	✓	✓	✓	✓			**2KJ3411 - ■ ■■■■ - ■■ N1**
157.76	9.2	13600	73500	4.4	64	56320/357						✓	✓	✓	✓	✓	✓		**2KJ3411 - ■ ■■■■ - ■■ M1**
140.77	10	13600	73500	4.4	74	55040/391						✓	✓	✓	✓	✓	✓		**2KJ3411 - ■ ■■■■ - ■■ L1**
125.49	12	13600	73500	4.4	86	6400/51						✓	✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ K1**
111.30	13	13600	73500	4.4	101	2560/23						✓	✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ J1**
102.18	14	13600	73500	4.4	113	12160/119						✓	✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ H1**
90.03	16	13600	73500	4.4	132	35200/391							✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ G1**
73.85	20	13600	71200	4.5	176	960/13							✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ F1**
64.75	22	13600	67400	4.5	194	5504/85							✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ E1**
50.63	29	13600	60600	4.5	302	24960/493							✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ D1**
46.55	31	13600	58300	4.7	201	3026/65							✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ C1**
40.82	36	13600	55000	4.7	226	15308/375							✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ B1**
31.92	45	13600	53400	4.8	355	4628/145							✓	✓	✓	✓	✓	✓	**2KJ3411 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Parallel shaft geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
FZ.189																			
37.93	38	19000	76100	4.0	143	11948/315						✓	✓	✓	✓	✓	✓		**2KJ3312 - ■ ■■■■ - ■■ L1**
34.03	43	19000	72500	4.1	169	3914/115						✓	✓	✓	✓	✓	✓		**2KJ3312 - ■ ■■■■ - ■■ K1**
30.41	48	19000	68900	4.1	202	3193/105						✓	✓	✓	✓	✓	✓	✓	**2KJ3312 - ■ ■■■■ - ■■ J1**
27.17	53	19000	65400	4.1	241	9373/345						✓	✓	✓	✓	✓	✓	✓	**2KJ3312 - ■ ■■■■ - ■■ H1**
24.85	58	19000	62700	4.1	269	7828/315						✓	✓	✓	✓	✓	✓	✓	**2KJ3312 - ■ ■■■■ - ■■ G1**
22.09	66	19000	59300	4.1	321	7622/345							✓	✓	✓	✓	✓	✓	**2KJ3312 - ■ ■■■■ - ■■ F1**
18.75	77	19000	54700	4.2	410	7313/390							✓	✓	✓	✓	✓	✓	**2KJ3312 - ■ ■■■■ - ■■ E1**
16.21	89	19000	50800	4.2	495	6077/375							✓	✓	✓	✓	✓	✓	**2KJ3312 - ■ ■■■■ - ■■ D1**
13.26	109	17600	48700	4.3	687	5768/435							✓	✓	✓	✓	✓	✓	**2KJ3312 - ■ ■■■■ - ■■ C1**
10.89	133	16300	50000	4.4	906	4738/435									✓	✓	✓	✓	**2KJ3312 - ■ ■■■■ - ■■ B1**
8.47	171	14700	50400	4.8	1333	3811/450												✓	**2KJ3312 - ■ ■■■■ - ■■ A1**
FD.189																			
347.35	4.2	19000	110900	4.1	36	590499/1700						✓	✓	✓					**2KJ3412 - ■ ■■■■ - ■■ T1**
310.76	4.7	19000	110900	4.1	43	290563/935						✓	✓	✓					**2KJ3412 - ■ ■■■■ - ■■ S1**
280.27	5.2	19000	110900	4.1	49	571753/2040						✓	✓	✓					**2KJ3412 - ■ ■■■■ - ■■ R1**
247.71	5.9	19000	110900	4.1	61	290563/1173						✓	✓	✓					**2KJ3412 - ■ ■■■■ - ■■ Q1**
226.42	6.4	19000	110900	4.1	71	1443442/6375						✓	✓	✓	✓				**2KJ3412 - ■ ■■■■ - ■■ P1**
203.69	7.1	19000	110900	4.1	84	1246609/6120						✓	✓	✓	✓	✓			**2KJ3412 - ■ ■■■■ - ■■ N1**
182.03	8	19000	110900	4.1	98	139256/765						✓	✓	✓	✓	✓	✓		**2KJ3412 - ■ ■■■■ - ■■ M1**
164.61	8.8	19000	110900	4.1	117	965419/5865						✓	✓	✓	✓	✓	✓		**2KJ3412 - ■ ■■■■ - ■■ L1**
145.28	10	19000	110900	4.1	136	111137/765						✓	✓	✓	✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ K1**
129.45	11	19000	110900	4.1	160	253071/1955						✓	✓	✓	✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ J1**
117.27	12	19000	110900	4.1	175	89713/765						✓	✓	✓	✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ H1**
105.48	14	19000	110900	4.1	210	206206/1955							✓	✓	✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ G1**
87.65	17	19000	108200	4.1	258	22351/255							✓	✓	✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ F1**
77.92	19	19000	103200	4.1	314	496769/6375							✓	✓	✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ E1**
62.11	23	19000	94000	4.2	422	459277/7395							✓	✓	✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ D1**
49.43	29	19000	85400	4.2	533	121849/2465									✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ C1**
40.61	36	19000	78400	4.4	478	35329/870							✓	✓	✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ B1**
32.32	45	19000	70800	4.4	621	9373/290									✓	✓	✓	✓	**2KJ3412 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FZ.29-Z19															
1760	0.82	150	5220	–	0.02	1715912/975	✓	✓							**2KJ3320 - ■ ■■■■ - ■■ R1**
1558	0.93	150	5220	–	0.03	2532354/1625	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ Q1**
1354	1.1	150	5220	–	0.04	2200242/1625	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ P1**
1231	1.2	150	5220	–	0.05	400044/325	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ N1**
1047	1.4	150	5220	–	0.07	1702074/1625	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ M1**
952	1.5	150	5220	–	0.08	309468/325	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ L1**
830	1.7	150	5220	–	0.09	20757/25	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ K1**
743	2	150	5220	–	0.12	241536/325	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ J1**
660	2.2	150	5220	–	0.15	214489/325	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ H1**
609	2.4	150	5220	–	0.18	2573868/4225	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ G1**
529	2.7	150	5220	–	0.2	1203906/2275	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ F1**
460	3.2	150	5220	–	0.21	747252/1625	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ E1**
415	3.5	150	5220	–	0.27	20757/50	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ D1**
391	3.7	150	5220	–	0.32	9768/25	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ C1**
340.63	4.3	150	5220	–	0.36	110704/325	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ B1**
314.27	4.6	150	5220	–	0.19	428978/1365	✓	✓	✓						**2KJ3320 - ■ ■■■■ - ■■ A1**
FZ.29-D19															
8237	0.18	150	5220	–	0.03	93697098/11375	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ P1**
7157	0.20	150	5220	–	0.04	81408954/11375	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ N1**
6506	0.22	150	5220	–	0.04	14801628/2275	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ M1**
5536	0.26	150	5220	–	0.06	62976738/11375	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ L1**
5033	0.29	150	5220	–	0.07	11450316/2275	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ K1**
4389	0.33	150	5220	–	0.08	768009/175	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ J1**
3928	0.37	150	5220	–	0.11	8936832/2275	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ H1**
3488	0.42	150	5220	–	0.13	7936093/2275	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ G1**
3220	0.45	150	5220	–	0.16	95233116/29575	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ F1**
2797	0.52	150	5220	–	0.17	44544522/15925	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ E1**
2431	0.60	150	5220	–	0.18	27648324/11375	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ D1**
2194	0.66	150	5220	–	0.22	768009/350	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ C1**
2065	0.70	150	5220	–	0.26	361416/175	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ B1**
1800	0.81	150	5220	–	0.29	4096048/2275	✓	✓							**2KJ3321 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FZ.39-Z19															
2028	0.71	230	6040	–	0.02	922746/455	✓	✓							**2KJ3322 - ■ ■■■■ - ■■ T1**
1796	0.81	230	6040	–	0.03	8170767/4550	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ S1**
1560	0.93	230	6040	–	0.04	7099191/4550	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ R1**
1418	1.0	230	6040	–	0.05	645381/455	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ Q1**
1207	1.2	230	6040	–	0.07	5491827/4550	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ P1**
1097	1.3	230	6040	–	0.08	499257/455	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ N1**
957	1.5	230	6040	–	0.09	133947/140	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ M1**
856	1.7	230	6040	–	0.12	389664/455	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ L1**
761	1.9	230	6040	–	0.15	1384119/1820	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ K1**
702	2.1	230	6040	–	0.18	4152357/5915	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ J1**
610	2.4	230	6040	–	0.2	3884463/6370	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ H1**
530	2.7	230	6040	–	0.21	1205523/2275	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ G1**
478	3.0	230	6040	–	0.27	133947/280	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ F1**
450	3.2	230	6040	–	0.32	267894/595	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ E1**
393	3.7	230	6040	–	0.36	178596/455	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ D1**
362	4.0	230	6040	–	0.19	461373/1274	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ C1**
314.58	4.6	230	6040	–	0.22	431607/1372	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ B1**
273.36	5.3	230	6040	–	0.23	133947/490	✓	✓	✓						**2KJ3322 - ■ ■■■■ - ■■ A1**
FZ.39-D19															
8247	0.18	230	6040	–	0.04	262670067/31850	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ N1**
7497	0.19	230	6040	–	0.04	23879097/3185	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ M1**
6380	0.23	230	6040	–	0.06	203197599/31850	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ L1**
5800	0.25	230	6040	–	0.07	18472509/3185	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ K1**
5057	0.29	230	6040	–	0.08	4956039/980	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ J1**
4527	0.32	230	6040	–	0.11	14417568/3185	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ H1**
4020	0.36	230	6040	–	0.13	51212403/12740	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ G1**
3711	0.39	230	6040	–	0.16	153637209/41405	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ F1**
3223	0.45	230	6040	–	0.17	143725131/44590	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ E1**
2801	0.52	230	6040	–	0.18	44604351/15925	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ D1**
2529	0.57	230	6040	–	0.22	4956039/1960	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ C1**
2380	0.61	230	6040	–	0.26	9912078/4165	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ B1**
2075	0.7	230	6040	–	0.29	6608052/3185	✓	✓							**2KJ3323 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FZ.49-Z19															
2149	0.67	480	7960	–	0.02	1256926/585	✓	✓							**2KJ3324 - ■ ■■■■ - ■■ J1**
1903	0.76	480	7960	–	0.03	1236653/650	✓	✓	✓						**2KJ3324 - ■ ■■■■ - ■■ H1**
1653	0.88	480	7960	–	0.04	1074469/650	✓	✓	✓						**2KJ3324 - ■ ■■■■ - ■■ G1**
1503	0.96	480	7960	–	0.05	97679/65	✓	✓	✓						**2KJ3324 - ■ ■■■■ - ■■ F1**
1279	1.1	480	7960	–	0.07	831193/650	✓	✓	✓						**2KJ3324 - ■ ■■■■ - ■■ E1**
1163	1.2	480	7960	–	0.08	75563/65	✓	✓	✓						**2KJ3324 - ■ ■■■■ - ■■ D1**
1014	1.4	480	7960	–	0.09	20273/20	✓	✓	✓						**2KJ3324 - ■ ■■■■ - ■■ C1**
907	1.6	480	7960	–	0.13	58976/65	✓	✓	✓						**2KJ3324 - ■ ■■■■ - ■■ B1**
806	1.8	480	7960	–	0.15	628463/780	✓	✓	✓						**2KJ3324 - ■ ■■■■ - ■■ A1**
FZ.49-D19															
11357	0.13	480	7960	–	0.02	46506262/4095	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ Q1**
10056	0.14	480	7960	–	0.03	45756161/4550	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ P1**
8737	0.17	480	7960	–	0.04	39755353/4550	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ N1**
7943	0.18	480	7960	–	0.04	3614123/455	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ M1**
6759	0.21	480	7960	–	0.06	30754141/4550	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ L1**
6145	0.24	480	7960	–	0.07	2795831/455	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ K1**
5358	0.27	480	7960	–	0.08	750101/140	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ J1**
4796	0.3	480	7960	–	0.11	2182112/455	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ H1**
4259	0.34	480	7960	–	0.13	23253131/5460	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ G1**
3931	0.37	480	7960	–	0.16	23253131/5915	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ F1**
3415	0.42	480	7960	–	0.17	21752929/6370	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ E1**
2967	0.49	480	7960	–	0.18	6750909/2275	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ D1**
2679	0.54	480	7960	–	0.22	750101/280	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ C1**
2521	0.58	480	7960	–	0.26	1500202/595	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ B1**
2198	0.66	480	7960	–	0.29	3000404/1365	✓	✓							**2KJ3325 - ■ ■■■■ - ■■ A1**
FD.49-Z19															
752	1.9	480	7960	–	0.21	3762/5	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ J1**
679	2.1	480	7960	–	0.28	2717/4	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ H1**
639	2.3	480	7960	–	0.32	10868/17	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ G1**
557	2.6	480	7960	–	0.37	1672/3	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ F1**
514	2.8	480	7960	–	0.20	32395/63	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ E1**
447	3.2	480	7960	–	0.23	393965/882	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ D1**
388	3.7	480	7960	–	0.25	2717/7	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ C1**
350	4.1	480	7960	–	0.32	176605/504	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ B1**
329.79	4.4	480	7960	–	0.37	353210/1071	✓	✓	✓						**2KJ3424 - ■ ■■■■ - ■■ A1**
FD.49-D19															
14685	0.10	480	7960	–	0.07	14699730/1001	✓	✓							**2KJ3425 - ■ ■■■■ - ■■ C1**
12805	0.11	480	7960	–	0.08	179265/14	✓	✓							**2KJ3425 - ■ ■■■■ - ■■ B1**
11461	0.13	480	7960	–	0.11	11472960/1001	✓	✓							**2KJ3425 - ■ ■■■■ - ■■ A1**

Article No. supplement		
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Motor frame size, motor type, efficiency class		see chapter 9
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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FZ.69-Z19															
2262	0.64	600	10800	–	0.02	264616/117	✓	✓							**2KJ3326 - ■ ■■■■ - ■■ F1**
2003	0.72	600	10800	–	0.03	130174/65	✓	✓	✓						**2KJ3326 - ■ ■■■■ - ■■ E1**
1740	0.83	600	10800	–	0.04	113102/65	✓	✓	✓						**2KJ3326 - ■ ■■■■ - ■■ D1**
1582	0.92	600	10800	–	0.05	20564/13	✓	✓	✓						**2KJ3326 - ■ ■■■■ - ■■ C1**
1346	1.1	600	10800	–	0.07	87494/65	✓	✓	✓						**2KJ3326 - ■ ■■■■ - ■■ B1**
1224	1.2	600	10800	–	0.08	15908/13	✓	✓	✓						**2KJ3326 - ■ ■■■■ - ■■ A1**
FZ.69-D19															
11955	0.12	600	10800	–	0.02	9790792/819	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ Q1**
10586	0.14	600	10800	–	0.03	4816438/455	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ P1**
9197	0.16	600	10800	–	0.04	4184774/455	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ N1**
8361	0.17	600	10800	–	0.04	760868/91	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ M1**
7115	0.20	600	10800	–	0.06	3237278/455	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ L1**
6468	0.22	600	10800	–	0.07	588596/91	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ K1**
5640	0.26	600	10800	–	0.08	39479/7	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ J1**
5048	0.29	600	10800	–	0.11	459392/91	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ H1**
4483	0.32	600	10800	–	0.13	1223849/273	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ G1**
4138	0.35	600	10800	–	0.16	4895396/1183	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ F1**
3595	0.4	600	10800	–	0.17	2289782/637	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ E1**
3124	0.46	600	10800	–	0.18	1421244/455	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ D1**
2820	0.51	600	10800	–	0.22	39479/14	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ C1**
2654	0.55	600	10800	–	0.26	315832/119	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ B1**
2314	0.63	600	10800	–	0.29	631664/273	✓	✓							**2KJ3327 - ■ ■■■■ - ■■ A1**
FD.69-Z19															
1200	1.2	600	10800	–	0.32	1200/1	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ M1**
1046	1.4	600	10800	–	0.37	13600/13	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ L1**
965	1.5	600	10800	–	0.19	263500/273	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ K1**
838	1.7	600	10800	–	0.22	123250/147	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ J1**
729	2.0	600	10800	–	0.23	5100/7	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ H1**
658	2.2	600	10800	–	0.30	27625/42	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ G1**
619	2.3	600	10800	–	0.35	13000/21	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ F1**
587	2.5	600	10800	–	0.37	1760/3	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ E1**
541	2.7	600	10800	–	0.20	34100/63	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ D1**
470	3.1	600	10800	–	0.23	207350/441	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ C1**
409	3.5	600	10800	–	0.25	2860/7	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ B1**
369	3.9	600	10800	–	0.32	46475/126	✓	✓	✓						**2KJ3426 - ■ ■■■■ - ■■ A1**
FD.69-D19															
13479	0.11	600	10800	–	0.08	94350/7	✓	✓							**2KJ3427 - ■ ■■■■ - ■■ B1**
12065	0.12	600	10800	–	0.11	12076800/1001	✓	✓							**2KJ3427 - ■ ■■■■ - ■■ A1**

Article No. supplement		
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i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FZ.79-Z39															
2687	0.54	1000	13600	–	0.06	13059137/4860	✓	✓							**2KJ3328 - ■ ■■■■ - ■■ S2**
2389	0.61	1000	13600	–	0.07	6450899/2700	✓	✓	✓	✓					**2KJ3328 - ■ ■■■■ - ■■ R1**
2098	0.69	1000	13600	–	0.08	157339/75	✓	✓	✓	✓					**2KJ3328 - ■ ■■■■ - ■■ Q1**
1907	0.76	1000	13600	–	0.10	314678/165	✓	✓	✓	✓					**2KJ3328 - ■ ■■■■ - ■■ P1**
1632	0.89	1000	13600	–	0.12	1101373/675	✓	✓	✓	✓					**2KJ3328 - ■ ■■■■ - ■■ N1**
1483	0.98	1000	13600	–	0.14	2202746/1485	✓	✓	✓	✓					**2KJ3328 - ■ ■■■■ - ■■ M1**
1311	1.1	1000	13600	–	0.17	157339/120	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ L1**
1192	1.2	1000	13600	–	0.22	157339/132	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ K1**
1044	1.4	1000	13600	–	0.26	6765577/6480	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ J1**
964	1.5	1000	13600	–	0.31	520429/540	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ H1**
853	1.7	1000	13600	–	0.36	921557/1080	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ G1**
710	2.0	1000	13600	–	0.48	2045407/2880	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ F1**
668	2.2	1000	13600	–	0.56	2045407/3060	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ E1**
599	2.4	1000	13600	–	0.61	5821543/9720	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ D1**
510	2.8	1000	13600	–	0.79	1101373/2160	✓	✓	✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ C1**
437	3.3	1000	13600	–	1.03	157339/360			✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ B1**
376	3.9	1000	13600	–	1.31	4877509/12960			✓	✓	✓				**2KJ3328 - ■ ■■■■ - ■■ A1**
FZ.79-D39															
11301	0.13	1000	13600	–	0.03	155608271/13770	✓	✓							**2KJ3330 - ■ ■■■■ - ■■ N1**
10023	0.14	1000	13600	–	0.05	6765577/675	✓	✓	✓	✓					**2KJ3330 - ■ ■■■■ - ■■ M1**
8696	0.17	1000	13600	–	0.05	399169043/45900	✓	✓	✓	✓					**2KJ3330 - ■ ■■■■ - ■■ L1**
7906	0.18	1000	13600	–	0.07	399169043/50490	✓	✓	✓	✓					**2KJ3330 - ■ ■■■■ - ■■ K1**
6780	0.21	1000	13600	–	0.08	155608271/22950	✓	✓	✓	✓					**2KJ3330 - ■ ■■■■ - ■■ J1**
6164	0.24	1000	13600	–	0.10	155608271/25245	✓	✓	✓	✓					**2KJ3330 - ■ ■■■■ - ■■ H1**
5405	0.27	1000	13600	–	0.12	74421347/13770	✓	✓	✓	✓	✓				**2KJ3330 - ■ ■■■■ - ■■ G1**
4824	0.30	1000	13600	–	0.15	13531154/2805	✓	✓	✓	✓	✓				**2KJ3330 - ■ ■■■■ - ■■ F1**
4299	0.34	1000	13600	–	0.17	47359039/11016	✓	✓	✓	✓	✓				**2KJ3330 - ■ ■■■■ - ■■ E1**
3968	0.37	1000	13600	–	0.21	3643003/918	✓	✓	✓	✓	✓				**2KJ3330 - ■ ■■■■ - ■■ D1**
3474	0.42	1000	13600	–	0.25	10631621/3060	✓	✓	✓	✓	✓				**2KJ3330 - ■ ■■■■ - ■■ C1**
3046	0.48	1000	13600	–	0.23	209732887/68850	✓	✓	✓	✓	✓				**2KJ3330 - ■ ■■■■ - ■■ B1**
2764	0.52	1000	13600	–	0.33	6765577/2448	✓	✓	✓	✓	✓				**2KJ3330 - ■ ■■■■ - ■■ A1**
FD.79-D39															
17865	0.08	1000	13600	–	0.08	583103521/32640	✓	✓	✓	✓					**2KJ3430 - ■ ■■■■ - ■■ E1**
16241	0.09	1000	13600	–	0.10	53009411/3264	✓	✓	✓	✓					**2KJ3430 - ■ ■■■■ - ■■ D1**
14240	0.10	1000	13600	–	0.12	278875597/19584	✓	✓	✓	✓	✓				**2KJ3430 - ■ ■■■■ - ■■ C1**
12710	0.11	1000	13600	–	0.15	6914271/544	✓	✓	✓	✓	✓				**2KJ3430 - ■ ■■■■ - ■■ B1**
11327	0.13	1000	13600	–	0.17	887331445/78336	✓	✓	✓	✓	✓				**2KJ3430 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FZ.89-Z39															
3453	0.42	1850	17400	–	0.06	1398467/405	✓	✓							**2KJ3331 - ■ ■■■■ - ■■ P1**
3070	0.47	1850	17400	–	0.07	690809/225	✓	✓	✓	✓					**2KJ3331 - ■ ■■■■ - ■■ N1**
2696	0.54	1850	17400	–	0.08	67396/25	✓	✓	✓	✓					**2KJ3331 - ■ ■■■■ - ■■ M1**
2451	0.59	1850	17400	–	0.10	134792/55	✓	✓	✓	✓					**2KJ3331 - ■ ■■■■ - ■■ L1**
2097	0.69	1850	17400	–	0.12	471772/225	✓	✓	✓	✓					**2KJ3331 - ■ ■■■■ - ■■ K1**
1906	0.76	1850	17400	–	0.14	943544/495	✓	✓	✓	✓					**2KJ3331 - ■ ■■■■ - ■■ J1**
1685	0.86	1850	17400	–	0.17	16849/10	✓	✓	✓	✓	✓				**2KJ3331 - ■ ■■■■ - ■■ H1**
1532	0.95	1850	17400	–	0.22	16849/11	✓	✓	✓	✓	✓				**2KJ3331 - ■ ■■■■ - ■■ G1**
1342	1.1	1850	17400	–	0.26	724507/540	✓	✓	✓	✓	✓				**2KJ3331 - ■ ■■■■ - ■■ F1**
1238	1.2	1850	17400	–	0.31	724507/585	✓	✓	✓	✓	✓				**2KJ3331 - ■ ■■■■ - ■■ E1**
1097	1.3	1850	17400	–	0.36	98687/90	✓	✓	✓	✓	✓				**2KJ3331 - ■ ■■■■ - ■■ D1**
913	1.6	1850	17400	–	0.48	219037/240	✓	✓	✓	✓	✓				**2KJ3331 - ■ ■■■■ - ■■ C1**
859	1.7	1850	17400	–	0.56	219037/255	✓	✓	✓	✓	✓				**2KJ3331 - ■ ■■■■ - ■■ B1**
770	1.9	1850	17400	–	0.61	623413/810	✓	✓	✓	✓	✓				**2KJ3331 - ■ ■■■■ - ■■ A1**
FZ.89-D39															
14522	0.1	1850	17400	–	0.03	33327322/2295	✓	✓							**2KJ3332 - ■ ■■■■ - ■■ N1**
12880	0.11	1850	17400	–	0.05	2898028/225	✓	✓	✓	✓					**2KJ3332 - ■ ■■■■ - ■■ M1**
11175	0.13	1850	17400	–	0.05	42745913/3825	✓	✓	✓	✓					**2KJ3332 - ■ ■■■■ - ■■ L1**
10159	0.14	1850	17400	–	0.07	85491826/8415	✓	✓	✓	✓					**2KJ3332 - ■ ■■■■ - ■■ K1**
8713	0.17	1850	17400	–	0.08	33327322/3825	✓	✓	✓	✓					**2KJ3332 - ■ ■■■■ - ■■ J1**
7921	0.18	1850	17400	–	0.10	66654644/8415	✓	✓	✓	✓					**2KJ3332 - ■ ■■■■ - ■■ H1**
6945	0.21	1850	17400	–	0.12	15939154/2295	✓	✓	✓	✓	✓				**2KJ3332 - ■ ■■■■ - ■■ G1**
6299	0.23	1850	17400	–	0.15	5796056/935	✓	✓	✓	✓	✓				**2KJ3332 - ■ ■■■■ - ■■ F1**
5525	0.26	1850	17400	–	0.17	5071549/918	✓	✓	✓	✓	✓				**2KJ3332 - ■ ■■■■ - ■■ E1**
5100	0.28	1850	17400	–	0.21	10143098/1989	✓	✓	✓	✓	✓				**2KJ3332 - ■ ■■■■ - ■■ D1**
4465	0.32	1850	17400	–	0.25	1138511/255	✓	✓	✓	✓	✓				**2KJ3332 - ■ ■■■■ - ■■ C1**
3915	0.37	1850	17400	–	0.23	44919434/11475	✓	✓	✓	✓	✓				**2KJ3332 - ■ ■■■■ - ■■ B1**
3552	0.41	1850	17400	–	0.33	724507/204	✓	✓	✓	✓	✓				**2KJ3332 - ■ ■■■■ - ■■ A1**
FD.89-Z39															
648	2.2	1850	17400	–	0.75	47389680/73117	✓	✓	✓	✓	✓				**2KJ3431 - ■ ■■■■ - ■■ E1**
581	2.5	1850	17400	–	0.85	7493240/12903	✓	✓	✓	✓	✓				**2KJ3431 - ■ ■■■■ - ■■ D1**
494	2.9	1850	17400	–	1.12	2126460/4301	✓	✓	✓	✓	✓				**2KJ3431 - ■ ■■■■ - ■■ C1**
424	3.4	1850	17400	–	1.48	1822680/4301			✓	✓	✓				**2KJ3431 - ■ ■■■■ - ■■ B1**
365	4	1850	17400	–	1.91	1569530/4301			✓	✓	✓				**2KJ3431 - ■ ■■■■ - ■■ A1**
FD.89-D39															
17750	0.08	1850	17400	–	0.12	15389528/867	✓	✓	✓	✓	✓				**2KJ3432 - ■ ■■■■ - ■■ B1**
15843	0.09	1850	17400	–	0.15	50365728/3179	✓	✓	✓	✓	✓				**2KJ3432 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FD.109-Z39															
7014	0.21	3100	25000	–	0.06	2940126098/419175	✓	✓							**2KJ3433 - ■ ■■■■ - ■■ A2**
6237	0.23	3100	25000	–	0.07	1452351446/232875	✓	✓	✓	✓					**2KJ3433 - ■ ■■■■ - ■■ X1**
5476	0.26	3100	25000	–	0.09	141692824/25875	✓	✓	✓	✓					**2KJ3433 - ■ ■■■■ - ■■ W1**
4978	0.29	3100	25000	–	0.10	283385648/56925	✓	✓	✓	✓					**2KJ3433 - ■ ■■■■ - ■■ V1**
4259	0.34	3100	25000	–	0.12	991849768/232875	✓	✓	✓	✓					**2KJ3433 - ■ ■■■■ - ■■ U1**
3872	0.37	3100	25000	–	0.15	1983699536/512325	✓	✓	✓	✓					**2KJ3433 - ■ ■■■■ - ■■ T1**
3423	0.42	3100	25000	–	0.17	17711603/5175	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ S1**
3111	0.47	3100	25000	–	0.23	35423206/11385	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ R1**
2725	0.53	3100	25000	–	0.27	761598929/279450	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ Q1**
2516	0.58	3100	25000	–	0.32	117169066/46575	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ P1**
2227	0.65	3100	25000	–	0.38	103739389/46575	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ N1**
1854	0.78	3100	25000	–	0.50	230250839/124200	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ M1**
1745	0.83	3100	25000	–	0.59	27088334/15525	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ L1**
1563	0.93	3100	25000	–	0.64	655329311/419175	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ K1**
1331	1.1	3100	25000	–	0.84	123981221/93150	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ J1**
1141	1.3	3100	25000	–	1.10	17711603/15525			✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ H1**
982	1.5	3100	25000	–	1.40	549059693/558900			✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ G1**
810	1.8	3100	25000	–	0.73	154343969/190440	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ F1**
763	1.9	3100	25000	–	0.84	18158114/23805	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ E1**
683	2.1	3100	25000	–	0.96	439286681/642735	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ D1**
582	2.5	3100	25000	–	1.28	83108291/142830	✓	✓	✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ C1**
499	2.9	3100	25000	–	1.70	11872613/23805			✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ B1**
429	3.4	3100	25000	–	2.20	368051003/856980			✓	✓	✓				**2KJ3433 - ■ ■■■■ - ■■ A1**
FD.109-D39															
22701	0.06	3100	25000	–	0.05	5286392566/232875	✓	✓	✓	✓					**2KJ3434 - ■ ■■■■ - ■■ L1**
20637	0.07	3100	25000	–	0.07	10572785132/512325	✓	✓	✓	✓					**2KJ3434 - ■ ■■■■ - ■■ K1**
17699	0.08	3100	25000	–	0.08	179199748/10125	✓	✓	✓	✓					**2KJ3434 - ■ ■■■■ - ■■ J1**
16090	0.09	3100	25000	–	0.10	358399496/22275	✓	✓	✓	✓					**2KJ3434 - ■ ■■■■ - ■■ H1**
14108	0.10	3100	25000	–	0.12	1971197228/139725	✓	✓	✓	✓	✓				**2KJ3434 - ■ ■■■■ - ■■ G1**
12592	0.12	3100	25000	–	0.15	716798992/56925	✓	✓	✓	✓	✓				**2KJ3434 - ■ ■■■■ - ■■ F1**
11222	0.13	3100	25000	–	0.18	313599559/27945	✓	✓	✓	✓	✓				**2KJ3434 - ■ ■■■■ - ■■ E1**
10359	0.14	3100	25000	–	0.21	96492172/9315	✓	✓	✓	✓	✓				**2KJ3434 - ■ ■■■■ - ■■ D1**
9069	0.16	3100	25000	–	0.25	140799802/15525	✓	✓	✓	✓	✓				**2KJ3434 - ■ ■■■■ - ■■ C1**
7952	0.18	3100	25000	–	0.23	5555192188/698625	✓	✓	✓	✓	✓				**2KJ3434 - ■ ■■■■ - ■■ B1**
7214	0.2	3100	25000	–	0.33	44799937/6210	✓	✓	✓	✓	✓				**2KJ3434 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FD.129-Z49															
6604	0.22	4850	37200	–	0.18	177513589/26880	✓	✓	✓	✓					**2KJ3435 - ■ ■■■■ - ■■ B2**
6004	0.24	4850	37200	–	0.21	16137599/2688	✓	✓	✓	✓					**2KJ3435 - ■ ■■■■ - ■■ A2**
5106	0.28	4850	37200	–	0.27	9150185/1792	✓	✓	✓	✓					**2KJ3435 - ■ ■■■■ - ■■ X1**
4642	0.31	4850	37200	–	0.32	4159175/896	✓	✓	✓	✓					**2KJ3435 - ■ ■■■■ - ■■ W1**
4142	0.35	4850	37200	–	0.38	133592701/32256	✓	✓	✓	✓	✓	✓			**2KJ3435 - ■ ■■■■ - ■■ V1**
3714	0.39	4850	37200	–	0.45	831835/224	✓	✓	✓	✓	✓	✓			**2KJ3435 - ■ ■■■■ - ■■ U1**
3347	0.43	4850	37200	–	0.53	107972183/32256	✓	✓	✓	✓	✓	✓			**2KJ3435 - ■ ■■■■ - ■■ T1**
3090	0.47	4850	37200	–	0.63	107972183/34944	✓	✓	✓	✓	✓	✓			**2KJ3435 - ■ ■■■■ - ■■ S1**
2821	0.51	4850	37200	–	0.75	53071073/18816	✓	✓	✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ R1**
2340	0.62	4850	37200	–	0.95	100652035/43008	✓	✓	✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ Q1**
2203	0.66	4850	37200	–	1.10	100652035/45696	✓	✓	✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ P1**
2080	0.70	4850	37200	–	1.25	100652035/48384	✓	✓	✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ N1**
1770	0.82	4850	37200	–	1.53	23790481/13440	✓	✓	✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ M1**
1516	0.96	4850	37200	–	1.89	1164569/768			✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ L1**
1333	1.1	4850	37200	–	2.3	86011739/64512			✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ K1**
1125	1.3	4850	37200	–	2.9	34770703/30912			✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ J1**
980	1.5	4850	37200	–	3.9	5490111/5600			✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ H1**
967	1.5	4850	37200	–	1.51	27620791/28560	✓	✓	✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ G1**
913	1.6	4850	37200	–	1.71	27620791/30240	✓	✓	✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ F1**
777	1.9	4850	37200	–	2.2	32642753/42000	✓	✓	✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ E1**
666	2.2	4850	37200	–	2.8	1597897/2400			✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ D1**
585	2.5	4850	37200	–	3.5	118016107/201600			✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ C1**
494	2.9	4850	37200	–	4.5	47708639/96600			✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ B1**
430	3.4	4850	37200	–	6.0	7532943/17500			✓	✓	✓	✓	✓		**2KJ3435 - ■ ■■■■ - ■■ A1**
FD.129-D49															
27777	0.05	4850	37200	–	0.08	31110629/1120	✓	✓	✓	✓					**2KJ3436 - ■ ■■■■ - ■■ N1**
25252	0.06	4850	37200	–	0.10	2828239/112	✓	✓	✓	✓					**2KJ3436 - ■ ■■■■ - ■■ M1**
21605	0.07	4850	37200	–	0.12	31110629/1440	✓	✓	✓	✓					**2KJ3436 - ■ ■■■■ - ■■ L1**
19641	0.07	4850	37200	–	0.14	2828239/144	✓	✓	✓	✓					**2KJ3436 - ■ ■■■■ - ■■ K1**
17361	0.08	4850	37200	–	0.17	31110629/1792	✓	✓	✓	✓	✓	✓			**2KJ3436 - ■ ■■■■ - ■■ J1**
15783	0.09	4850	37200	–	0.22	14141195/896	✓	✓	✓	✓	✓	✓			**2KJ3436 - ■ ■■■■ - ■■ H1**
13824	0.10	4850	37200	–	0.26	1337757047/96768	✓	✓	✓	✓	✓	✓			**2KJ3436 - ■ ■■■■ - ■■ G1**
12761	0.11	4850	37200	–	0.31	1337757047/104832	✓	✓	✓	✓	✓	✓			**2KJ3436 - ■ ■■■■ - ■■ F1**
11298	0.13	4850	37200	–	0.37	1275535789/112896	✓	✓	✓	✓	✓	✓	✓		**2KJ3436 - ■ ■■■■ - ■■ E1**
9404	0.15	4850	37200	–	0.50	404438177/43008	✓	✓	✓	✓	✓	✓	✓		**2KJ3436 - ■ ■■■■ - ■■ D1**
8851	0.16	4850	37200	–	0.59	23790481/2688	✓	✓	✓	✓	✓	✓	✓		**2KJ3436 - ■ ■■■■ - ■■ C1**
7930	0.18	4850	37200	–	0.65	1151093273/145152	✓	✓	✓	✓	✓	✓	✓		**2KJ3436 - ■ ■■■■ - ■■ B1**
6751	0.21	4850	37200	–	0.85	31110629/4608	✓	✓	✓	✓	✓	✓	✓		**2KJ3436 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FD.149-Z49															
6608	0.22	8000	65000	–	0.18	2590191/392	✓	✓	✓	✓					2KJ3437 - ■ ■■■■ - ■■ B2
6007	0.24	8000	65000	–	0.22	12950955/2156	✓	✓	✓	✓					2KJ3437 - ■ ■■■■ - ■■ A2
5109	0.28	8000	65000	–	0.28	2002725/392	✓	✓	✓	✓					2KJ3437 - ■ ■■■■ - ■■ X1
4545	0.32	8000	65000	–	0.34	10013625/2156	✓	✓	✓	✓					2KJ3437 - ■ ■■■■ - ■■ W1
4144	0.35	8000	65000	–	0.39	3248865/784	✓	✓	✓	✓	✓	✓			2KJ3437 - ■ ■■■■ - ■■ V1
3716	0.39	8000	65000	–	0.47	2002725/539	✓	✓	✓	✓	✓	✓			2KJ3437 - ■ ■■■■ - ■■ U1
3349	0.43	8000	65000	–	0.55	2625795/784	✓	✓	✓	✓	✓	✓			2KJ3437 - ■ ■■■■ - ■■ T1
3092	0.47	8000	65000	–	0.66	7877385/2548	✓	✓	✓	✓	✓	✓			2KJ3437 - ■ ■■■■ - ■■ S1
2822	0.51	8000	65000	–	0.78	3871935/1372	✓	✓	✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ R1
2342	0.62	8000	65000	–	1.0	7343325/3136	✓	✓	✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ Q1
2204	0.66	8000	65000	–	1.16	7343325/3332	✓	✓	✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ P1
2081	0.70	8000	65000	–	1.31	815925/392	✓	✓	✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ N1
1771	0.82	8000	65000	–	1.62	347139/196	✓	✓	✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ M1
1517	0.96	8000	65000	–	2.0	133515/88			✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ L1
1334	1.1	8000	65000	–	2.5	2091735/1568			✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ K1
1125	1.3	8000	65000	–	3.2	110295/98			✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ J1
981	1.5	8000	65000	–	4.2	240327/245			✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ H1
968	1.5	8000	65000	–	1.81	806058/833	✓	✓	✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ G1
914	1.6	8000	65000	–	2.0	44781/49	✓	✓	✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ F1
778	1.9	8000	65000	–	2.6	952614/1225	✓	✓	✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ E1
666	2.2	8000	65000	–	3.4	36639/55			✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ D1
586	2.5	8000	65000	–	4.3	574011/980			✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ C1
494	2.9	8000	65000	–	5.7	121068/245			✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ B1
431	3.4	8000	65000	–	7.5	2638008/6125			✓	✓	✓	✓	✓		2KJ3437 - ■ ■■■■ - ■■ A1
FD.149-D49															
27793	0.05	8000	65000	–	0.08	1361853/49	✓	✓	✓	✓					2KJ3438 - ■ ■■■■ - ■■ N1
25266	0.06	8000	65000	–	0.10	13618530/539	✓	✓	✓	✓					2KJ3438 - ■ ■■■■ - ■■ M1
21617	0.07	8000	65000	–	0.12	151317/7	✓	✓	✓	✓					2KJ3438 - ■ ■■■■ - ■■ L1
19652	0.07	8000	65000	–	0.14	1513170/77	✓	✓	✓	✓					2KJ3438 - ■ ■■■■ - ■■ K1
17371	0.08	8000	65000	–	0.17	6809265/392	✓	✓	✓	✓	✓	✓			2KJ3438 - ■ ■■■■ - ■■ J1
15791	0.09	8000	65000	–	0.22	34046325/2156	✓	✓	✓	✓	✓	✓			2KJ3438 - ■ ■■■■ - ■■ H1
13832	0.10	8000	65000	–	0.26	10844385/784	✓	✓	✓	✓	✓	✓			2KJ3438 - ■ ■■■■ - ■■ G1
12768	0.11	8000	65000	–	0.31	32533155/2548	✓	✓	✓	✓	✓	✓			2KJ3438 - ■ ■■■■ - ■■ F1
11305	0.13	8000	65000	–	0.37	31019985/2744	✓	✓	✓	✓	✓	✓	✓		2KJ3438 - ■ ■■■■ - ■■ E1
9409	0.15	8000	65000	–	0.50	29506815/3136	✓	✓	✓	✓	✓	✓	✓		2KJ3438 - ■ ■■■■ - ■■ D1
8856	0.16	8000	65000	–	0.59	1735695/196	✓	✓	✓	✓	✓	✓	✓		2KJ3438 - ■ ■■■■ - ■■ C1
7935	0.18	8000	65000	–	0.66	3110405/392	✓	✓	✓	✓	✓	✓	✓		2KJ3438 - ■ ■■■■ - ■■ B1
6755	0.21	8000	65000	–	0.86	756585/112	✓	✓	✓	✓	✓	✓	✓		2KJ3438 - ■ ■■■■ - ■■ A1

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FD.169-Z69															
6230	0.23	13600	73500	–	0.21	5189888/833	✓	✓	✓	✓					**2KJ3440 - ■ ■■■■ - ■■ A2**
5664	0.26	13600	73500	–	0.26	4718080/833	✓	✓	✓	✓					**2KJ3440 - ■ ■■■■ - ■■ X1**
4817	0.30	13600	73500	–	0.33	4012800/833	✓	✓	✓	✓					**2KJ3440 - ■ ■■■■ - ■■ W1**
4379	0.33	13600	73500	–	0.40	3648000/833	✓	✓	✓	✓					**2KJ3440 - ■ ■■■■ - ■■ V1**
3907	0.37	13600	73500	–	0.47	9764480/2499	✓	✓	✓	✓	✓	✓			**2KJ3440 - ■ ■■■■ - ■■ U1**
3503	0.41	13600	73500	–	0.57	2918400/833	✓	✓	✓	✓	✓	✓			**2KJ3440 - ■ ■■■■ - ■■ T1**
3158	0.46	13600	73500	–	0.67	7891840/2499	✓	✓	✓	✓	✓	✓			**2KJ3440 - ■ ■■■■ - ■■ S1**
2915	0.50	13600	73500	–	0.80	31567360/10829	✓	✓	✓	✓	✓	✓			**2KJ3440 - ■ ■■■■ - ■■ R1**
2661	0.54	13600	73500	–	0.95	15516160/5831	✓	✓	✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ Q1**
2208	0.66	13600	73500	–	1.25	1839200/833	✓	✓	✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ P1**
2078	0.70	13600	73500	–	1.44	29427200/14161	✓	✓	✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ N1**
1963	0.74	13600	73500	–	1.63	14713600/7497	✓	✓	✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ M1**
1670	0.87	13600	73500	–	2.1	1391104/833	✓	✓	✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ L1**
1431	1.0	13600	73500	–	2.6	24320/17			✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ K1**
1258	1.2	13600	73500	–	3.2	3143360/2499			✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ J1**
1061	1.4	13600	73500	–	4.2	20331520/19159			✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ H1**
925	1.6	13600	73500	–	5.7	3852288/4165			✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ G1**
869	1.7	13600	73500	–	3.2	21401600/24633	✓	✓	✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ F1**
739	2.0	13600	73500	–	4.3	2023424/2737	✓	✓	✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ E1**
633	2.3	13600	73500	–	5.6	2723840/4301			✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ D1**
557	2.6	13600	73500	–	7.1	4572160/8211			✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ C1**
470	3.1	13600	73500	–	9.7	29573120/62951			✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ B1**
409	3.5	13600	73500	–	13	5603328/13685			✓	✓	✓	✓	✓		**2KJ3440 - ■ ■■■■ - ■■ A1**
FD.169-D69															
29846	0.05	13600	73500	–	0.07	4387328/147	✓	✓	✓	✓					**2KJ3441 - ■ ■■■■ - ■■ P1**
26206	0.06	13600	73500	–	0.08	1284096/49	✓	✓	✓	✓					**2KJ3441 - ■ ■■■■ - ■■ N1**
23824	0.06	13600	73500	–	0.10	1167360/49	✓	✓	✓	✓					**2KJ3441 - ■ ■■■■ - ■■ M1**
20382	0.07	13600	73500	–	0.12	428032/21	✓	✓	✓	✓					**2KJ3441 - ■ ■■■■ - ■■ L1**
18530	0.08	13600	73500	–	0.15	389120/21	✓	✓	✓	✓					**2KJ3441 - ■ ■■■■ - ■■ K1**
16379	0.09	13600	73500	–	0.17	802560/49	✓	✓	✓	✓	✓	✓			**2KJ3441 - ■ ■■■■ - ■■ J1**
14890	0.10	13600	73500	–	0.23	729600/49	✓	✓	✓	✓	✓	✓			**2KJ3441 - ■ ■■■■ - ■■ H1**
13042	0.11	13600	73500	–	0.26	5751680/441	✓	✓	✓	✓	✓	✓			**2KJ3441 - ■ ■■■■ - ■■ G1**
12039	0.12	13600	73500	–	0.32	23006720/1911	✓	✓	✓	✓	✓	✓			**2KJ3441 - ■ ■■■■ - ■■ F1**
10659	0.14	13600	73500	–	0.39	10968320/1029	✓	✓	✓	✓	✓	✓	✓		**2KJ3441 - ■ ■■■■ - ■■ E1**
8872	0.16	13600	73500	–	0.52	434720/49	✓	✓	✓	✓	✓	✓	✓		**2KJ3441 - ■ ■■■■ - ■■ D1**
8350	0.17	13600	73500	–	0.61	6955520/833	✓	✓	✓	✓	✓	✓	✓		**2KJ3441 - ■ ■■■■ - ■■ C1**
7482	0.19	13600	73500	–	0.68	9898240/1323	✓	✓	✓	✓	✓	✓	✓		**2KJ3441 - ■ ■■■■ - ■■ B1**
6370	0.23	13600	73500	–	0.89	133760/21	✓	✓	✓	✓	✓	✓	✓		**2KJ3441 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
FD.189-Z69															
7150	0.20	19000	110900	–	0.23	191447542/26775	✓	✓	✓	✓					**2KJ3442 - ■ ■■■■ - ■■ C2**
6500	0.22	19000	110900	–	0.28	34808644/5355	✓	✓	✓	✓					**2KJ3442 - ■ ■■■■ - ■■ B2**
5529	0.26	19000	110900	–	0.35	1973686/357	✓	✓	✓	✓					**2KJ3442 - ■ ■■■■ - ■■ A2**
5026	0.29	19000	110900	–	0.43	1794260/357	✓	✓	✓	✓					**2KJ3442 - ■ ■■■■ - ■■ X1**
4484	0.32	19000	110900	–	0.51	72039539/16065	✓	✓	✓	✓	✓	✓			**2KJ3442 - ■ ■■■■ - ■■ W1**
4021	0.36	19000	110900	–	0.62	1435408/357	✓	✓	✓	✓	✓	✓			**2KJ3442 - ■ ■■■■ - ■■ V1**
3624	0.40	19000	110900	–	0.73	58223737/16065	✓	✓	✓	✓	✓	✓			**2KJ3442 - ■ ■■■■ - ■■ U1**
3345	0.43	19000	110900	–	0.87	17914996/5355	✓	✓	✓	✓	✓	✓			**2KJ3442 - ■ ■■■■ - ■■ T1**
3054	0.47	19000	110900	–	1.04	114473788/37485	✓	✓	✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ S1**
2534	0.57	19000	110900	–	1.38	10855273/4284	✓	✓	✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ R1**
2385	0.61	19000	110900	–	1.57	43421092/18207	✓	✓	✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ Q1**
2252	0.64	19000	110900	–	1.78	21710546/9639	✓	✓	✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ P1**
1917	0.76	19000	110900	–	2.3	51315836/26775	✓	✓	✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ N1**
1642	0.88	19000	110900	–	2.9	1255982/765			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ M1**
1444	1.0	19000	110900	–	3.6	46381621/32130			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ L1**
1218	1.2	19000	110900	–	4.8	150000136/123165			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ K1**
1061	1.4	19000	110900	–	6.4	15789488/14875			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ J1**
997	1.5	19000	110900	–	4.0	31578976/31671	✓	✓	✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ H1**
848	1.7	19000	110900	–	5.4	74641216/87975	✓	✓	✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ G1**
727	2.0	19000	110900	–	7.1	140669984/193545			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ F1**
639	2.3	19000	110900	–	9.1	33732088/52785			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ E1**
539	2.7	19000	110900	–	12	218182016/404685			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ D1**
478	3.0	19000	110900	–	12	8403976/17595			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ C1**
403	3.6	19000	110900	–	16	54357632/134895			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ B1**
351	4.1	19000	110900	–	21	17165568/48875			✓	✓	✓	✓	✓		**2KJ3442 - ■ ■■■■ - ■■ A1**
FD.189-D69															
27341	0.05	19000	110900	–	0.10	2870816/105	✓	✓	✓	✓					**2KJ3443 - ■ ■■■■ - ■■ M1**
23392	0.06	19000	110900	–	0.12	15789488/675	✓	✓	✓	✓					**2KJ3443 - ■ ■■■■ - ■■ L1**
21265	0.07	19000	110900	–	0.15	2870816/135	✓	✓	✓	✓					**2KJ3443 - ■ ■■■■ - ■■ K1**
18797	0.08	19000	110900	–	0.17	1973686/105	✓	✓	✓	✓	✓	✓			**2KJ3443 - ■ ■■■■ - ■■ J1**
17088	0.08	19000	110900	–	0.23	358852/21	✓	✓	✓	✓	✓	✓			**2KJ3443 - ■ ■■■■ - ■■ H1**
14968	0.10	19000	110900	–	0.27	42434249/2835	✓	✓	✓	✓	✓	✓			**2KJ3443 - ■ ■■■■ - ■■ G1**
13817	0.10	19000	110900	–	0.32	13056692/945	✓	✓	✓	✓	✓	✓			**2KJ3443 - ■ ■■■■ - ■■ F1**
12233	0.12	19000	110900	–	0.39	80921126/6615	✓	✓	✓	✓	✓	✓	✓		**2KJ3443 - ■ ■■■■ - ■■ E1**
10182	0.14	19000	110900	–	0.53	12828959/1260	✓	✓	✓	✓	✓	✓	✓		**2KJ3443 - ■ ■■■■ - ■■ D1**
9583	0.15	19000	110900	–	0.62	51315836/5355	✓	✓	✓	✓	✓	✓	✓		**2KJ3443 - ■ ■■■■ - ■■ C1**
8586	0.17	19000	110900	–	0.69	73026382/8505	✓	✓	✓	✓	✓	✓	✓		**2KJ3443 - ■ ■■■■ - ■■ B1**
7310	0.20	19000	110900	–	0.90	986843/135	✓	✓	✓	✓	✓	✓	✓		**2KJ3443 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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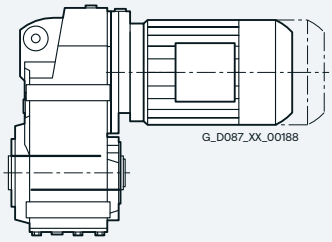
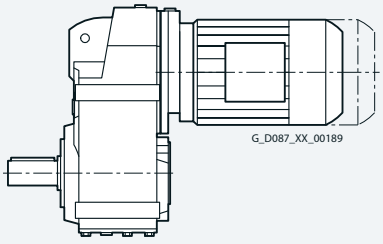
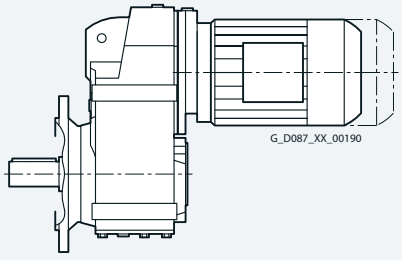
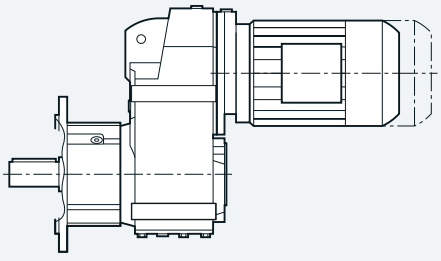
Parallel shaft geared motors

Overview

Information about dimensional drawings can be found in chapter Introduction on page 1/22.

Design	Frame size	Dimensional drawing on page
Parallel shaft geared motor FZ and FD		
Shaft-mounted design		
	FZAD./FDAD.29	4/70
	FZAD./FDAD.39	4/74
	FZAD./FDAD.49	4/78
	FZAD./FDAD.69	4/82
	FZAD./FDAD.79	4/86
	FZAD./FDAD.89	4/90
	FZAD./FDAD.109	4/95
	FZAD./FDAD.129	4/100
	FZAD./FDAD.149	4/105
	FZAD./FDAD.169	4/110
	FZAD./FDAD.189	4/115
Housing flange design		
	FZ.Z./FD.Z.29	4/71
	FZ.Z./FD.Z.39	4/75
	FZ.Z./FD.Z.49	4/79
	FZ.Z./FD.Z.69	4/83
	FZ.Z./FD.Z.79	4/87
	FZ.Z./FD.Z.89	4/91
	FZ.Z./FD.Z.109	4/96
	FZ.Z./FD.Z.129	4/101
	FZ.Z./FD.Z.149	4/106
	FZ.Z./FD.Z.169	4/111
	FZ.Z./FD.Z.189	4/116
Flange-mounted design		
	FZ.F./FD.F.29	4/72
	FZ.F./FD.F.39	4/76
	FZ.F./FD.F.49	4/80
	FZ.F./FD.F.69	4/84
	FZ.F./FD.F.79	4/88
	FZ.F./FD.F.89	4/92
	FZ.F./FD.F.109	4/97
	FZ.F./FD.F.129	4/102
	FZ.F./FD.F.149	4/107
	FZ.F./FD.F.169	4/112
	FZ.F./FD.F.189	4/117
Flange-mounted design with VLplus reinforced bearing system		
	FZ.F./FD.F.89	4/93
	FZ.F./FD.F.109	4/98
	FZ.F./FD.F.129	4/103
	FZ.F./FD.F.149	4/108
	FZ.F./FD.F.169	4/113

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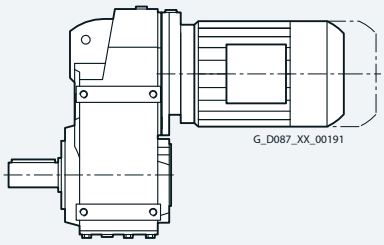
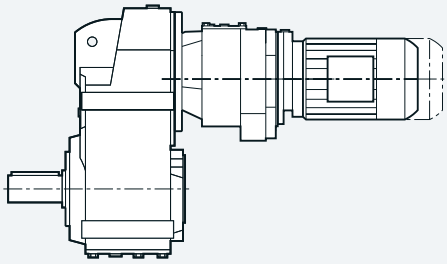
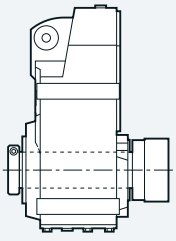
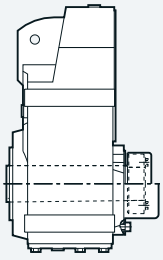
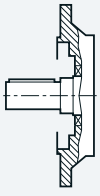
Overview

Design	Frame size	Dimensional drawing on page
Parallel shaft geared motor FZ and FD		
Foot-mounted design		
	FZ../FD..29	4/73
	FZ../FD..39	4/77
	FZ../FD..49	4/81
	FZ../FD..69	4/85
	FZ../FD..79	4/89
	FZ../FD..89	4/94
	FZ../FD..109	4/99
	FZ../FD..129	4/104
	FZ../FD..149	4/109
	FZ../FD..169	4/114
	FZ../FD..189	4/118
Parallel shaft tandem geared motor		
	FZ../FD..29-Z/D19 ... FD..189-Z/D69	4/119 ... 4/120
Additional versions and options		
ShaftMount assembly system		
	FZADR/FDADR29 ... FZADR/FDADR89	4/121
Protective covers		
	FZ../FD..29 ... FZ../FD..189	4/122 ... 4/123
Inner contour of the flange-mounted design		
	FZF/FDF.29 ... FZF/FDF.189 FZAF/FDAF.29 ... FZAF/FDAF.189	4/124

4

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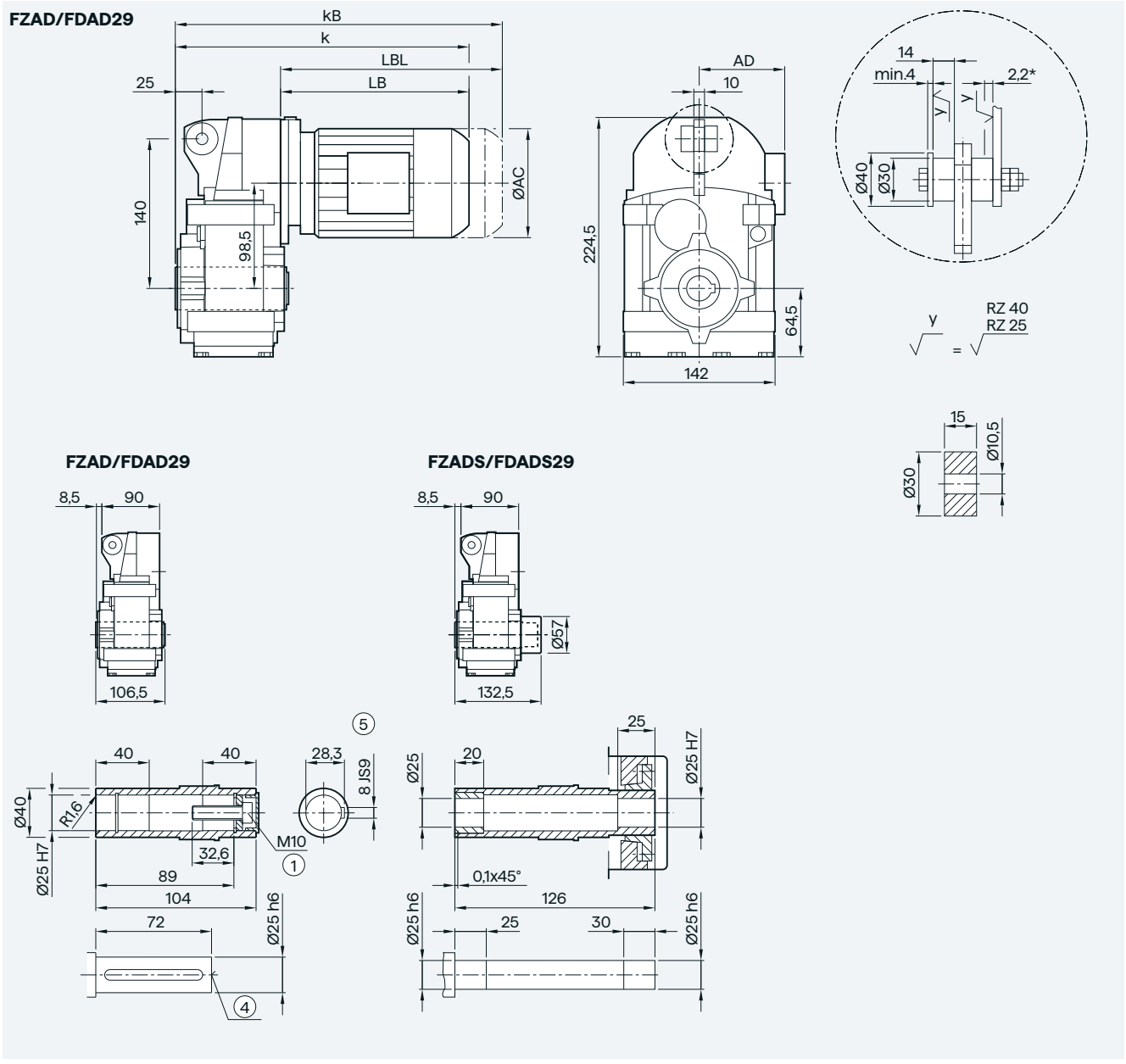
Gearbox FZAD./FDAD.29 in a shaft-mounted design



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90[2)]	90Z[2)]	100[2)]	100Z[2)]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	292.5	318.5	324.5	343.5	383.5	388.5	423.5	450.0	490.0	506.5	541.5
kB	337.0	363.0	379.5	398.5	438.5	448.5	483.5	520.0	560.0	585.0	620.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDADS/FZADS not possible

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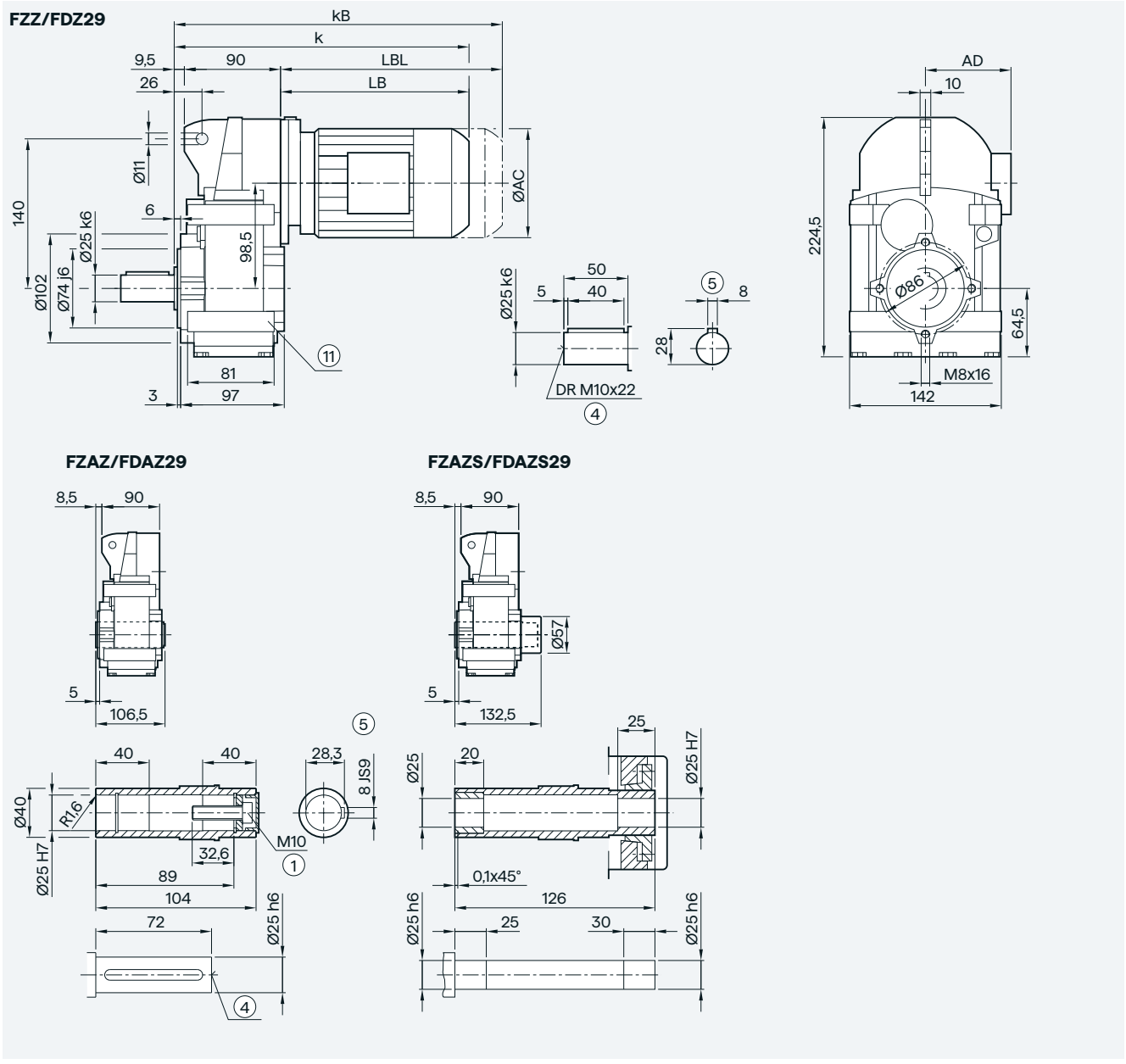
Gearbox FZ.Z./FD.Z.29 in a housing flange design



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90[2]	90Z[2]	100[2]	100Z[2]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	293.5	319.5	325.5	344.5	384.5	389.5	424.5	451.0	491.0	507.5	542.5
kB	338.0	364.0	380.5	399.5	439.5	449.5	484.5	521.0	561.0	586.0	621.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDADS/FZADS not possible

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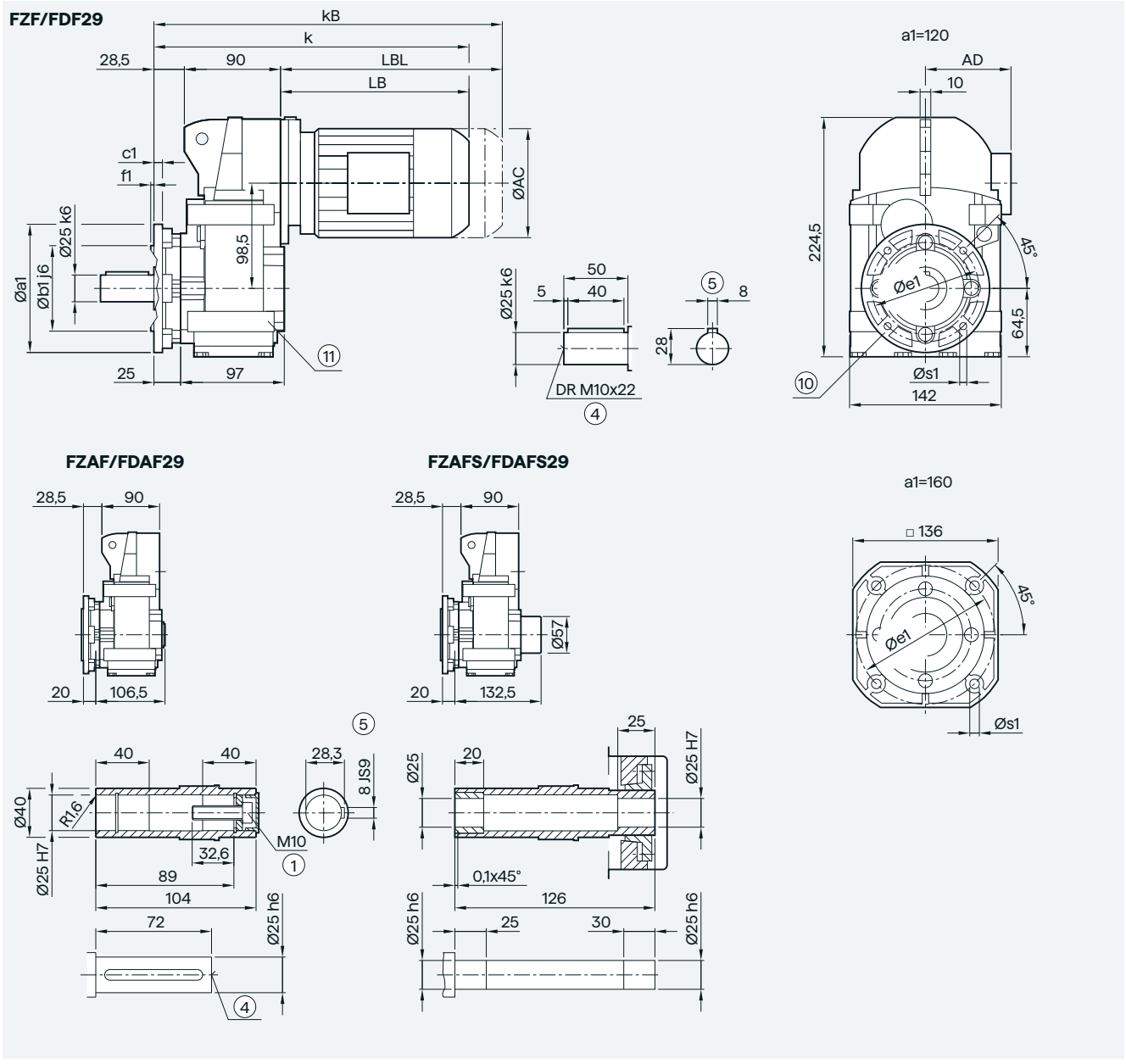
Gearbox FZ.F./FD.F.29 in a flange-mounted design



Flange	a1	b1	c1	f1	e1	s1
	120	80	8	3.0	100	6.6
	160	110	9	3.5	130	9.0

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90[2)]	90Z[2)]	100[2)]	100Z[2)]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	312.5	338.5	344.5	363.5	403.5	408.5	443.5	470.0	510.0	526.5	561.5
kB	357.0	383.0	399.5	418.5	458.5	468.5	503.5	540.0	580.0	605.0	640.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 4/124
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDADS/FZADS not possible

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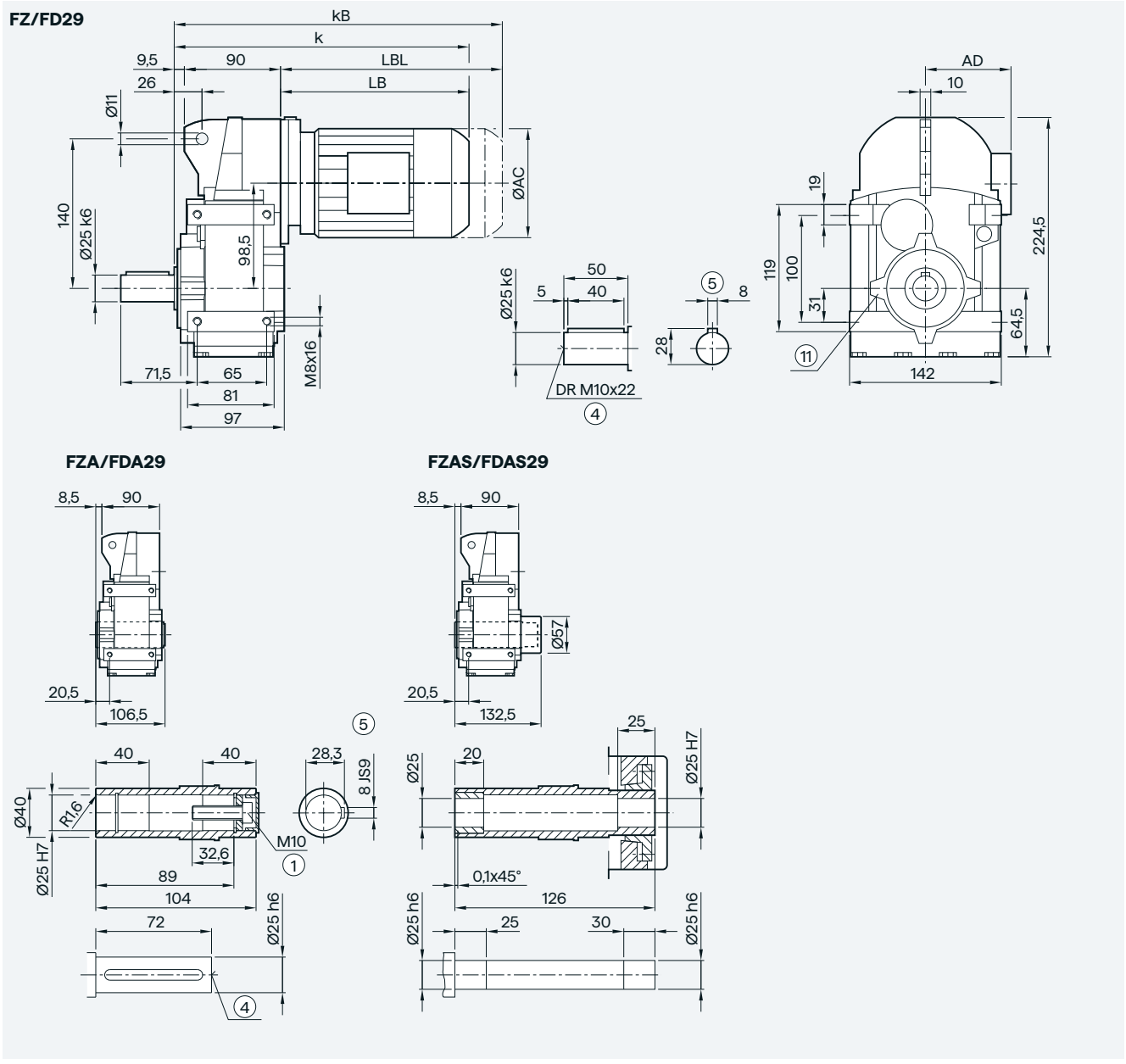
Gearbox FZ../FD..29 in a foot-mounted design



Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90[2]	90Z[2]	100[2]	100Z[2]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	293.5	319.5	325.5	344.5	384.5	389.5	424.5	451.0	491.0	507.5	542.5
kB	338.0	364.0	380.5	399.5	439.5	449.5	484.5	521.0	561.0	586.0	621.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDADS/FZADS not possible

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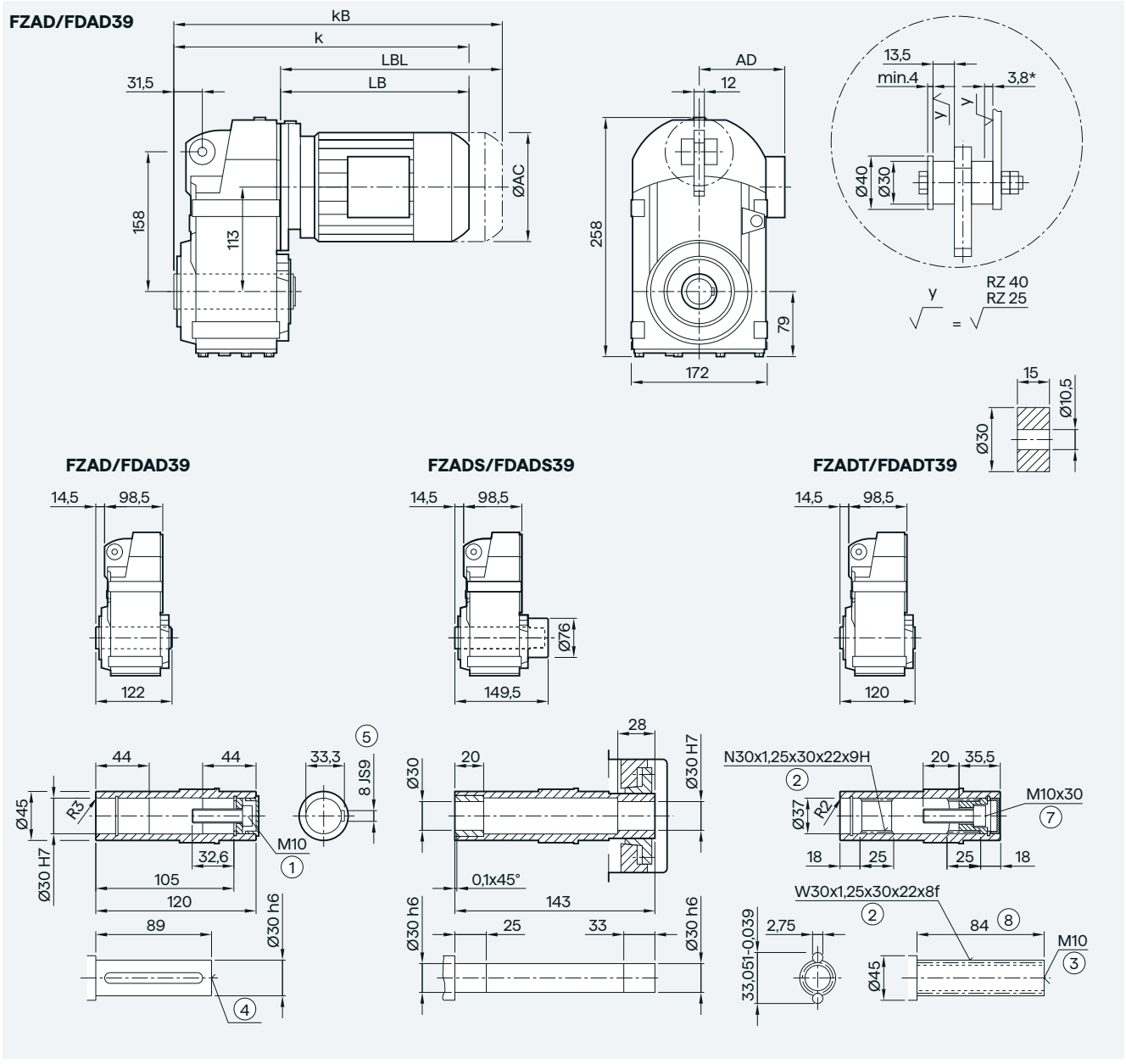
Parallel shaft geared motors

Gearbox FZAD./FDAD.39 in a shaft-mounted design



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90S	90Z	100[2]	100Z[2]	112[2]	112Z[2]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	307.0	333.0	339.0	358.0	398.0	403.0	438.0	464.5	504.5	521.0	556.0	531.0	556.0
kB	351.5	377.5	394.0	413.0	453.0	463.0	498.0	534.5	574.5	599.5	634.5	604.0	629.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDADS/FZADS not possible

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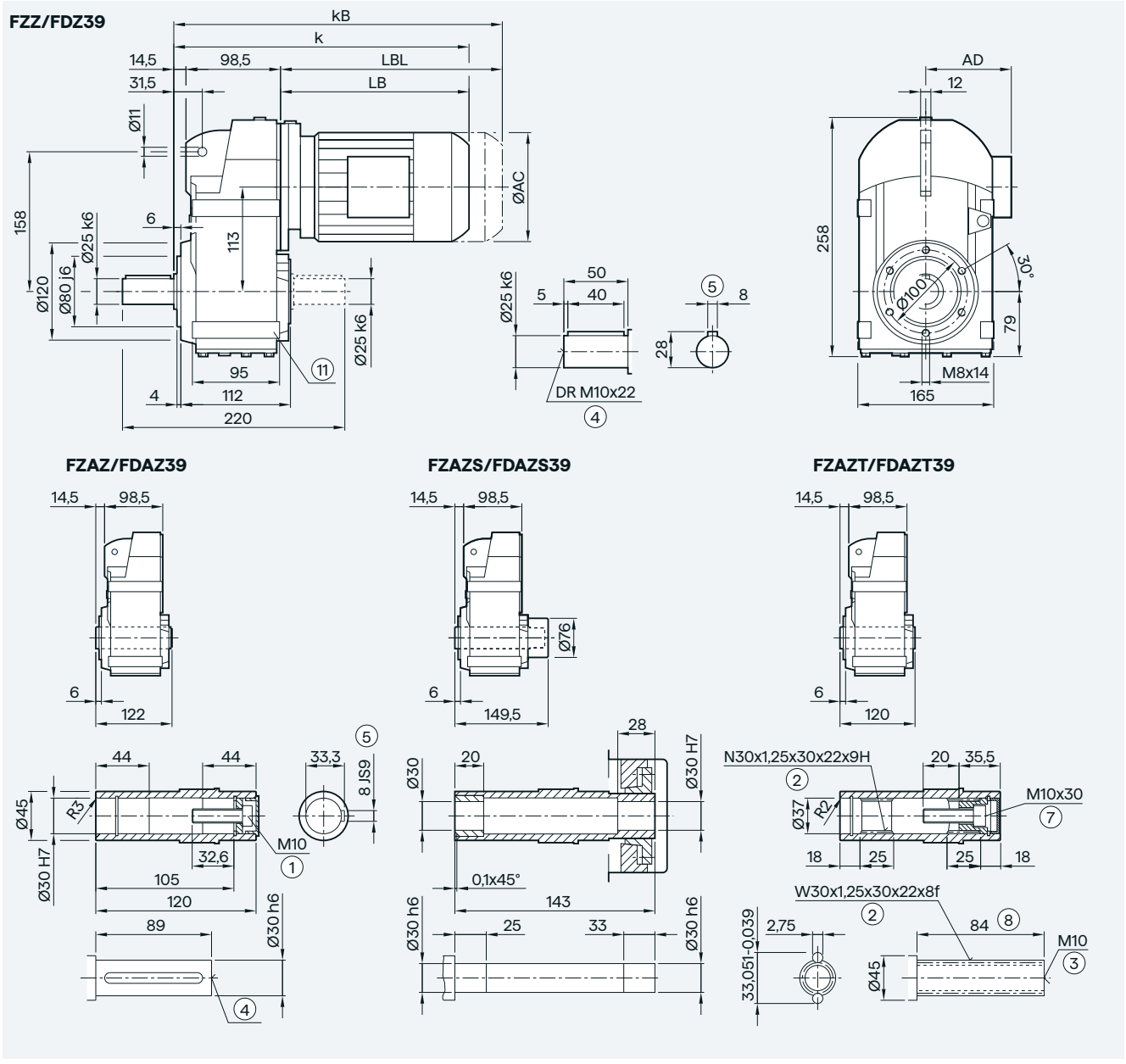
Gearbox FZ.Z./FD.Z.39 in a housing flange design



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100[2]	100Z[2]	112[2]	112Z[2]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	307.0	333.0	339.0	358.0	398.0	403.0	438.0	464.5	504.5	521.0	556.0	531.0	556.0
kB	351.5	377.5	394.0	413.0	453.0	463.0	498.0	534.5	574.5	599.5	634.5	604.0	629.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDADS/FZADS not possible

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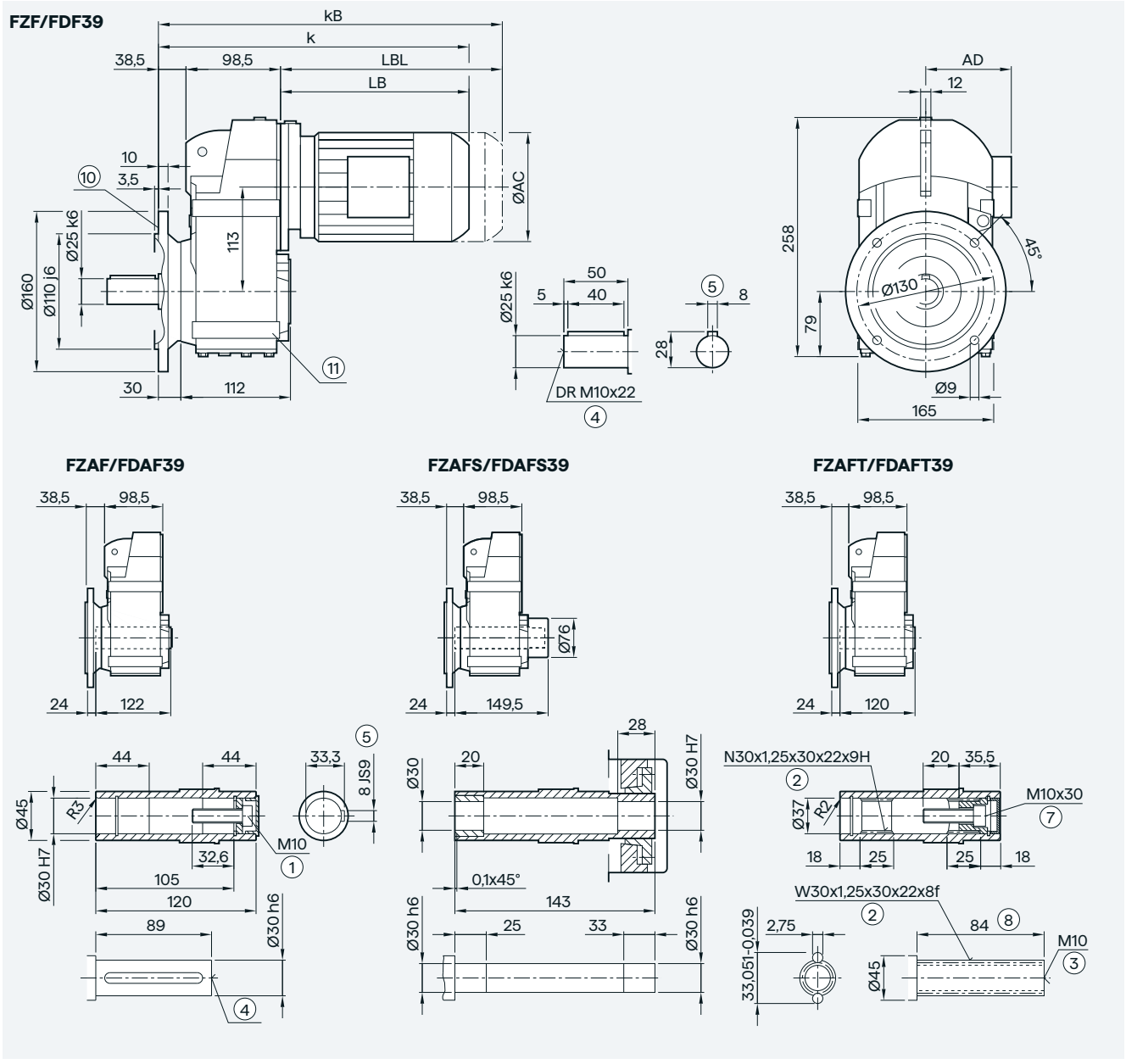
Gearbox FZ.F./FD.F.39 in a flange-mounted design



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100[2]	100Z[2]	112[2]	112Z[2]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	331.0	357.0	363.0	382.0	422.0	427.0	462.0	488.5	528.5	545.0	580.0	555.0	580.0
kB	375.5	401.5	418.0	437.0	477.0	487.0	522.0	558.5	598.5	623.5	658.5	628.0	653.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FADAFS/FZAFS not possible

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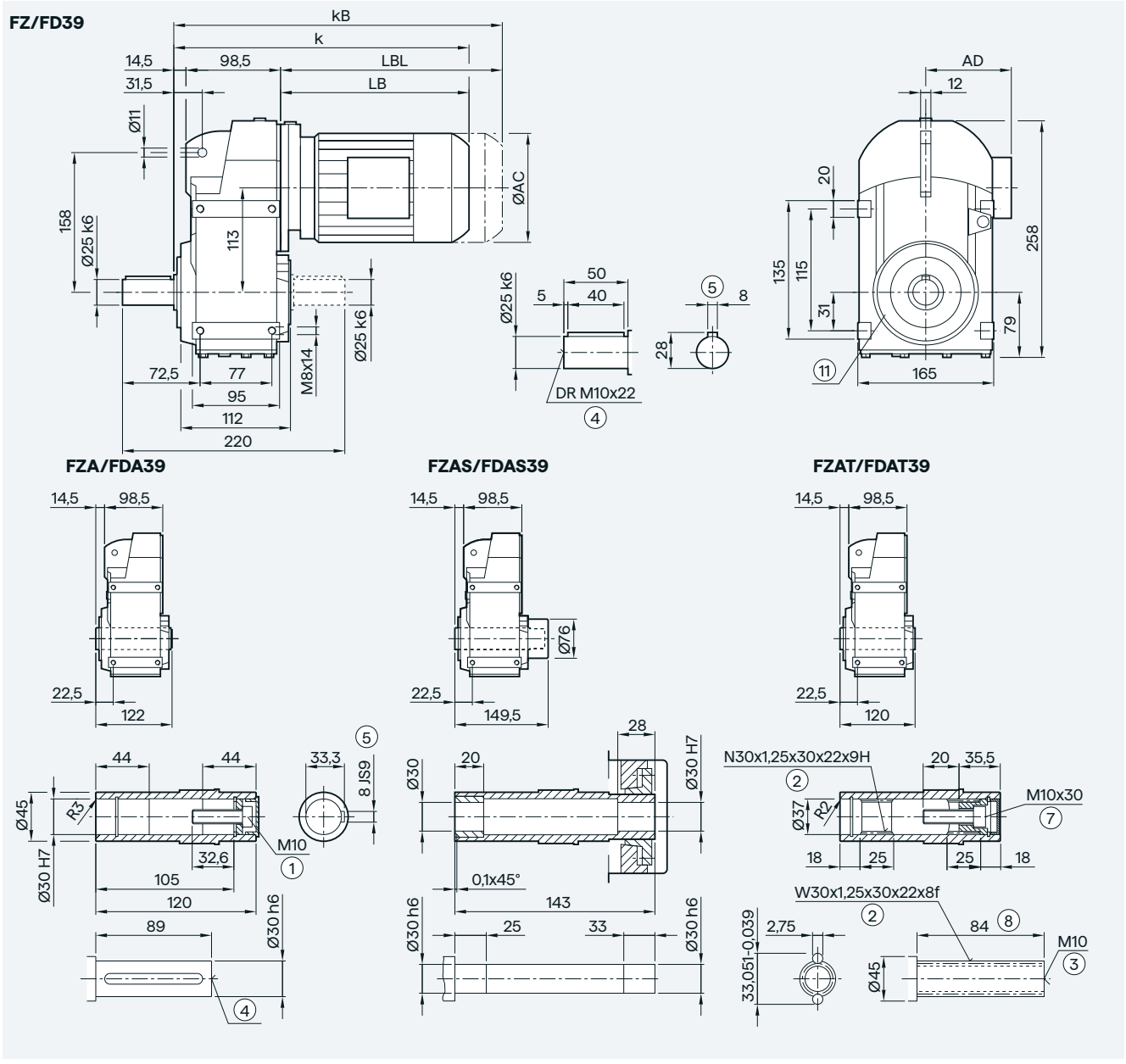
Gearbox FZ../FD..39 in a foot-mounted design



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100[2]	100Z[2]	112[2]	112Z[2]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	307.0	333.0	339.0	358.0	398.0	403.0	438.0	464.5	504.5	521.0	556.0	531.0	556.0
kB	351.5	377.5	394.0	413.0	453.0	463.0	498.0	534.5	574.5	599.5	634.5	604.0	629.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAS/FZAS not possible

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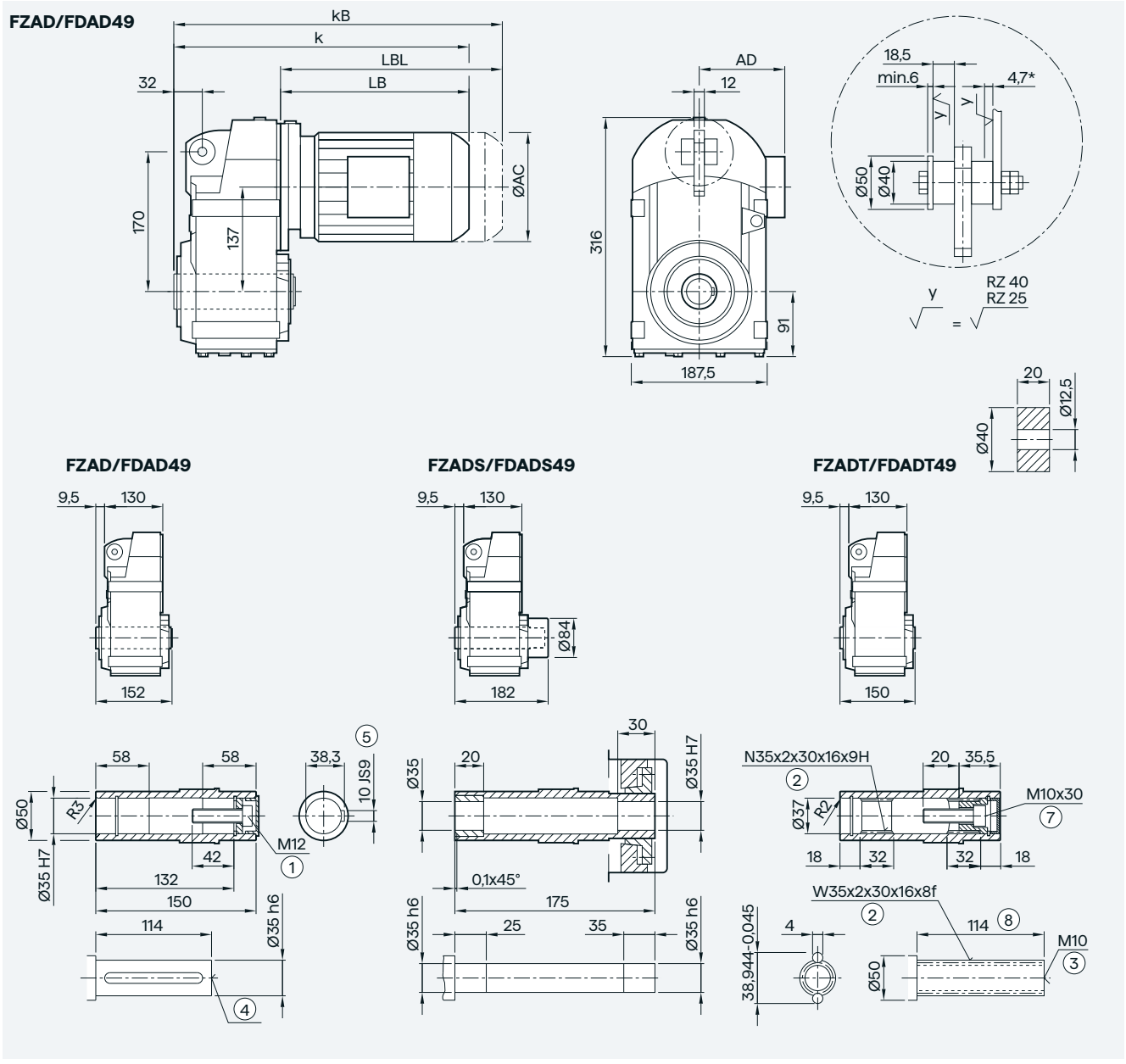
Parallel shaft geared motors

Gearbox FZAD./FDAD.49 in a shaft-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112[2)]	112Z[2)]	132[2)]	132Z[2)]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	324.0	350.0	356.0	375.0	415.0	420.0	455.0	481.5	521.5	538.0	573.0	548.0	582.5	601.0	651.0
kB	368.5	394.5	411.0	430.0	470.0	480.0	515.0	551.5	591.5	616.5	651.5	621.0	655.5	705.5	755.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	430.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDADS/FZADS not possible

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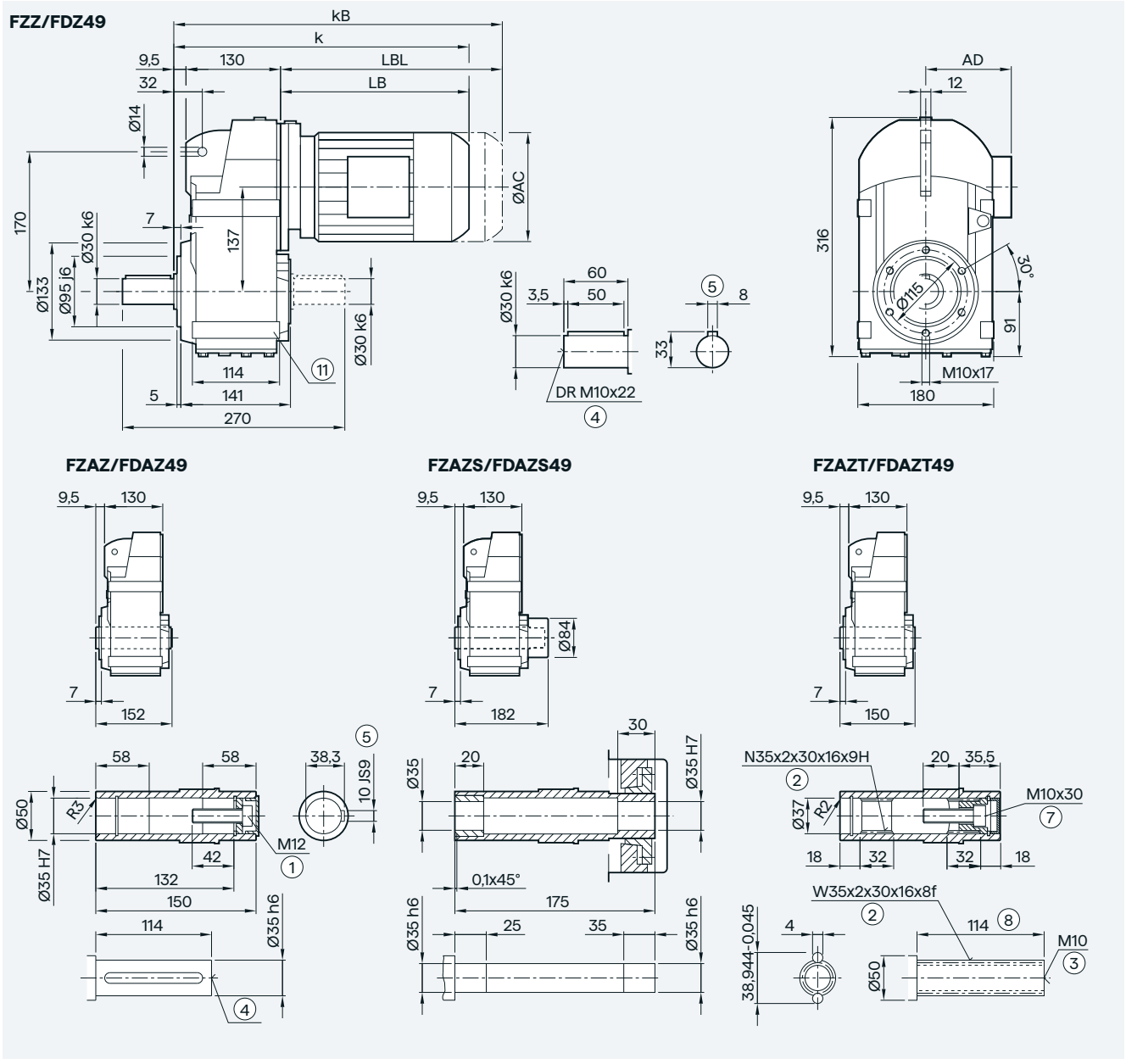
Gearbox FZ.Z./FD.Z.49 in a housing flange design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112[2)]	112Z[2)]	132[2)]	132Z[2)]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	324.0	350.0	356.0	375.0	415.0	420.0	455.0	481.5	521.5	538.0	573.0	548.0	582.5	601.0	651.0
kB	368.5	394.5	411.0	430.0	470.0	480.0	515.0	551.5	591.5	616.5	651.5	621.0	655.5	705.5	755.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	430.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAZS/FZAZS not possible

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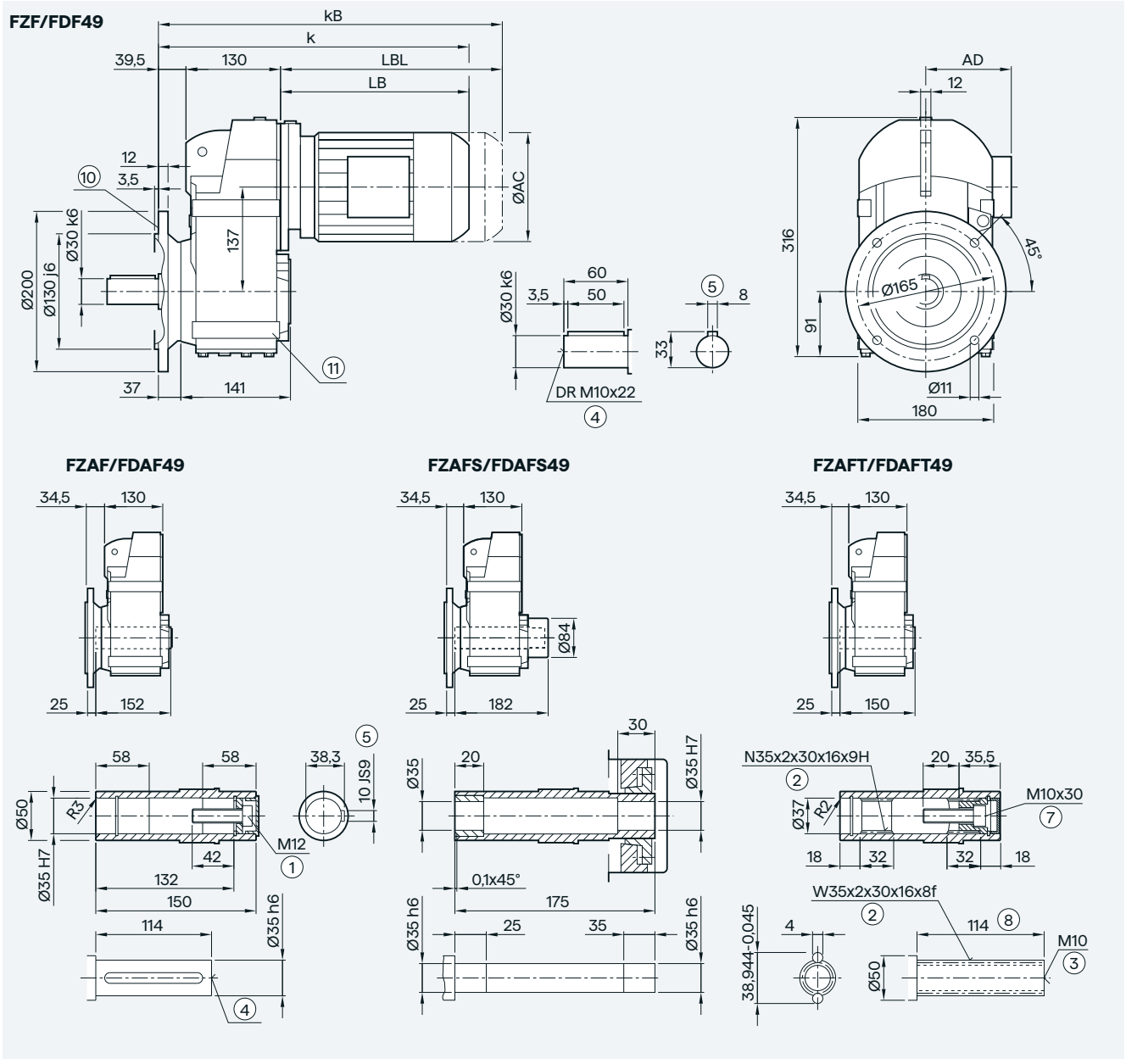
Parallel shaft geared motors

Gearbox FZ.F./FD.F.49 in a flange-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112[2)]	112Z[2)]	132[2)]	132Z[2)]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	354.0	380.0	386.0	394.0	434.0	450.0	485.0	511.5	551.5	568.0	603.0	578.0	612.5	631.0	681.0
kB	398.5	424.5	441.0	460.0	500.0	510.0	545.0	581.5	621.5	646.5	681.5	651.0	685.5	735.5	785.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	430.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FADAFS/FZAFS not possible

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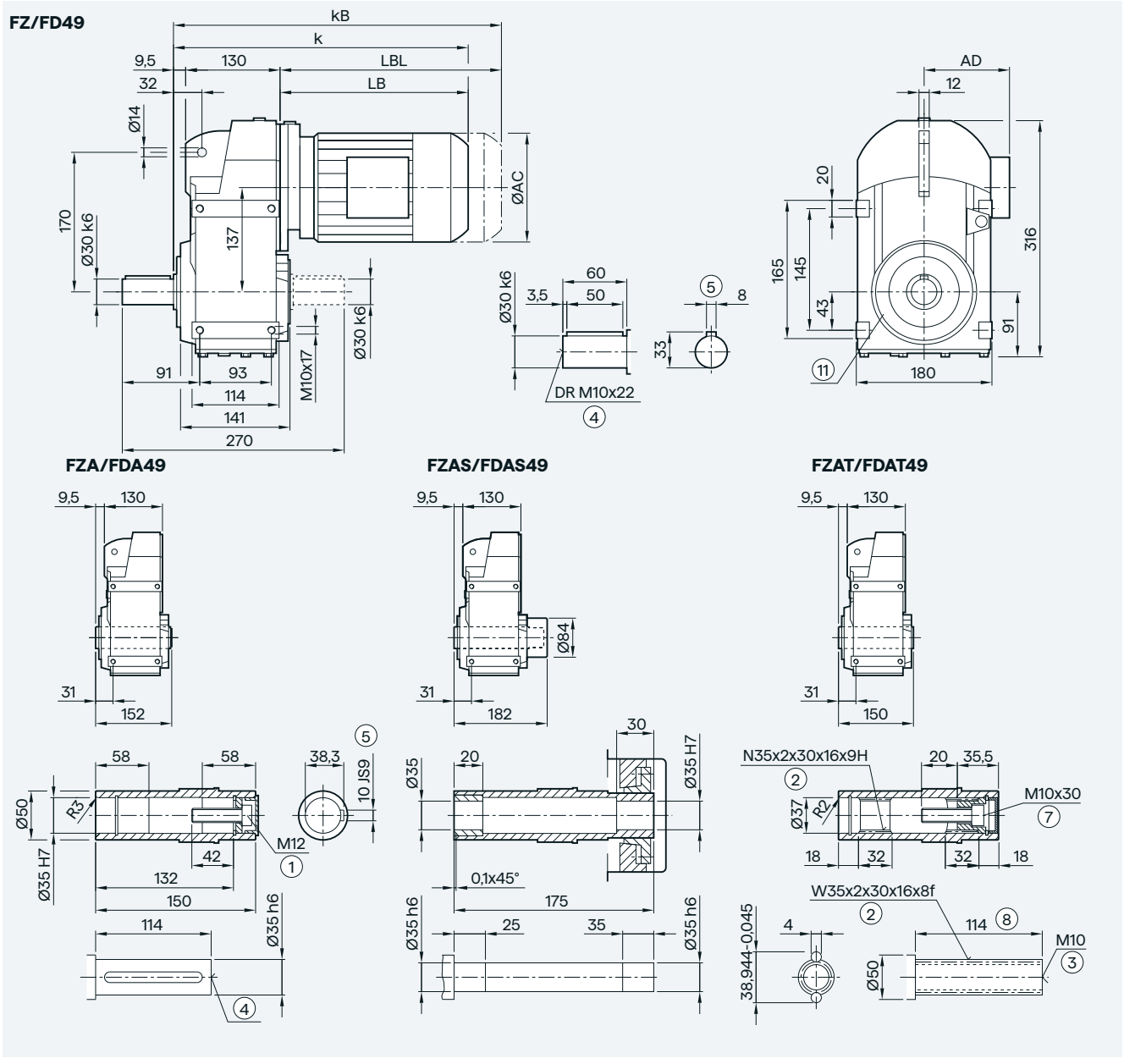
Gearbox FZ../FD..49 in a foot-mounted design



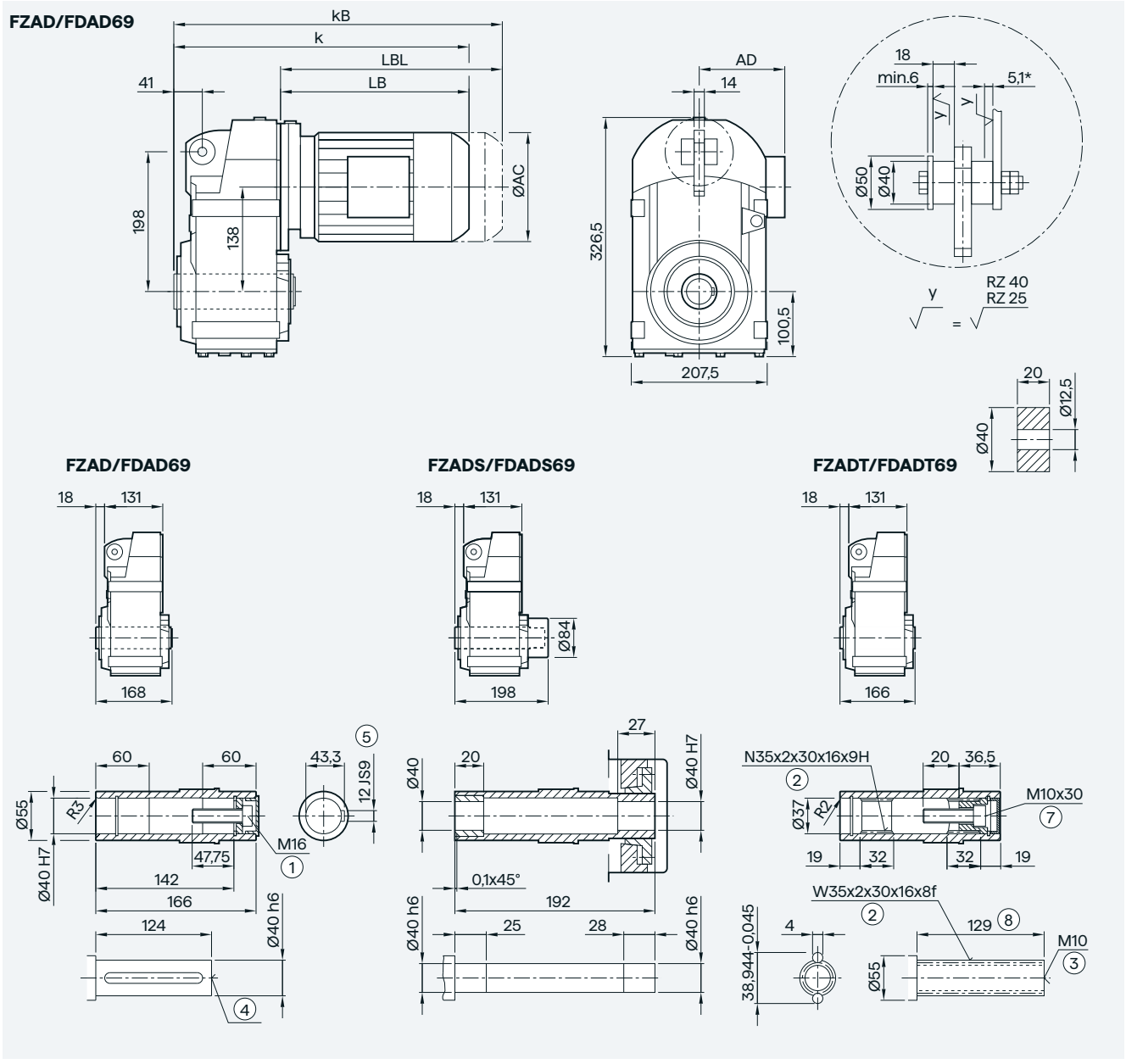
Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112[2)]	112Z[2)]	132[2)]	132Z[2)]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	324.0	350.0	356.0	375.0	415.0	420.0	455.0	481.5	521.5	538.0	573.0	548.0	582.5	601.0	651.0
kB	368.5	394.5	411.0	430.0	470.0	480.0	515.0	551.5	591.5	616.5	651.5	621.0	655.5	705.5	755.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	430.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAS/FZAS not possible

© Innomotics 2024

Gearbox FZAD./FDAD.69 in a shaft-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.5	359.5	365.5	384.5	424.5	429.5	464.5	491.0	531.0	547.5	582.5	557.5	592.0	610.5	660.5
kB	378.0	404.0	420.5	439.5	479.5	489.5	524.5	561.0	601.0	626.0	661.0	630.5	665.0	715.0	765.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	340.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

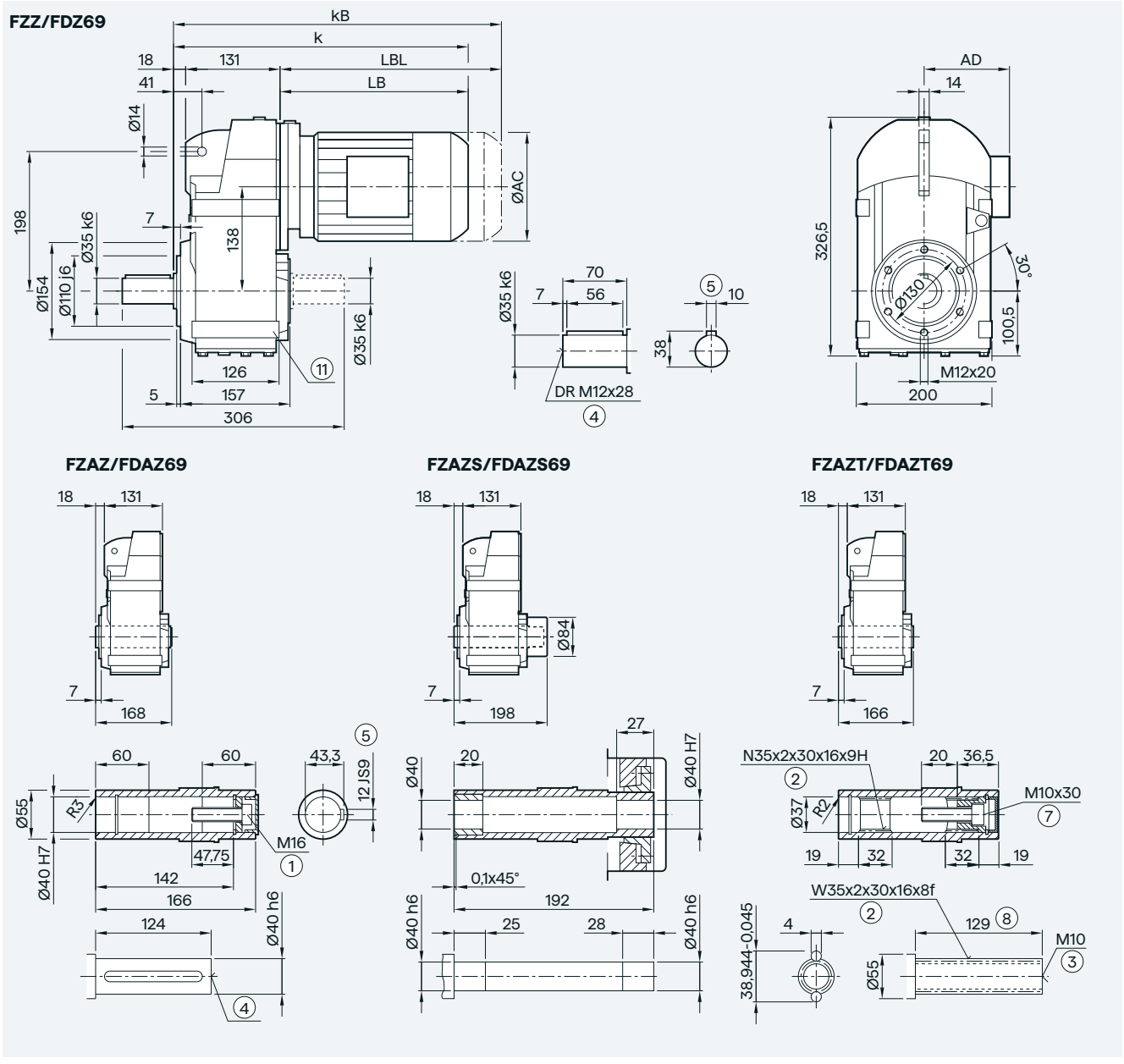
* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDADS/FZADS not possible

© Innomotics 2024

Gearbox FZ.Z./FD.Z.69 in a housing flange design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.5	359.5	365.5	384.5	424.5	429.5	464.5	491.0	531.0	547.5	582.5	557.5	592.0	610.5	660.5
kB	378.0	404.0	420.5	439.5	479.5	489.5	524.5	561.0	601.0	626.0	661.0	630.5	665.0	715.0	765.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	340.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAZS/FZAZS not possible

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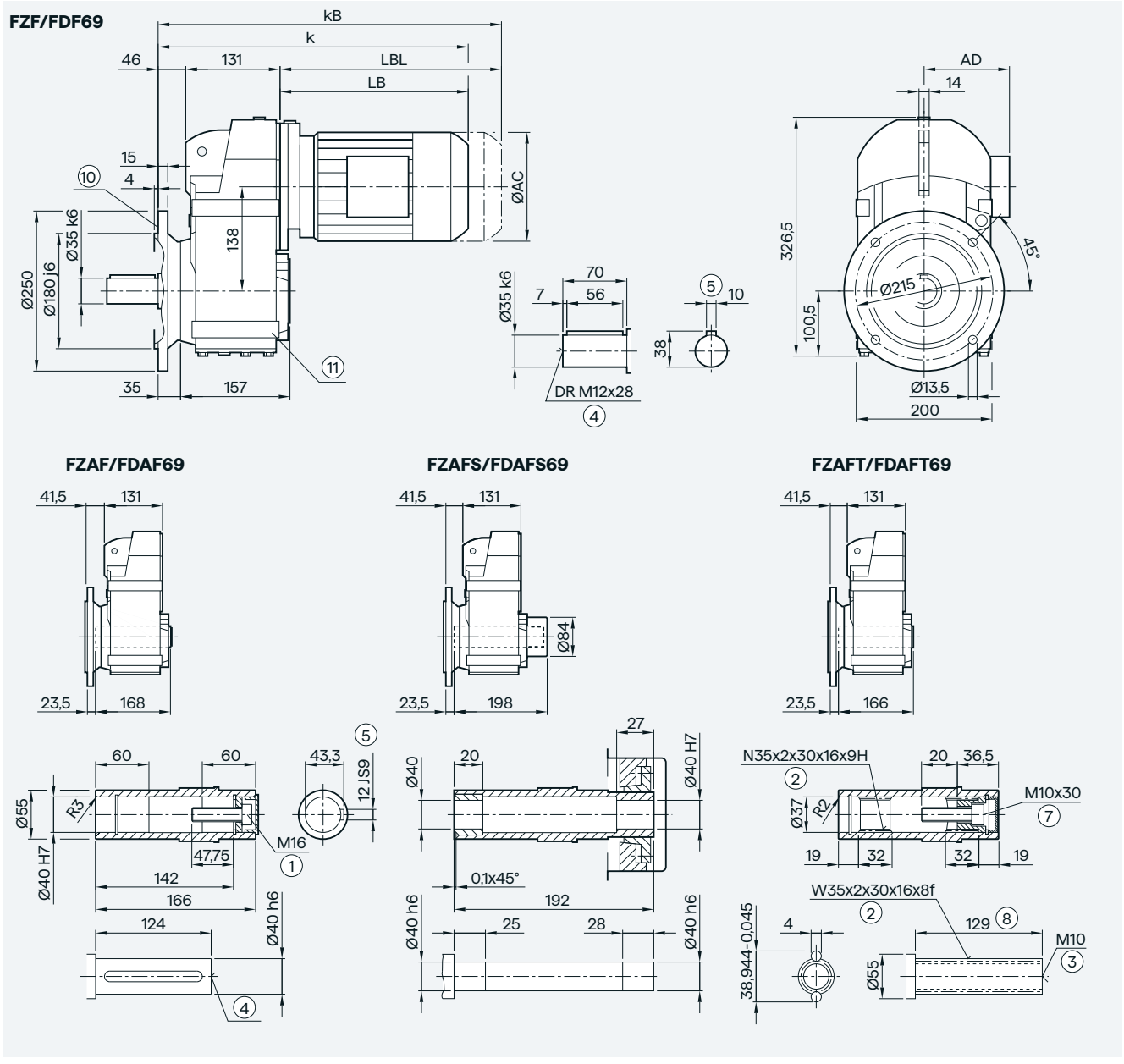
Gearbox FZ.F./FD.F.69 in a flange-mounted design



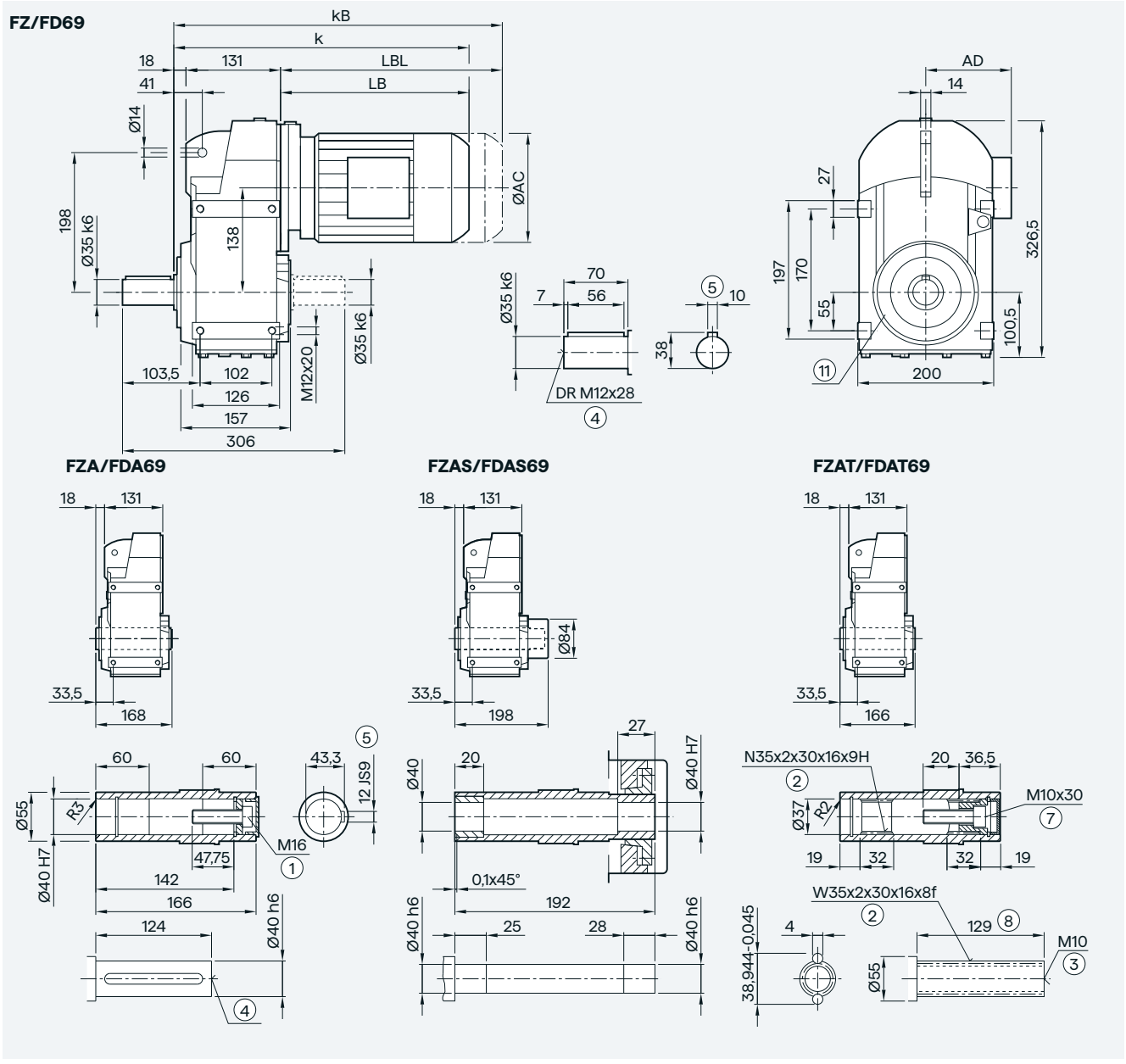
Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112[2)]	112Z[2)]	132[2)]	132Z[2)]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	361.5	387.5	393.5	412.5	452.5	457.5	492.5	519.0	559.0	575.5	610.5	585.5	620.0	638.5	688.5
kB	406.0	432.0	448.5	467.5	507.5	517.5	552.5	589.0	629.0	654.0	689.0	658.5	693.0	743.0	793.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	340.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FADAFS/FZAFS not possible

© Innomotics 2024

Gearbox FZ../FD..69 in a foot-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112[2)]	112Z[2)]	132[2)]	132Z[2)]
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.5	359.5	365.5	384.5	424.5	429.5	464.5	491.0	531.0	547.5	582.5	557.5	592.0	610.5	660.5
kB	378.0	404.0	420.5	439.5	479.5	489.5	524.5	561.0	601.0	626.0	661.0	630.5	665.0	715.0	765.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	340.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAS/FZAS not possible

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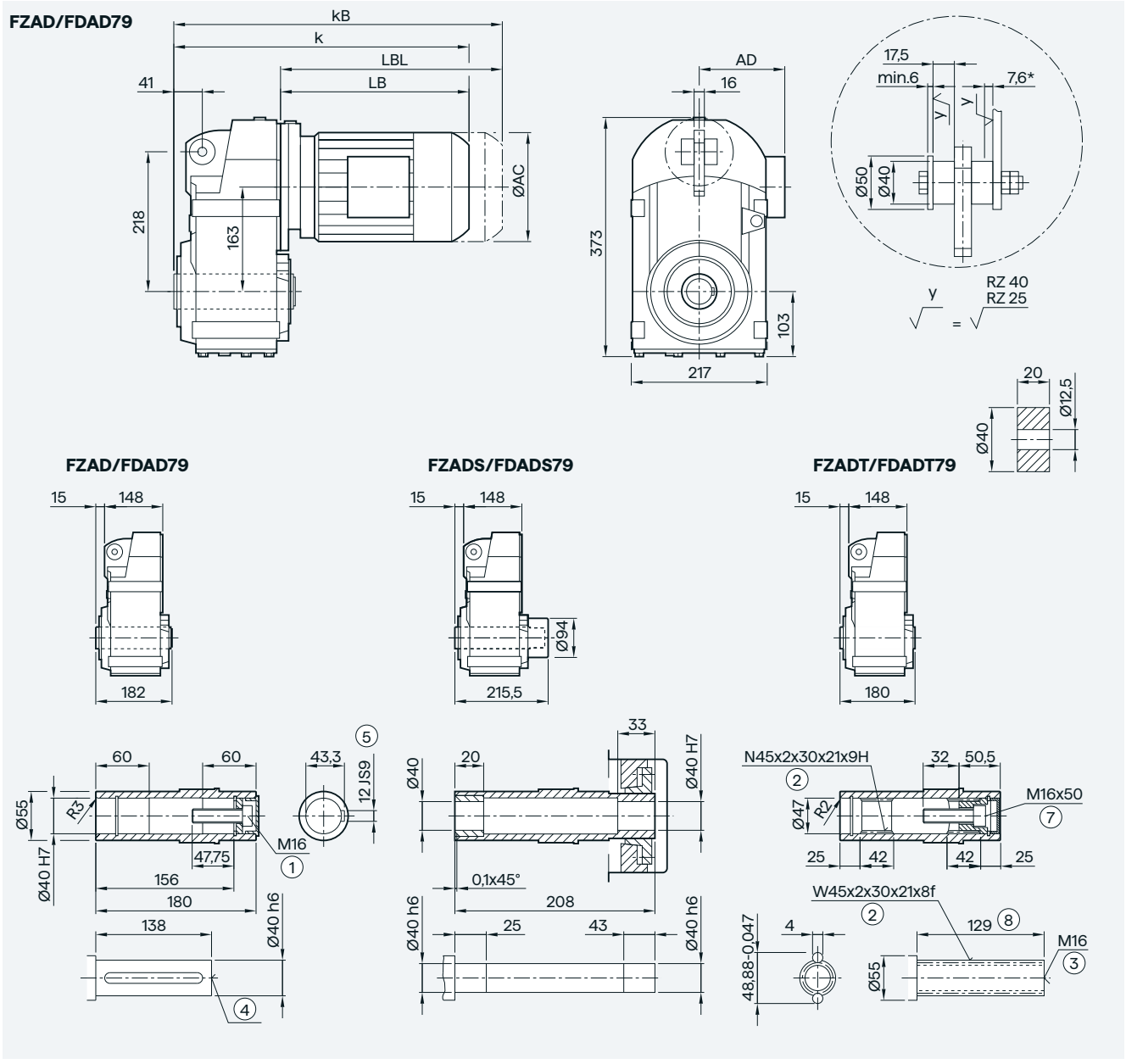
Parallel shaft geared motors

Gearbox FZAD./FDAD.79 in a shaft-mounted design



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160[2]	160Z[2]
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	377.5	396.5	436.5	437.5	472.5	499.0	539.0	555.5	590.5	565.5	590.5	618.5	668.5	700.5	760.5
kB	432.5	451.5	491.5	497.5	532.5	569.0	609.0	634.0	669.0	638.5	663.5	723.0	773.0	816.5	876.5
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

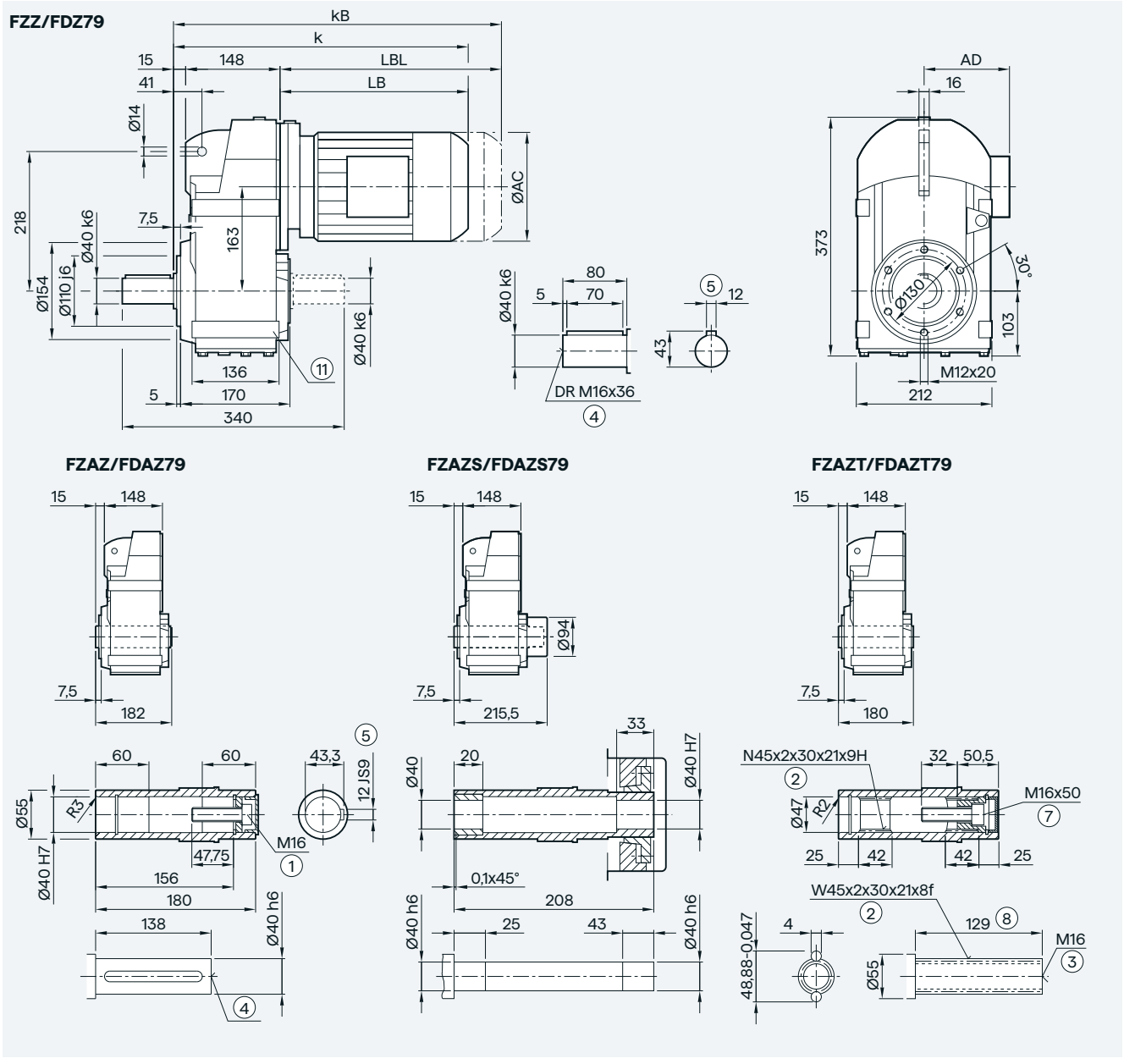
* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

© Innomotics 2024

Gearbox FZ.Z./FD.Z.79 in a housing flange design



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160[2]	160Z[2]
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	377.5	396.5	436.5	437.5	472.5	499.0	539.0	555.5	590.5	565.5	590.5	618.5	668.5	700.5	760.5
kB	432.5	451.5	491.5	497.5	532.5	569.0	609.0	634.0	669.0	638.5	663.5	723.0	773.0	816.5	876.5
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

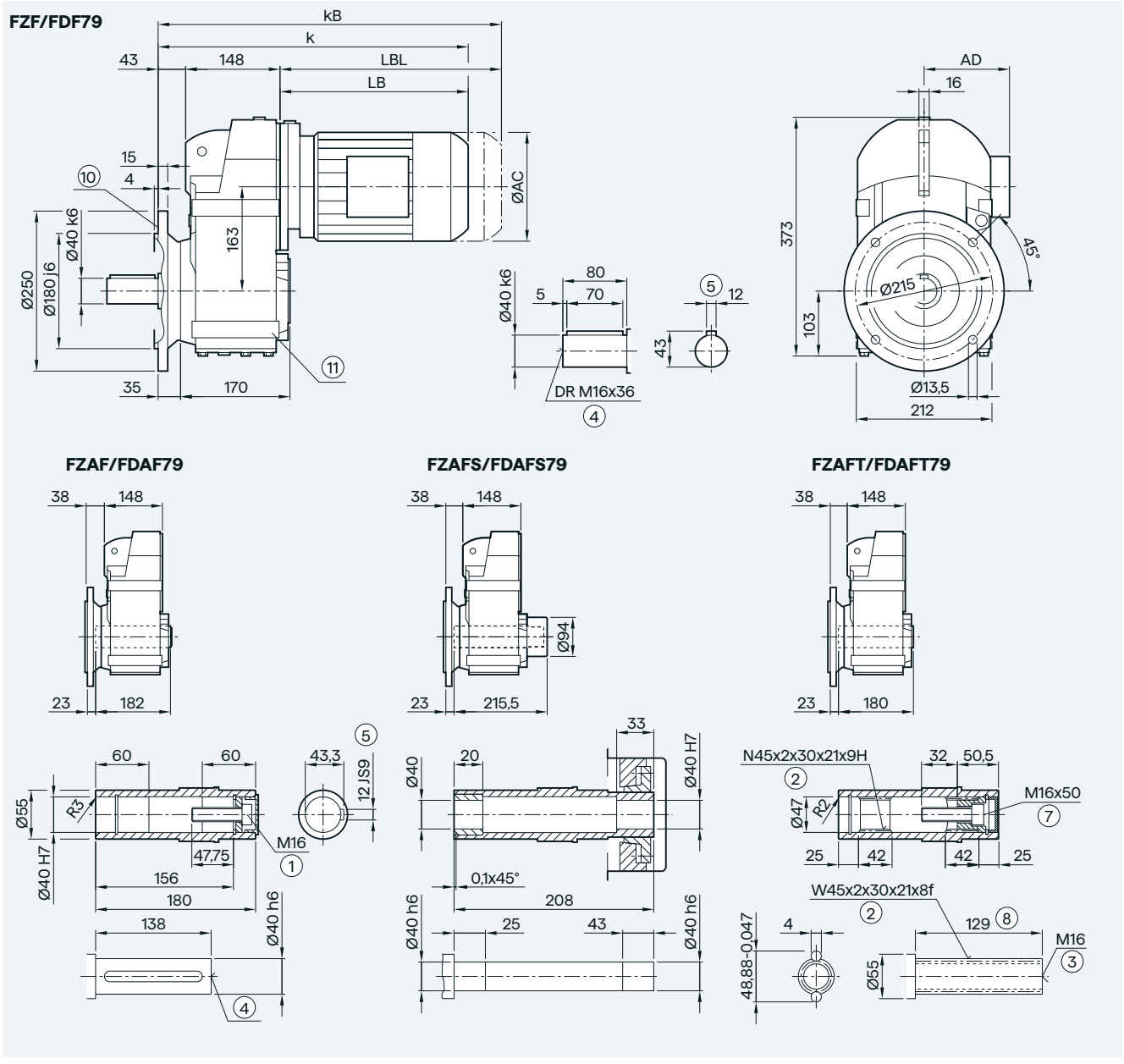
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAZS/FZAZS not possible

© Innomotics 2024

Parallel shaft geared motors

Gearbox FZ.F./FD.F.79 in a flange-mounted design



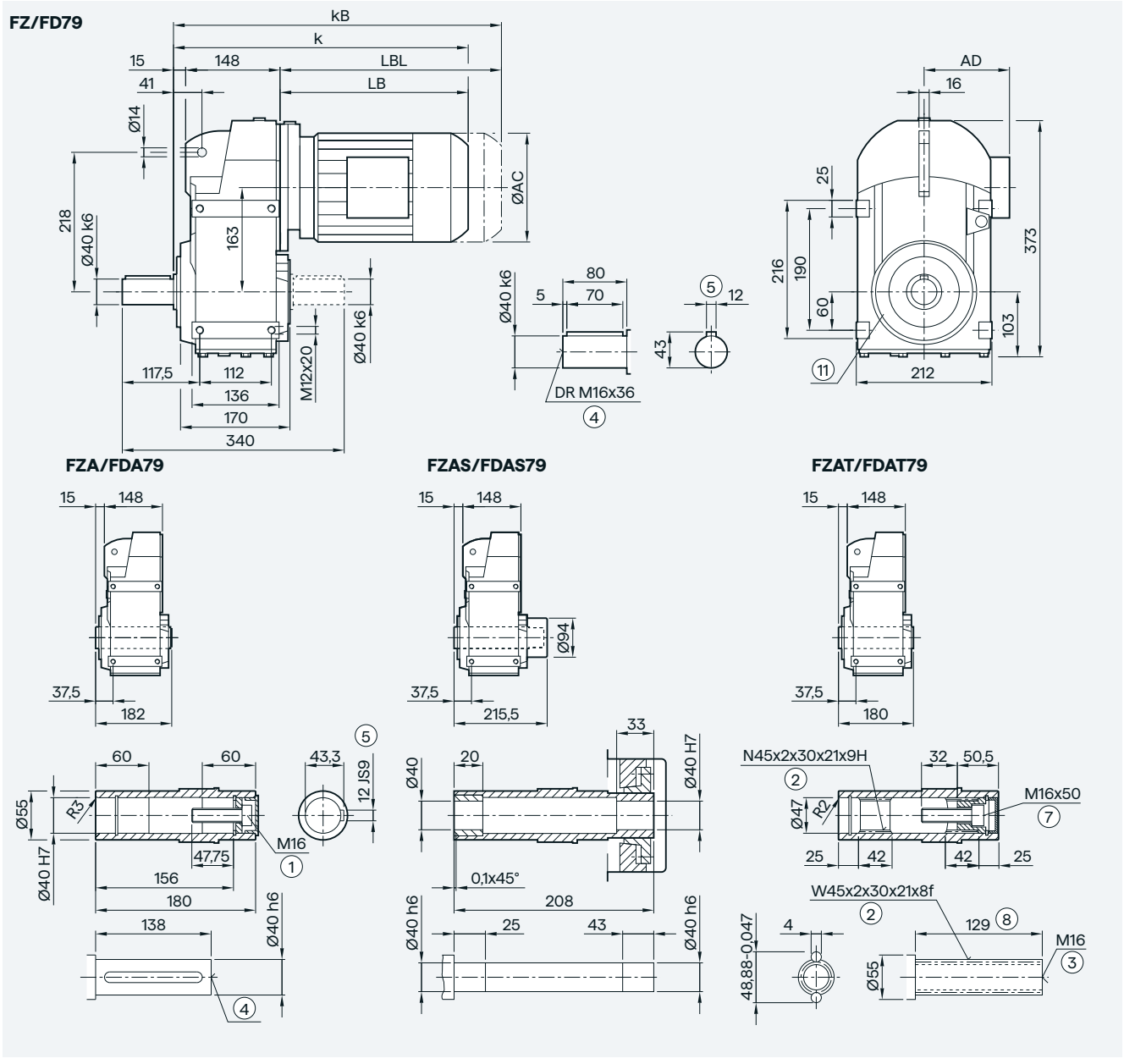
Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160[2]	160Z[2]
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	405.5	424.5	464.5	465.5	500.5	527.0	567.0	583.5	618.5	593.5	618.5	646.5	696.5	728.5	788.5
kB	460.5	479.5	519.5	525.5	560.5	597.0	637.0	662.0	697.0	666.5	691.5	751.0	801.0	844.5	904.5
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FADAFS/FZAFS not possible

© Innomotics 2024

Gearbox FZ../FD..79 in a foot-mounted design



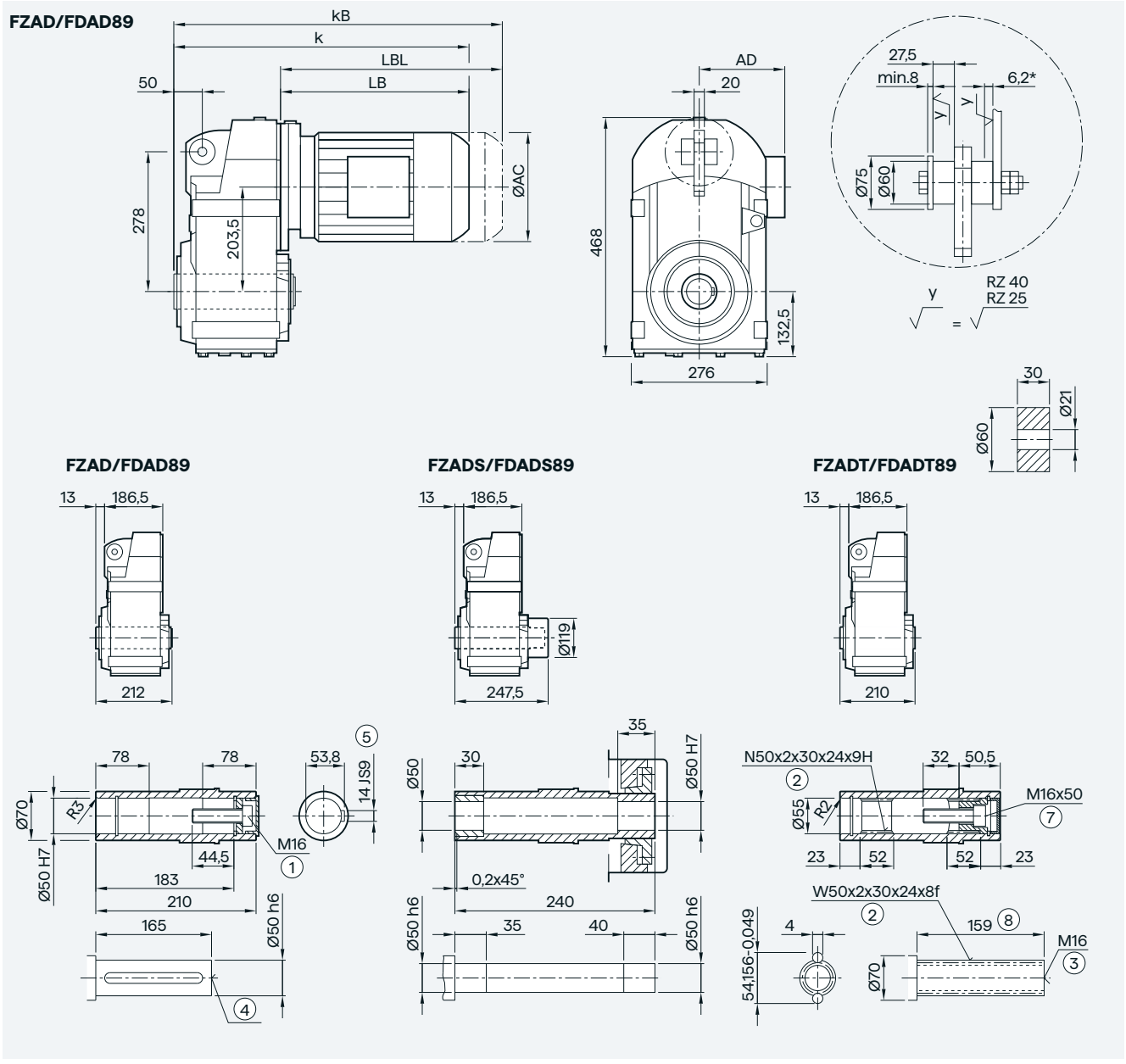
Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160[2]	160Z[2]
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	377.5	396.5	436.5	437.5	472.5	499.0	539.0	555.5	590.5	565.5	590.5	618.5	668.5	700.5	760.5
kB	432.5	451.5	491.5	497.5	532.5	569.0	609.0	634.0	669.0	638.5	663.5	723.0	773.0	816.5	876.5
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAS/FZAS not possible

© Innomotics 2024

Gearbox FZAD./FDAD.89 in a shaft-mounted design



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180[2]	180Z[2]
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.0	496.0	522.5	562.5	575.0	610.0	585.0	610.0	638.0	688.0	720.0	780.0	793.0	823.0
kB	521.0	556.0	592.5	632.5	653.5	688.5	658.0	683.0	742.5	792.5	836.0	896.0	922.0	952.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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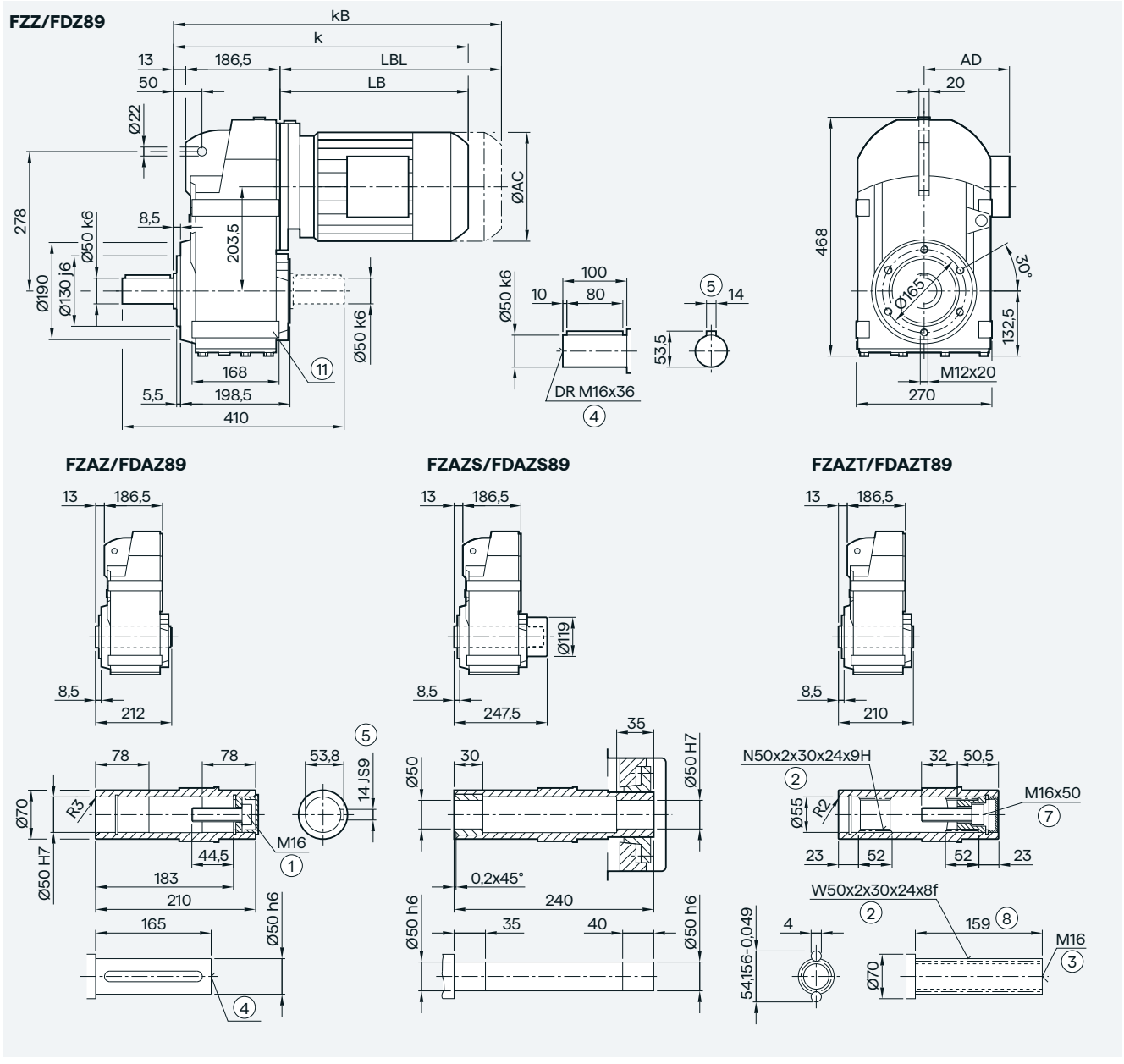
Gearbox FZ.Z./FD.Z.89 in a housing flange design



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180[2]	180Z[2]
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.0	496.0	522.5	562.5	575.0	610.0	585.0	610.0	638.0	688.0	720.0	780.0	793.0	823.0
kB	521.0	556.0	592.5	632.5	653.5	688.5	658.0	683.0	742.5	792.5	836.0	896.0	922.0	952.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAS/FZAS not possible

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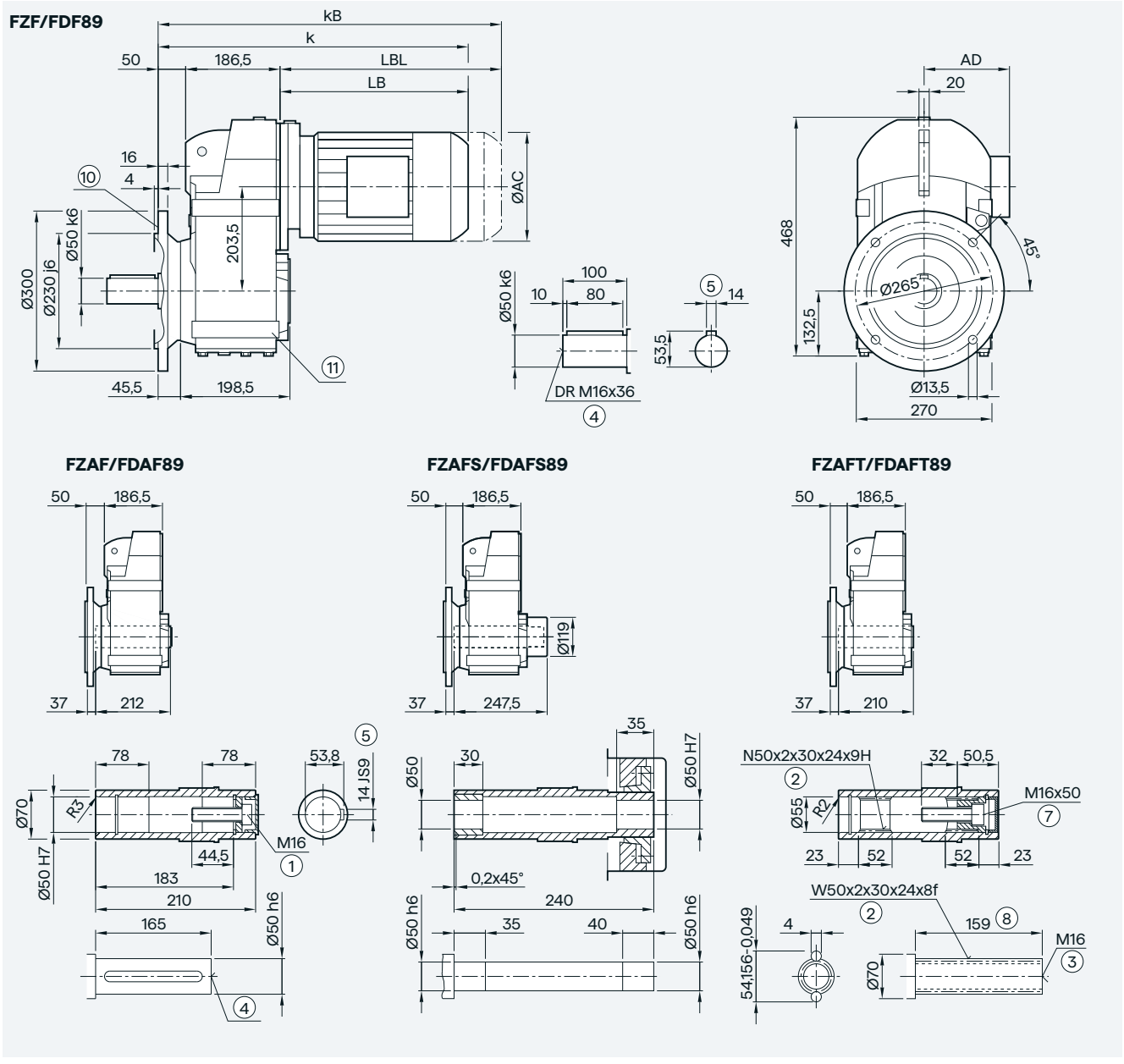
Parallel shaft geared motors

Gearbox FZ.F./FD.F.89 in a flange-mounted design



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180[2]	180Z[2]
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	498.0	533.0	559.5	599.5	612.0	647.0	622.0	647.0	675.0	725.0	757.0	817.0	830.0	860.0
kB	558.0	593.0	629.5	669.5	690.5	725.5	695.0	720.0	779.5	829.5	873.0	933.0	959.0	989.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FADAFS/FZAFS not possible

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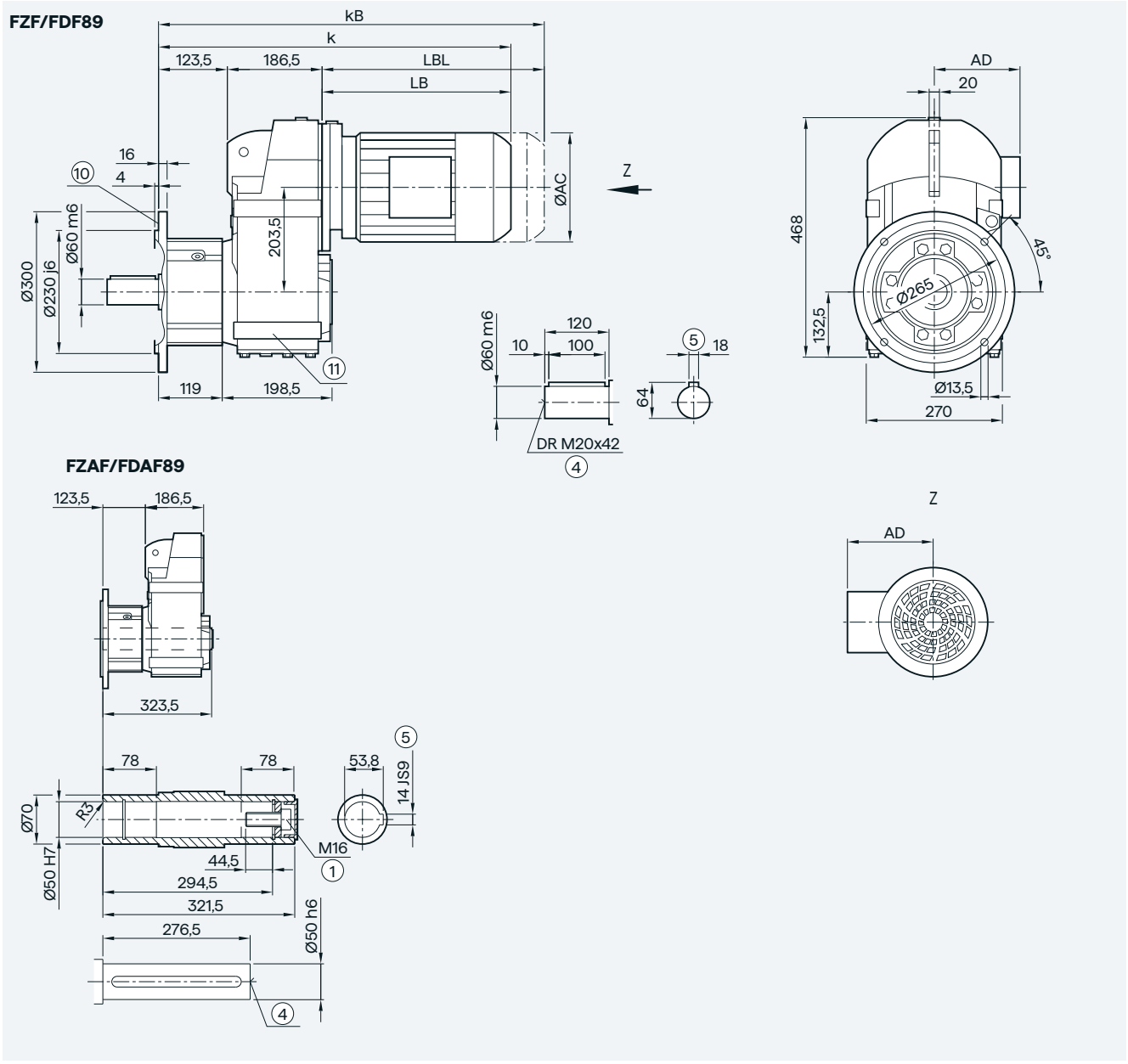
Gearbox FZ.F./FD.F.89 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	571.5	606.5	633.0	673.0	685.5	720.5	695.5	720.5	748.5	798.5	830.5	890.5	903.5	933.5
kB	631.5	666.5	703.0	743.0	764.0	799.0	768.5	793.5	853.0	903.0	946.5	1006.5	1033.0	1062.5
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design
⑩ For inner contour, see page 4/124
1) AD depends on the motor options, for other dimensions, see page 9/46.

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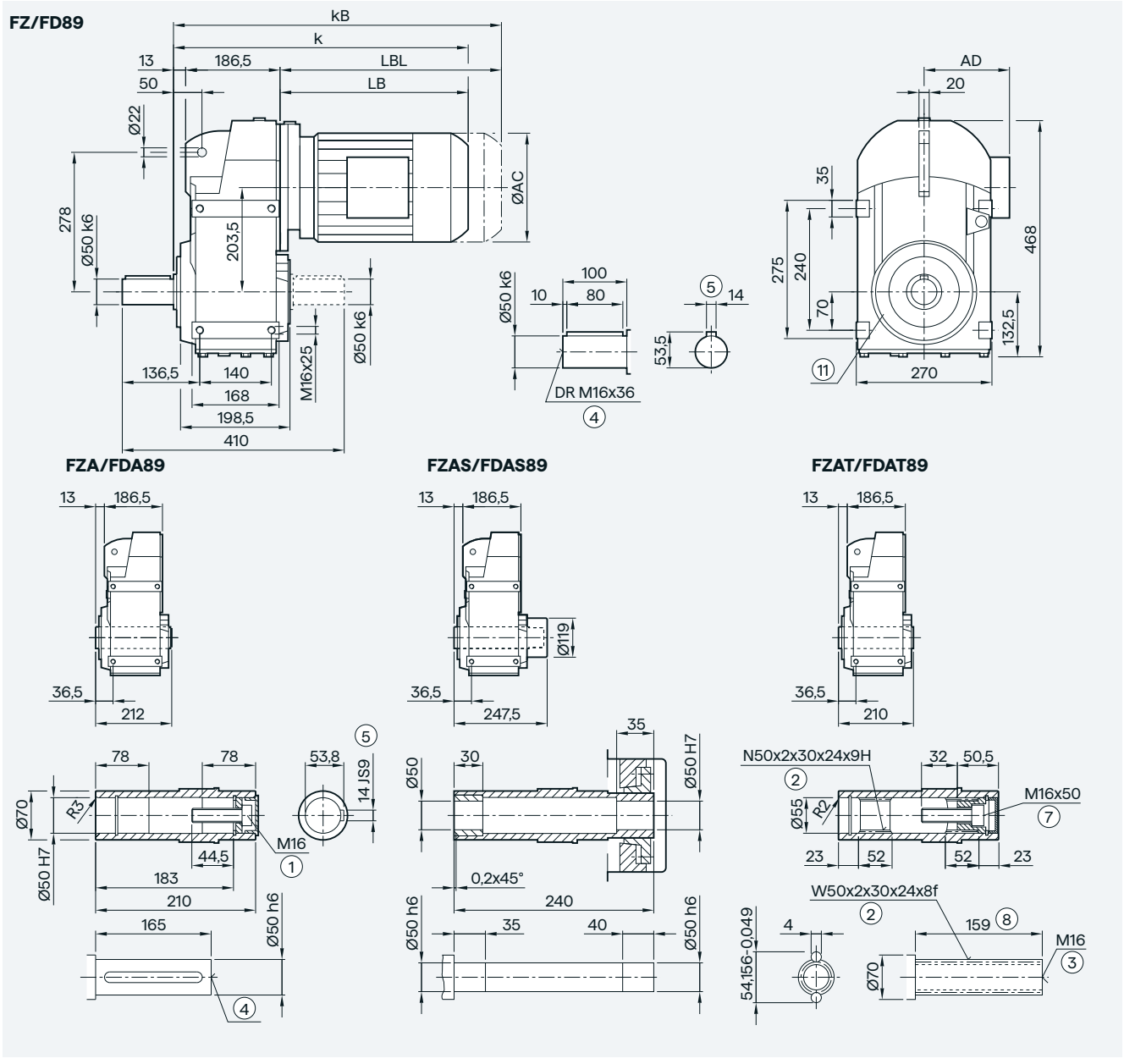
Gearbox FZ../FD..89 in a foot-mounted design



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180[2]	180Z[2]
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.0	496.0	522.5	562.5	575.0	610.0	585.0	610.0	638.0	688.0	720.0	780.0	793.0	823.0
kB	521.0	556.0	592.5	632.5	653.5	688.5	658.0	683.0	742.5	792.5	836.0	896.0	922.0	952.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design
1) AD depends on the motor options, for other dimensions, see page 9/46.
2) FDAS/FZAS not possible

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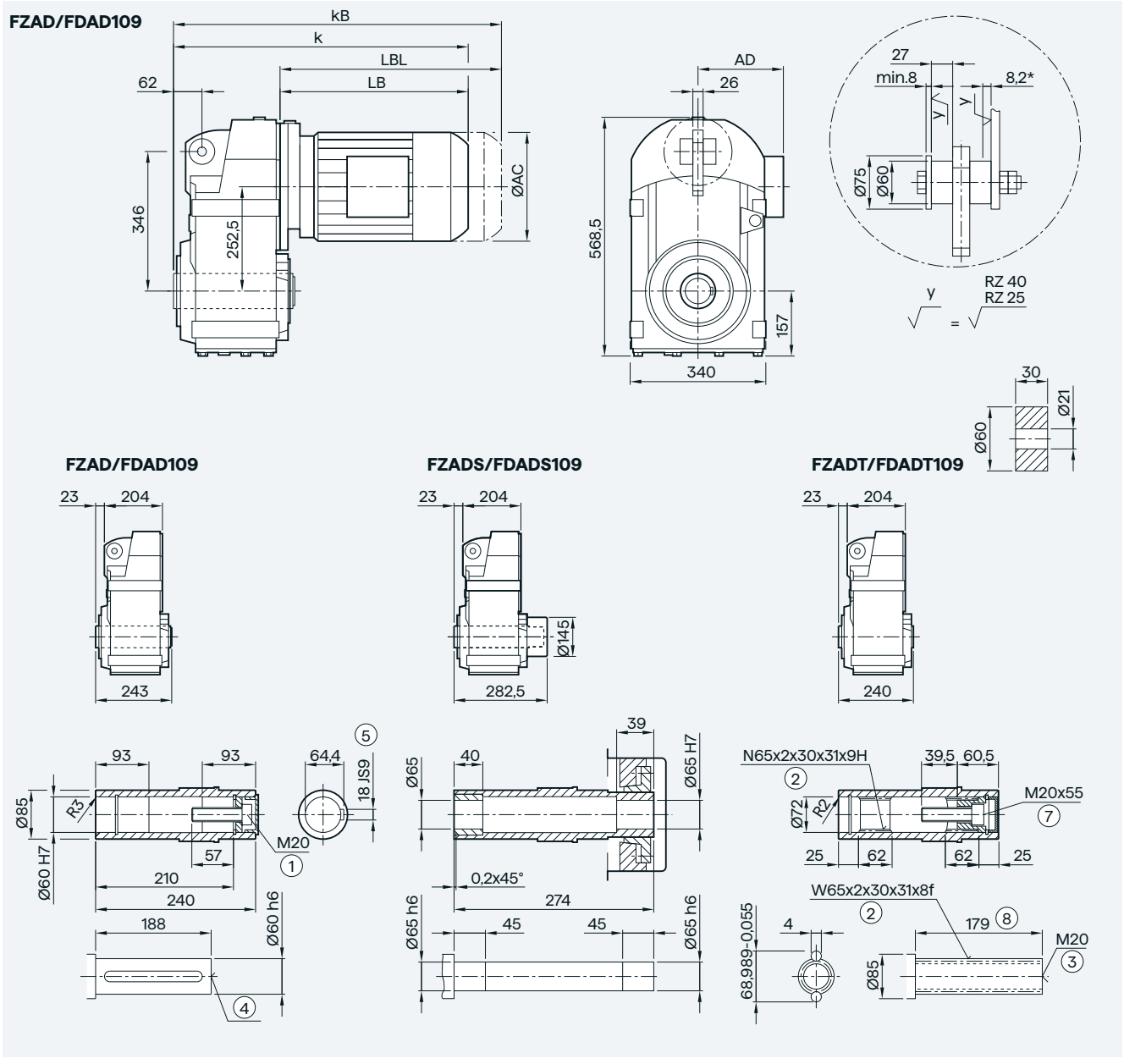
Gearbox FZAD./FDAD.109 in a shaft-mounted design



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225[2]	225Y[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	543.0	583.0	593.5	628.5	603.5	628.5	656.5	706.5	738.5	798.5	811.5	841.5	879.5	904.5	925.0	985.0
kB	613.0	653.0	672.0	707.0	676.5	701.5	761.0	811.0	854.5	914.5	940.5	970.5	1026.5	1051.5	1153.0	1213.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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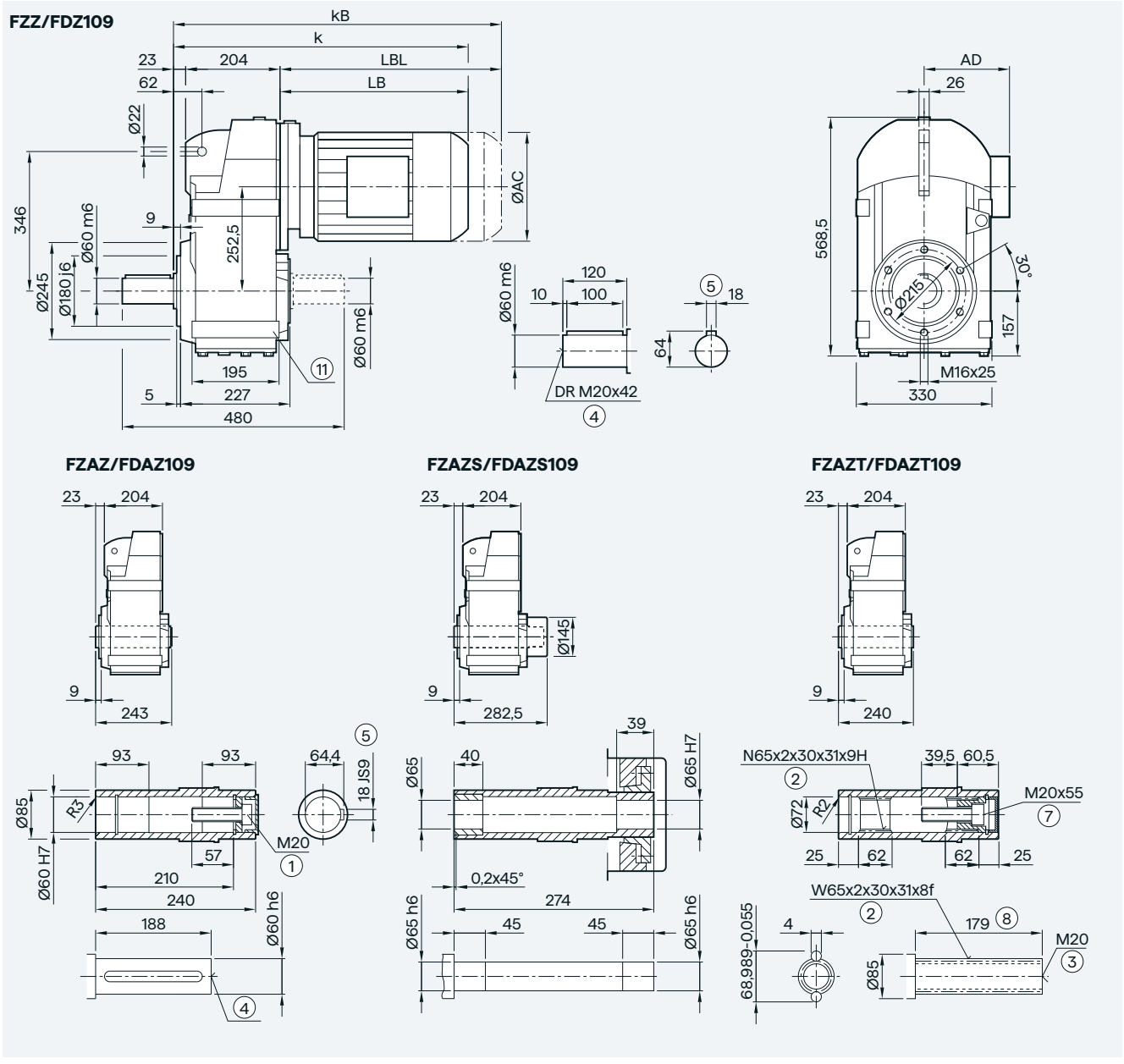
Gearbox FZ.Z./FD.Z.109 in a housing flange design



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225[2]	225Y[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	543.0	583.0	593.5	628.5	603.5	628.5	656.5	706.5	738.5	798.5	811.5	841.5	879.5	904.5	925.0	985.0
kB	613.0	653.0	672.0	707.0	676.5	701.5	761.0	811.0	854.5	914.5	940.5	970.5	1026.5	1051.5	1153.0	1213.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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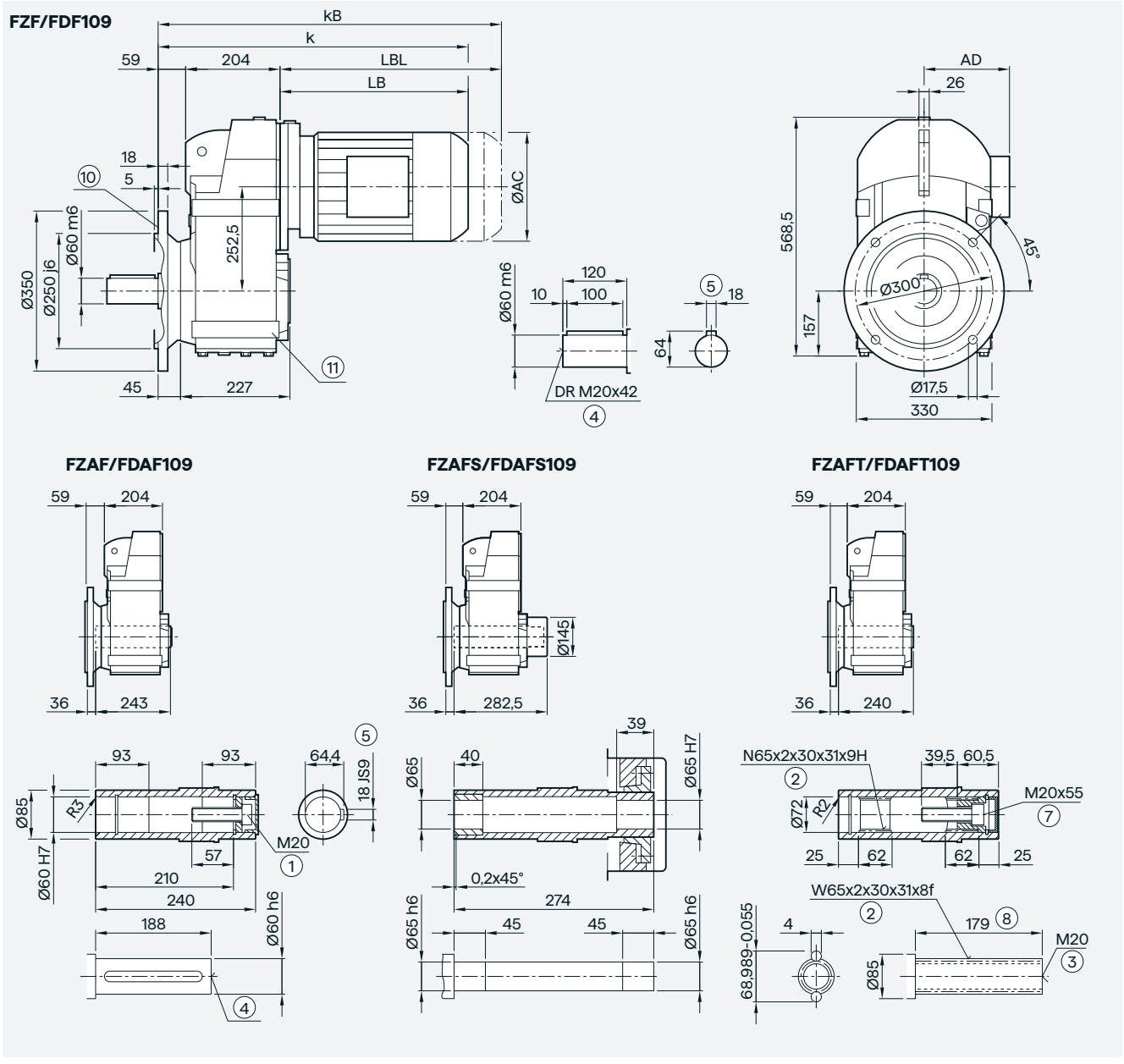
Gearbox FZ.F./FD.F.109 in a flange-mounted design



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225[2]	225Y[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	579.0	619.0	629.5	664.5	639.5	664.5	692.5	742.5	774.5	834.5	847.5	877.5	915.5	940.5	961.0	1021.0
kB	649.0	689.0	708.0	743.0	712.5	737.5	797.0	847.0	890.5	950.5	976.5	1006.5	1062.5	1087.5	1189.0	1249.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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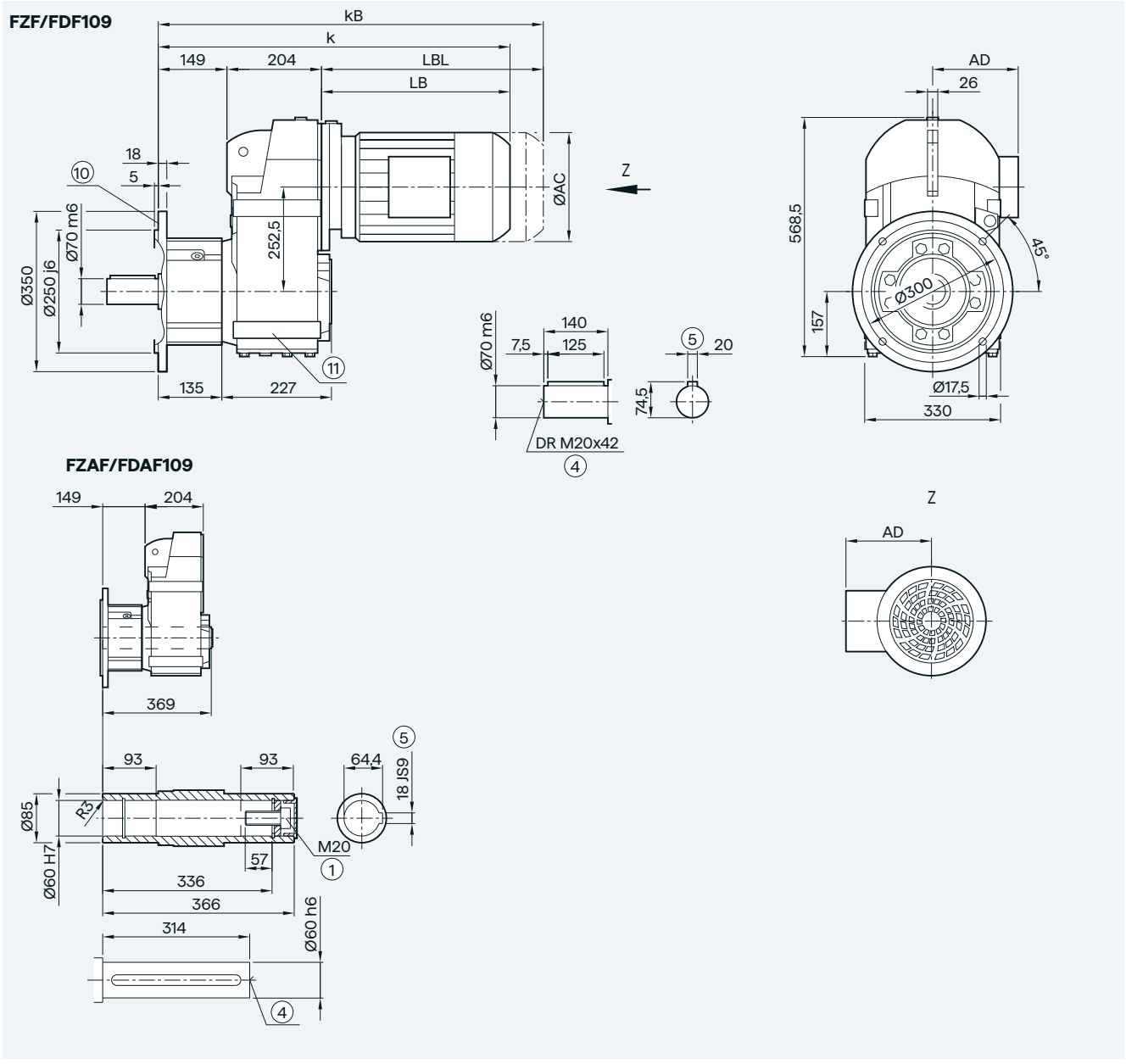
Gearbox FZ.F./FD.F.109 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	669.0	709.0	719.5	754.5	729.5	754.5	782.5	832.5	864.5	924.5	937.5	967.5	1005.5	1030.5	1051.0	1111.0
kB	739.0	779.0	798.0	833.0	802.5	827.5	887.0	937.0	980.5	1040.5	1066.5	1096.5	1152.5	1177.5	1279.0	1339.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design
⑩ For inner contour, see page 4/124
1) AD depends on the motor options, for other dimensions, see page 9/46.

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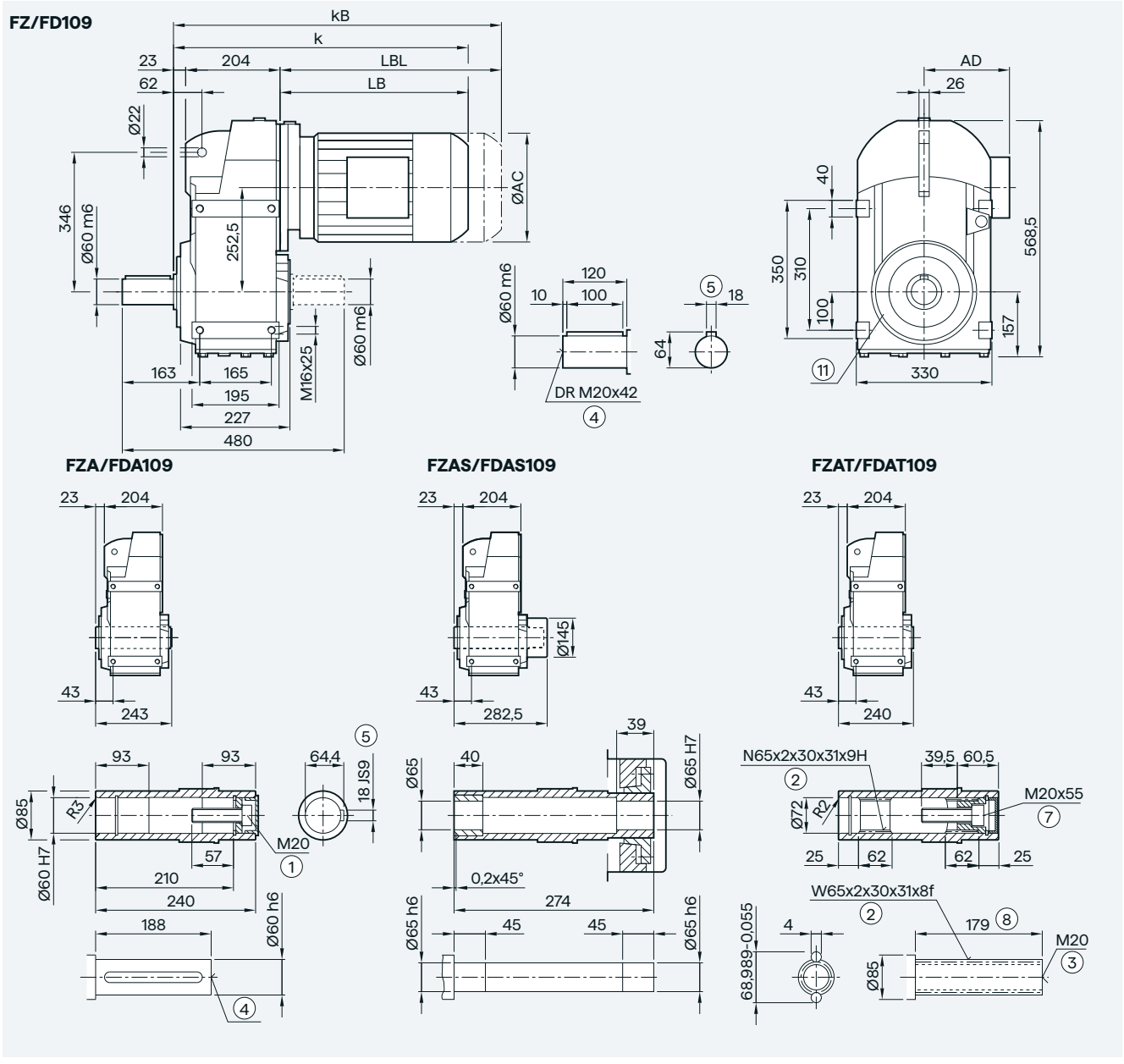
Gearbox FD. /FZ.109 in a foot-mounted design



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225[2)]	225Y[2)]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	543.0	583.0	593.5	628.5	603.5	628.5	656.5	706.5	738.5	798.5	811.5	841.5	879.5	904.5	925.0	985.0
kB	613.0	653.0	672.0	707.0	676.5	701.5	761.0	811.0	854.5	914.5	940.5	970.5	1026.5	1051.5	1153.0	1213.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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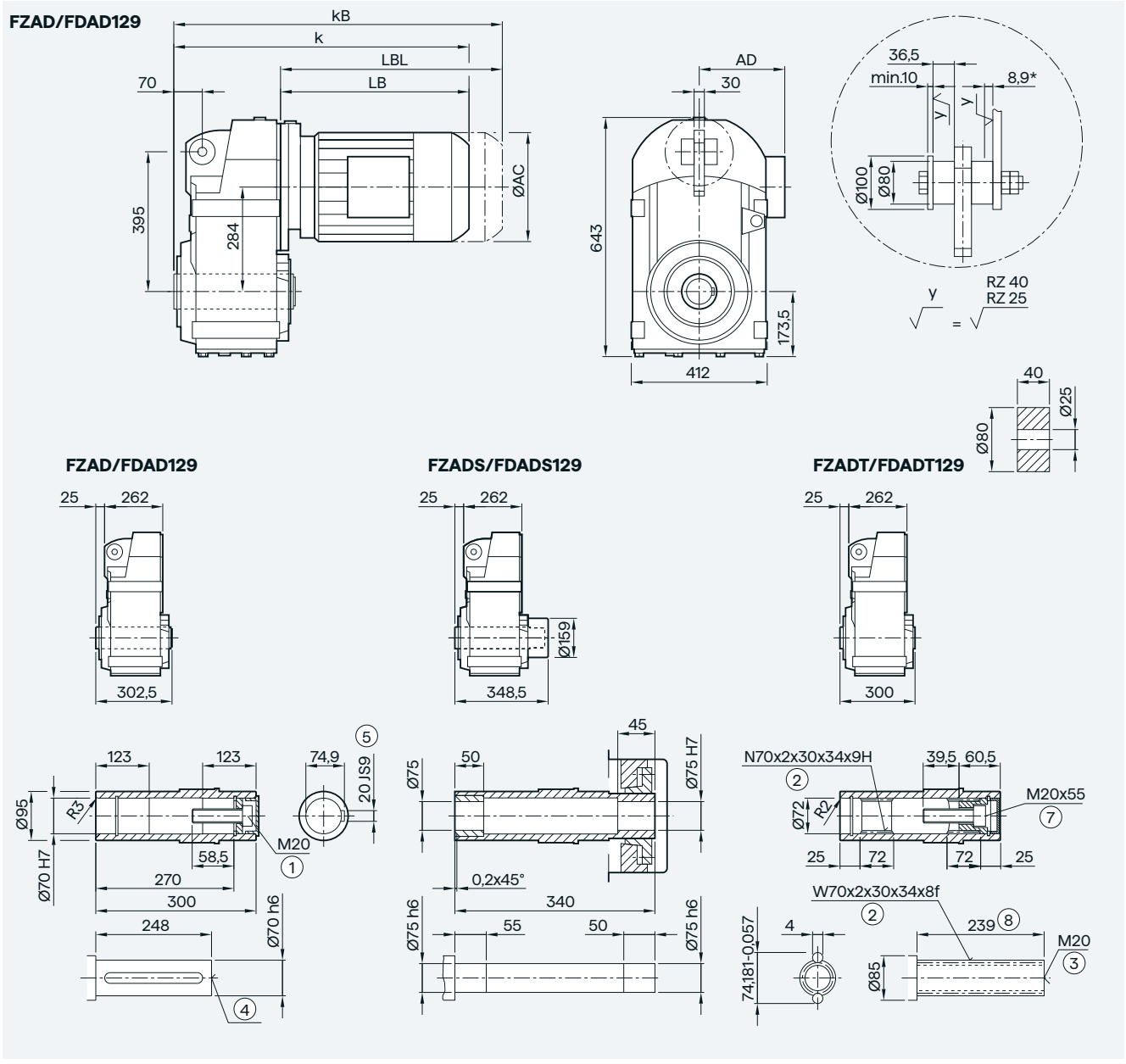
Parallel shaft geared motors

Gearbox FZAD./FDAD.129 in a shaft-mounted design



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	596.0	636.0	644.5	679.5	654.5	679.5	705.5	755.5	787.5	847.5	860.5	890.5	928.5	953.5	974.0	1034.0	1085.5
kB	666.0	706.0	723.0	758.0	727.5	752.5	810.0	860.0	903.5	963.5	989.5	1019.5	1075.5	1100.5	1202.0	1262.0	1310.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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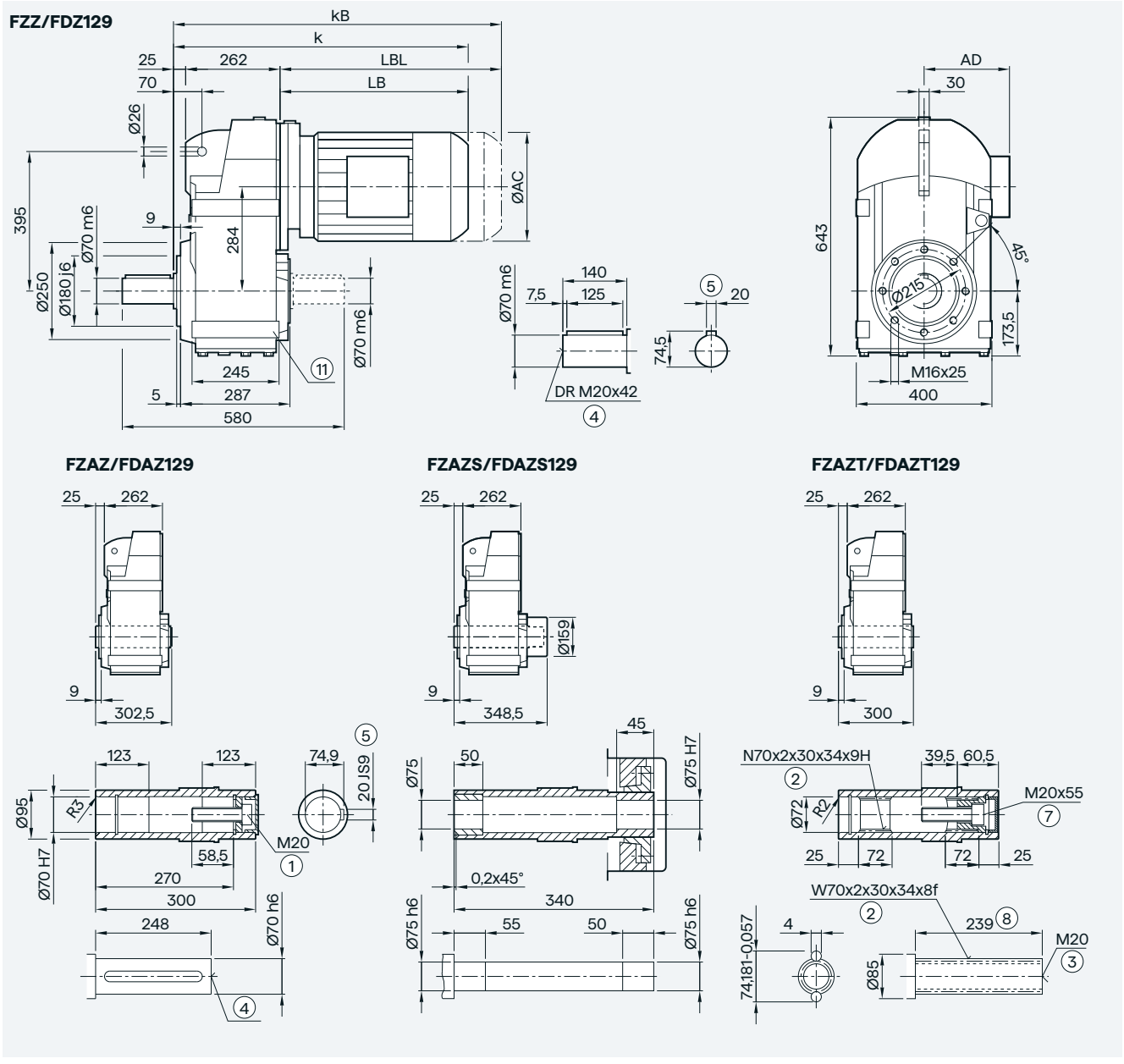
Gearbox FZ.Z./FD.Z.129 in a housing flange design



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	596.0	636.0	644.5	679.5	654.5	679.5	705.5	755.5	787.5	847.5	860.5	890.5	928.5	953.5	974.0	1034.0	1085.5
kB	666.0	706.0	723.0	758.0	727.5	752.5	810.0	860.0	903.5	963.5	989.5	1019.5	1075.5	1100.5	1202.0	1262.0	1310.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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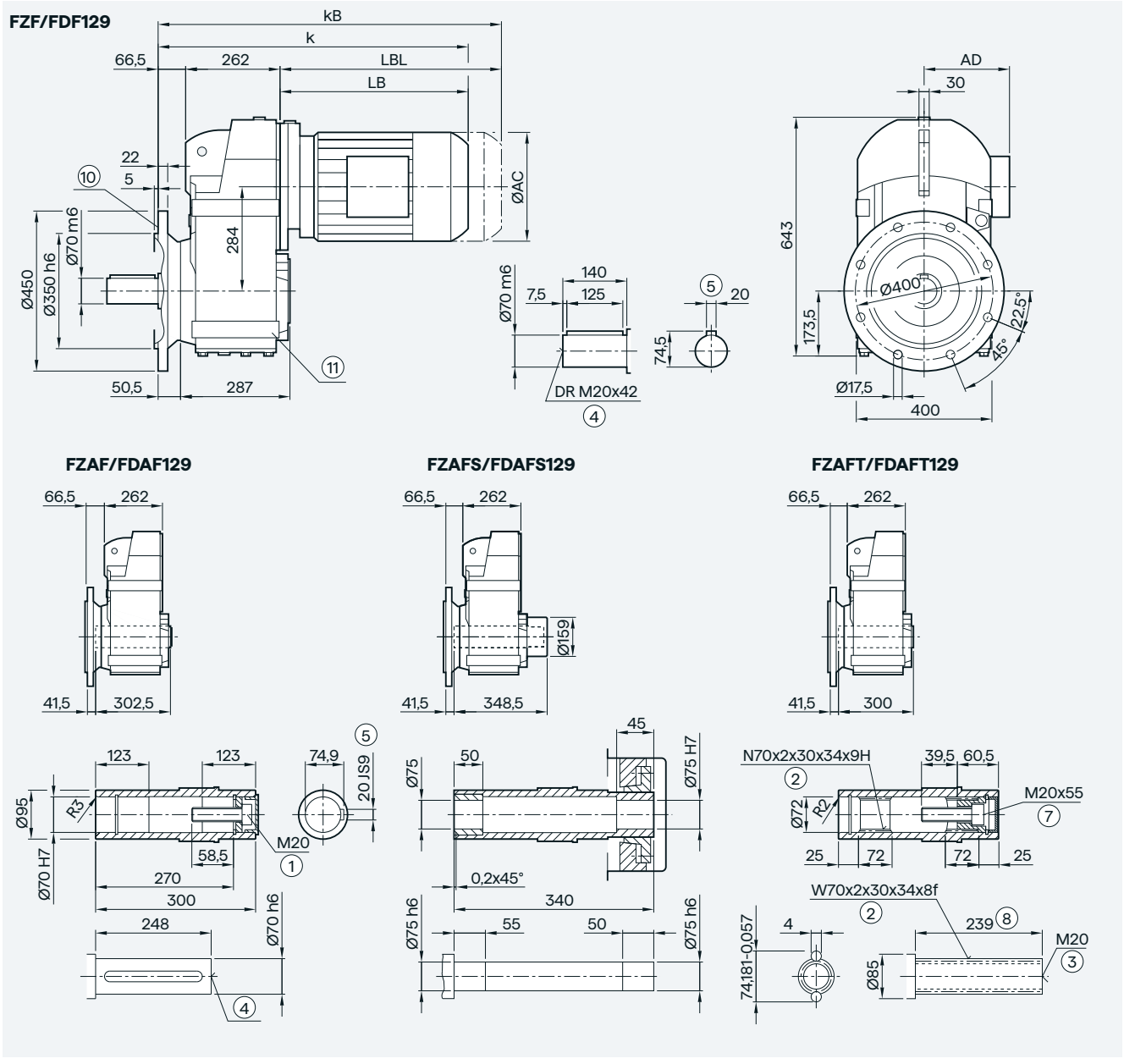
Parallel shaft geared motors

Gearbox FZ.F./FD.F.129 in a flange-mounted design



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	637.5	677.5	686.0	721.0	696.0	721.0	747.0	797.0	829.0	889.0	902.0	932.0	970.0	995.0	1015.0	1075.0	1127.0
kB	707.5	747.5	764.5	799.5	769.0	794.0	851.5	901.5	945.0	1005.0	1031.0	1061.0	1117.0	1142.0	1243.5	1303.5	1352.0
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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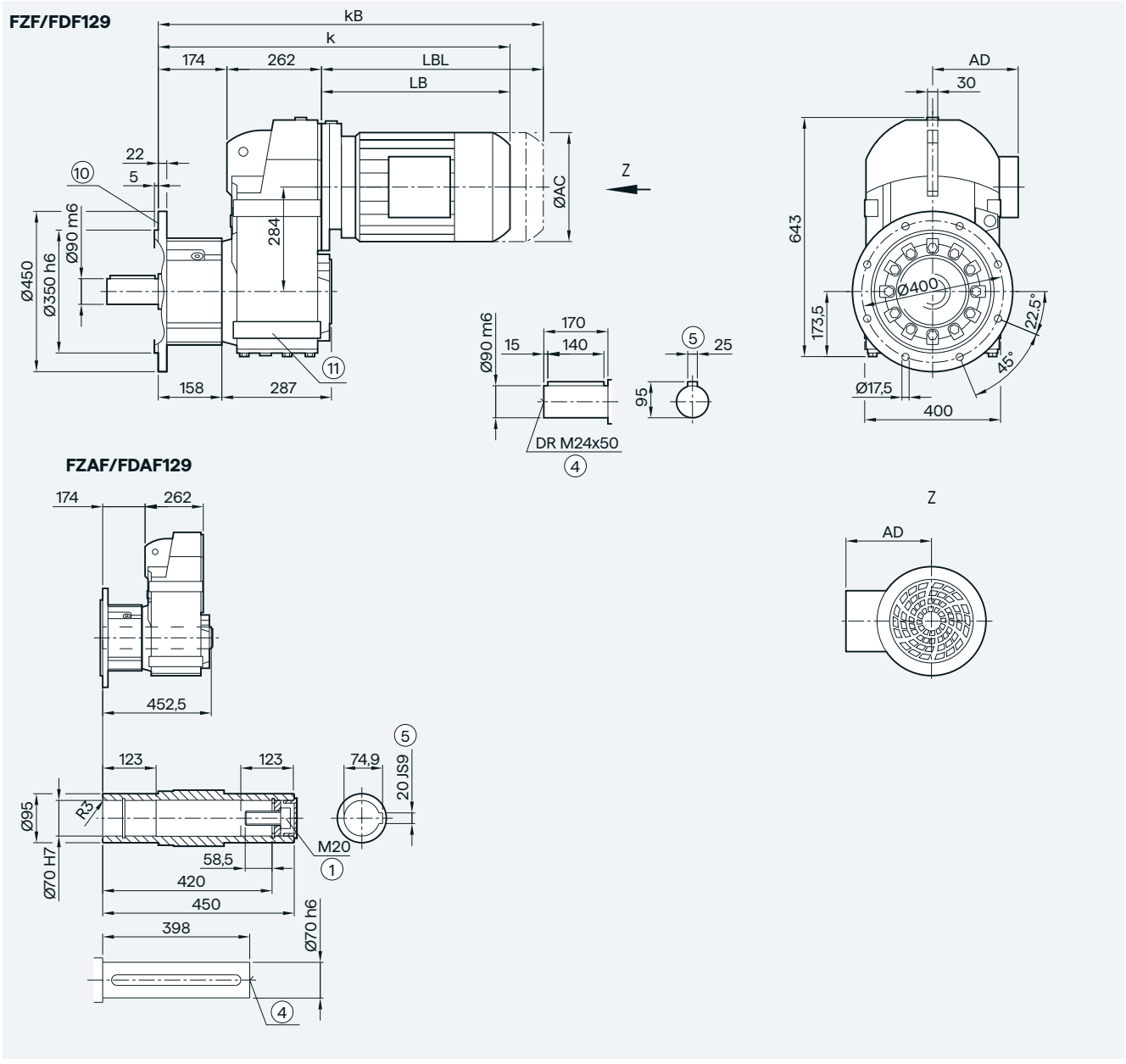
Gearbox FZ.F./FD.F.129 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	745.0	751.0	793.5	828.5	803.5	828.5	854.5	904.5	936.5	996.5	1009.5	1039.5	1077.5	1102.5	1123.0	1183.0	1234.5
kB	815.0	855.0	872.0	907.0	876.5	901.5	959.0	1009.0	1052.5	1112.5	1138.5	1168.5	1224.5	1249.5	1351.0	1411.0	1459.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design
⑩ For inner contour, see page 4/124
1) AD depends on the motor options, for other dimensions, see page 9/46.

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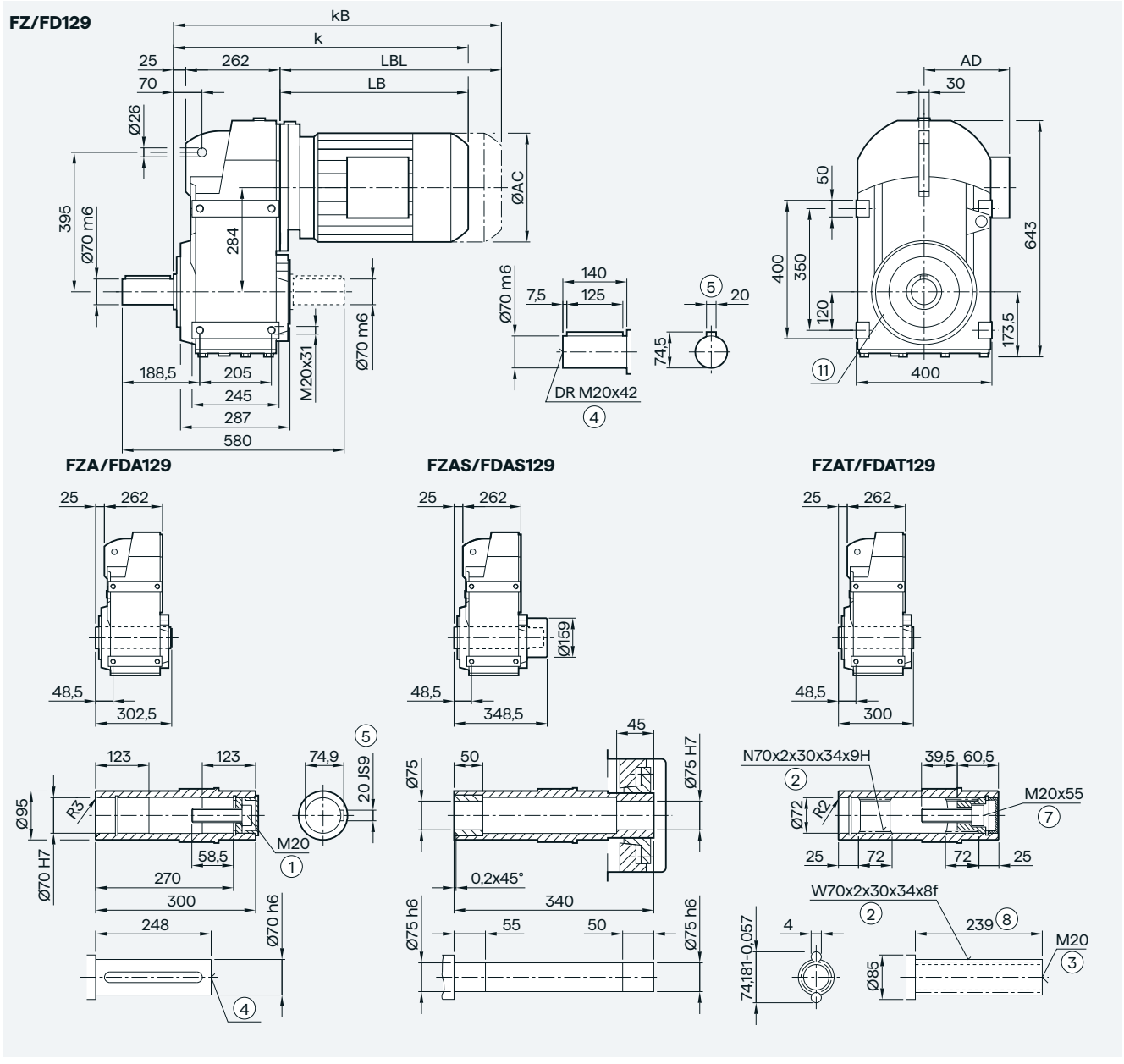
Parallel shaft geared motors

Gearbox FZ../FD..129 in a foot-mounted design



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	596.0	636.0	644.5	679.5	654.5	679.5	705.5	755.5	787.5	847.5	860.5	890.5	928.5	953.5	974.0	1034.0	1085.5
kB	666.0	706.0	723.0	758.0	727.5	752.5	810.0	860.0	903.5	963.5	989.5	1019.5	1075.5	1100.5	1202.0	1262.0	1310.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

2) FDAS/FZAS not possible

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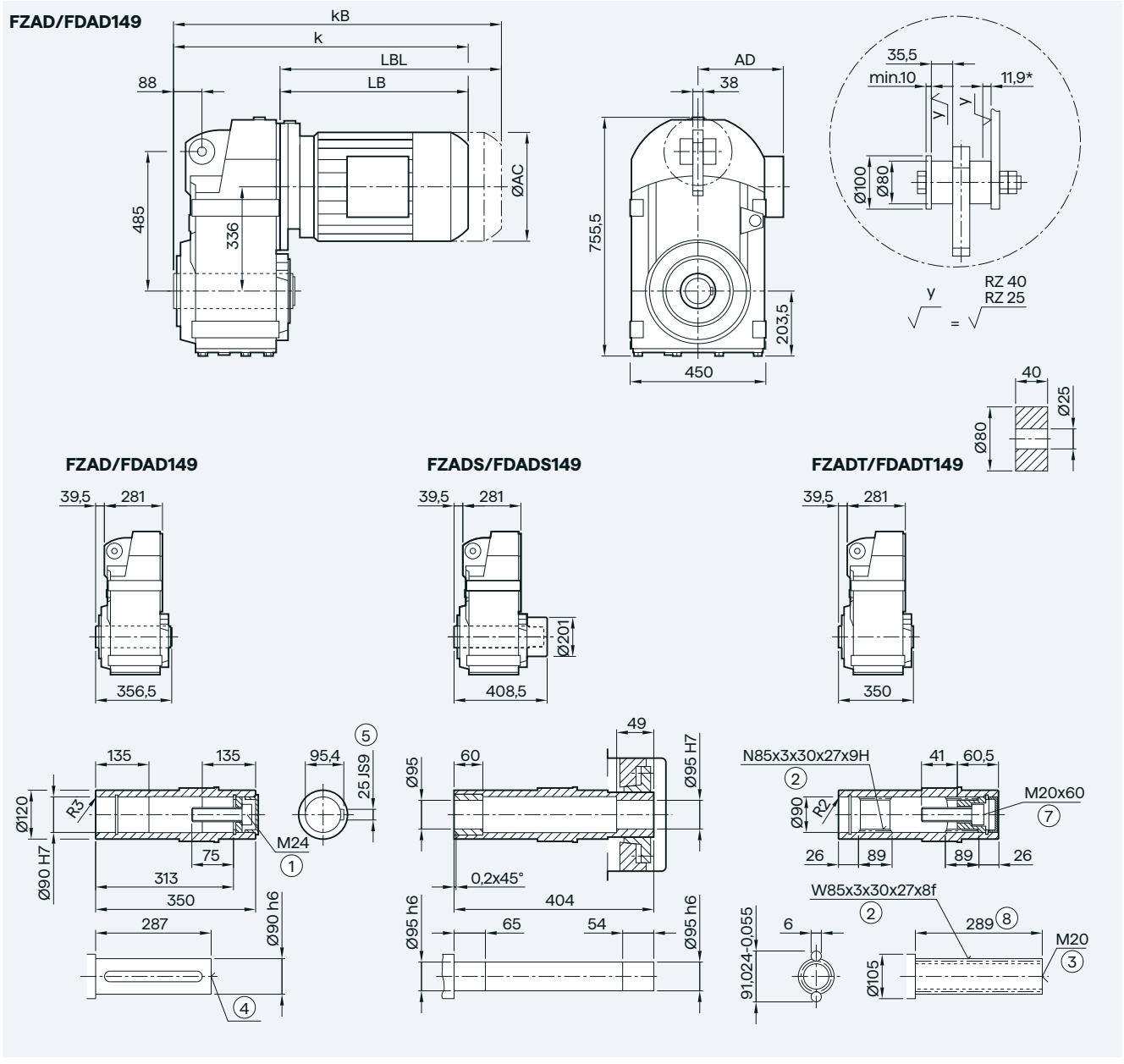
Gearbox FZAD./FDAD.149 in a shaft-mounted design



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	676.5	711.5	686.5	711.5	732.5	782.5	814.5	874.5	887.5	917.5	955.5	980.5	1000.5	1060.5	1112.0
kB	755.0	790.0	759.5	784.5	837.0	887.0	930.5	990.5	1016.5	1046.5	1102.5	1127.5	1229.0	1289.0	1337.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

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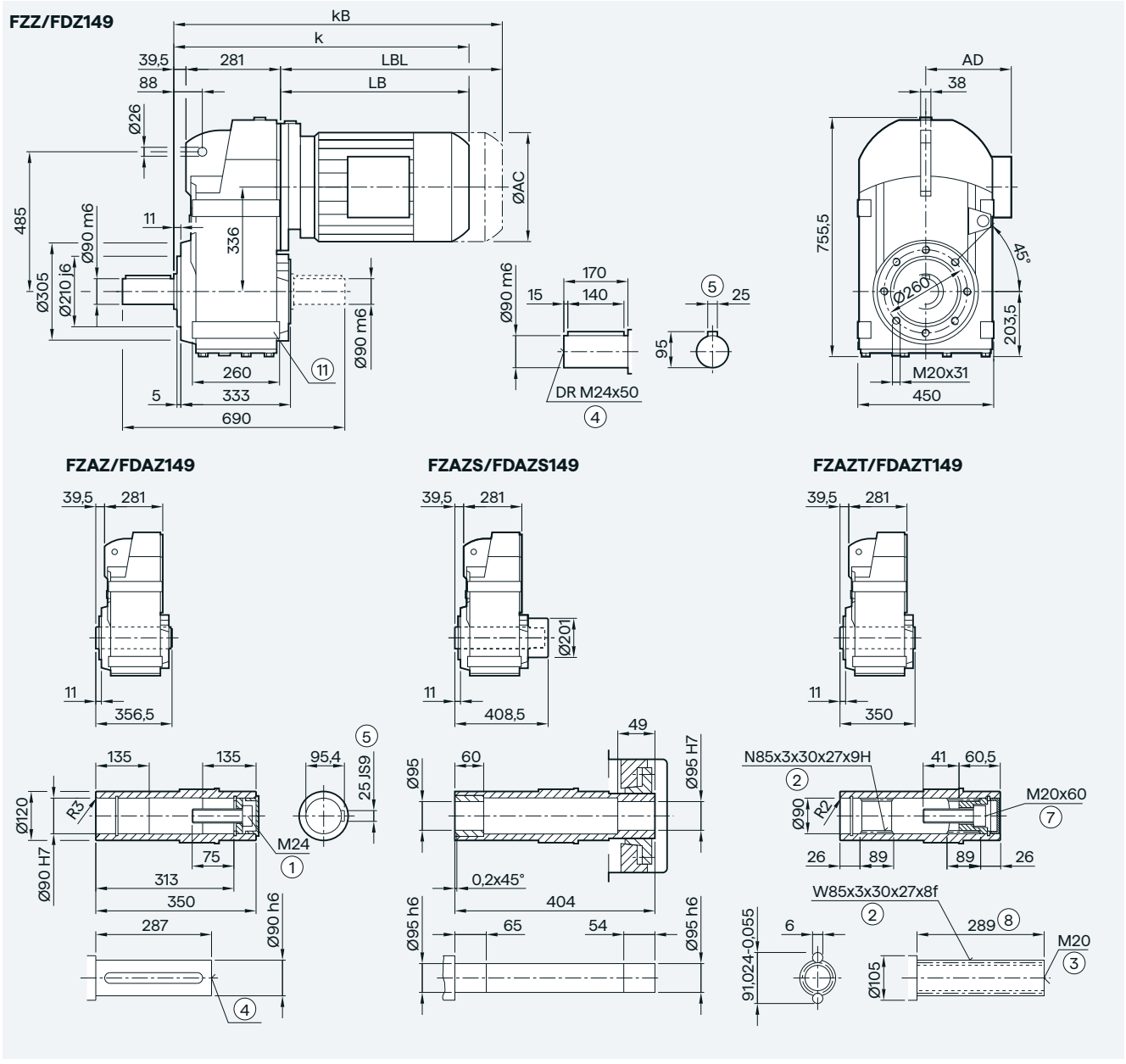
Gearbox FZ.Z./FD.Z.149 in a housing flange design



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	676.5	711.5	686.5	711.5	732.5	782.5	814.5	874.5	887.5	917.5	955.5	980.5	1000.5	1060.5	1112.0
kB	755.0	790.0	759.5	784.5	837.0	887.0	930.5	990.5	1016.5	1046.5	1102.5	1127.5	1229.0	1289.0	1337.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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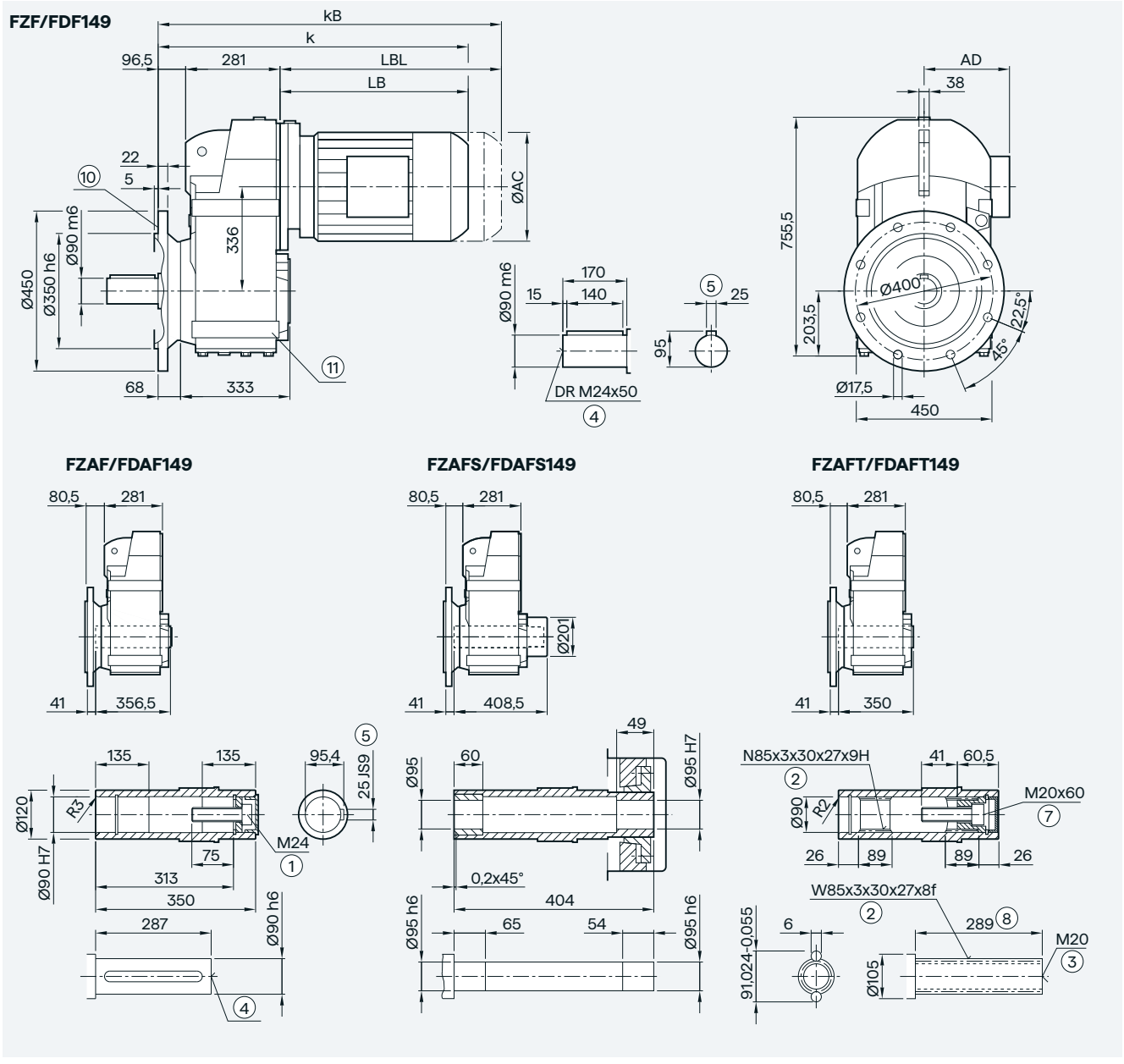
Gearbox FZ.F./FD.F.149 in a flange-mounted design



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	734.0	769.0	744.0	769.0	790.0	840.0	872.0	932.0	945.0	975.0	1013.0	1038.0	1058.5	1118.5	1170.0
kB	812.5	847.5	817.0	842.0	894.5	944.5	988.0	1048.0	1074.0	1104.0	1160.0	1185.0	1286.5	1346.5	1395.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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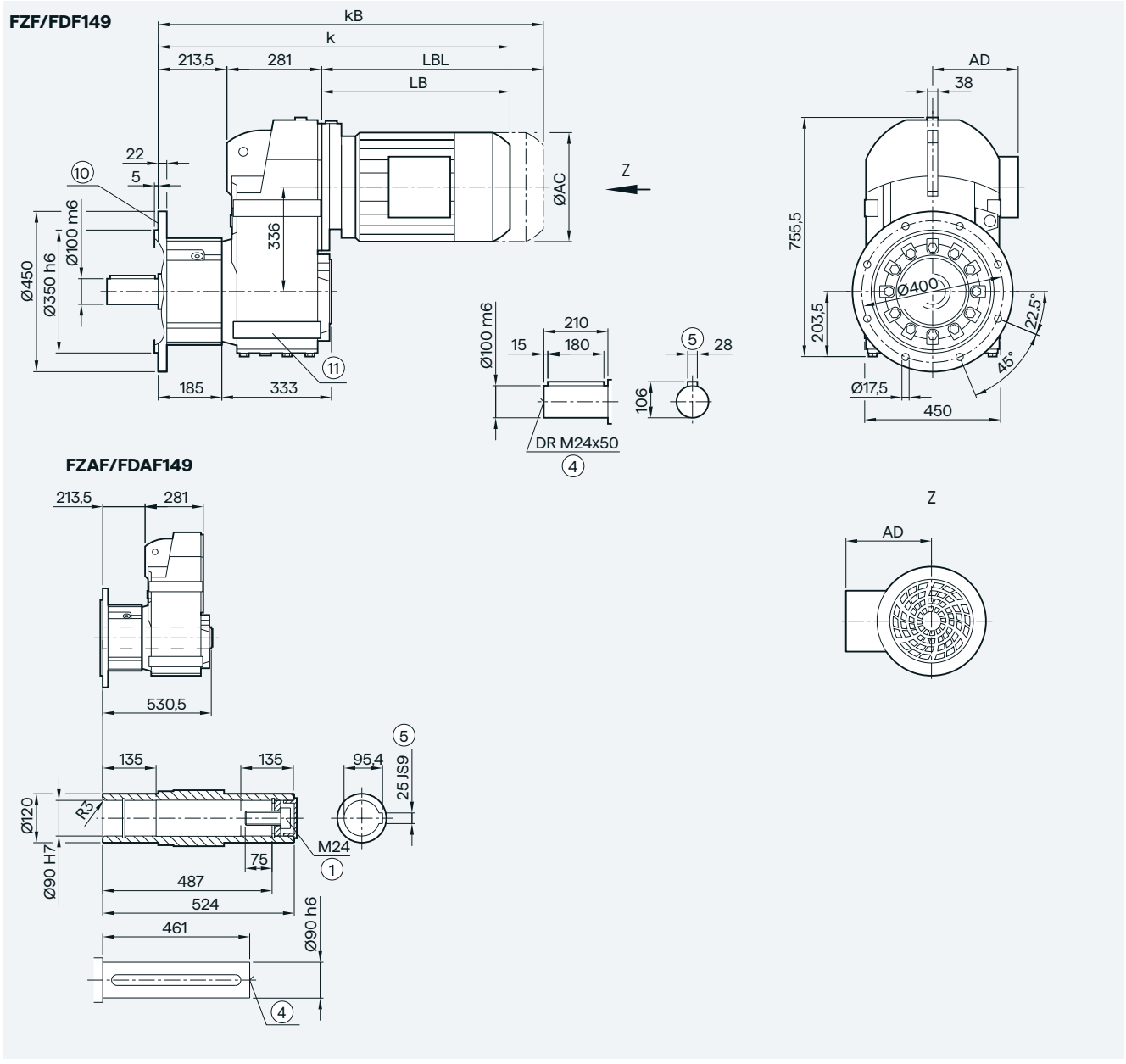
Gearbox FZ.F./FD.F.149 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	851.0	886.0	861.0	886.0	907.0	957.0	989.0	1049.0	1062.0	1092.0	1130.0	1155.0	1175.5	1235.5	1287.0
kB	929.5	964.5	934.0	959.0	1011.5	1061.5	1105.0	1165.0	1191.0	1221.0	1277.0	1302.0	1403.5	1463.5	1512.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design
⑩ For inner contour, see page 4/124
1) AD depends on the motor options, for other dimensions, see page 9/46.

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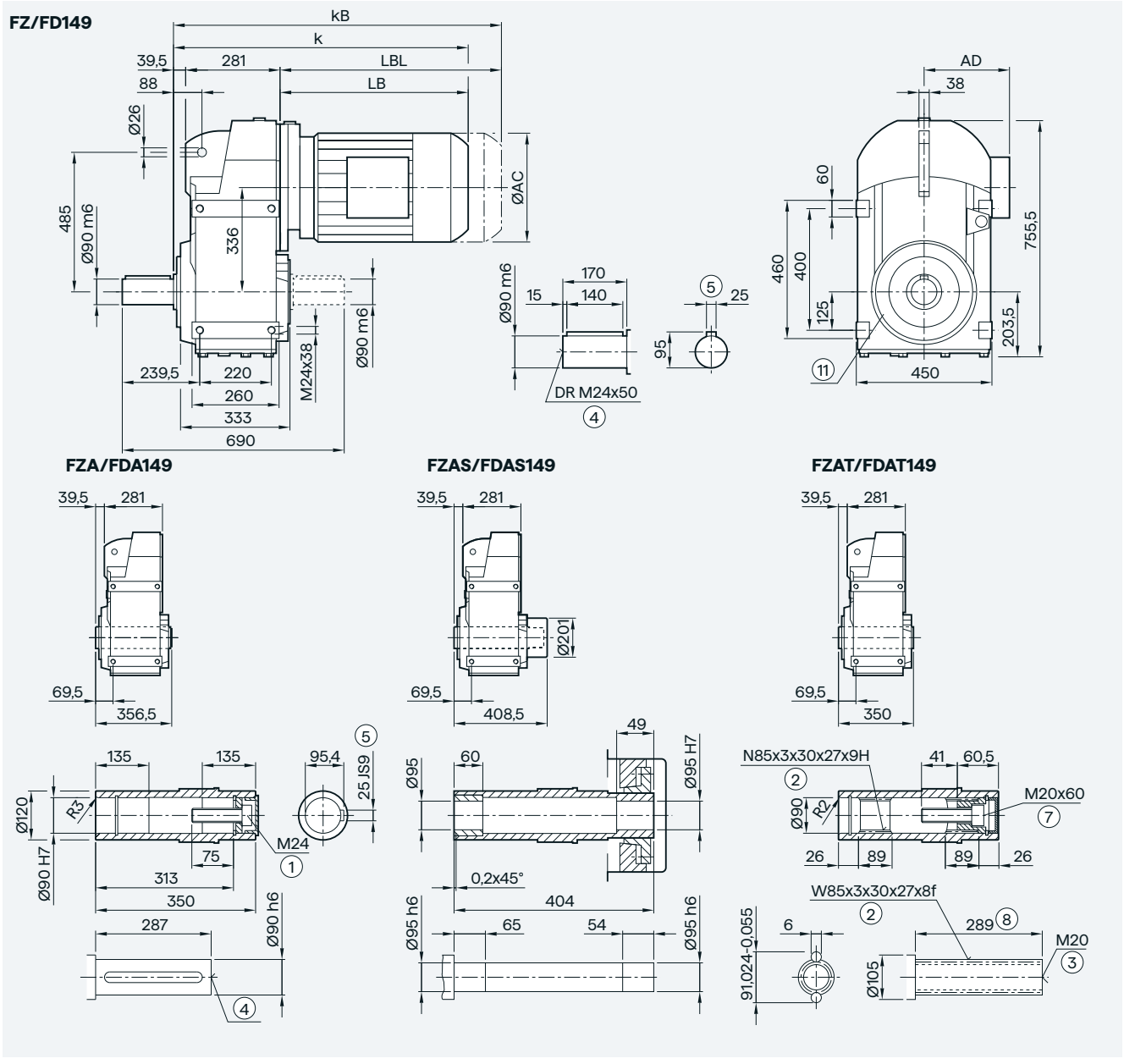
Gearbox FZ../FD..149 in a foot-mounted design



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	676.5	711.5	686.5	711.5	732.5	782.5	814.5	874.5	887.5	917.5	955.5	980.5	1000.5	1060.5	1112.0
kB	755.0	790.0	759.5	784.5	837.0	887.0	930.5	990.5	1016.5	1046.5	1102.5	1127.5	1229.0	1289.0	1337.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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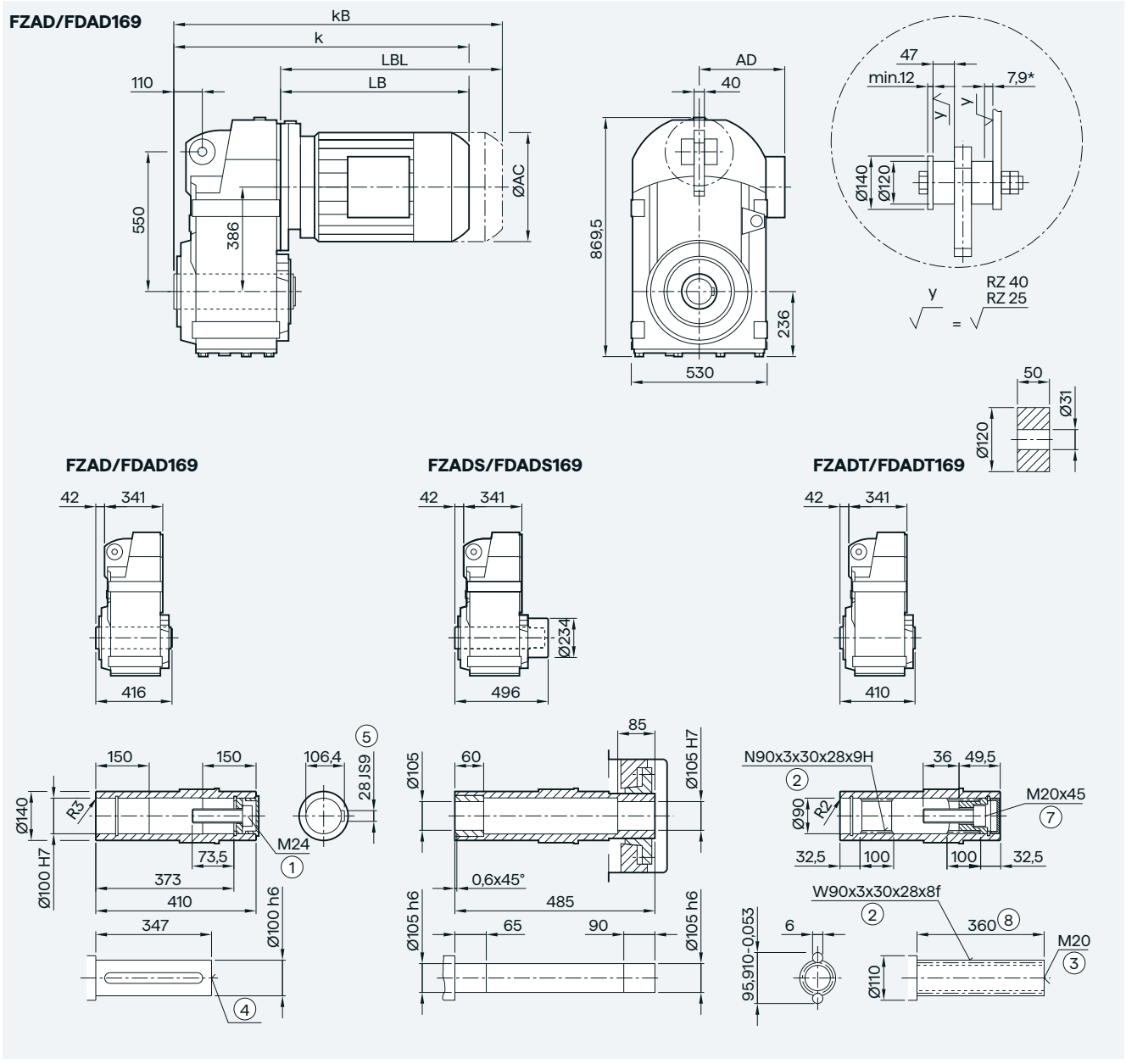
Gearbox FZAD./FDAD.169 in a shaft-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	739.5	764.5	785.0	835.0	867.0	927.0	939.5	969.5	1007.5	1032.5	1052.5	1112.0	1159.5
kB	812.5	837.5	889.5	939.5	983.0	1043.0	1068.5	1098.5	1154.5	1179.5	1280.0	1340.0	1384.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.0	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

* Spring compression at max. torque

1) AD depends on the motor options, for other dimensions, see page 9/46.

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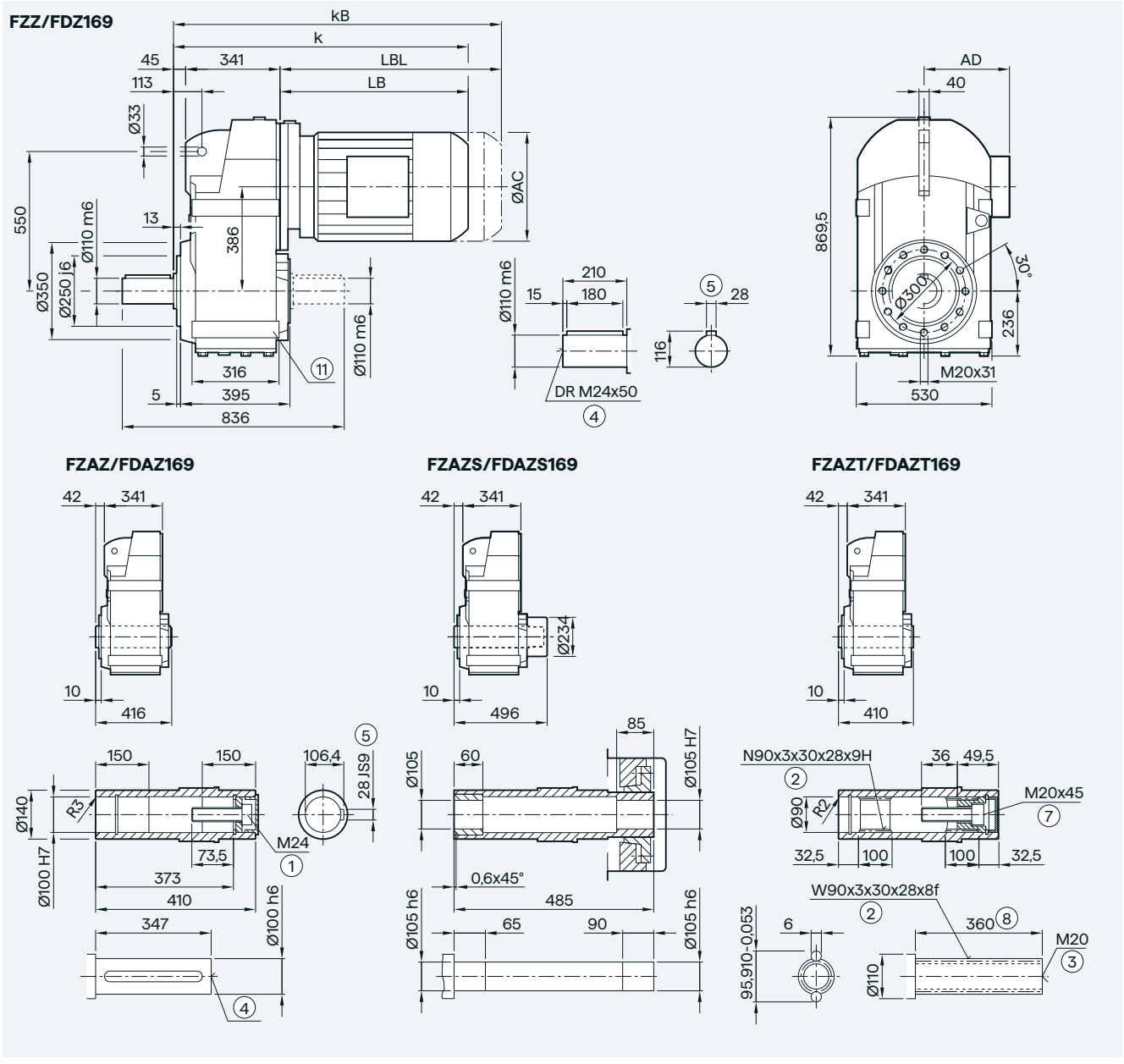
Gearbox FZ.Z./FD.Z.169 in a housing flange design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	739.5	764.5	785.0	835.0	867.0	927.0	939.5	969.5	1007.5	1032.5	1052.5	1112.0	1159.5
kB	812.5	837.5	889.5	939.5	983.0	1043.0	1068.5	1098.5	1154.5	1179.5	1280.0	1340.0	1384.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.0	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

[1)] AD depends on the motor options, for other dimensions, see page 9/46.

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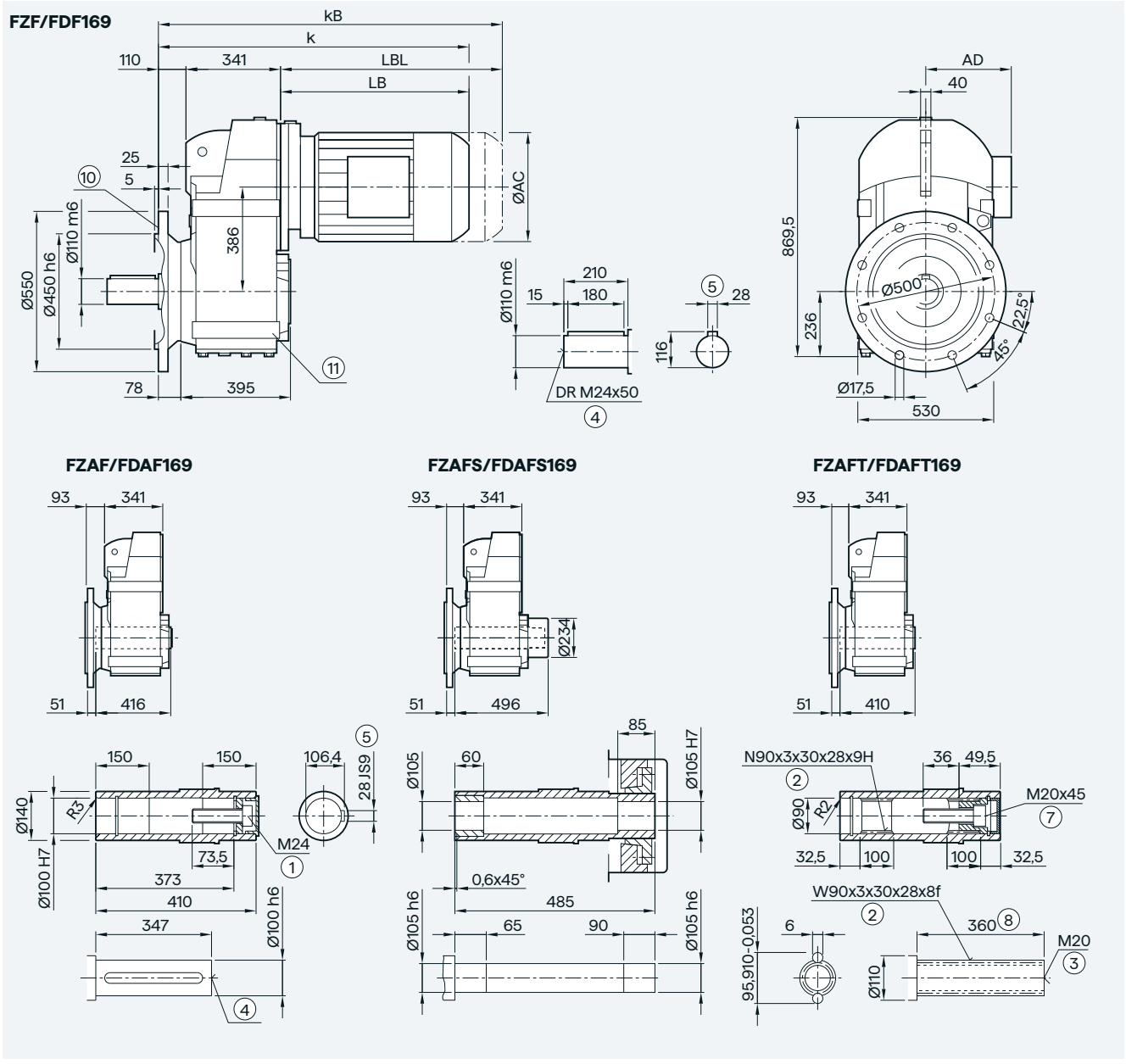
Gearbox FZ.F./FD.F.169 in a flange-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	804.5	829.5	850.0	900.0	932.0	992.0	1004.5	1034.5	1072.5	1097.5	1117.0	1177.0	1224.5
kB	877.5	902.5	954.5	1004.5	1048.0	1108.0	1133.5	1163.5	1219.5	1244.5	1345.0	1405.0	1449.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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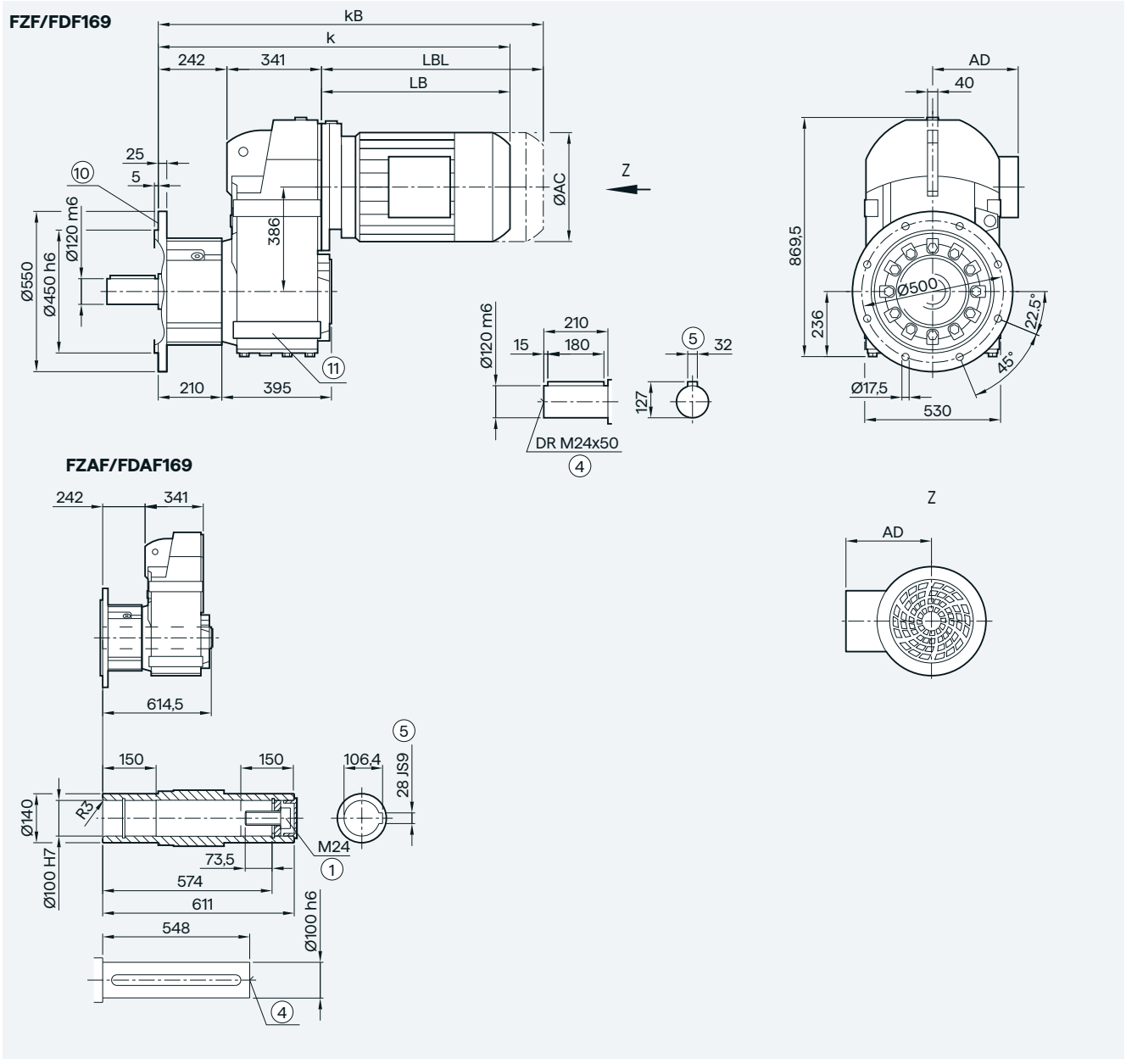
Gearbox FZ.F./FD.F.169 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	936.5	961.5	982.0	1032.0	1064.0	1124.0	1136.5	1166.5	1204.5	1129.5	1249.0	1309.0	1356.5
kB	1009.5	1034.5	1086.5	1136.5	1180.0	1240.0	1265.5	1295.5	1351.5	1376.5	1477.0	1537.0	1581.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design
⑩ For inner contour, see page 4/124
1) AD depends on the motor options, for other dimensions, see page 9/46.

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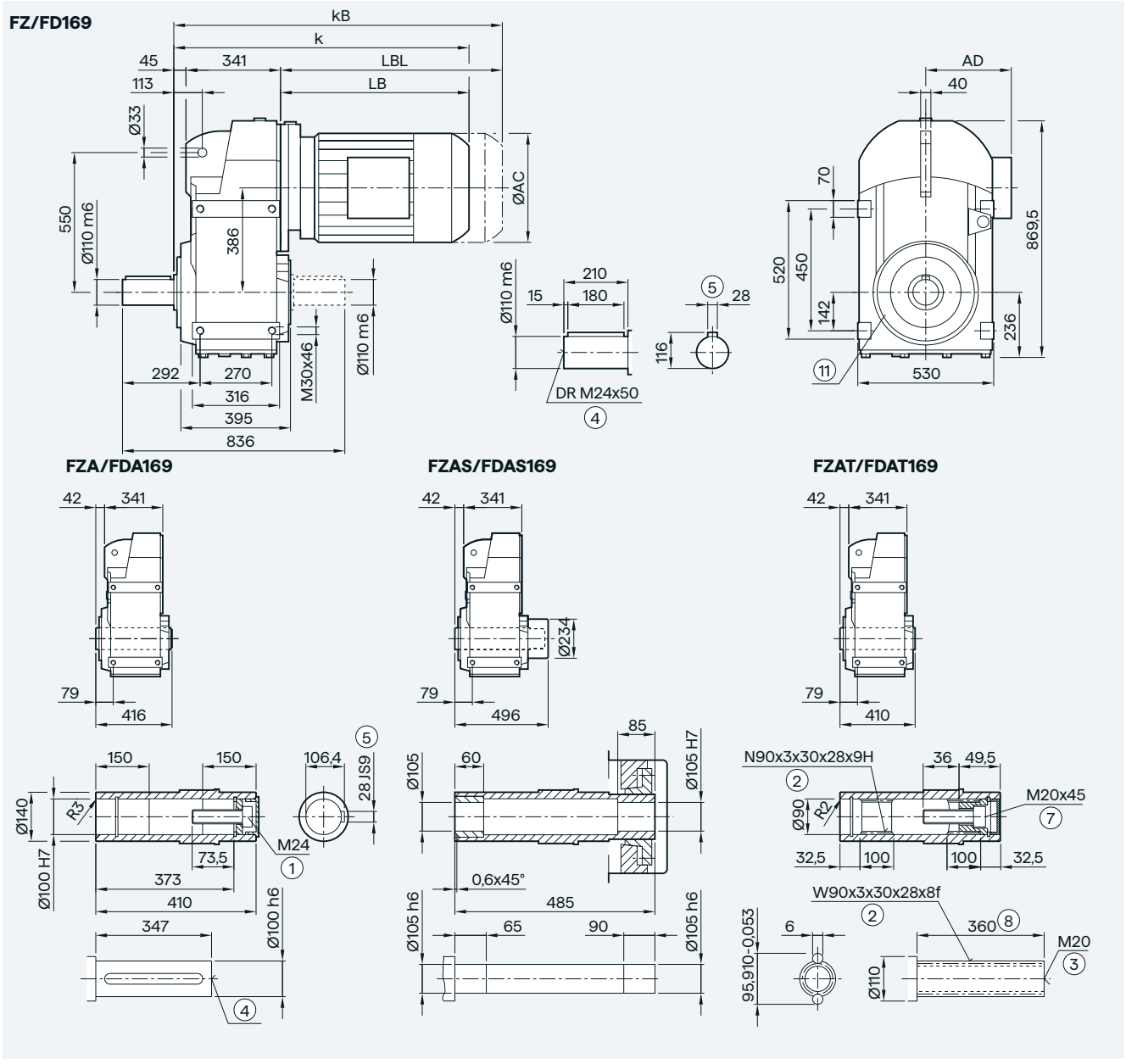
4

Gearbox FZ../FD..169 in a foot-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	739.5	764.5	785.0	835.0	867.0	927.0	939.5	969.5	1007.5	1032.5	1052.5	1112.0	1159.5
kB	812.5	837.5	889.5	939.5	983.0	1043.0	1068.5	1098.5	1154.5	1179.5	1280.0	1340.0	1384.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.0	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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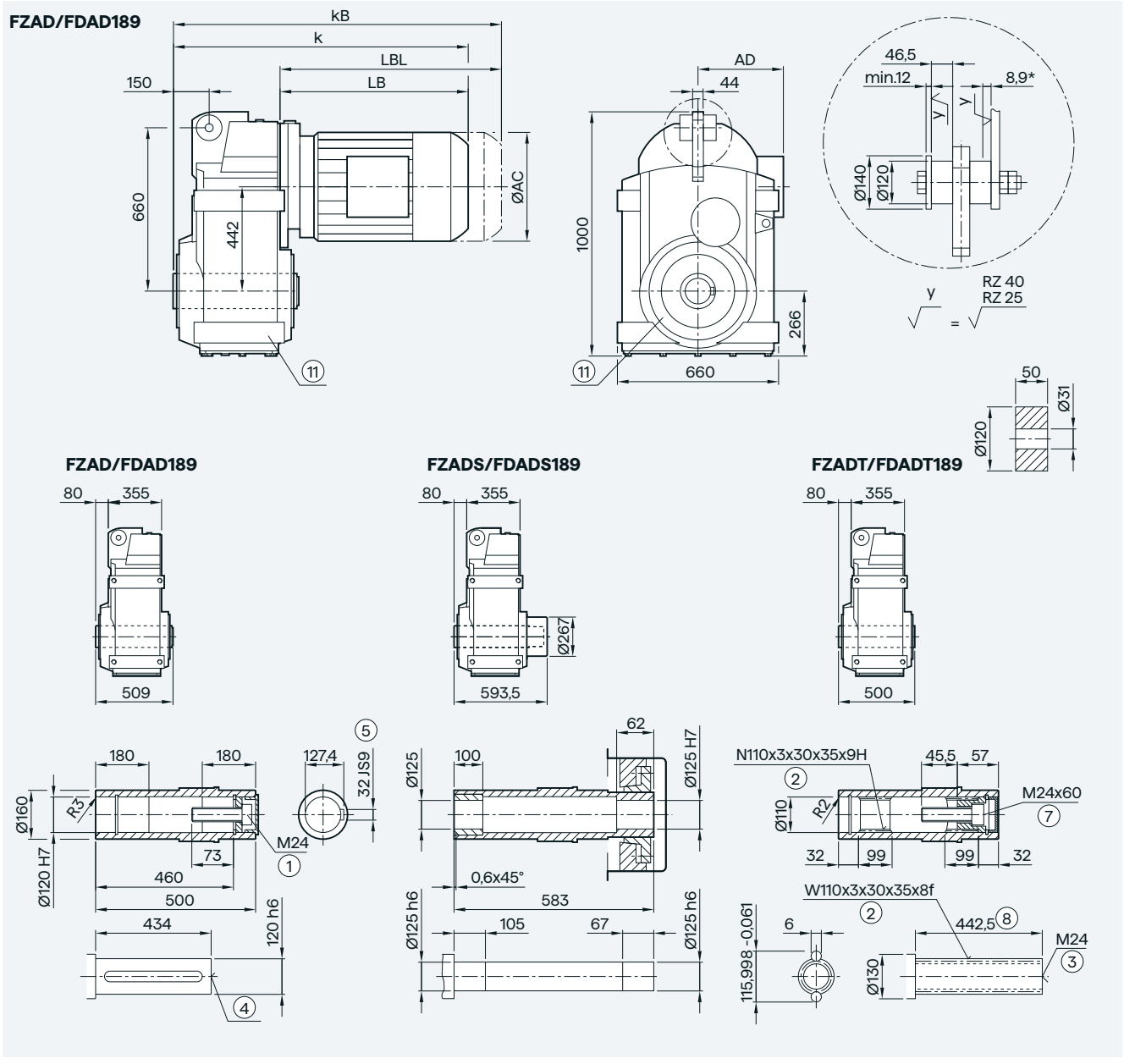
Gearbox FZAD./FDAD.189 in a shaft-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	788.5	813.5	834.0	884.0	916.0	976.0	988.5	1018.5	1056.5	1081.5	1101.0	1161.0	1208.5
kB	861.5	886.5	938.5	988.5	1032.0	1092.0	1117.5	1147.5	1203.5	1228.5	1329.0	1389.0	1433.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design
* Spring compression at max. torque
1) AD depends on the motor options, for other dimensions, see page 9/46.

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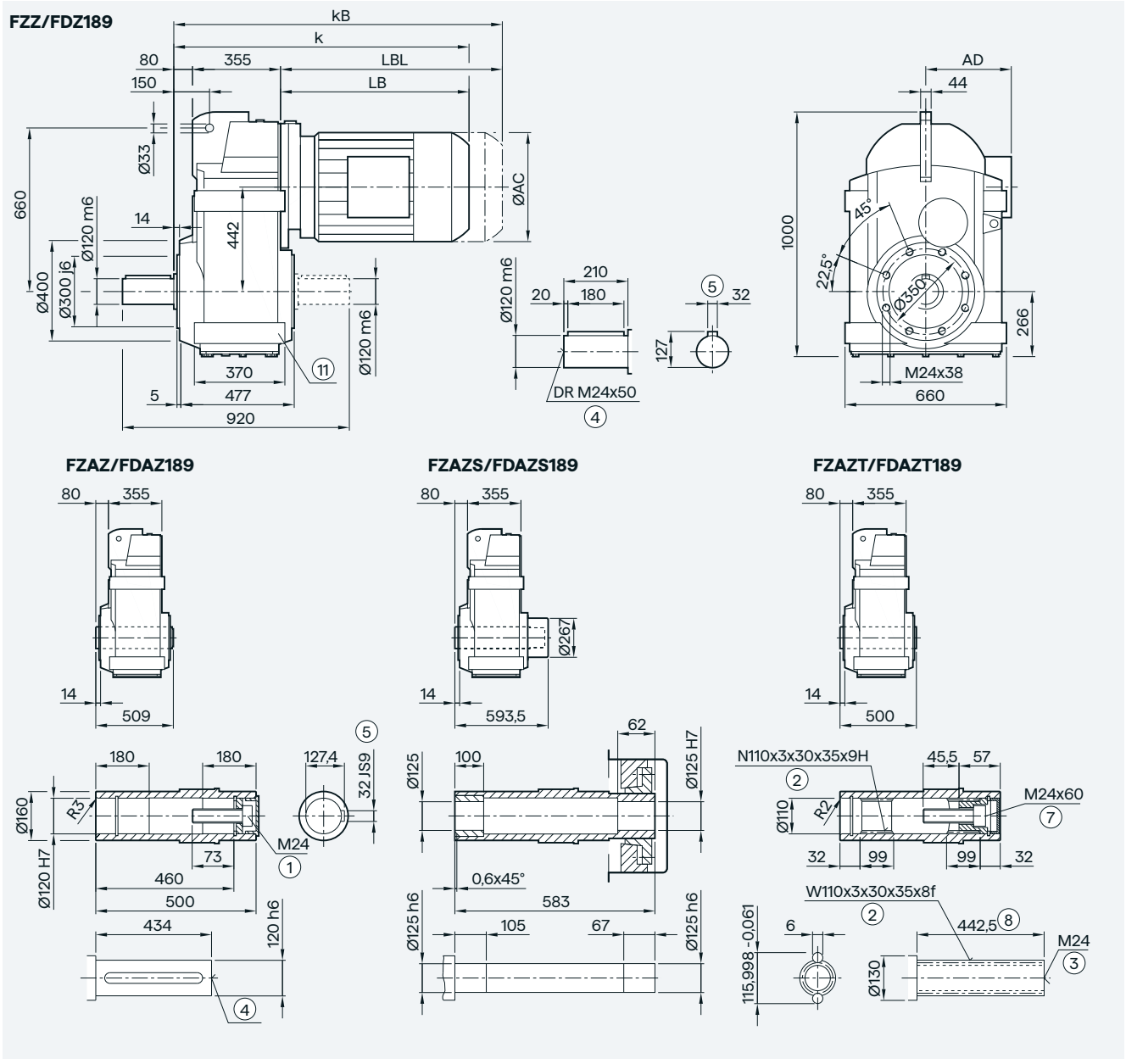
Gearbox FZ.Z./FD.Z.189 in a housing flange design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	788.5	813.5	834.0	884.0	916.0	976.0	988.5	1018.5	1056.5	1081.5	1101.0	1161.0	1208.5
kB	861.5	886.5	938.5	988.5	1032.0	1092.0	1117.5	1147.5	1203.5	1228.5	1329.0	1389.0	1433.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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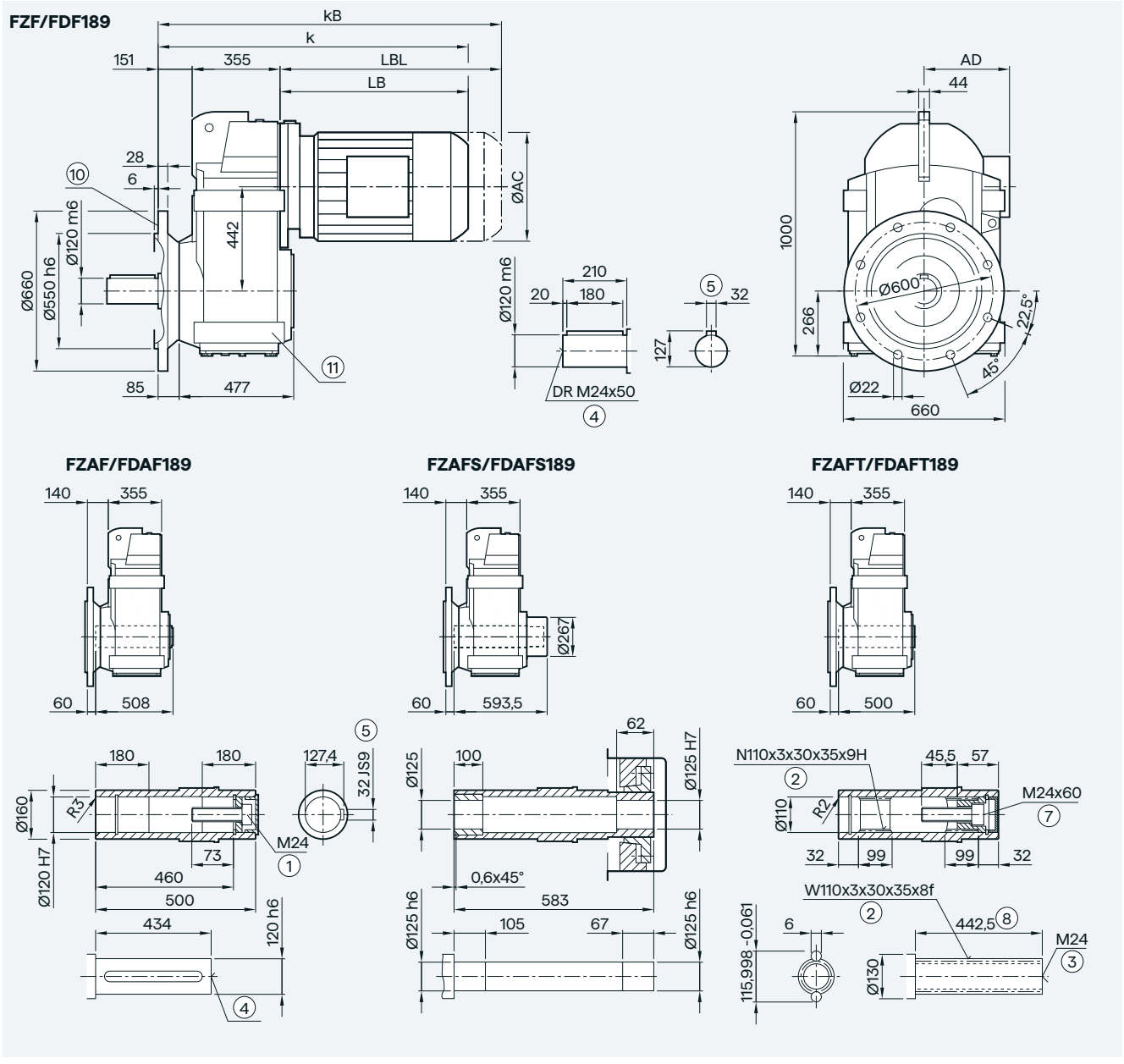
Gearbox FZ.F./FD.F.189 in a flange-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	859.5	884.5	905.0	955.0	987.0	1047.0	1059.5	1089.5	1127.5	1152.5	1172.0	1232.0	1279.5
kB	932.5	957.5	1009.5	1059.5	1103.0	1163.0	1188.5	1218.5	1274.5	1299.5	1400.0	1460.0	1504.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 4/124 ⑪ Use bores only for foot-mounted design

[1)] AD depends on the motor options, for other dimensions, see page 9/46.

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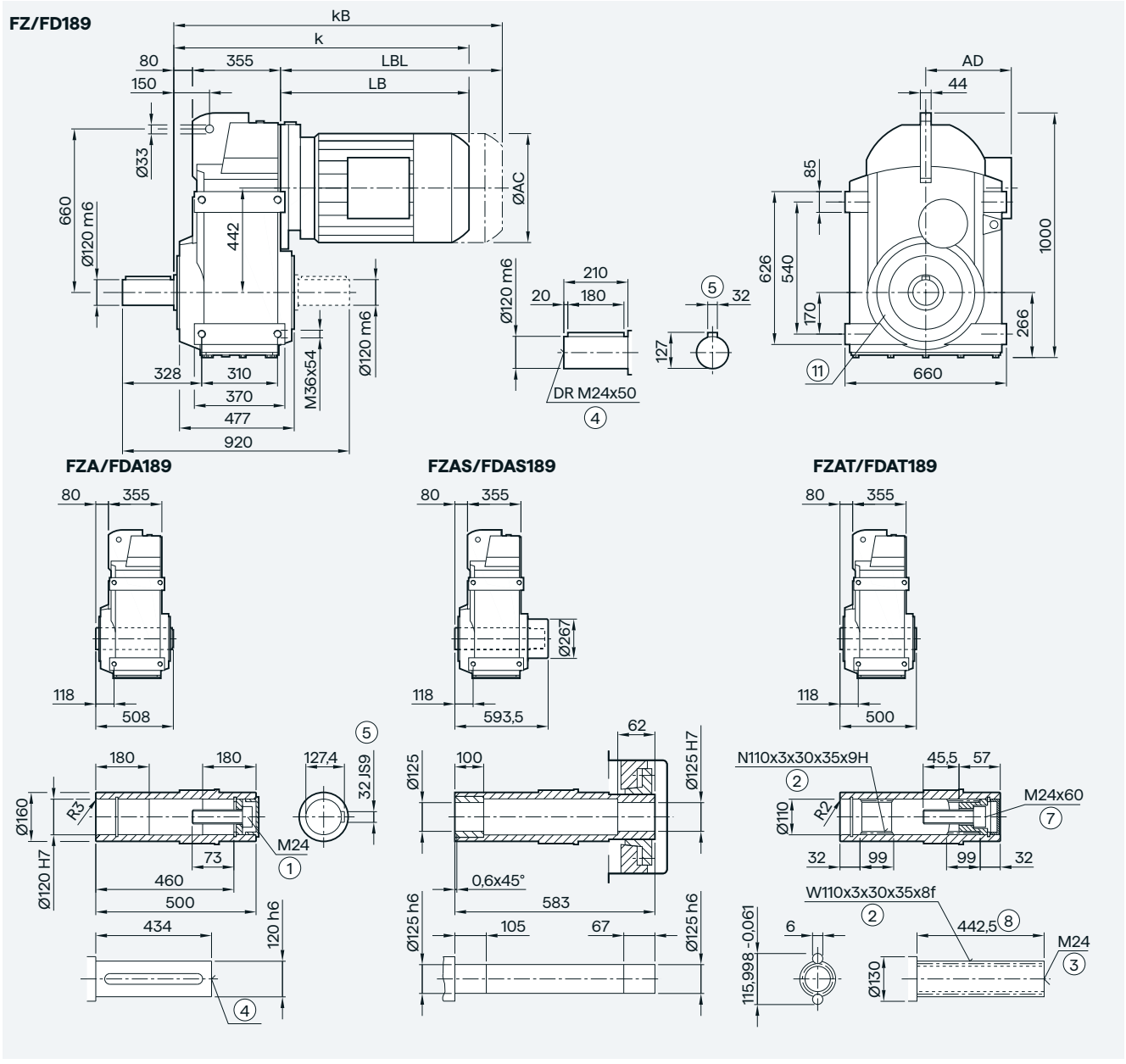
4

Gearbox FZ../FD..189 in a foot-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	788.5	813.5	834.0	884.0	916.0	976.0	988.5	1018.5	1056.5	1081.5	1101.0	1161.0	1208.5
kB	861.5	886.5	938.5	988.5	1032.0	1092.0	1117.5	1147.5	1203.5	1228.5	1329.0	1389.0	1433.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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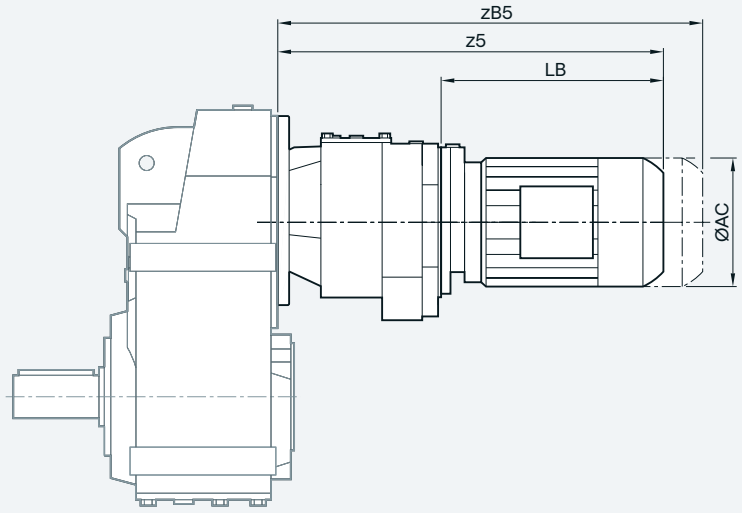
Parallel shaft tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
FZ../FD..29-Z/D19	LE63	117.8	331.0	375.5	160.5
	LE63Z	117.8	357.0	401.5	186.5
FZ../FD..39-Z/D19	LE63	117.8	331.0	375.5	160.5
	LE63Z	117.8	357.0	401.5	186.5
	LES71	138.8	363.0	418.0	184.5
	LE71Z	138.8	382.0	437.0	203.5
	LE71Y	138.8	422.0	477.0	243.5
FZ../FD..49-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
FZ../FD..69-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
FZ../FD..79-Z/D39	LE63	117.8	373.5	418.0	194.0
	LE63Z	117.8	399.5	444.0	220.0
	LE71	138.8	405.5	460.5	226.0
	LE71Z	138.8	424.5	479.5	245.0
	LE71Y	138.8	464.5	519.5	285.0
	LE80	156.3	469.5	529.5	290.0
	LE80Z	156.3	504.5	564.5	325.0
FZ../FD..89-Z/D39	LE63	117.8	356.5	401.0	194.0
	LE63Z	117.8	382.5	427.0	220.0
	LE71	138.8	388.5	443.5	226.0
	LE71Z	138.8	407.5	462.5	245.0
	LE71Y	138.8	447.5	502.5	285.0
	LE80	156.3	452.5	512.5	290.0
	LE80Z	156.3	487.5	547.5	325.0
	LE90	173.8	514.0	584.0	351.5
	LE90Z	173.8	554.0	624.0	391.5

Gearbox	Motor	AC	z5	zB5	LB
FD..109-Z/D39	LE63	117.8	347.5	392.0	194.0
	LE63Z	117.8	373.5	418.0	220.0
	LE71	138.8	379.5	434.5	226.0
	LE71Z	138.8	398.5	453.5	245.0
	LE71Y	138.8	438.5	493.5	285.0
	LE80	156.3	443.5	503.5	290.0
	LE80Z	156.3	478.5	538.5	325.0
	LE90	173.8	505.0	575.0	351.5
	LE90Z	173.8	545.0	615.0	391.5
	LE100	198.0	561.5	640.0	408.0
	LE100Z	198.0	596.5	675.0	443.0
FD..129-Z/D49	LE63	117.8	376.5	421.0	184.5
	LE63Z	117.8	402.5	447.0	210.5
	LE71	138.8	408.5	463.5	216.5
	LE71Z	138.8	427.5	482.5	235.5
	LE71Y	138.8	467.5	522.5	275.5
	LE80	156.3	472.5	532.5	280.5
	LE80Z	156.3	507.5	567.5	315.5
	LE90	173.8	534.0	604.0	342.0
	LE90Z	173.8	574.0	644.0	382.0
	LE100	198.0	590.5	669.0	398.5
	LE100Z	198.0	625.5	704.0	433.5
	LE112	222.0	600.5	673.5	408.5
	LE112Z	222.0	635.0	708.0	443.0

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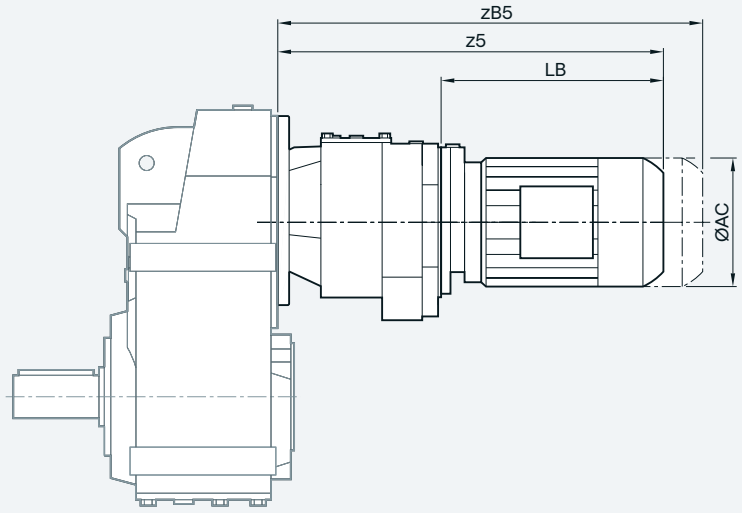
Parallel shaft tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
FD..149-Z/D49	LE63	117.8	366.0	410.5	184.5
	LE63Z	117.8	392.0	436.5	210.5
	LE71	138.8	398.0	453.0	216.5
	LE71Z	138.8	417.0	472.0	235.5
	LE71Y	138.8	457.0	512.0	275.5
	LE80	156.3	462.0	522.0	280.5
	LE80Z	156.3	497.0	557.0	315.5
	LE90	173.8	523.5	593.5	342.0
	LE90Z	173.8	563.5	633.5	382.0
	LE100	198.0	580.0	658.5	398.5
	LE100Z	198.0	615.0	693.5	433.5
	LE112	222.0	590.0	663.0	408.5
	LE112Z	222.0	624.5	697.5	443.0
	LE132	264.0	643.0	747.5	461.5
	LE132Z	264.0	693.0	797.5	511.5
FD..169-Z/D69	LE63	117.8	391.5	436.0	184.5
	LE63Z	117.8	417.5	462.0	210.5
	LE71	138.8	423.5	478.5	216.5
	LE71Z	138.8	442.5	497.5	235.5
	LE71Y	138.8	482.5	537.5	275.5
	LE80	156.3	487.5	547.5	280.5
	LE80Z	156.3	522.5	582.5	315.5
	LE90	173.8	549.0	619.0	342.0
	LE90Z	173.8	589.0	659.0	382.0
	LE100	198.0	605.5	684.0	398.5
	LE100Z	198.0	640.5	719.0	433.5
	LE112	222.0	615.5	688.5	408.5
	LE112Z	222.0	650.0	723.0	443.0
	LE132	264.0	668.5	773.0	461.5
	LE132Z	264.0	718.5	823.0	511.5

Gearbox	Motor	AC	z5	zB5	LB
FD..189-Z/D69	LE63	117.8	391.5	436.0	184.5
	LE63Z	117.8	417.5	462.0	210.5
	LE71	138.8	423.5	478.5	216.5
	LE71Z	138.8	442.5	497.5	235.5
	LE71Y	138.8	482.5	537.5	275.5
	LE80	156.3	487.5	547.5	280.5
	LE80Z	156.3	522.5	582.5	315.5
	LE90	173.8	549.0	619.0	342.0
	LE90Z	173.8	589.0	659.0	382.0
	LE100	198.0	605.5	684.0	398.5
	LE100Z	198.0	640.5	719.0	433.5
	LE112	222.0	615.5	688.5	408.5
	LE112Z	222.0	650.0	723.0	443.0
	LE132	264.0	668.5	773.0	461.5
	LE132Z	264.0	718.5	823.0	511.5

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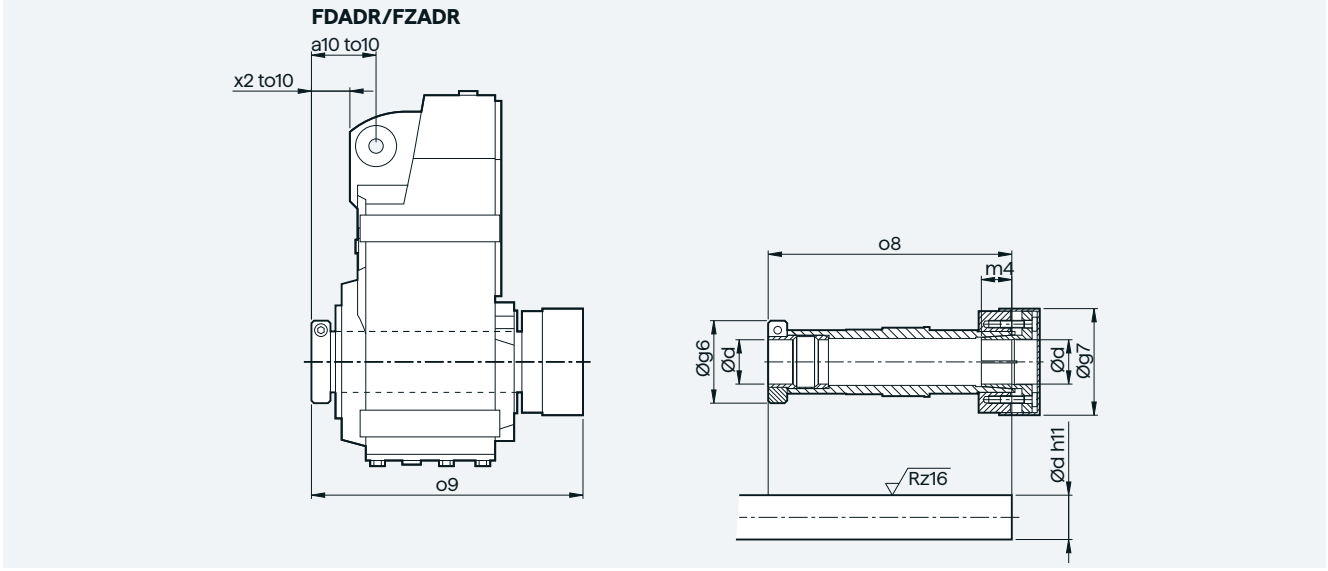
ShaftMount assembly system



Note mounting tolerance to10 when positioning the torque arm.

d	g6	g7	m4	o8	o9	a10	to10	x2
FZADR/FDADR29								
25	58.5	56	18.5	140.5	161	40.0	+2.1 +0.6	23.5
20								
1“								
0.75“								
FZADR/FDADR39								
30	62.0	76	22	160.5	181	46.5	+2.2 +0.7	29.5
25								
1.25“								
1.1875“								
1“								
FZADR/FDADR49								
35	65.0	84	24	192.0	214	47.0	+2.6 +0.8	24.5
30								
1.375“								
1.4375“								
1.25“								
1.1875“								
FZADR/FDADR69								
40	79.5	94	30	217.5	240	59.5	+2.5 +0.7	37.0
35								
1.5“								
1.625“								
1.4375“								
1.375“								
FZADR/FDADR79								
40	79.5	94	30	232.0	259	60.0	+3.2 +1.4	34.0
35								
1.5“								
1.625“								
1.4375“								
1.375“								
FZADR/FDADR89								
50	89.0	114	32	264.0	295	69.0	+3.4 +1.5	32.0
40								
2“								
1.9375“								
1.75“								
1.625“								

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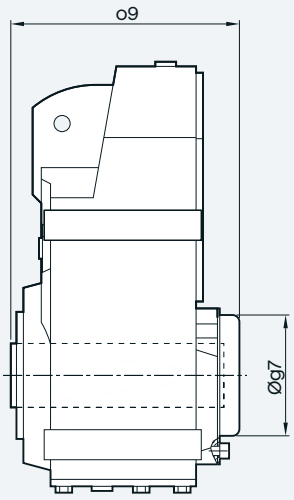
Protective covers

Protective cover for hollow shaft

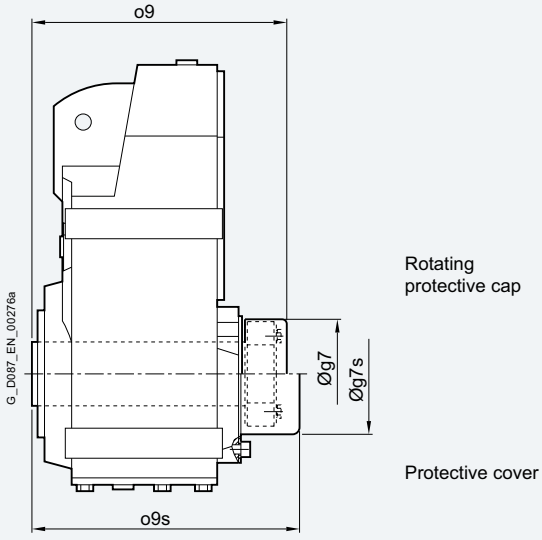
F.A, F.AF, F.AZ, F.AD



Gearbox type	F.A..29	F.A..39	F.A..49	F.A..69	F.A..79	F.A..89	F.A..109	F.A..129	F.A..149	F.A..169	F.A..189
Protective cover											
g7	67.0	82.5	80.0	99.0	99.0	137.0	187.0	187.0	218.0	257.5	309.5
o9	120.5	134.0	177.0	179.0	192.5	232.5	281.5	348.0	425.0	520.0	623.5

Protective cover for hollow shaft with shrink disk

F.AS, F.AFS, F.AZS, F.ADS



Gearbox type	F.A..29	F.A..39	F.A..49	F.A..69	F.A..79	F.A..89	F.A..109	F.A..129	F.A..149	F.A..169	F.A..189
Rotating protective cap with shrink disk version											
Max. motor frame size that can be mounted	80	90	100	100	132	160	200	225	250	250	250
g7	57.0	76.0	84.0	84.0	94.0	119.0	145.0	159.0	201.0	234.0	267.0
o9	132.5	149.5	182.0	198.0	215.5	247.5	282.5	348.5	408.5	496.0	593.5
Protective cover											
Max. motor frame size that can be mounted	80	80	100	100	112	132	200	225	250	250	250
g7s	58.0	82.5	86.0	99.0	99.0	137.0	187.0	187.0	218.0	257.5	309.5
o9s	135.5	170.0	198.0	210.0	223.5	284.5	308.5	375.0	425.0	520.0	623.5

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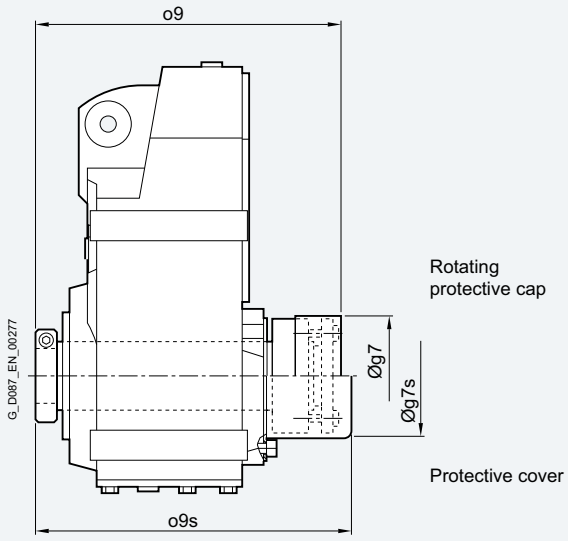
Protective covers

Protective cover for hollow shaft with ShaftMount assembly system

F.ADR



Gearbox type	F.ADR29	F.ADR39	F.ADR49	F.ADR69	F.ADR79	F.ADR89
Rotating protective cap						
Max. motor frame size that can be mounted	80	90	100	100	132	160
g7	56.0	76.0	84.0	94.0	94.0	114.0
o9	161.0	181.0	214.0	240.0	259.0	295.0
Protective cover						
Max. motor frame size that can be mounted	80	80	100	100	112	132
g7s	58.0	82.5	86.0	99.0	99.0	137.0
o9s	164.0	184.0	219.0	249.5	263.5	303.5

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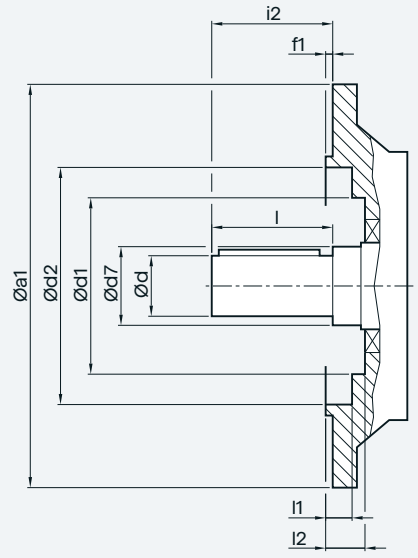
Inner contour of the flange-mounted design

Notes regarding the design of the customer's interface for the solid shaft design

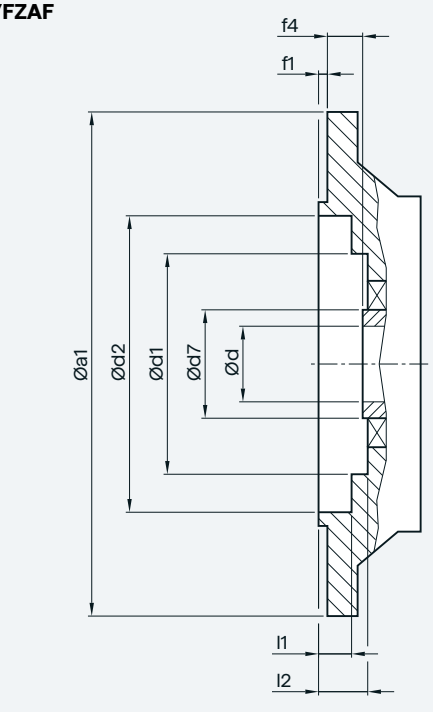
FZF/FDF



Gearbox type	a1	d	d7	d1	d2	f1	i2	l	l1	l2
FZF/FDF29	120	25	40	–	70	3.0	40	40	24.0	–
	160	25	40	70	101	3.5	40	40	8.5	24.5
FZF/FDF39	160	25	30	–	100	3.5	50	50	5.0	–
		35	45	80	102	3.5	46	70	2.0	29.5
FZF/FDF49	200	30	35	–	118	3.5	60	60	5.5	–
		40	50	90	120	3.5	55	80	4.0	30.5
FZF/FDF69	250	35	45	–	165	4.0	70	70	6.5	–
FZF/FDF79	250	40	55	–	165	4.0	80	80	6.5	–
		50	55	104	165	4.0	77	100	2.0	29.5
FZF/FDF89	300	50	55	–	165	4.0	100	100	8.0	–
FZF/FDF109	350	60	65	–	235	5.0	120	120	9.0	–
		80	85	184	210	5.0	134	170	13.0	45.0
FZF/FDF129	450	70	75	–	336	5.0	140	140	9.0	–
		90	95	184	336	5.0	128.5	170	16.5	48.5
FZF/FDF149	450	90	100	–	336	5.0	170	170	10.0	–
		100	120	214	330	5.0	169	210	10.5	50.0
FZF/FDF169	550	110	120	–	427	5.0	210	210	10.0	–
		120	140	254	426	5.0	162	210	14.5	56.0
FZF/FDF189	660	120	160	–	517	6.0	210	210	11.0	–
		140	160	306	518	6.0	190	250	6.0	62.0
With VLplus reinforced bearing system (G30)										
FZF/FDF89	300	60	70	143	218	4.0	120	120	1.5	8
FZF/FDF109	350	70	85	190	234	5.0	140	140	2.0	4
FZF/FDF129	450	90	95	–	336	5.0	170	170	16.5	–
FZF/FDF149	450	100	120	225	336	5.0	210	210	10.5	11
FZF/FDF169	550	120	140	–	426	5.0	210	210	19.5	–

Notes regarding the design of the customer's interface for the hollow shaft design

FDAF /FZAF



Gearbox type	a1	d	d7	d1	d2	f1	f4	l1	l2
FDAF /FZAF 29	120	25	40	–	70	3.0	20.0	24.0	–
	160	25	40	70	101	3.5	20.0	8.5	24.5
FDAF /FZAF 39	160	25	45	80	102	3.5	24.0	2.0	29.5
		30							
FDAF /FZAF 49	200	30	50	90	120	3.5	25.0	4.0	30.5
		35							
FDAF /FZAF 69	250	40	55	104	165	4.0	23.5	2.0	29.5
FDAF /FZAF 79	250	40	55	104	165	4.0	23.0	2.0	29.5
FDAF /FZAF 89	300	50	70	135	215	4.0	37.0	2.0	44.5
FDAF /FZAF 109	350	60	85	184	210	5.0	36.0	13.0	45.0
		70	90						
FDAF /FZAF 129	450	70	95	184	336	5.0	41.5	16.5	48.5
FDAF /FZAF 149	450	80	120	214	330	5.0	41.0	10.5	50.0
		90							
FDAF /FZAF 169	550	100	140	254	426	5.0	56.0	14.5	56.0
		110							
FDAF /FZAF 189	660	120	160	306	518	6.0	66.0	6.0	62.0
With VLplus reinforced bearing system (G30)									
FDAF /FZAF 89	300	50	70	143	218	4.0	0	1.5	8
FDAF /FZAF 109	350	60	85	190	234	5.0	0	2.0	4
FDAF /FZAF 129	450	70	95	–	336	5.0	0	16.5	–
FDAF /FZAF 149	450	90	120	225	330	5.0	0	10.5	11
FDAF /FZAF 169	550	100	140	–	426	5.0	0	14.5	–

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Bevel geared motors

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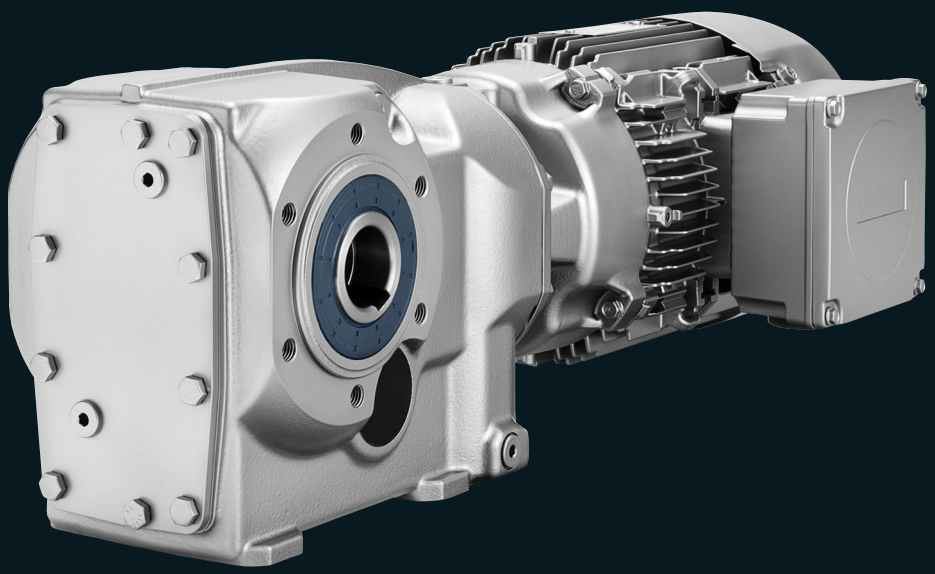

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5 Bevel geared motors

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5/3 Geared motors up to 55 kW

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Bevel geared motors

Bevel geared motors 2-stage

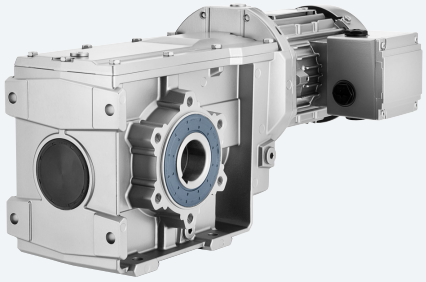

Fig. 5-1 Bevel geared motor B

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power [1] P_1 kW	Supported motors
_ Foot-mounted design _ Flange-mounted design with or without VLplus reinforced bearing systems _ Design with integrated housing flange _ Shaft-mounted design	_ Hollow shaft design with feather key _ Hollow shaft design with shrink disk _ Hollow shaft design with ShaftMount assembly system _ Solid shaft design with and without feather key	B19 ... B49	50... 450	3,5 ... 59	7,5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors

Bevel geared motors 3-stage
Bevel tandem geared motors 5- or 6-stage for especially low output speeds

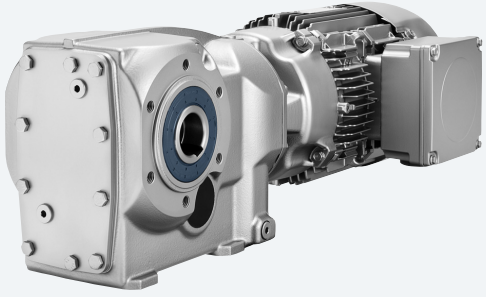

Fig. 5-2 Bevel geared motor K

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power [1] P_1 kW	Supported motors
_ Foot-mounted design _ Flange-mounted design with or without VLplus reinforced bearing systems _ Design with integrated housing flange _ Shaft-mounted design _ Tandem geared motor	_ Hollow shaft design with feather key _ Hollow shaft design with splined shaft _ Hollow shaft design with shrink disk _ Hollow shaft design with ShaftMount assembly system _ Solid shaft design with and without feather key	K39 ... K189 K39-Z19 ... K189-D69	150 ... 19500 220 ... 19500	5.17 ... 244 170 ... 14900	55 7.5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors

[1] With 4-pole motor up to 55 kW for a 50 Hz line frequency in integral type of construction. An adapter must be mounted for a motor power > 55 kW.

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.09	**K.39-LE63MEB6**							
	5.7	151	157.32	6330	1.5	15	**2KJ3504- ■ BD21- ■ ■ J2 -Z**	**P01**
	6.4	134	139.54	6400	1.6	15	**2KJ3504- ■ BD21- ■ ■ H2 -Z**	**P01**
	7.4	116	121.07	6460	1.9	15	**2KJ3504- ■ BD21- ■ ■ G2 -Z**	**P01**
	8.1	106	110.06	6500	2.1	15	**2KJ3504- ■ BD21- ■ ■ F2 -Z**	**P01**
	B.29-LE63MEB6							
	19	45	46.85	4200	2.4	9	**2KJ3501- ■ BD21- ■ ■ B2 -Z**	**P01**
	22	40	41.56	4200	2.8	9	**2KJ3501- ■ BD21- ■ ■ A2 -Z**	**P01**
	25	35	36.06	4200	3.2	9	**2KJ3501- ■ BD21- ■ ■ X1 -Z**	**P01**
	27	32	32.78	4200	3.5	9	**2KJ3501- ■ BD21- ■ ■ W1 -Z**	**P01**
	B.29-LE63MCA4							
	30	29	46.85	4200	3.9	9	**2KJ3501- ■ BB21- ■ ■ B2 -Z**	**–**
	34	25	41.56	4200	4.3	9	**2KJ3501- ■ BB21- ■ ■ A2 -Z**	**–**
	39	22	36.06	4200	5	9	**2KJ3501- ■ BB21- ■ ■ X1 -Z**	**–**
	43	20	32.78	4200	5.5	9	**2KJ3501- ■ BB21- ■ ■ W1 -Z**	**–**
	50	17	28.11	4200	6.4	9	**2KJ3501- ■ BB21- ■ ■ V1 -Z**	**–**
	55	16	25.56	4200	7.1	9	**2KJ3501- ■ BB21- ■ ■ U1 -Z**	**–**
	63	14	22.41	4200	8.1	9	**2KJ3501- ■ BB21- ■ ■ T1 -Z**	**–**
	70	12	20.00	4200	9	9	**2KJ3501- ■ BB21- ■ ■ S1 -Z**	**–**
	79	11	17.82	4200	10	9	**2KJ3501- ■ BB21- ■ ■ R1 -Z**	**–**
	86	10	16.45	4200	11	9	**2KJ3501- ■ BB21- ■ ■ Q1 -Z**	**–**
	98	8.8	14.40	4200	12	9	**2KJ3501- ■ BB21- ■ ■ P1 -Z**	**–**
	112	7.7	12.63	4200	14	9	**2KJ3501- ■ BB21- ■ ■ N1 -Z**	**–**
	B.19-LE63MEB6							
	21	40	42.10	1910	1.2	8	**2KJ3500- ■ BD21- ■ ■ A2 -Z**	**P01**
	24	36	37.28	1910	1.4	8	**2KJ3500- ■ BD21- ■ ■ X1 -Z**	**P01**
	28	31	32.39	1910	1.6	8	**2KJ3500- ■ BD21- ■ ■ W1 -Z**	**P01**
	30	28	29.44	1910	1.8	8	**2KJ3500- ■ BD21- ■ ■ V1 -Z**	**P01**
	B.19-LE63MCA4							
	33	26	42.10	1910	1.9	8	**2KJ3500- ■ BB21- ■ ■ A2 -Z**	**–**
	38	23	37.28	1910	2.2	8	**2KJ3500- ■ BB21- ■ ■ X1 -Z**	**–**
	44	20	32.39	1910	2.5	8	**2KJ3500- ■ BB21- ■ ■ W1 -Z**	**–**
	48	18	29.44	1910	2.8	8	**2KJ3500- ■ BB21- ■ ■ V1 -Z**	**–**
	56	15	25.06	1910	3.3	8	**2KJ3500- ■ BB21- ■ ■ U1 -Z**	**–**
	62	14	22.78	1910	3.6	8	**2KJ3500- ■ BB21- ■ ■ T1 -Z**	**–**
	71	12	19.86	1910	4.1	8	**2KJ3500- ■ BB21- ■ ■ S1 -Z**	**–**
	79	11	17.78	1910	4.6	8	**2KJ3500- ■ BB21- ■ ■ R1 -Z**	**–**
	89	9.6	15.79	1910	5.2	8	**2KJ3500- ■ BB21- ■ ■ Q1 -Z**	**–**
	97	8.9	14.57	1910	5.6	8	**2KJ3500- ■ BB21- ■ ■ P1 -Z**	**–**
	111	7.7	12.66	1910	6.5	8	**2KJ3500- ■ BB21- ■ ■ N1 -Z**	**–**
	128	6.7	11.00	1910	7.5	8	**2KJ3500- ■ BB21- ■ ■ M1 -Z**	**–**
	142	6.1	9.93	1910	8.3	8	**2KJ3500- ■ BB21- ■ ■ L1 -Z**	**–**
	151	5.7	9.35	1910	8.8	8	**2KJ3500- ■ BB21- ■ ■ K1 -Z**	**–**
	173	5	8.15	1910	9.5	8	**2KJ3500- ■ BB21- ■ ■ J1 -Z**	**–**
	179	4.8	7.87	1910	7.9	8	**2KJ3500- ■ BB21- ■ ■ H1 -Z**	**–**
	202	4.3	6.99	1910	8.9	8	**2KJ3500- ■ BB21- ■ ■ G1 -Z**	**–**
	219	3.9	6.45	1910	9.9	8	**2KJ3500- ■ BB21- ■ ■ F1 -Z**	**–**
	251	3.4	5.61	1910	11	8	**2KJ3500- ■ BB21- ■ ■ E1 -Z**	**–**
	290	3	4.87	1910	12	8	**2KJ3500- ■ BB21- ■ ■ D1 -Z**	**–**
	320	2.7	4.40	1910	13	8	**2KJ3500- ■ BB21- ■ ■ C1 -Z**	**–**
	341	2.5	4.14	1910	13	8	**2KJ3500- ■ BB21- ■ ■ B1 -Z**	**–**
	391	2.2	3.61	1910	14	8	**2KJ3500- ■ BB21- ■ ■ A1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.12	**K.39-LE63ZMH4P**							
	8.8	130	157.32	6410	1.7	17	**2KJ3504- ■ BD23- ■ ■ J2 -Z**	–
	10	115	139.54	6470	1.9	17	**2KJ3504- ■ BD23- ■ ■ H2 -Z**	–
	11	100	121.07	6520	2.2	17	**2KJ3504- ■ BD23- ■ ■ G2 -Z**	–
	B.29-LE63ZMH4P							
	30	39	46.85	4200	2.8	11	**2KJ3501- ■ BD23- ■ ■ B2 -Z**	–
	33	34	41.56	4200	3.2	11	**2KJ3501- ■ BD23- ■ ■ A2 -Z**	–
	39	30	36.06	4200	3.7	11	**2KJ3501- ■ BD23- ■ ■ X1 -Z**	–
	42	27	32.78	4200	4.1	11	**2KJ3501- ■ BD23- ■ ■ W1 -Z**	–
	49	23	28.11	4200	4.7	11	**2KJ3501- ■ BD23- ■ ■ V1 -Z**	–
	54	21	25.56	4200	5.2	11	**2KJ3501- ■ BD23- ■ ■ U1 -Z**	–
	62	18	22.41	4200	6	11	**2KJ3501- ■ BD23- ■ ■ T1 -Z**	–
	70	16	20.00	4200	6.7	11	**2KJ3501- ■ BD23- ■ ■ S1 -Z**	–
	78	15	17.82	4200	7.5	11	**2KJ3501- ■ BD23- ■ ■ R1 -Z**	–
	84	14	16.45	4200	8.1	11	**2KJ3501- ■ BD23- ■ ■ Q1 -Z**	–
	97	12	14.40	4200	9.3	11	**2KJ3501- ■ BD23- ■ ■ P1 -Z**	–
	110	10	12.63	4200	11	11	**2KJ3501- ■ BD23- ■ ■ N1 -Z**	–
	121	9.4	11.46	4200	12	11	**2KJ3501- ■ BD23- ■ ■ M1 -Z**	–
	129	8.9	10.78	4200	12	11	**2KJ3501- ■ BD23- ■ ■ L1 -Z**	–
	146	7.8	9.51	4200	14	11	**2KJ3501- ■ BD23- ■ ■ K1 -Z**	–
	177	6.5	7.84	4110	12	11	**2KJ3501- ■ BD23- ■ ■ H1 -Z**	–
	188	6.1	7.38	4030	12	11	**2KJ3501- ■ BD23- ■ ■ G1 -Z**	–
	214	5.4	6.51	3870	14	11	**2KJ3501- ■ BD23- ■ ■ F1 -Z**	–
	B.19-LE63ZMH4P							
	33	35	42.10	1910	1.4	10	**2KJ3500- ■ BD23- ■ ■ A2 -Z**	–
	37	31	37.28	1910	1.6	10	**2KJ3500- ■ BD23- ■ ■ X1 -Z**	–
	43	27	32.39	1910	1.9	10	**2KJ3500- ■ BD23- ■ ■ W1 -Z**	–
	47	24	29.44	1910	2.1	10	**2KJ3500- ■ BD23- ■ ■ V1 -Z**	–
	55	21	25.06	1910	2.4	10	**2KJ3500- ■ BD23- ■ ■ U1 -Z**	–
	61	19	22.78	1910	2.7	10	**2KJ3500- ■ BD23- ■ ■ T1 -Z**	–
	70	16	19.86	1910	3.1	10	**2KJ3500- ■ BD23- ■ ■ S1 -Z**	–
	78	15	17.78	1910	3.4	10	**2KJ3500- ■ BD23- ■ ■ R1 -Z**	–
	88	13	15.79	1910	3.8	10	**2KJ3500- ■ BD23- ■ ■ Q1 -Z**	–
	95	12	14.57	1910	4.2	10	**2KJ3500- ■ BD23- ■ ■ P1 -Z**	–
	110	10	12.66	1910	4.8	10	**2KJ3500- ■ BD23- ■ ■ N1 -Z**	–
	126	9.1	11.00	1910	5.5	10	**2KJ3500- ■ BD23- ■ ■ M1 -Z**	–
	140	8.2	9.93	1910	6.1	10	**2KJ3500- ■ BD23- ■ ■ L1 -Z**	–
	149	7.7	9.35	1910	6.5	10	**2KJ3500- ■ BD23- ■ ■ K1 -Z**	–
	171	6.7	8.15	1910	7	10	**2KJ3500- ■ BD23- ■ ■ J1 -Z**	–
	177	6.5	7.87	1910	5.9	10	**2KJ3500- ■ BD23- ■ ■ H1 -Z**	–
	199	5.8	6.99	1910	6.6	10	**2KJ3500- ■ BD23- ■ ■ G1 -Z**	–
	216	5.3	6.45	1910	7.3	10	**2KJ3500- ■ BD23- ■ ■ F1 -Z**	–
	248	4.6	5.61	1910	8	10	**2KJ3500- ■ BD23- ■ ■ E1 -Z**	–
	285	4	4.87	1910	8.7	10	**2KJ3500- ■ BD23- ■ ■ D1 -Z**	–
	316	3.6	4.40	1910	9.4	10	**2KJ3500- ■ BD23- ■ ■ C1 -Z**	–
	336	3.4	4.14	1910	9.7	10	**2KJ3500- ■ BD23- ■ ■ B1 -Z**	–
	385	3	3.61	1910	10	10	**2KJ3500- ■ BD23- ■ ■ A1 -Z**	–
0.18	**K.79-LE71ZMK6P**							
	3.6	480	244.25	14400	1.7	36	**2KJ3508- ■ CC23- ■ ■ J2 -Z**	**P01**
	3.9	435	222.05	14400	1.9	36	**2KJ3508- ■ CC23- ■ ■ H2 -Z**	**P01**
	K.69-LE71ZMK6P							
	4.5	385	196.59	11300	1.6	31	**2KJ3507- ■ CC23- ■ ■ H2 -Z**	**P01**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.18	**K.69-LE71ZMK6P**							
	4.9	350	178.72	11400	1.7	31	**2KJ3507- ■ CC23- ■ ■ G2 -Z**	**P01**
	5.8	295	152.00	11500	2	31	**2KJ3507- ■ CC23- ■ ■ F2 -Z**	**P01**
	K.49-LE71ZMK6P							
	4.4	390	200.25	8060	1.1	24	**2KJ3505- ■ CC23- ■ ■ J2 -Z**	**P01**
	4.9	350	178.06	8370	1.2	24	**2KJ3505- ■ CC23- ■ ■ H2 -Z**	**P01**
	5.6	305	156.34	8540	1.4	24	**2KJ3505- ■ CC23- ■ ■ G2 -Z**	**P01**
	6.2	275	142.13	8630	1.5	24	**2KJ3505- ■ CC23- ■ ■ F2 -Z**	**P01**
	K.49-LE63ZMK4P							
	6.9	245	200.25	8720	1.7	24	**2KJ3505- ■ BE23- ■ ■ J2 -Z**	**–**
	7.8	220	178.06	8790	1.9	24	**2KJ3505- ■ BE23- ■ ■ H2 -Z**	**–**
	K.39-LE71ZMK6P							
	6.3	270	139.54	5890	0.8	17	**2KJ3504- ■ CC23- ■ ■ H2 -Z**	**P01**
	7.2	235	121.07	6020	0.92	17	**2KJ3504- ■ CC23- ■ ■ G2 -Z**	**P01**
	8	215	110.06	6100	1	17	**2KJ3504- ■ CC23- ■ ■ F2 -Z**	**P01**
	K.39-LE63ZMK4P							
	8.8	195	157.32	6170	1.1	17	**2KJ3504- ■ BE23- ■ ■ J2 -Z**	**–**
	9.9	173	139.54	6250	1.3	17	**2KJ3504- ■ BE23- ■ ■ H2 -Z**	**–**
	11	150	121.07	6340	1.5	17	**2KJ3504- ■ BE23- ■ ■ G2 -Z**	**–**
	13	137	110.06	6390	1.6	17	**2KJ3504- ■ BE23- ■ ■ F2 -Z**	**–**
	15	117	94.39	6460	1.9	17	**2KJ3504- ■ BE23- ■ ■ E2 -Z**	**–**
	16	107	85.81	6500	2.1	17	**2KJ3504- ■ BE23- ■ ■ D2 -Z**	**–**
	B.39-LE71ZMK6P							
	16	111	56.36	6980	2.3	16	**2KJ3502- ■ CC23- ■ ■ A2 -Z**	**P01**
	17	98	50.11	6980	2.1	16	**2KJ3502- ■ CC23- ■ ■ X1 -Z**	**P01**
	B.29-LE71ZMK6P							
	19	91	46.85	4200	1.2	11	**2KJ3501- ■ CC23- ■ ■ B2 -Z**	**P01**
	21	81	41.56	4200	1.3	11	**2KJ3501- ■ CC23- ■ ■ A2 -Z**	**P01**
	24	70	36.06	4200	1.6	11	**2KJ3501- ■ CC23- ■ ■ X1 -Z**	**P01**
	27	64	32.78	4200	1.7	11	**2KJ3501- ■ CC23- ■ ■ W1 -Z**	**P01**
	B.29-LE63ZMK4P							
	30	58	46.85	4200	1.9	11	**2KJ3501- ■ BE23- ■ ■ B2 -Z**	**–**
	33	52	41.56	4200	2.1	11	**2KJ3501- ■ BE23- ■ ■ A2 -Z**	**–**
	38	45	36.06	4200	2.5	11	**2KJ3501- ■ BE23- ■ ■ X1 -Z**	**–**
	42	41	32.78	4200	2.7	11	**2KJ3501- ■ BE23- ■ ■ W1 -Z**	**–**
	49	35	28.11	4200	3.2	11	**2KJ3501- ■ BE23- ■ ■ V1 -Z**	**–**
	54	32	25.56	4200	3.5	11	**2KJ3501- ■ BE23- ■ ■ U1 -Z**	**–**
	62	28	22.41	4200	4	11	**2KJ3501- ■ BE23- ■ ■ T1 -Z**	**–**
	69	25	20.00	4200	4.4	11	**2KJ3501- ■ BE23- ■ ■ S1 -Z**	**–**
	78	22	17.82	4200	5	11	**2KJ3501- ■ BE23- ■ ■ R1 -Z**	**–**
	84	20	16.45	4200	5.4	11	**2KJ3501- ■ BE23- ■ ■ Q1 -Z**	**–**
	96	18	14.40	4200	6.2	11	**2KJ3501- ■ BE23- ■ ■ P1 -Z**	**–**
	110	16	12.63	4200	7	11	**2KJ3501- ■ BE23- ■ ■ N1 -Z**	**–**
	121	14	11.46	4200	7.7	11	**2KJ3501- ■ BE23- ■ ■ M1 -Z**	**–**
	128	13	10.78	4200	8.2	11	**2KJ3501- ■ BE23- ■ ■ L1 -Z**	**–**
	146	12	9.51	4200	9.3	11	**2KJ3501- ■ BE23- ■ ■ K1 -Z**	**–**
	168	10	8.25	4160	11	11	**2KJ3501- ■ BE23- ■ ■ J1 -Z**	**–**
	177	9.7	7.84	4080	7.7	11	**2KJ3501- ■ BE23- ■ ■ H1 -Z**	**–**
	188	9.2	7.38	4000	8.2	11	**2KJ3501- ■ BE23- ■ ■ G1 -Z**	**–**
	213	8.1	6.51	3840	9.3	11	**2KJ3501- ■ BE23- ■ ■ F1 -Z**	**–**
	245	7	5.65	3670	11	11	**2KJ3501- ■ BE23- ■ ■ E1 -Z**	**–**
	273	6.3	5.07	3560	12	11	**2KJ3501- ■ BE23- ■ ■ D1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.18	**B.29-LE63ZMK4P**							
	290	5.9	4.78	3490	12	11	**2KJ3501- ■ BE23- ■ ■ C1 -Z**	**–**
	329	5.2	4.21	3350	14	11	**2KJ3501- ■ BE23- ■ ■ B1 -Z**	**–**
	B.19-LE71ZMK6P							
	30	58	29.44	1910	0.86	10	**2KJ3500- ■ CC23- ■ ■ V1 -Z**	**P01**
	B.19-LE63ZMK4P							
	33	52	42.10	1910	0.96	10	**2KJ3500- ■ BE23- ■ ■ A2 -Z**	**–**
	37	46	37.28	1910	1.1	10	**2KJ3500- ■ BE23- ■ ■ X1 -Z**	**–**
	43	40	32.39	1910	1.2	10	**2KJ3500- ■ BE23- ■ ■ W1 -Z**	**–**
	47	36	29.44	1910	1.4	10	**2KJ3500- ■ BE23- ■ ■ V1 -Z**	**–**
	55	31	25.06	1910	1.6	10	**2KJ3500- ■ BE23- ■ ■ U1 -Z**	**–**
	61	28	22.78	1910	1.8	10	**2KJ3500- ■ BE23- ■ ■ T1 -Z**	**–**
	70	25	19.86	1910	2	10	**2KJ3500- ■ BE23- ■ ■ S1 -Z**	**–**
	78	22	17.78	1910	2.3	10	**2KJ3500- ■ BE23- ■ ■ R1 -Z**	**–**
	88	20	15.79	1910	2.6	10	**2KJ3500- ■ BE23- ■ ■ Q1 -Z**	**–**
	95	18	14.57	1910	2.8	10	**2KJ3500- ■ BE23- ■ ■ P1 -Z**	**–**
	109	16	12.66	1910	3.2	10	**2KJ3500- ■ BE23- ■ ■ N1 -Z**	**–**
	126	14	11.00	1910	3.7	10	**2KJ3500- ■ BE23- ■ ■ M1 -Z**	**–**
	139	12	9.93	1910	4.1	10	**2KJ3500- ■ BE23- ■ ■ L1 -Z**	**–**
	148	12	9.35	1910	4.3	10	**2KJ3500- ■ BE23- ■ ■ K1 -Z**	**–**
	170	10	8.15	1910	4.6	10	**2KJ3500- ■ BE23- ■ ■ J1 -Z**	**–**
	176	9.8	7.87	1910	3.9	10	**2KJ3500- ■ BE23- ■ ■ H1 -Z**	**–**
	198	8.7	6.99	1910	4.4	10	**2KJ3500- ■ BE23- ■ ■ G1 -Z**	**–**
	215	8	6.45	1910	4.9	10	**2KJ3500- ■ BE23- ■ ■ F1 -Z**	**–**
	247	7	5.61	1910	5.3	10	**2KJ3500- ■ BE23- ■ ■ E1 -Z**	**–**
	284	6	4.87	1910	5.8	10	**2KJ3500- ■ BE23- ■ ■ D1 -Z**	**–**
	315	5.5	4.40	1910	6.2	10	**2KJ3500- ■ BE23- ■ ■ C1 -Z**	**–**
	335	5.1	4.14	1910	6.4	10	**2KJ3500- ■ BE23- ■ ■ B1 -Z**	**–**
	384	4.5	3.61	1910	6.9	10	**2KJ3500- ■ BE23- ■ ■ A1 -Z**	**–**
0.25	**K.79-LE71YMS6P**							
	3.6	670	244.25	14200	1.2	38	**2KJ3508- ■ CE23- ■ ■ J2 -Z**	**P01**
	3.9	605	222.05	14400	1.3	38	**2KJ3508- ■ CE23- ■ ■ H2 -Z**	**P01**
	4.6	515	188.85	14400	1.6	38	**2KJ3508- ■ CE23- ■ ■ G2 -Z**	**P01**
	5.1	470	171.69	14400	1.7	38	**2KJ3508- ■ CE23- ■ ■ F2 -Z**	**P01**
	K.79-LE71ZMK4P							
	5.7	415	244.25	14400	2	36	**2KJ3508- ■ CC23- ■ ■ J2 -Z**	**–**
	K.69-LE71YMS6P							
	4.4	535	196.59	11000	1.1	33	**2KJ3507- ■ CE23- ■ ■ H2 -Z**	**P01**
	4.9	490	178.72	11100	1.2	33	**2KJ3507- ■ CE23- ■ ■ G2 -Z**	**P01**
	5.7	415	152.00	11200	1.4	33	**2KJ3507- ■ CE23- ■ ■ F2 -Z**	**P01**
	6.3	375	138.18	11300	1.6	33	**2KJ3507- ■ CE23- ■ ■ E2 -Z**	**P01**
	K.69-LE71ZMK4P							
	7.1	335	196.59	11400	1.8	31	**2KJ3507- ■ CC23- ■ ■ H2 -Z**	**–**
	7.8	305	178.72	11500	2	31	**2KJ3507- ■ CC23- ■ ■ G2 -Z**	**–**
	K.49-LE71YMS6P							
	4.9	485	178.06	7310	0.86	26	**2KJ3505- ■ CE23- ■ ■ H2 -Z**	**P01**
	5.6	425	156.34	7780	0.98	26	**2KJ3505- ■ CE23- ■ ■ G2 -Z**	**P01**
	6.1	390	142.13	8060	1.1	26	**2KJ3505- ■ CE23- ■ ■ F2 -Z**	**P01**
	K.49-LE71ZMK4P							
	7	340	200.25	8440	1.2	24	**2KJ3505- ■ CC23- ■ ■ J2 -Z**	**–**
	7.8	305	178.06	8540	1.4	24	**2KJ3505- ■ CC23- ■ ■ H2 -Z**	**–**
	8.9	265	156.34	8660	1.6	24	**2KJ3505- ■ CC23- ■ ■ G2 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.25	**K.49-LE71ZMK4P**							
	9.8	240	142.13	8730	1.7	24	**2KJ3505- ■ CC23- ■ ■ F2 -Z**	–
	11	205	121.60	8830	2	24	**2KJ3505- ■ CC23- ■ ■ E2 -Z**	–
	13	189	110.55	8880	2.2	24	**2KJ3505- ■ CC23- ■ ■ D2 -Z**	–
	K.39-LE71ZMK4P							
	8.9	265	157.32	5910	0.82	17	**2KJ3504- ■ CC23- ■ ■ J2 -Z**	–
	10	235	139.54	6020	0.92	17	**2KJ3504- ■ CC23- ■ ■ H2 -Z**	–
	12	205	121.07	6130	1.1	17	**2KJ3504- ■ CC23- ■ ■ G2 -Z**	–
	13	188	110.06	6200	1.2	17	**2KJ3504- ■ CC23- ■ ■ F2 -Z**	–
	15	162	94.39	6290	1.4	17	**2KJ3504- ■ CC23- ■ ■ E2 -Z**	–
	16	147	85.81	6350	1.5	17	**2KJ3504- ■ CC23- ■ ■ D2 -Z**	–
	19	129	75.24	6420	1.7	17	**2KJ3504- ■ CC23- ■ ■ C2 -Z**	–
	21	115	67.16	6470	1.9	17	**2KJ3504- ■ CC23- ■ ■ B2 -Z**	–
	23	102	59.85	6520	2.1	17	**2KJ3504- ■ CC23- ■ ■ A2 -Z**	–
	25	95	55.25	6530	2.3	17	**2KJ3504- ■ CC23- ■ ■ X1 -Z**	–
	B.39-LE71YMS6P							
	15	155	56.36	6980	1.6	18	**2KJ3502- ■ CE23- ■ ■ A2 -Z**	**P01**
	17	138	50.11	6980	1.5	18	**2KJ3502- ■ CE23- ■ ■ X1 -Z**	**P01**
	20	121	44.00	6980	2.1	18	**2KJ3502- ■ CE23- ■ ■ W1 -Z**	**P01**
	22	110	40.00	6980	2.1	18	**2KJ3502- ■ CE23- ■ ■ V1 -Z**	**P01**
	B.39-LE71ZMK4P							
	28	86	50.11	6980	2.4	16	**2KJ3502- ■ CC23- ■ ■ X1 -Z**	–
	B.29-LE71YMS6P							
	19	129	46.85	4040	0.86	13	**2KJ3501- ■ CE23- ■ ■ B2 -Z**	**P01**
	21	114	41.56	4110	0.96	13	**2KJ3501- ■ CE23- ■ ■ A2 -Z**	**P01**
	24	99	36.06	4190	1.1	13	**2KJ3501- ■ CE23- ■ ■ X1 -Z**	**P01**
	27	90	32.78	4200	1.2	13	**2KJ3501- ■ CE23- ■ ■ W1 -Z**	**P01**
	B.29-LE71ZMK4P							
	30	80	46.85	4200	1.4	11	**2KJ3501- ■ CC23- ■ ■ B2 -Z**	–
	34	71	41.56	4200	1.5	11	**2KJ3501- ■ CC23- ■ ■ A2 -Z**	–
	39	62	36.06	4200	1.8	11	**2KJ3501- ■ CC23- ■ ■ X1 -Z**	–
	43	56	32.78	4200	2	11	**2KJ3501- ■ CC23- ■ ■ W1 -Z**	–
	50	48	28.11	4200	2.3	11	**2KJ3501- ■ CC23- ■ ■ V1 -Z**	–
	55	44	25.56	4200	2.5	11	**2KJ3501- ■ CC23- ■ ■ U1 -Z**	–
	62	38	22.41	4200	2.9	11	**2KJ3501- ■ CC23- ■ ■ T1 -Z**	–
	70	34	20.00	4200	3.2	11	**2KJ3501- ■ CC23- ■ ■ S1 -Z**	–
	78	30	17.82	4200	3.6	11	**2KJ3501- ■ CC23- ■ ■ R1 -Z**	–
	85	28	16.45	4200	3.9	11	**2KJ3501- ■ CC23- ■ ■ Q1 -Z**	–
	97	25	14.40	4200	4.5	11	**2KJ3501- ■ CC23- ■ ■ P1 -Z**	–
	110	22	12.63	4200	5.1	11	**2KJ3501- ■ CC23- ■ ■ N1 -Z**	–
	122	20	11.46	4200	5.6	11	**2KJ3501- ■ CC23- ■ ■ M1 -Z**	–
	129	18	10.78	4200	6	11	**2KJ3501- ■ CC23- ■ ■ L1 -Z**	–
	147	16	9.51	4200	6.8	11	**2KJ3501- ■ CC23- ■ ■ K1 -Z**	–
	169	14	8.25	4110	7.8	11	**2KJ3501- ■ CC23- ■ ■ J1 -Z**	–
	178	13	7.84	4040	5.6	11	**2KJ3501- ■ CC23- ■ ■ H1 -Z**	–
	189	13	7.38	3950	5.9	11	**2KJ3501- ■ CC23- ■ ■ G1 -Z**	–
	214	11	6.51	3810	6.7	11	**2KJ3501- ■ CC23- ■ ■ F1 -Z**	–
	247	9.7	5.65	3640	7.8	11	**2KJ3501- ■ CC23- ■ ■ E1 -Z**	–
	275	8.7	5.07	3530	8.5	11	**2KJ3501- ■ CC23- ■ ■ D1 -Z**	–
	292	8.2	4.78	3460	9	11	**2KJ3501- ■ CC23- ■ ■ C1 -Z**	–
	331	7.2	4.21	3320	10	11	**2KJ3501- ■ CC23- ■ ■ B1 -Z**	–
	382	6.2	3.65	3180	12	11	**2KJ3501- ■ CC23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.25	**B.19-LE71ZMK4P**							
	43	55	32.39	1910	0.9	10	**2KJ3500- ■ CC23- ■ ■ W1 -Z**	**–**
	47	50	29.44	1910	0.99	10	**2KJ3500- ■ CC23- ■ ■ V1 -Z**	**–**
	56	43	25.06	1910	1.2	10	**2KJ3500- ■ CC23- ■ ■ U1 -Z**	**–**
	61	39	22.78	1910	1.3	10	**2KJ3500- ■ CC23- ■ ■ T1 -Z**	**–**
	70	34	19.86	1910	1.5	10	**2KJ3500- ■ CC23- ■ ■ S1 -Z**	**–**
	78	30	17.78	1910	1.6	10	**2KJ3500- ■ CC23- ■ ■ R1 -Z**	**–**
	88	27	15.79	1910	1.9	10	**2KJ3500- ■ CC23- ■ ■ Q1 -Z**	**–**
	96	25	14.57	1910	2	10	**2KJ3500- ■ CC23- ■ ■ P1 -Z**	**–**
	110	22	12.66	1910	2.3	10	**2KJ3500- ■ CC23- ■ ■ N1 -Z**	**–**
	127	19	11.00	1910	2.7	10	**2KJ3500- ■ CC23- ■ ■ M1 -Z**	**–**
	140	17	9.93	1910	2.9	10	**2KJ3500- ■ CC23- ■ ■ L1 -Z**	**–**
	149	16	9.35	1910	3.1	10	**2KJ3500- ■ CC23- ■ ■ K1 -Z**	**–**
	171	14	8.15	1910	3.4	10	**2KJ3500- ■ CC23- ■ ■ J1 -Z**	**–**
	177	14	7.87	1910	2.8	10	**2KJ3500- ■ CC23- ■ ■ H1 -Z**	**–**
	200	12	6.99	1910	3.2	10	**2KJ3500- ■ CC23- ■ ■ G1 -Z**	**–**
	216	11	6.45	1910	3.5	10	**2KJ3500- ■ CC23- ■ ■ F1 -Z**	**–**
	249	9.6	5.61	1910	3.9	10	**2KJ3500- ■ CC23- ■ ■ E1 -Z**	**–**
	286	8.3	4.87	1910	4.2	10	**2KJ3500- ■ CC23- ■ ■ D1 -Z**	**–**
	317	7.5	4.40	1910	4.5	10	**2KJ3500- ■ CC23- ■ ■ C1 -Z**	**–**
	337	7.1	4.14	1910	4.7	10	**2KJ3500- ■ CC23- ■ ■ B1 -Z**	**–**
	386	6.2	3.61	1910	5	10	**2KJ3500- ■ CC23- ■ ■ A1 -Z**	**–**
0.37	**K.89-LE80MK6P**							
	4	885	231.80	18100	1.8	62	**2KJ3510- ■ DE23- ■ ■ K2 -Z**	**P01**
	4.4	805	210.72	18100	2	62	**2KJ3510- ■ DE23- ■ ■ J2 -Z**	**P01**
	K.79-LE80MK6P							
	3.8	930	244.25	13700	0.88	41	**2KJ3508- ■ DE23- ■ ■ J2 -Z**	**P01**
	4.2	845	222.05	13900	0.97	41	**2KJ3508- ■ DE23- ■ ■ H2 -Z**	**P01**
	4.9	720	188.85	14100	1.1	41	**2KJ3508- ■ DE23- ■ ■ G2 -Z**	**P01**
	5.4	655	171.69	14300	1.3	41	**2KJ3508- ■ DE23- ■ ■ F2 -Z**	**P01**
	K.79-LE71YMS4P							
	5.6	625	244.25	14300	1.3	38	**2KJ3508- ■ CE23- ■ ■ J2 -Z**	**–**
	6.2	565	222.05	14400	1.4	38	**2KJ3508- ■ CE23- ■ ■ H2 -Z**	**–**
	7.3	480	188.85	14400	1.7	38	**2KJ3508- ■ CE23- ■ ■ G2 -Z**	**–**
	8	440	171.69	14400	1.9	38	**2KJ3508- ■ CE23- ■ ■ F2 -Z**	**–**
	9	390	153.18	14400	2.1	38	**2KJ3508- ■ CE23- ■ ■ E2 -Z**	**–**
	K.69-LE80MK6P							
	4.7	750	196.59	9880	0.8	36	**2KJ3507- ■ DE23- ■ ■ H2 -Z**	**P01**
	5.2	680	178.72	10300	0.88	36	**2KJ3507- ■ DE23- ■ ■ G2 -Z**	**P01**
	6.1	580	152.00	10900	1	36	**2KJ3507- ■ DE23- ■ ■ F2 -Z**	**P01**
	6.7	525	138.18	11000	1.1	36	**2KJ3507- ■ DE23- ■ ■ E2 -Z**	**P01**
	K.69-LE71YMS4P							
	7	500	196.59	11000	1.2	33	**2KJ3507- ■ CE23- ■ ■ H2 -Z**	**–**
	7.7	455	178.72	11200	1.3	33	**2KJ3507- ■ CE23- ■ ■ G2 -Z**	**–**
	9.1	385	152.00	11300	1.5	33	**2KJ3507- ■ CE23- ■ ■ F2 -Z**	**–**
	10	350	138.18	11400	1.7	33	**2KJ3507- ■ CE23- ■ ■ E2 -Z**	**–**
	11	315	123.29	11500	1.9	33	**2KJ3507- ■ CE23- ■ ■ D2 -Z**	**–**
	12	280	110.55	11600	2.1	33	**2KJ3507- ■ CE23- ■ ■ C2 -Z**	**–**
	K.49-LE71YMS4P							
	6.9	510	200.25	7120	0.82	26	**2KJ3505- ■ CE23- ■ ■ J2 -Z**	**–**
	7.8	455	178.06	7550	0.92	26	**2KJ3505- ■ CE23- ■ ■ H2 -Z**	**–**
	8.8	400	156.34	7980	1	26	**2KJ3505- ■ CE23- ■ ■ G2 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.37	**K.49-LE71YMS4P**							
	9.7	360	142.13	8290	1.2	26	**2KJ3505- ■ CE23- ■ ■ F2 -Z**	**–**
	11	310	121.60	8530	1.3	26	**2KJ3505- ■ CE23- ■ ■ E2 -Z**	**–**
	12	280	110.55	8610	1.5	26	**2KJ3505- ■ CE23- ■ ■ D2 -Z**	**–**
	14	250	97.71	8700	1.7	26	**2KJ3505- ■ CE23- ■ ■ C2 -Z**	**–**
	16	225	88.83	8770	1.8	26	**2KJ3505- ■ CE23- ■ ■ B2 -Z**	**–**
	18	199	77.81	8810	2.1	26	**2KJ3505- ■ CE23- ■ ■ A2 -Z**	**–**
	19	184	71.82	8650	2.3	26	**2KJ3505- ■ CE23- ■ ■ X1 -Z**	**–**
	K.39-LE71YMS4P							
	15	240	94.39	6000	0.91	18	**2KJ3504- ■ CE23- ■ ■ E2 -Z**	**–**
	16	220	85.81	6080	1	18	**2KJ3504- ■ CE23- ■ ■ D2 -Z**	**–**
	18	193	75.24	6180	1.1	18	**2KJ3504- ■ CE23- ■ ■ C2 -Z**	**–**
	21	172	67.16	6260	1.3	18	**2KJ3504- ■ CE23- ■ ■ B2 -Z**	**–**
	23	153	59.85	6330	1.4	18	**2KJ3504- ■ CE23- ■ ■ A2 -Z**	**–**
	25	141	55.25	6370	1.6	18	**2KJ3504- ■ CE23- ■ ■ X1 -Z**	**–**
	29	124	48.37	6430	1.8	18	**2KJ3504- ■ CE23- ■ ■ W1 -Z**	**–**
	33	109	42.41	6490	2	18	**2KJ3504- ■ CE23- ■ ■ V1 -Z**	**–**
	36	98	38.48	6530	2.2	18	**2KJ3504- ■ CE23- ■ ■ U1 -Z**	**–**
	38	93	36.21	6530	2.4	18	**2KJ3504- ■ CE23- ■ ■ T1 -Z**	**–**
	43	82	31.92	6450	2.7	18	**2KJ3504- ■ CE23- ■ ■ S1 -Z**	**–**
	B.49-LE80MK6P							
	16	225	59.28	11500	2	27	**2KJ3503- ■ DE23- ■ ■ C2 -Z**	**P01**
	17	205	53.89	11500	2.2	27	**2KJ3503- ■ DE23- ■ ■ B2 -Z**	**P01**
	B.39-LE80MK6P							
	18	191	50.11	6980	1.1	21	**2KJ3502- ■ DE23- ■ ■ X1 -Z**	**P01**
	21	168	44.00	6980	1.5	21	**2KJ3502- ■ DE23- ■ ■ W1 -Z**	**P01**
	23	153	40.00	6980	1.5	21	**2KJ3502- ■ DE23- ■ ■ V1 -Z**	**P01**
	B.39-LE71YMS4P							
	24	144	56.36	6980	1.7	18	**2KJ3502- ■ CE23- ■ ■ A2 -Z**	**–**
	28	128	50.11	6980	1.6	18	**2KJ3502- ■ CE23- ■ ■ X1 -Z**	**–**
	31	113	44.00	6980	2.2	18	**2KJ3502- ■ CE23- ■ ■ W1 -Z**	**–**
	34	102	40.00	6980	2.2	18	**2KJ3502- ■ CE23- ■ ■ V1 -Z**	**–**
	B.29-LE80MK6P							
	26	138	36.06	3990	0.8	16	**2KJ3501- ■ DE23- ■ ■ X1 -Z**	**P01**
	28	125	32.78	4060	0.88	16	**2KJ3501- ■ DE23- ■ ■ W1 -Z**	**P01**
	B.29-LE71YMS4P							
	29	120	46.85	4080	0.92	13	**2KJ3501- ■ CE23- ■ ■ B2 -Z**	**–**
	33	106	41.56	4160	1	13	**2KJ3501- ■ CE23- ■ ■ A2 -Z**	**–**
	38	92	36.06	4200	1.2	13	**2KJ3501- ■ CE23- ■ ■ X1 -Z**	**–**
	42	84	32.78	4200	1.3	13	**2KJ3501- ■ CE23- ■ ■ W1 -Z**	**–**
	49	72	28.11	4200	1.5	13	**2KJ3501- ■ CE23- ■ ■ V1 -Z**	**–**
	54	65	25.56	4200	1.7	13	**2KJ3501- ■ CE23- ■ ■ U1 -Z**	**–**
	62	57	22.41	4200	1.9	13	**2KJ3501- ■ CE23- ■ ■ T1 -Z**	**–**
	69	51	20.00	4200	2.1	13	**2KJ3501- ■ CE23- ■ ■ S1 -Z**	**–**
	77	46	17.82	4200	2.4	13	**2KJ3501- ■ CE23- ■ ■ R1 -Z**	**–**
	84	42	16.45	4200	2.6	13	**2KJ3501- ■ CE23- ■ ■ Q1 -Z**	**–**
	96	37	14.40	4200	3	13	**2KJ3501- ■ CE23- ■ ■ P1 -Z**	**–**
	109	32	12.63	4200	3.4	13	**2KJ3501- ■ CE23- ■ ■ N1 -Z**	**–**
	120	29	11.46	4200	3.7	13	**2KJ3501- ■ CE23- ■ ■ M1 -Z**	**–**
	128	28	10.78	4200	4	13	**2KJ3501- ■ CE23- ■ ■ L1 -Z**	**–**
	145	24	9.51	4200	4.5	13	**2KJ3501- ■ CE23- ■ ■ K1 -Z**	**–**
	167	21	8.25	4060	5.2	13	**2KJ3501- ■ CE23- ■ ■ J1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.37	**B.29-LE71YMS4P**							
	176	20	7.84	3980	3.7	13	**2KJ3501- ■ CE23- ■ ■ H1 -Z**	–
	187	19	7.38	3910	4	13	**2KJ3501- ■ CE23- ■ ■ G1 -Z**	–
	212	17	6.51	3760	4.5	13	**2KJ3501- ■ CE23- ■ ■ F1 -Z**	–
	244	14	5.65	3610	5.2	13	**2KJ3501- ■ CE23- ■ ■ E1 -Z**	–
	272	13	5.07	3500	5.7	13	**2KJ3501- ■ CE23- ■ ■ D1 -Z**	–
	289	12	4.78	3440	6	13	**2KJ3501- ■ CE23- ■ ■ C1 -Z**	–
	328	11	4.21	3300	6.9	13	**2KJ3501- ■ CE23- ■ ■ B1 -Z**	–
	378	9.3	3.65	3160	7.8	13	**2KJ3501- ■ CE23- ■ ■ A1 -Z**	–
	B.19-LE71YMS4P							
	61	58	22.78	1910	0.86	11	**2KJ3500- ■ CE23- ■ ■ T1 -Z**	–
	69	51	19.86	1910	0.98	11	**2KJ3500- ■ CE23- ■ ■ S1 -Z**	–
	78	46	17.78	1910	1.1	11	**2KJ3500- ■ CE23- ■ ■ R1 -Z**	–
	87	40	15.79	1910	1.2	11	**2KJ3500- ■ CE23- ■ ■ Q1 -Z**	–
	95	37	14.57	1910	1.3	11	**2KJ3500- ■ CE23- ■ ■ P1 -Z**	–
	109	32	12.66	1910	1.5	11	**2KJ3500- ■ CE23- ■ ■ N1 -Z**	–
	125	28	11.00	1910	1.8	11	**2KJ3500- ■ CE23- ■ ■ M1 -Z**	–
	139	25	9.93	1910	2	11	**2KJ3500- ■ CE23- ■ ■ L1 -Z**	–
	148	24	9.35	1910	2.1	11	**2KJ3500- ■ CE23- ■ ■ K1 -Z**	–
	169	21	8.15	1910	2.3	11	**2KJ3500- ■ CE23- ■ ■ J1 -Z**	–
	175	20	7.87	1910	1.9	11	**2KJ3500- ■ CE23- ■ ■ H1 -Z**	–
	197	18	6.99	1910	2.1	11	**2KJ3500- ■ CE23- ■ ■ G1 -Z**	–
	214	16	6.45	1910	2.4	11	**2KJ3500- ■ CE23- ■ ■ F1 -Z**	–
	246	14	5.61	1910	2.6	11	**2KJ3500- ■ CE23- ■ ■ E1 -Z**	–
	283	12	4.87	1910	2.8	11	**2KJ3500- ■ CE23- ■ ■ D1 -Z**	–
	314	11	4.40	1910	3	11	**2KJ3500- ■ CE23- ■ ■ C1 -Z**	–
	333	11	4.14	1910	3.1	11	**2KJ3500- ■ CE23- ■ ■ B1 -Z**	–
	382	9.2	3.61	1910	3.4	11	**2KJ3500- ■ CE23- ■ ■ A1 -Z**	–
0.55	**K.89-LE80ZMQ6P**							
	4	1300	231.80	18100	1.2	62	**2KJ3510- ■ DF23- ■ ■ K2 -Z**	**P01**
	4.4	1180	210.72	18100	1.4	62	**2KJ3510- ■ DF23- ■ ■ J2 -Z**	**P01**
	4.9	1060	189.01	18100	1.5	62	**2KJ3510- ■ DF23- ■ ■ H2 -Z**	**P01**
	5.5	955	169.94	18100	1.7	62	**2KJ3510- ■ DF23- ■ ■ G2 -Z**	**P01**
	K.89-LE80MH4P							
	6.2	845	231.80	18100	1.9	63	**2KJ3510- ■ DC23- ■ ■ K2 -Z**	–
	6.8	765	210.72	18100	2.1	63	**2KJ3510- ■ DC23- ■ ■ J2 -Z**	–
	K.79-LE80ZMQ6P							
	5.4	960	171.69	13700	0.85	41	**2KJ3508- ■ DF23- ■ ■ F2 -Z**	**P01**
	K.79-LE80MH4P							
	5.9	890	244.25	13800	0.92	42	**2KJ3508- ■ DC23- ■ ■ J2 -Z**	–
	6.5	810	222.05	13900	1	42	**2KJ3508- ■ DC23- ■ ■ H2 -Z**	–
	7.6	685	188.85	14200	1.2	42	**2KJ3508- ■ DC23- ■ ■ G2 -Z**	–
	8.4	625	171.69	14300	1.3	42	**2KJ3508- ■ DC23- ■ ■ F2 -Z**	–
	9.4	555	153.18	14400	1.5	42	**2KJ3508- ■ DC23- ■ ■ E2 -Z**	–
	10	500	137.35	14400	1.6	42	**2KJ3508- ■ DC23- ■ ■ D2 -Z**	–
	12	450	123.80	14400	1.8	42	**2KJ3508- ■ DC23- ■ ■ C2 -Z**	–
	13	415	114.28	14400	2	42	**2KJ3508- ■ DC23- ■ ■ B2 -Z**	–
	14	380	104.32	14400	2.2	42	**2KJ3508- ■ DC23- ■ ■ A2 -Z**	–
	K.69-LE80MH4P							
	7.3	715	196.59	10100	0.84	37	**2KJ3507- ■ DC23- ■ ■ H2 -Z**	–
	8.1	650	178.72	10500	0.92	37	**2KJ3507- ■ DC23- ■ ■ G2 -Z**	–
	9.5	550	152.00	10900	1.1	37	**2KJ3507- ■ DC23- ■ ■ F2 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.55	**K.69-LE80MH4P**							
	10	500	138.18	11000	1.2	37	**2KJ3507- ■ DC23- ■ ■ E2 -Z**	–
	12	450	123.29	11200	1.3	37	**2KJ3507- ■ DC23- ■ ■ D2 -Z**	–
	13	400	110.55	11300	1.5	37	**2KJ3507- ■ DC23- ■ ■ C2 -Z**	–
	14	360	99.64	11400	1.7	37	**2KJ3507- ■ DC23- ■ ■ B2 -Z**	–
	16	335	91.98	11400	1.8	37	**2KJ3507- ■ DC23- ■ ■ A2 -Z**	–
	17	305	83.96	11500	2	37	**2KJ3507- ■ DC23- ■ ■ X1 -Z**	–
	21	250	69.67	11600	2.4	37	**2KJ3507- ■ DC23- ■ ■ W1 -Z**	–
	K.49-LE80MH4P							
	10	515	142.13	7080	0.81	30	**2KJ3505- ■ DC23- ■ ■ F2 -Z**	–
	12	440	121.60	7670	0.95	30	**2KJ3505- ■ DC23- ■ ■ E2 -Z**	–
	13	400	110.55	7980	1	30	**2KJ3505- ■ DC23- ■ ■ D2 -Z**	–
	15	355	97.71	8250	1.2	30	**2KJ3505- ■ DC23- ■ ■ C2 -Z**	–
	16	320	88.83	8180	1.3	30	**2KJ3505- ■ DC23- ■ ■ B2 -Z**	–
	19	280	77.81	8030	1.5	30	**2KJ3505- ■ DC23- ■ ■ A2 -Z**	–
	20	260	71.82	7910	1.6	30	**2KJ3505- ■ DC23- ■ ■ X1 -Z**	–
	23	230	63.59	7750	1.8	30	**2KJ3505- ■ DC23- ■ ■ W1 -Z**	–
	27	193	52.93	7470	2.2	30	**2KJ3505- ■ DC23- ■ ■ V1 -Z**	–
	29	182	49.82	7380	2.3	30	**2KJ3505- ■ DC23- ■ ■ U1 -Z**	–
	K.39-LE80MH4P							
	19	270	75.24	5890	0.8	23	**2KJ3504- ■ DC23- ■ ■ C2 -Z**	–
	21	245	67.16	5980	0.9	23	**2KJ3504- ■ DC23- ■ ■ B2 -Z**	–
	24	215	59.85	6100	1	23	**2KJ3504- ■ DC23- ■ ■ A2 -Z**	–
	26	200	55.25	6150	1.1	23	**2KJ3504- ■ DC23- ■ ■ X1 -Z**	–
	30	176	48.37	6240	1.2	23	**2KJ3504- ■ DC23- ■ ■ W1 -Z**	–
	34	155	42.41	6320	1.4	23	**2KJ3504- ■ DC23- ■ ■ V1 -Z**	–
	37	140	38.48	6280	1.6	23	**2KJ3504- ■ DC23- ■ ■ U1 -Z**	–
	40	132	36.21	6210	1.7	23	**2KJ3504- ■ DC23- ■ ■ T1 -Z**	–
	45	116	31.92	6050	1.9	23	**2KJ3504- ■ DC23- ■ ■ S1 -Z**	–
	52	101	27.70	5850	2.2	23	**2KJ3504- ■ DC23- ■ ■ R1 -Z**	–
	54	98	26.89	5810	2.2	23	**2KJ3504- ■ DC23- ■ ■ Q1 -Z**	–
	60	87	23.97	5660	2.5	23	**2KJ3504- ■ DC23- ■ ■ P1 -Z**	–
	65	81	22.12	5550	2.7	23	**2KJ3504- ■ DC23- ■ ■ N1 -Z**	–
	74	71	19.37	5360	3.1	23	**2KJ3504- ■ DC23- ■ ■ M1 -Z**	–
	B.49-LE80ZMQ6P							
	16	330	59.28	11400	1.4	27	**2KJ3503- ■ DF23- ■ ■ C2 -Z**	**P01**
	17	300	53.89	11500	1.5	27	**2KJ3503- ■ DF23- ■ ■ B2 -Z**	**P01**
	20	255	45.83	11500	1.7	27	**2KJ3503- ■ DF23- ■ ■ A2 -Z**	**P01**
	22	230	41.67	11300	1.9	27	**2KJ3503- ■ DF23- ■ ■ X1 -Z**	**P01**
	B.49-LE80MH4P							
	24	215	59.28	11100	2.1	28	**2KJ3503- ■ DC23- ■ ■ C2 -Z**	–
	27	197	53.89	10800	2.3	28	**2KJ3503- ■ DC23- ■ ■ B2 -Z**	–
	B.39-LE80ZMQ6P							
	21	245	44.00	6980	1	21	**2KJ3502- ■ DF23- ■ ■ W1 -Z**	**P01**
	23	225	40.00	6980	1	21	**2KJ3502- ■ DF23- ■ ■ V1 -Z**	**P01**
	B.39-LE80MH4P							
	29	183	50.11	6980	1.1	22	**2KJ3502- ■ DC23- ■ ■ X1 -Z**	–
	33	160	44.00	6980	1.6	22	**2KJ3502- ■ DC23- ■ ■ W1 -Z**	–
	36	146	40.00	6980	1.6	22	**2KJ3502- ■ DC23- ■ ■ V1 -Z**	–
	42	125	34.22	6980	2	22	**2KJ3502- ■ DC23- ■ ■ U1 -Z**	–
	46	113	31.11	6980	2.2	22	**2KJ3502- ■ DC23- ■ ■ T1 -Z**	–
	52	100	27.50	6980	2.5	22	**2KJ3502- ■ DC23- ■ ■ S1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.55	**B.39-LE80MH4P**							
	58	91	25.00	6980	2.7	22	**2KJ3502- ■ DC23- ■ ■ R1 -Z**	–
	66	80	21.90	6980	3.1	22	**2KJ3502- ■ DC23- ■ ■ Q1 -Z**	–
	B.29-LE80MH4P							
	40	132	36.06	4020	0.84	17	**2KJ3501- ■ DC23- ■ ■ X1 -Z**	–
	44	120	32.78	4080	0.92	17	**2KJ3501- ■ DC23- ■ ■ W1 -Z**	–
	51	103	28.11	4170	1.1	17	**2KJ3501- ■ DC23- ■ ■ V1 -Z**	–
	56	93	25.56	4200	1.2	17	**2KJ3501- ■ DC23- ■ ■ U1 -Z**	–
	64	82	22.41	4200	1.3	17	**2KJ3501- ■ DC23- ■ ■ T1 -Z**	–
	72	73	20.00	4200	1.5	17	**2KJ3501- ■ DC23- ■ ■ S1 -Z**	–
	81	65	17.82	4200	1.7	17	**2KJ3501- ■ DC23- ■ ■ R1 -Z**	–
	88	60	16.45	4200	1.8	17	**2KJ3501- ■ DC23- ■ ■ Q1 -Z**	–
	100	52	14.40	4200	2.1	17	**2KJ3501- ■ DC23- ■ ■ P1 -Z**	–
	114	46	12.63	4200	2.4	17	**2KJ3501- ■ DC23- ■ ■ N1 -Z**	–
	126	42	11.46	4200	2.6	17	**2KJ3501- ■ DC23- ■ ■ M1 -Z**	–
	134	39	10.78	4200	2.8	17	**2KJ3501- ■ DC23- ■ ■ L1 -Z**	–
	151	35	9.51	4070	3.2	17	**2KJ3501- ■ DC23- ■ ■ K1 -Z**	–
	175	30	8.25	3920	3.7	17	**2KJ3501- ■ DC23- ■ ■ J1 -Z**	–
	184	29	7.84	3830	2.6	17	**2KJ3501- ■ DC23- ■ ■ H1 -Z**	–
	195	27	7.38	3770	2.8	17	**2KJ3501- ■ DC23- ■ ■ G1 -Z**	–
	221	24	6.51	3630	3.2	17	**2KJ3501- ■ DC23- ■ ■ F1 -Z**	–
	255	21	5.65	3480	3.6	17	**2KJ3501- ■ DC23- ■ ■ E1 -Z**	–
	284	18	5.07	3410	4	17	**2KJ3501- ■ DC23- ■ ■ D1 -Z**	–
	301	17	4.78	3340	4.2	17	**2KJ3501- ■ DC23- ■ ■ C1 -Z**	–
	342	15	4.21	3220	4.8	17	**2KJ3501- ■ DC23- ■ ■ B1 -Z**	–
	B.19-LE80MH4P							
	91	58	15.79	1910	0.87	15	**2KJ3500- ■ DC23- ■ ■ Q1 -Z**	–
	99	53	14.57	1910	0.94	15	**2KJ3500- ■ DC23- ■ ■ P1 -Z**	–
	114	46	12.66	1910	1.1	15	**2KJ3500- ■ DC23- ■ ■ N1 -Z**	–
	131	40	11.00	1910	1.2	15	**2KJ3500- ■ DC23- ■ ■ M1 -Z**	–
	145	36	9.93	1910	1.4	15	**2KJ3500- ■ DC23- ■ ■ L1 -Z**	–
	154	34	9.35	1910	1.5	15	**2KJ3500- ■ DC23- ■ ■ K1 -Z**	–
	177	30	8.15	1910	1.6	15	**2KJ3500- ■ DC23- ■ ■ J1 -Z**	–
	183	29	7.87	1910	1.3	15	**2KJ3500- ■ DC23- ■ ■ H1 -Z**	–
	206	26	6.99	1910	1.5	15	**2KJ3500- ■ DC23- ■ ■ G1 -Z**	–
	223	24	6.45	1910	1.7	15	**2KJ3500- ■ DC23- ■ ■ F1 -Z**	–
	257	20	5.61	1910	1.8	15	**2KJ3500- ■ DC23- ■ ■ E1 -Z**	–
	296	18	4.87	1910	2	15	**2KJ3500- ■ DC23- ■ ■ D1 -Z**	–
	327	16	4.40	1910	2.1	15	**2KJ3500- ■ DC23- ■ ■ C1 -Z**	–
	348	15	4.14	1910	2.2	15	**2KJ3500- ■ DC23- ■ ■ B1 -Z**	–
	399	13	3.61	1910	2.4	15	**2KJ3500- ■ DC23- ■ ■ A1 -Z**	–
0.75	**K.109-LE90SQ6P**							
	4.4	1640	216.65	24500	1.8	101	**2KJ3511- ■ EC23- ■ ■ H2 -Z**	**P01**
	4.8	1480	195.60	24500	2	101	**2KJ3511- ■ EC23- ■ ■ G2 -Z**	**P01**
	K.89-LE90SQ6P							
	4.1	1750	231.80	18100	0.91	64	**2KJ3510- ■ EC23- ■ ■ K2 -Z**	**P01**
	4.5	1590	210.72	18100	1	64	**2KJ3510- ■ EC23- ■ ■ J2 -Z**	**P01**
	5	1430	189.01	18100	1.1	64	**2KJ3510- ■ EC23- ■ ■ H2 -Z**	**P01**
	5.6	1280	169.94	18100	1.2	64	**2KJ3510- ■ EC23- ■ ■ G2 -Z**	**P01**
	K.89-LE80ZMQ4P							
	6.3	1140	231.80	18100	1.4	62	**2KJ3510- ■ DF23- ■ ■ K2 -Z**	–
	6.9	1040	210.72	18100	1.5	62	**2KJ3510- ■ DF23- ■ ■ J2 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**K.89-LE80ZMQ4P**							
	7.7	930	189.01	18100	1.7	62	**2KJ3510- ■ DF23- ■ ■ H2 -Z**	–
	8.5	835	169.94	18100	1.9	62	**2KJ3510- ■ DF23- ■ ■ G2 -Z**	–
	9.4	755	153.70	18100	2.1	62	**2KJ3510- ■ DF23- ■ ■ F2 -Z**	–
	K.79-LE80ZMQ4P							
	7.7	930	188.85	13700	0.88	41	**2KJ3508- ■ DF23- ■ ■ G2 -Z**	–
	8.4	845	171.69	13900	0.97	41	**2KJ3508- ■ DF23- ■ ■ F2 -Z**	–
	9.5	755	153.18	14100	1.1	41	**2KJ3508- ■ DF23- ■ ■ E2 -Z**	–
	11	675	137.35	14200	1.2	41	**2KJ3508- ■ DF23- ■ ■ D2 -Z**	–
	12	610	123.80	14300	1.3	41	**2KJ3508- ■ DF23- ■ ■ C2 -Z**	–
	13	565	114.28	14400	1.5	41	**2KJ3508- ■ DF23- ■ ■ B2 -Z**	–
	14	515	104.32	14400	1.6	41	**2KJ3508- ■ DF23- ■ ■ A2 -Z**	–
	17	425	86.56	14400	1.9	41	**2KJ3508- ■ DF23- ■ ■ X1 -Z**	–
	18	400	81.47	14400	2	41	**2KJ3508- ■ DF23- ■ ■ W1 -Z**	–
	19	380	76.94	14400	2.2	41	**2KJ3508- ■ DF23- ■ ■ V1 -Z**	–
	K.69-LE80ZMQ4P							
	9.5	750	152.00	9880	0.8	36	**2KJ3507- ■ DF23- ■ ■ F2 -Z**	–
	10	680	138.18	10300	0.88	36	**2KJ3507- ■ DF23- ■ ■ E2 -Z**	–
	12	605	123.29	10800	0.99	36	**2KJ3507- ■ DF23- ■ ■ D2 -Z**	–
	13	545	110.55	10900	1.1	36	**2KJ3507- ■ DF23- ■ ■ C2 -Z**	–
	15	490	99.64	11100	1.2	36	**2KJ3507- ■ DF23- ■ ■ B2 -Z**	–
	16	450	91.98	11200	1.3	36	**2KJ3507- ■ DF23- ■ ■ A2 -Z**	–
	17	415	83.96	11200	1.4	36	**2KJ3507- ■ DF23- ■ ■ X1 -Z**	–
	21	340	69.67	11100	1.7	36	**2KJ3507- ■ DF23- ■ ■ W1 -Z**	–
	22	320	65.57	11000	1.9	36	**2KJ3507- ■ DF23- ■ ■ V1 -Z**	–
	23	305	61.93	10800	2	36	**2KJ3507- ■ DF23- ■ ■ U1 -Z**	–
	28	260	52.69	10500	2.3	36	**2KJ3507- ■ DF23- ■ ■ T1 -Z**	–
	K.49-LE80ZMQ4P							
	15	480	97.71	7250	0.87	29	**2KJ3505- ■ DF23- ■ ■ C2 -Z**	–
	16	435	88.83	7260	0.96	29	**2KJ3505- ■ DF23- ■ ■ B2 -Z**	–
	19	380	77.81	7230	1.1	29	**2KJ3505- ■ DF23- ■ ■ A2 -Z**	–
	20	355	71.82	7150	1.2	29	**2KJ3505- ■ DF23- ■ ■ X1 -Z**	–
	23	310	63.59	7110	1.3	29	**2KJ3505- ■ DF23- ■ ■ W1 -Z**	–
	27	260	52.93	6930	1.6	29	**2KJ3505- ■ DF23- ■ ■ V1 -Z**	–
	29	245	49.82	6870	1.7	29	**2KJ3505- ■ DF23- ■ ■ U1 -Z**	–
	32	220	44.63	6750	1.9	29	**2KJ3505- ■ DF23- ■ ■ T1 -Z**	–
	38	188	38.00	6560	2.2	29	**2KJ3505- ■ DF23- ■ ■ S1 -Z**	–
	45	161	32.57	6360	2.6	29	**2KJ3505- ■ DF23- ■ ■ R1 -Z**	–
	K.39-LE80ZMQ4P							
	26	270	55.25	5890	0.81	22	**2KJ3504- ■ DF23- ■ ■ X1 -Z**	–
	30	235	48.37	6000	0.92	22	**2KJ3504- ■ DF23- ■ ■ W1 -Z**	–
	34	205	42.41	5930	1.1	22	**2KJ3504- ■ DF23- ■ ■ V1 -Z**	–
	38	190	38.48	5810	1.2	22	**2KJ3504- ■ DF23- ■ ■ U1 -Z**	–
	40	179	36.21	5760	1.2	22	**2KJ3504- ■ DF23- ■ ■ T1 -Z**	–
	45	158	31.92	5650	1.4	22	**2KJ3504- ■ DF23- ■ ■ S1 -Z**	–
	52	137	27.70	5510	1.6	22	**2KJ3504- ■ DF23- ■ ■ R1 -Z**	–
	54	133	26.89	5480	1.7	22	**2KJ3504- ■ DF23- ■ ■ Q1 -Z**	–
	60	118	23.97	5370	1.9	22	**2KJ3504- ■ DF23- ■ ■ P1 -Z**	–
	66	109	22.12	5280	2	22	**2KJ3504- ■ DF23- ■ ■ N1 -Z**	–
	75	96	19.37	5120	2.3	22	**2KJ3504- ■ DF23- ■ ■ M1 -Z**	–
	85	84	16.98	4970	2.6	22	**2KJ3504- ■ DF23- ■ ■ L1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**K.39-LE80ZMQ4P**							
	94	76	15.41	4860	2.9	22	**2KJ3504- ■ DF23- ■ ■ K1 -Z**	**–**
	100	72	14.50	4790	3.1	22	**2KJ3504- ■ DF23- ■ ■ J1 -Z**	**–**
	113	63	12.78	4650	3.5	22	**2KJ3504- ■ DF23- ■ ■ H1 -Z**	**–**
	144	50	10.04	4290	3.7	22	**2KJ3504- ■ DF23- ■ ■ F1 -Z**	**–**
	B.49-LE90SQ6P							
	16	445	59.28	11200	1	28	**2KJ3503- ■ EC23- ■ ■ C2 -Z**	**P01**
	18	405	53.89	11200	1.1	28	**2KJ3503- ■ EC23- ■ ■ B2 -Z**	**P01**
	21	345	45.83	10900	1.3	28	**2KJ3503- ■ EC23- ■ ■ A2 -Z**	**P01**
	23	315	41.67	10700	1.4	28	**2KJ3503- ■ EC23- ■ ■ X1 -Z**	**P01**
	B.49-LE80ZMQ4P							
	24	290	59.28	10500	1.5	27	**2KJ3503- ■ DF23- ■ ■ C2 -Z**	**–**
	27	265	53.89	10300	1.7	27	**2KJ3503- ■ DF23- ■ ■ B2 -Z**	**–**
	32	225	45.83	9980	2	27	**2KJ3503- ■ DF23- ■ ■ A2 -Z**	**–**
	35	205	41.67	9760	2.2	27	**2KJ3503- ■ DF23- ■ ■ X1 -Z**	**–**
	39	184	37.18	9480	2.5	27	**2KJ3503- ■ DF23- ■ ■ W1 -Z**	**–**
	44	165	33.33	9220	2.7	27	**2KJ3503- ■ DF23- ■ ■ V1 -Z**	**–**
	B.39-LE80ZMQ4P							
	29	245	50.11	6980	0.85	21	**2KJ3502- ■ DF23- ■ ■ X1 -Z**	**–**
	33	215	44.00	6980	1.2	21	**2KJ3502- ■ DF23- ■ ■ W1 -Z**	**–**
	36	198	40.00	6980	1.2	21	**2KJ3502- ■ DF23- ■ ■ V1 -Z**	**–**
	42	169	34.22	6980	1.5	21	**2KJ3502- ■ DF23- ■ ■ U1 -Z**	**–**
	47	154	31.11	6980	1.6	21	**2KJ3502- ■ DF23- ■ ■ T1 -Z**	**–**
	53	136	27.50	6980	1.8	21	**2KJ3502- ■ DF23- ■ ■ S1 -Z**	**–**
	58	123	25.00	6980	2	21	**2KJ3502- ■ DF23- ■ ■ R1 -Z**	**–**
	66	108	21.90	6980	2.3	21	**2KJ3502- ■ DF23- ■ ■ Q1 -Z**	**–**
	72	100	20.21	6980	2.5	21	**2KJ3502- ■ DF23- ■ ■ P1 -Z**	**–**
	81	88	17.90	6980	2.8	21	**2KJ3502- ■ DF23- ■ ■ N1 -Z**	**–**
	97	74	14.90	6980	3.4	21	**2KJ3502- ■ DF23- ■ ■ M1 -Z**	**–**
	B.29-LE80ZMQ4P							
	57	126	25.56	4050	0.87	16	**2KJ3501- ■ DF23- ■ ■ U1 -Z**	**–**
	65	111	22.41	4130	0.99	16	**2KJ3501- ■ DF23- ■ ■ T1 -Z**	**–**
	72	99	20.00	4190	1.1	16	**2KJ3501- ■ DF23- ■ ■ S1 -Z**	**–**
	81	88	17.82	4200	1.2	16	**2KJ3501- ■ DF23- ■ ■ R1 -Z**	**–**
	88	81	16.45	4200	1.4	16	**2KJ3501- ■ DF23- ■ ■ Q1 -Z**	**–**
	101	71	14.40	4200	1.5	16	**2KJ3501- ■ DF23- ■ ■ P1 -Z**	**–**
	115	62	12.63	4200	1.8	16	**2KJ3501- ■ DF23- ■ ■ N1 -Z**	**–**
	127	57	11.46	4140	1.9	16	**2KJ3501- ■ DF23- ■ ■ M1 -Z**	**–**
	135	53	10.78	4090	2.1	16	**2KJ3501- ■ DF23- ■ ■ L1 -Z**	**–**
	152	47	9.51	3950	2.3	16	**2KJ3501- ■ DF23- ■ ■ K1 -Z**	**–**
	176	41	8.25	3810	2.7	16	**2KJ3501- ■ DF23- ■ ■ J1 -Z**	**–**
	185	39	7.84	3720	1.9	16	**2KJ3501- ■ DF23- ■ ■ H1 -Z**	**–**
	196	36	7.38	3660	2.1	16	**2KJ3501- ■ DF23- ■ ■ G1 -Z**	**–**
	223	32	6.51	3540	2.3	16	**2KJ3501- ■ DF23- ■ ■ F1 -Z**	**–**
	257	28	5.65	3400	2.7	16	**2KJ3501- ■ DF23- ■ ■ E1 -Z**	**–**
	286	25	5.07	3340	3	16	**2KJ3501- ■ DF23- ■ ■ D1 -Z**	**–**
	303	24	4.78	3270	3.1	16	**2KJ3501- ■ DF23- ■ ■ C1 -Z**	**–**
	344	21	4.21	3160	3.6	16	**2KJ3501- ■ DF23- ■ ■ B1 -Z**	**–**
	397	18	3.65	3030	4	16	**2KJ3501- ■ DF23- ■ ■ A1 -Z**	**–**
	B.19-LE80ZMQ4P							
	115	62	12.66	1910	0.8	14	**2KJ3500- ■ DF23- ■ ■ N1 -Z**	**–**
	132	54	11.00	1910	0.92	14	**2KJ3500- ■ DF23- ■ ■ M1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**B.19-LE80ZMQ4P**							
	146	49	9.93	1910	1	14	**2KJ3500- ■ DF23- ■ ■ L1 -Z**	–
	155	46	9.35	1910	1.1	14	**2KJ3500- ■ DF23- ■ ■ K1 -Z**	–
	178	40	8.15	1910	1.2	14	**2KJ3500- ■ DF23- ■ ■ J1 -Z**	–
	184	39	7.87	1910	0.98	14	**2KJ3500- ■ DF23- ■ ■ H1 -Z**	–
	207	34	6.99	1910	1.1	14	**2KJ3500- ■ DF23- ■ ■ G1 -Z**	–
	225	32	6.45	1910	1.2	14	**2KJ3500- ■ DF23- ■ ■ F1 -Z**	–
	258	28	5.61	1910	1.3	14	**2KJ3500- ■ DF23- ■ ■ E1 -Z**	–
	298	24	4.87	1910	1.5	14	**2KJ3500- ■ DF23- ■ ■ D1 -Z**	–
	330	22	4.40	1910	1.6	14	**2KJ3500- ■ DF23- ■ ■ C1 -Z**	–
	350	20	4.14	1910	1.6	14	**2KJ3500- ■ DF23- ■ ■ B1 -Z**	–
	402	18	3.61	1910	1.7	14	**2KJ3500- ■ DF23- ■ ■ A1 -Z**	–
1.1	**K.129-LE100ZLSA6P**							
	4.2	2520	228.30	39400	1.7	170	**2KJ3512- ■ FN23- ■ ■ J2 -Z**	**P01**
	4.5	2330	210.74	39600	1.9	170	**2KJ3512- ■ FN23- ■ ■ H2 -Z**	**P01**
	K.109-LE100ZLSA6P							
	4.4	2390	216.65	24500	1.2	119	**2KJ3511- ■ FN23- ■ ■ H2 -Z**	**P01**
	4.9	2160	195.60	24500	1.3	119	**2KJ3511- ■ FN23- ■ ■ G2 -Z**	**P01**
	5.4	1960	177.43	24500	1.5	119	**2KJ3511- ■ FN23- ■ ■ F2 -Z**	**P01**
	5.8	1810	163.78	24500	1.6	119	**2KJ3511- ■ FN23- ■ ■ E2 -Z**	**P01**
	6.4	1640	148.88	24500	1.8	119	**2KJ3511- ■ FN23- ■ ■ D2 -Z**	**P01**
	K.109-LE90SM4P							
	6.6	1580	216.65	24500	1.8	101	**2KJ3511- ■ EK23- ■ ■ H2 -Z**	–
	7.4	1420	195.60	24500	2	101	**2KJ3511- ■ EK23- ■ ■ G2 -Z**	–
	K.89-LE100ZLSA6P							
	5.6	1870	169.94	18100	0.85	84	**2KJ3510- ■ FN23- ■ ■ G2 -Z**	**P01**
	K.89-LE90SM4P							
	6.2	1690	231.80	18100	0.95	64	**2KJ3510- ■ EK23- ■ ■ K2 -Z**	–
	6.8	1530	210.72	18100	1	64	**2KJ3510- ■ EK23- ■ ■ J2 -Z**	–
	7.6	1370	189.01	18100	1.2	64	**2KJ3510- ■ EK23- ■ ■ H2 -Z**	–
	8.5	1240	169.94	18100	1.3	64	**2KJ3510- ■ EK23- ■ ■ G2 -Z**	–
	9.4	1120	153.70	18100	1.4	64	**2KJ3510- ■ EK23- ■ ■ F2 -Z**	–
	10	1030	141.88	18100	1.5	64	**2KJ3510- ■ EK23- ■ ■ E2 -Z**	–
	11	945	129.96	18100	1.7	64	**2KJ3510- ■ EK23- ■ ■ D2 -Z**	–
	13	795	109.04	18100	2	64	**2KJ3510- ■ EK23- ■ ■ C2 -Z**	–
	14	745	102.63	18100	2.1	64	**2KJ3510- ■ EK23- ■ ■ B2 -Z**	–
	K.79-LE90SM4P							
	10	1000	137.35	13600	0.82	42	**2KJ3508- ■ EK23- ■ ■ D2 -Z**	–
	12	900	123.80	13800	0.91	42	**2KJ3508- ■ EK23- ■ ■ C2 -Z**	–
	13	830	114.28	13900	0.98	42	**2KJ3508- ■ EK23- ■ ■ B2 -Z**	–
	14	760	104.32	14000	1.1	42	**2KJ3508- ■ EK23- ■ ■ A2 -Z**	–
	17	630	86.56	14300	1.3	42	**2KJ3508- ■ EK23- ■ ■ X1 -Z**	–
	18	590	81.47	14400	1.4	42	**2KJ3508- ■ EK23- ■ ■ W1 -Z**	–
	19	560	76.94	14400	1.5	42	**2KJ3508- ■ EK23- ■ ■ V1 -Z**	–
	22	475	65.47	14400	1.7	42	**2KJ3508- ■ EK23- ■ ■ U1 -Z**	–
	26	405	56.08	14400	2	42	**2KJ3508- ■ EK23- ■ ■ T1 -Z**	–
	29	360	49.31	14400	2.3	42	**2KJ3508- ■ EK23- ■ ■ S1 -Z**	–
	35	300	41.60	14400	2.6	42	**2KJ3508- ■ EK23- ■ ■ R1 -Z**	–
	K.69-LE90SM4P							
	14	725	99.64	10000	0.83	37	**2KJ3507- ■ EK23- ■ ■ B2 -Z**	–
	16	670	91.98	10100	0.89	37	**2KJ3507- ■ EK23- ■ ■ A2 -Z**	–
	17	610	83.96	10100	0.98	37	**2KJ3507- ■ EK23- ■ ■ X1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**K.69-LE90SM4P**							
	21	505	69.67	10000	1.2	37	**2KJ3507- ■ EK23- ■ ■ W1 -Z**	–
	22	475	65.57	9950	1.3	37	**2KJ3507- ■ EK23- ■ ■ V1 -Z**	–
	23	450	61.93	9880	1.3	37	**2KJ3507- ■ EK23- ■ ■ U1 -Z**	–
	27	380	52.69	9690	1.6	37	**2KJ3507- ■ EK23- ■ ■ T1 -Z**	–
	32	325	45.14	9460	1.8	37	**2KJ3507- ■ EK23- ■ ■ S1 -Z**	–
	36	290	39.69	9220	2.1	37	**2KJ3507- ■ EK23- ■ ■ R1 -Z**	–
	43	240	33.48	8950	2.4	37	**2KJ3507- ■ EK23- ■ ■ Q1 -Z**	–
	49	210	29.18	8690	2.6	37	**2KJ3507- ■ EK23- ■ ■ P1 -Z**	–
	K.49-LE90SM4P							
	20	520	71.82	5890	0.8	30	**2KJ3505- ■ EK23- ■ ■ X1 -Z**	–
	23	460	63.59	5960	0.91	30	**2KJ3505- ■ EK23- ■ ■ W1 -Z**	–
	27	385	52.93	5980	1.1	30	**2KJ3505- ■ EK23- ■ ■ V1 -Z**	–
	29	360	49.82	5990	1.2	30	**2KJ3505- ■ EK23- ■ ■ U1 -Z**	–
	32	325	44.63	5950	1.3	30	**2KJ3505- ■ EK23- ■ ■ T1 -Z**	–
	38	275	38.00	5900	1.5	30	**2KJ3505- ■ EK23- ■ ■ S1 -Z**	–
	44	235	32.57	5800	1.8	30	**2KJ3505- ■ EK23- ■ ■ R1 -Z**	–
	51	205	28.05	5670	2.1	30	**2KJ3505- ■ EK23- ■ ■ Q1 -Z**	–
	55	192	26.30	5610	2.2	30	**2KJ3505- ■ EK23- ■ ■ P1 -Z**	–
	62	170	23.28	5500	2.5	30	**2KJ3505- ■ EK23- ■ ■ N1 -Z**	–
	74	141	19.38	5320	3	30	**2KJ3505- ■ EK23- ■ ■ M1 -Z**	–
	79	133	18.24	5260	3.2	30	**2KJ3505- ■ EK23- ■ ■ L1 -Z**	–
	148	71	9.75	4520	3.9	30	**2KJ3505- ■ EK23- ■ ■ F1 -Z**	–
	157	67	9.18	4450	4	30	**2KJ3505- ■ EK23- ■ ■ E1 -Z**	–
	K.39-LE90SM4P							
	40	260	36.21	5050	0.83	24	**2KJ3504- ■ EK23- ■ ■ T1 -Z**	–
	45	230	31.92	5010	0.94	24	**2KJ3504- ■ EK23- ■ ■ S1 -Z**	–
	52	200	27.70	4960	1.1	24	**2KJ3504- ■ EK23- ■ ■ R1 -Z**	–
	54	196	26.89	4930	1.1	24	**2KJ3504- ■ EK23- ■ ■ Q1 -Z**	–
	60	175	23.97	4860	1.3	24	**2KJ3504- ■ EK23- ■ ■ P1 -Z**	–
	65	161	22.12	4820	1.4	24	**2KJ3504- ■ EK23- ■ ■ N1 -Z**	–
	74	141	19.37	4730	1.6	24	**2KJ3504- ■ EK23- ■ ■ M1 -Z**	–
	85	124	16.98	4630	1.8	24	**2KJ3504- ■ EK23- ■ ■ L1 -Z**	–
	93	112	15.41	4550	2	24	**2KJ3504- ■ EK23- ■ ■ K1 -Z**	–
	99	106	14.50	4490	2.1	24	**2KJ3504- ■ EK23- ■ ■ J1 -Z**	–
	113	93	12.78	4390	2.4	24	**2KJ3504- ■ EK23- ■ ■ H1 -Z**	–
	130	81	11.09	4250	2.7	24	**2KJ3504- ■ EK23- ■ ■ G1 -Z**	–
	143	73	10.04	4060	2.5	24	**2KJ3504- ■ EK23- ■ ■ F1 -Z**	–
	163	64	8.81	3950	2.8	24	**2KJ3504- ■ EK23- ■ ■ E1 -Z**	–
	180	58	7.99	3860	3	24	**2KJ3504- ■ EK23- ■ ■ D1 -Z**	–
	191	55	7.52	3800	3.1	24	**2KJ3504- ■ EK23- ■ ■ C1 -Z**	–
	217	48	6.63	3700	3.3	24	**2KJ3504- ■ EK23- ■ ■ B1 -Z**	–
	250	42	5.75	3570	3.6	24	**2KJ3504- ■ EK23- ■ ■ A1 -Z**	–
	B.49-LE90SM4P							
	24	430	59.28	9670	1	28	**2KJ3503- ■ EK23- ■ ■ C2 -Z**	–
	27	390	53.89	9550	1.1	28	**2KJ3503- ■ EK23- ■ ■ B2 -Z**	–
	31	330	45.83	9310	1.3	28	**2KJ3503- ■ EK23- ■ ■ A2 -Z**	–
	35	300	41.67	9150	1.5	28	**2KJ3503- ■ EK23- ■ ■ X1 -Z**	–
	39	270	37.18	8930	1.7	28	**2KJ3503- ■ EK23- ■ ■ W1 -Z**	–
	43	240	33.33	8750	1.9	28	**2KJ3503- ■ EK23- ■ ■ V1 -Z**	–
	48	215	30.05	8560	2.1	28	**2KJ3503- ■ EK23- ■ ■ U1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**B.49-LE90SM4P**							
	52	200	27.74	8400	2.2	28	**2KJ3503- ■ EK23- ■ ■ T1 -Z**	–
	57	185	25.32	8210	2.4	28	**2KJ3503- ■ EK23- ■ ■ S1 -Z**	–
	69	153	21.01	7850	2.9	28	**2KJ3503- ■ EK23- ■ ■ R1 -Z**	–
	73	144	19.77	7730	3.1	28	**2KJ3503- ■ EK23- ■ ■ Q1 -Z**	–
	B.39-LE90SM4P							
	42	250	34.22	6980	1	23	**2KJ3502- ■ EK23- ■ ■ U1 -Z**	–
	46	225	31.11	6980	1.1	23	**2KJ3502- ■ EK23- ■ ■ T1 -Z**	–
	52	200	27.50	6980	1.2	23	**2KJ3502- ■ EK23- ■ ■ S1 -Z**	–
	58	182	25.00	6980	1.4	23	**2KJ3502- ■ EK23- ■ ■ R1 -Z**	–
	66	160	21.90	6980	1.6	23	**2KJ3502- ■ EK23- ■ ■ Q1 -Z**	–
	71	147	20.21	6980	1.7	23	**2KJ3502- ■ EK23- ■ ■ P1 -Z**	–
	80	131	17.90	6980	1.9	23	**2KJ3502- ■ EK23- ■ ■ N1 -Z**	–
	97	109	14.90	6790	2.3	23	**2KJ3502- ■ EK23- ■ ■ M1 -Z**	–
	103	102	14.02	6690	2.4	23	**2KJ3502- ■ EK23- ■ ■ L1 -Z**	–
	115	92	12.56	6500	2.7	23	**2KJ3502- ■ EK23- ■ ■ K1 -Z**	–
	135	78	10.69	6230	3.1	23	**2KJ3502- ■ EK23- ■ ■ J1 -Z**	–
	157	67	9.17	5970	3.4	23	**2KJ3502- ■ EK23- ■ ■ H1 -Z**	–
	183	58	7.89	5720	3.8	23	**2KJ3502- ■ EK23- ■ ■ G1 -Z**	–
	218	48	6.60	5480	4.2	23	**2KJ3502- ■ EK23- ■ ■ F1 -Z**	–
	232	45	6.21	5380	4.4	23	**2KJ3502- ■ EK23- ■ ■ E1 -Z**	–
	B.29-LE90SM4P							
	81	130	17.82	4030	0.85	18	**2KJ3501- ■ EK23- ■ ■ R1 -Z**	–
	88	120	16.45	4080	0.92	18	**2KJ3501- ■ EK23- ■ ■ Q1 -Z**	–
	100	105	14.40	4080	1	18	**2KJ3501- ■ EK23- ■ ■ P1 -Z**	–
	114	92	12.63	3980	1.2	18	**2KJ3501- ■ EK23- ■ ■ N1 -Z**	–
	126	84	11.46	3900	1.3	18	**2KJ3501- ■ EK23- ■ ■ M1 -Z**	–
	134	79	10.78	3860	1.4	18	**2KJ3501- ■ EK23- ■ ■ L1 -Z**	–
	151	69	9.51	3760	1.6	18	**2KJ3501- ■ EK23- ■ ■ K1 -Z**	–
	175	60	8.25	3640	1.8	18	**2KJ3501- ■ EK23- ■ ■ J1 -Z**	–
	184	57	7.84	3540	1.3	18	**2KJ3501- ■ EK23- ■ ■ H1 -Z**	–
	195	54	7.38	3490	1.4	18	**2KJ3501- ■ EK23- ■ ■ G1 -Z**	–
	221	48	6.51	3380	1.6	18	**2KJ3501- ■ EK23- ■ ■ F1 -Z**	–
	255	41	5.65	3280	1.8	18	**2KJ3501- ■ EK23- ■ ■ E1 -Z**	–
	284	37	5.07	3240	2	18	**2KJ3501- ■ EK23- ■ ■ D1 -Z**	–
	301	35	4.78	3180	2.1	18	**2KJ3501- ■ EK23- ■ ■ C1 -Z**	–
	342	31	4.21	3080	2.4	18	**2KJ3501- ■ EK23- ■ ■ B1 -Z**	–
	395	27	3.65	2960	2.7	18	**2KJ3501- ■ EK23- ■ ■ A1 -Z**	–
1.5	**K.129-LE112ZMKA6P**							
	4.3	3350	228.30	38600	1.3	170	**2KJ3512- ■ GH23- ■ ■ J2 -Z**	**P01**
	4.6	3090	210.74	38900	1.4	170	**2KJ3512- ■ GH23- ■ ■ H2 -Z**	**P01**
	5	2850	194.04	39100	1.5	170	**2KJ3512- ■ GH23- ■ ■ G2 -Z**	**P01**
	5.9	2430	165.47	39500	1.8	170	**2KJ3512- ■ GH23- ■ ■ F2 -Z**	**P01**
	K.129-LE90ZLR4P							
	6.3	2260	228.30	39700	1.9	154	**2KJ3512- ■ EM23- ■ ■ J2 -Z**	–
	6.9	2080	210.74	39900	2.1	154	**2KJ3512- ■ EM23- ■ ■ H2 -Z**	–
	K.109-LE112ZMKA6P							
	4.5	3180	216.65	24500	0.91	120	**2KJ3511- ■ GH23- ■ ■ H2 -Z**	**P01**
	5	2870	195.60	24500	1	120	**2KJ3511- ■ GH23- ■ ■ G2 -Z**	**P01**
	5.5	2600	177.43	24500	1.1	120	**2KJ3511- ■ GH23- ■ ■ F2 -Z**	**P01**
	6	2400	163.78	24500	1.2	120	**2KJ3511- ■ GH23- ■ ■ E2 -Z**	**P01**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**K.109-LE90ZLR4P**							
	6.7	2140	216.65	24500	1.4	104	**2KJ3511- ■ EM23- ■ ■ H2 -Z**	–
	7.4	1930	195.60	24500	1.5	104	**2KJ3511- ■ EM23- ■ ■ G2 -Z**	–
	8.1	1750	177.43	24500	1.6	104	**2KJ3511- ■ EM23- ■ ■ F2 -Z**	–
	8.8	1620	163.78	24500	1.8	104	**2KJ3511- ■ EM23- ■ ■ E2 -Z**	–
	9.7	1470	148.88	24500	2	104	**2KJ3511- ■ EM23- ■ ■ D2 -Z**	–
	K.89-LE90ZLR4P							
	7.6	1870	189.01	18100	0.85	67	**2KJ3510- ■ EM23- ■ ■ H2 -Z**	–
	8.5	1680	169.94	18100	0.95	67	**2KJ3510- ■ EM23- ■ ■ G2 -Z**	–
	9.4	1520	153.70	18100	1.1	67	**2KJ3510- ■ EM23- ■ ■ F2 -Z**	–
	10	1400	141.88	18100	1.1	67	**2KJ3510- ■ EM23- ■ ■ E2 -Z**	–
	11	1280	129.96	18100	1.2	67	**2KJ3510- ■ EM23- ■ ■ D2 -Z**	–
	13	1080	109.04	18100	1.5	67	**2KJ3510- ■ EM23- ■ ■ C2 -Z**	–
	14	1010	102.63	18100	1.6	67	**2KJ3510- ■ EM23- ■ ■ B2 -Z**	–
	15	930	94.16	18100	1.7	67	**2KJ3510- ■ EM23- ■ ■ A2 -Z**	–
	18	815	82.25	18100	2	67	**2KJ3510- ■ EM23- ■ ■ X1 -Z**	–
	20	730	73.64	18100	2.2	67	**2KJ3510- ■ EM23- ■ ■ W1 -Z**	–
	K.79-LE90ZLR4P							
	17	855	86.56	13900	0.96	45	**2KJ3508- ■ EM23- ■ ■ X1 -Z**	–
	18	805	81.47	14000	1	45	**2KJ3508- ■ EM23- ■ ■ W1 -Z**	–
	19	760	76.94	14000	1.1	45	**2KJ3508- ■ EM23- ■ ■ V1 -Z**	–
	22	645	65.47	14300	1.3	45	**2KJ3508- ■ EM23- ■ ■ U1 -Z**	–
	26	555	56.08	14400	1.5	45	**2KJ3508- ■ EM23- ■ ■ T1 -Z**	–
	29	485	49.31	14400	1.7	45	**2KJ3508- ■ EM23- ■ ■ S1 -Z**	–
	35	410	41.60	14400	1.9	45	**2KJ3508- ■ EM23- ■ ■ R1 -Z**	–
	40	355	36.26	14400	2.1	45	**2KJ3508- ■ EM23- ■ ■ Q1 -Z**	–
	44	325	32.78	14400	2.5	45	**2KJ3508- ■ EM23- ■ ■ P1 -Z**	–
	K.69-LE90ZLR4P							
	21	690	69.67	8680	0.87	40	**2KJ3507- ■ EM23- ■ ■ W1 -Z**	–
	22	650	65.57	8690	0.92	40	**2KJ3507- ■ EM23- ■ ■ V1 -Z**	–
	23	610	61.93	8720	0.98	40	**2KJ3507- ■ EM23- ■ ■ U1 -Z**	–
	27	520	52.69	8680	1.1	40	**2KJ3507- ■ EM23- ■ ■ T1 -Z**	–
	32	445	45.14	8590	1.3	40	**2KJ3507- ■ EM23- ■ ■ S1 -Z**	–
	36	390	39.69	8490	1.5	40	**2KJ3507- ■ EM23- ■ ■ R1 -Z**	–
	43	330	33.48	8300	1.7	40	**2KJ3507- ■ EM23- ■ ■ Q1 -Z**	–
	50	285	29.18	8140	1.9	40	**2KJ3507- ■ EM23- ■ ■ P1 -Z**	–
	55	255	26.05	7980	2.3	40	**2KJ3507- ■ EM23- ■ ■ N1 -Z**	–
	59	240	24.52	7890	2.4	40	**2KJ3507- ■ EM23- ■ ■ M1 -Z**	–
	62	225	23.15	7810	2.5	40	**2KJ3507- ■ EM23- ■ ■ L1 -Z**	–
	73	195	19.70	7530	2.8	40	**2KJ3507- ■ EM23- ■ ■ K1 -Z**	–
	86	167	16.88	7280	3.2	40	**2KJ3507- ■ EM23- ■ ■ J1 -Z**	–
	97	147	14.84	7070	3.5	40	**2KJ3507- ■ EM23- ■ ■ H1 -Z**	–
	155	93	9.34	6130	4	40	**2KJ3507- ■ EM23- ■ ■ E1 -Z**	–
	K.49-LE90ZLR4P							
	27	525	52.93	4880	0.8	33	**2KJ3505- ■ EM23- ■ ■ V1 -Z**	–
	29	490	49.82	4970	0.85	33	**2KJ3505- ■ EM23- ■ ■ U1 -Z**	–
	32	440	44.63	5040	0.95	33	**2KJ3505- ■ EM23- ■ ■ T1 -Z**	–
	38	375	38.00	5110	1.1	33	**2KJ3505- ■ EM23- ■ ■ S1 -Z**	–
	44	320	32.57	5130	1.3	33	**2KJ3505- ■ EM23- ■ ■ R1 -Z**	–
	52	275	28.05	5110	1.5	33	**2KJ3505- ■ EM23- ■ ■ Q1 -Z**	–
	55	260	26.30	5080	1.6	33	**2KJ3505- ■ EM23- ■ ■ P1 -Z**	–
	62	230	23.28	5030	1.8	33	**2KJ3505- ■ EM23- ■ ■ N1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**K.49-LE90ZLR4P**							
	75	192	19.38	4920	2.2	33	**2KJ3505- ■ EM23- ■ ■ M1 -Z**	–
	79	181	18.24	4880	2.3	33	**2KJ3505- ■ EM23- ■ ■ L1 -Z**	–
	88	162	16.34	4800	2.6	33	**2KJ3505- ■ EM23- ■ ■ K1 -Z**	–
	104	138	13.91	4670	3	33	**2KJ3505- ■ EM23- ■ ■ J1 -Z**	–
	121	118	11.93	4540	3.6	33	**2KJ3505- ■ EM23- ■ ■ H1 -Z**	–
	148	97	9.75	4290	2.8	33	**2KJ3505- ■ EM23- ■ ■ F1 -Z**	–
	157	91	9.18	4240	3	33	**2KJ3505- ■ EM23- ■ ■ E1 -Z**	–
	176	82	8.22	4140	3.1	33	**2KJ3505- ■ EM23- ■ ■ D1 -Z**	–
	206	69	7.00	3990	3.5	33	**2KJ3505- ■ EM23- ■ ■ C1 -Z**	–
	241	60	6.00	3840	3.8	33	**2KJ3505- ■ EM23- ■ ■ B1 -Z**	–
	279	51	5.17	3700	4.1	33	**2KJ3505- ■ EM23- ■ ■ A1 -Z**	–
	K.39-LE90ZLR4P							
	52	275	27.70	4270	0.8	27	**2KJ3504- ■ EM23- ■ ■ R1 -Z**	–
	54	265	26.89	4290	0.83	27	**2KJ3504- ■ EM23- ■ ■ Q1 -Z**	–
	60	235	23.97	4310	0.93	27	**2KJ3504- ■ EM23- ■ ■ P1 -Z**	–
	65	215	22.12	4320	1	27	**2KJ3504- ■ EM23- ■ ■ N1 -Z**	–
	75	192	19.37	4260	1.1	27	**2KJ3504- ■ EM23- ■ ■ M1 -Z**	–
	85	168	16.98	4220	1.3	27	**2KJ3504- ■ EM23- ■ ■ L1 -Z**	–
	94	153	15.41	4170	1.4	27	**2KJ3504- ■ EM23- ■ ■ K1 -Z**	–
	100	144	14.50	4140	1.5	27	**2KJ3504- ■ EM23- ■ ■ J1 -Z**	–
	113	127	12.78	4070	1.7	27	**2KJ3504- ■ EM23- ■ ■ H1 -Z**	–
	130	110	11.09	3980	2	27	**2KJ3504- ■ EM23- ■ ■ G1 -Z**	–
	144	100	10.04	3770	1.8	27	**2KJ3504- ■ EM23- ■ ■ F1 -Z**	–
	164	87	8.81	3700	2.1	27	**2KJ3504- ■ EM23- ■ ■ E1 -Z**	–
	181	79	7.99	3640	2.2	27	**2KJ3504- ■ EM23- ■ ■ D1 -Z**	–
	192	74	7.52	3600	2.3	27	**2KJ3504- ■ EM23- ■ ■ C1 -Z**	–
	218	66	6.63	3500	2.4	27	**2KJ3504- ■ EM23- ■ ■ B1 -Z**	–
	251	57	5.75	3400	2.6	27	**2KJ3504- ■ EM23- ■ ■ A1 -Z**	–
	B.49-LE90ZLR4P							
	27	530	53.89	8600	0.84	31	**2KJ3503- ■ EM23- ■ ■ B2 -Z**	–
	32	450	45.83	8500	0.99	31	**2KJ3503- ■ EM23- ■ ■ A2 -Z**	–
	35	410	41.67	8400	1.1	31	**2KJ3503- ■ EM23- ■ ■ X1 -Z**	–
	39	365	37.18	8290	1.2	31	**2KJ3503- ■ EM23- ■ ■ W1 -Z**	–
	43	330	33.33	8140	1.4	31	**2KJ3503- ■ EM23- ■ ■ V1 -Z**	–
	48	295	30.05	8020	1.5	31	**2KJ3503- ■ EM23- ■ ■ U1 -Z**	–
	52	275	27.74	7890	1.6	31	**2KJ3503- ■ EM23- ■ ■ T1 -Z**	–
	57	250	25.32	7760	1.8	31	**2KJ3503- ■ EM23- ■ ■ S1 -Z**	–
	69	205	21.01	7490	2.2	31	**2KJ3503- ■ EM23- ■ ■ R1 -Z**	–
	73	196	19.77	7380	2.3	31	**2KJ3503- ■ EM23- ■ ■ Q1 -Z**	–
	77	185	18.67	7290	2.4	31	**2KJ3503- ■ EM23- ■ ■ P1 -Z**	–
	91	158	15.89	7020	2.9	31	**2KJ3503- ■ EM23- ■ ■ N1 -Z**	–
	106	135	13.61	6770	3.3	31	**2KJ3503- ■ EM23- ■ ■ M1 -Z**	–
	174	82	8.29	6000	4	31	**2KJ3503- ■ EM23- ■ ■ H1 -Z**	–
	185	77	7.80	5900	4.3	31	**2KJ3503- ■ EM23- ■ ■ G1 -Z**	–
	B.39-LE90ZLR4P							
	46	305	31.11	6980	0.81	26	**2KJ3502- ■ EM23- ■ ■ T1 -Z**	–
	53	270	27.50	6980	0.92	26	**2KJ3502- ■ EM23- ■ ■ S1 -Z**	–
	58	245	25.00	6980	1	26	**2KJ3502- ■ EM23- ■ ■ R1 -Z**	–
	66	215	21.90	6980	1.2	26	**2KJ3502- ■ EM23- ■ ■ Q1 -Z**	–
	71	200	20.21	6890	1.2	26	**2KJ3502- ■ EM23- ■ ■ P1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**B.39-LE90ZLR4P**							
	81	177	17.90	6730	1.4	26	**2KJ3502- ■ EM23- ■ ■ N1 -Z**	–
	97	148	14.90	6480	1.7	26	**2KJ3502- ■ EM23- ■ ■ M1 -Z**	–
	103	139	14.02	6390	1.8	26	**2KJ3502- ■ EM23- ■ ■ L1 -Z**	–
	115	125	12.56	6230	2	26	**2KJ3502- ■ EM23- ■ ■ K1 -Z**	–
	135	106	10.69	6000	2.3	26	**2KJ3502- ■ EM23- ■ ■ J1 -Z**	–
	158	91	9.17	5780	2.5	26	**2KJ3502- ■ EM23- ■ ■ H1 -Z**	–
	183	78	7.89	5560	2.8	26	**2KJ3502- ■ EM23- ■ ■ G1 -Z**	–
	219	65	6.60	5350	3.1	26	**2KJ3502- ■ EM23- ■ ■ F1 -Z**	–
	233	62	6.21	5260	3.2	26	**2KJ3502- ■ EM23- ■ ■ E1 -Z**	–
	260	55	5.56	5100	3.6	26	**2KJ3502- ■ EM23- ■ ■ D1 -Z**	–
	305	47	4.74	4870	4.3	26	**2KJ3502- ■ EM23- ■ ■ C1 -Z**	–
	356	40	4.06	4660	5	26	**2KJ3502- ■ EM23- ■ ■ B1 -Z**	–
	413	35	3.50	4450	5.5	26	**2KJ3502- ■ EM23- ■ ■ A1 -Z**	–
	B.29-LE90ZLR4P							
	114	125	12.63	3670	0.88	21	**2KJ3501- ■ EM23- ■ ■ N1 -Z**	–
	126	114	11.46	3620	0.97	21	**2KJ3501- ■ EM23- ■ ■ M1 -Z**	–
	134	107	10.78	3590	1	21	**2KJ3501- ■ EM23- ■ ■ L1 -Z**	–
	152	94	9.51	3520	1.2	21	**2KJ3501- ■ EM23- ■ ■ K1 -Z**	–
	175	82	8.25	3430	1.3	21	**2KJ3501- ■ EM23- ■ ■ J1 -Z**	–
	184	78	7.84	3320	0.96	21	**2KJ3501- ■ EM23- ■ ■ H1 -Z**	–
	196	73	7.38	3290	1	21	**2KJ3501- ■ EM23- ■ ■ G1 -Z**	–
	222	64	6.51	3220	1.2	21	**2KJ3501- ■ EM23- ■ ■ F1 -Z**	–
	256	56	5.65	3120	1.3	21	**2KJ3501- ■ EM23- ■ ■ E1 -Z**	–
	285	50	5.07	3120	1.5	21	**2KJ3501- ■ EM23- ■ ■ D1 -Z**	–
	302	47	4.78	3070	1.6	21	**2KJ3501- ■ EM23- ■ ■ C1 -Z**	–
	343	42	4.21	2970	1.8	21	**2KJ3501- ■ EM23- ■ ■ B1 -Z**	–
	396	36	3.65	2870	2	21	**2KJ3501- ■ EM23- ■ ■ A1 -Z**	–
2.2	**K.149-LE132SQA6P**							
	4.1	5100	237.03	65000	1.6	283	**2KJ3513- ■ HG23- ■ ■ J2 -Z**	**P01**
	4.8	4370	202.86	65000	1.8	283	**2KJ3513- ■ HG23- ■ ■ H2 -Z**	**P01**
	5.1	4110	190.92	65000	1.9	283	**2KJ3513- ■ HG23- ■ ■ G2 -Z**	**P01**
	5.4	3850	178.97	65000	2.1	283	**2KJ3513- ■ HG23- ■ ■ F2 -Z**	**P01**
	K.129-LE132SQA6P							
	5	4180	194.04	37800	1.1	200	**2KJ3512- ■ HG23- ■ ■ G2 -Z**	**P01**
	5.9	3560	165.47	38400	1.2	200	**2KJ3512- ■ HG23- ■ ■ F2 -Z**	**P01**
	K.129-LE100ZLSA4P							
	6.4	3270	228.30	38700	1.3	170	**2KJ3512- ■ FN23- ■ ■ J2 -Z**	–
	7	3020	210.74	38900	1.5	170	**2KJ3512- ■ FN23- ■ ■ H2 -Z**	–
	7.5	2780	194.04	39200	1.6	170	**2KJ3512- ■ FN23- ■ ■ G2 -Z**	–
	8.9	2370	165.47	39600	1.9	170	**2KJ3512- ■ FN23- ■ ■ F2 -Z**	–
	9.4	2230	155.74	39700	2	170	**2KJ3512- ■ FN23- ■ ■ E2 -Z**	–
	10	2070	144.53	39900	2.1	170	**2KJ3512- ■ FN23- ■ ■ D2 -Z**	–
	K.109-LE100ZLSA4P							
	6.8	3100	216.65	24500	0.93	119	**2KJ3511- ■ FN23- ■ ■ H2 -Z**	–
	7.5	2800	195.60	24500	1	119	**2KJ3511- ■ FN23- ■ ■ G2 -Z**	–
	8.3	2540	177.43	24500	1.1	119	**2KJ3511- ■ FN23- ■ ■ F2 -Z**	–
	8.9	2340	163.78	24500	1.2	119	**2KJ3511- ■ FN23- ■ ■ E2 -Z**	–
	9.8	2130	148.88	24500	1.4	119	**2KJ3511- ■ FN23- ■ ■ D2 -Z**	–
	12	1700	118.65	24500	1.7	119	**2KJ3511- ■ FN23- ■ ■ B2 -Z**	–
	12	1800	126.07	24500	1.6	119	**2KJ3511- ■ FN23- ■ ■ C2 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**K.109-LE100ZLSA4P**							
	13	1570	109.57	24500	1.8	119	**2KJ3511- ■ FN23- ■ ■ A2 -Z**	–
	15	1390	97.49	24500	2.1	119	**2KJ3511- ■ FN23- ■ ■ X1 -Z**	–
	17	1240	86.59	24500	2.3	119	**2KJ3511- ■ FN23- ■ ■ W1 -Z**	–
	K.89-LE100ZLSA4P							
	11	1860	129.96	18100	0.86	84	**2KJ3510- ■ FN23- ■ ■ D2 -Z**	–
	13	1560	109.04	18100	1	84	**2KJ3510- ■ FN23- ■ ■ C2 -Z**	–
	14	1470	102.63	18100	1.1	84	**2KJ3510- ■ FN23- ■ ■ B2 -Z**	–
	16	1350	94.16	18100	1.2	84	**2KJ3510- ■ FN23- ■ ■ A2 -Z**	–
	18	1180	82.25	18100	1.4	84	**2KJ3510- ■ FN23- ■ ■ X1 -Z**	–
	20	1050	73.64	18100	1.5	84	**2KJ3510- ■ FN23- ■ ■ W1 -Z**	–
	23	920	64.39	18100	1.7	84	**2KJ3510- ■ FN23- ■ ■ V1 -Z**	–
	27	790	55.27	18100	2	84	**2KJ3510- ■ FN23- ■ ■ U1 -Z**	–
	30	700	48.85	18100	2.3	84	**2KJ3510- ■ FN23- ■ ■ T1 -Z**	–
	35	595	41.54	18100	2.6	84	**2KJ3510- ■ FN23- ■ ■ S1 -Z**	–
	K.79-LE100ZLSA4P							
	22	935	65.47	13700	0.87	63	**2KJ3508- ■ FN23- ■ ■ U1 -Z**	–
	26	800	56.08	14000	1	63	**2KJ3508- ■ FN23- ■ ■ T1 -Z**	–
	30	705	49.31	14200	1.2	63	**2KJ3508- ■ FN23- ■ ■ S1 -Z**	–
	35	595	41.60	14400	1.3	63	**2KJ3508- ■ FN23- ■ ■ R1 -Z**	–
	40	520	36.26	14400	1.5	63	**2KJ3508- ■ FN23- ■ ■ Q1 -Z**	–
	45	470	32.78	14400	1.7	63	**2KJ3508- ■ FN23- ■ ■ P1 -Z**	–
	54	390	27.20	14400	2.1	63	**2KJ3508- ■ FN23- ■ ■ N1 -Z**	–
	57	365	25.60	14400	2.1	63	**2KJ3508- ■ FN23- ■ ■ M1 -Z**	–
	61	345	24.17	14400	2.2	63	**2KJ3508- ■ FN23- ■ ■ L1 -Z**	–
	71	295	20.57	14400	2.5	63	**2KJ3508- ■ FN23- ■ ■ K1 -Z**	–
	83	250	17.62	14400	2.8	63	**2KJ3508- ■ FN23- ■ ■ J1 -Z**	–
	95	220	15.49	14400	3.1	63	**2KJ3508- ■ FN23- ■ ■ H1 -Z**	–
	112	187	13.07	14400	3.5	63	**2KJ3508- ■ FN23- ■ ■ G1 -Z**	–
	139	151	10.51	14400	3	63	**2KJ3508- ■ FN23- ■ ■ E1 -Z**	–
	163	129	9.01	13800	3.5	63	**2KJ3508- ■ FN23- ■ ■ D1 -Z**	–
	185	114	7.92	13300	4	63	**2KJ3508- ■ FN23- ■ ■ C1 -Z**	–
	K.69-LE100ZLSA4P							
	32	645	45.14	7110	0.93	57	**2KJ3507- ■ FN23- ■ ■ S1 -Z**	–
	37	565	39.69	7190	1.1	57	**2KJ3507- ■ FN23- ■ ■ R1 -Z**	–
	44	480	33.48	7180	1.2	57	**2KJ3507- ■ FN23- ■ ■ Q1 -Z**	–
	50	415	29.18	7170	1.3	57	**2KJ3507- ■ FN23- ■ ■ P1 -Z**	–
	56	370	26.05	7110	1.6	57	**2KJ3507- ■ FN23- ■ ■ N1 -Z**	–
	60	350	24.52	7060	1.7	57	**2KJ3507- ■ FN23- ■ ■ M1 -Z**	–
	63	330	23.15	7020	1.8	57	**2KJ3507- ■ FN23- ■ ■ L1 -Z**	–
	74	280	19.70	6890	2	57	**2KJ3507- ■ FN23- ■ ■ K1 -Z**	–
	87	240	16.88	6720	2.2	57	**2KJ3507- ■ FN23- ■ ■ J1 -Z**	–
	99	210	14.84	6580	2.4	57	**2KJ3507- ■ FN23- ■ ■ H1 -Z**	–
	117	180	12.52	6350	2.7	57	**2KJ3507- ■ FN23- ■ ■ G1 -Z**	–
	134	156	10.91	6180	3	57	**2KJ3507- ■ FN23- ■ ■ F1 -Z**	–
	157	134	9.34	5730	2.8	57	**2KJ3507- ■ FN23- ■ ■ E1 -Z**	–
	183	115	8.01	5550	3.2	57	**2KJ3507- ■ FN23- ■ ■ D1 -Z**	–
	208	101	7.04	5400	3.6	57	**2KJ3507- ■ FN23- ■ ■ C1 -Z**	–
	247	85	5.94	5190	4	57	**2KJ3507- ■ FN23- ■ ■ B1 -Z**	–
	283	74	5.18	5020	4.4	57	**2KJ3507- ■ FN23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**K.49-LE100ZLSA4P**							
	45	465	32.57	3970	0.9	51	**2KJ3505- ■ FN23- ■■ R1 -Z**	–
	52	400	28.05	4110	1	51	**2KJ3505- ■ FN23- ■■ Q1 -Z**	–
	56	375	26.30	4150	1.1	51	**2KJ3505- ■ FN23- ■■ P1 -Z**	–
	63	330	23.28	4220	1.3	51	**2KJ3505- ■ FN23- ■■ N1 -Z**	–
	76	275	19.38	4240	1.5	51	**2KJ3505- ■ FN23- ■■ M1 -Z**	–
	80	260	18.24	4230	1.6	51	**2KJ3505- ■ FN23- ■■ L1 -Z**	–
	90	230	16.34	4240	1.8	51	**2KJ3505- ■ FN23- ■■ K1 -Z**	–
	105	199	13.91	4170	2.1	51	**2KJ3505- ■ FN23- ■■ J1 -Z**	–
	123	171	11.93	4100	2.5	51	**2KJ3505- ■ FN23- ■■ H1 -Z**	–
	143	147	10.27	4020	2.8	51	**2KJ3505- ■ FN23- ■■ G1 -Z**	–
	150	140	9.75	3910	2	51	**2KJ3505- ■ FN23- ■■ F1 -Z**	–
	160	132	9.18	3880	2.1	51	**2KJ3505- ■ FN23- ■■ E1 -Z**	–
	178	118	8.22	3810	2.2	51	**2KJ3505- ■ FN23- ■■ D1 -Z**	–
	209	100	7.00	3710	2.4	51	**2KJ3505- ■ FN23- ■■ C1 -Z**	–
	244	86	6.00	3600	2.6	51	**2KJ3505- ■ FN23- ■■ B1 -Z**	–
	283	74	5.17	3490	2.8	51	**2KJ3505- ■ FN23- ■■ A1 -Z**	–
	K.39-LE100ZLSA4P							
	86	240	16.98	3540	0.9	41	**2KJ3504- ■ FN23- ■■ L1 -Z**	–
	95	220	15.41	3540	1	41	**2KJ3504- ■ FN23- ■■ K1 -Z**	–
	101	205	14.50	3570	1.1	41	**2KJ3504- ■ FN23- ■■ J1 -Z**	–
	115	183	12.78	3540	1.2	41	**2KJ3504- ■ FN23- ■■ H1 -Z**	–
	132	159	11.09	3520	1.4	41	**2KJ3504- ■ FN23- ■■ G1 -Z**	–
	146	144	10.04	3290	1.3	41	**2KJ3504- ■ FN23- ■■ F1 -Z**	–
	166	126	8.81	3270	1.4	41	**2KJ3504- ■ FN23- ■■ E1 -Z**	–
	183	115	7.99	3240	1.5	41	**2KJ3504- ■ FN23- ■■ D1 -Z**	–
	195	108	7.52	3220	1.6	41	**2KJ3504- ■ FN23- ■■ C1 -Z**	–
	221	95	6.63	3180	1.7	41	**2KJ3504- ■ FN23- ■■ B1 -Z**	–
	255	82	5.75	3120	1.8	41	**2KJ3504- ■ FN23- ■■ A1 -Z**	–
	B.49-LE100ZLSA4P							
	39	530	37.18	7140	0.84	48	**2KJ3503- ■ FN23- ■■ W1 -Z**	–
	44	475	33.33	7130	0.94	48	**2KJ3503- ■ FN23- ■■ V1 -Z**	–
	49	430	30.05	7080	1	48	**2KJ3503- ■ FN23- ■■ U1 -Z**	–
	53	395	27.74	7050	1.1	48	**2KJ3503- ■ FN23- ■■ T1 -Z**	–
	58	360	25.32	6990	1.2	48	**2KJ3503- ■ FN23- ■■ S1 -Z**	–
	70	300	21.01	6820	1.5	48	**2KJ3503- ■ FN23- ■■ R1 -Z**	–
	74	280	19.77	6780	1.6	48	**2KJ3503- ■ FN23- ■■ Q1 -Z**	–
	78	265	18.67	6720	1.7	48	**2KJ3503- ■ FN23- ■■ P1 -Z**	–
	92	225	15.89	6540	2	48	**2KJ3503- ■ FN23- ■■ N1 -Z**	–
	108	195	13.61	6330	2.3	48	**2KJ3503- ■ FN23- ■■ M1 -Z**	–
	122	172	11.97	6170	2.6	48	**2KJ3503- ■ FN23- ■■ L1 -Z**	–
	145	145	10.10	5940	3.1	48	**2KJ3503- ■ FN23- ■■ K1 -Z**	–
	166	126	8.80	5760	3.6	48	**2KJ3503- ■ FN23- ■■ J1 -Z**	–
	177	119	8.29	5750	2.8	48	**2KJ3503- ■ FN23- ■■ H1 -Z**	–
	188	112	7.80	5660	3	48	**2KJ3503- ■ FN23- ■■ G1 -Z**	–
	199	106	7.37	5580	3.1	48	**2KJ3503- ■ FN23- ■■ F1 -Z**	–
	234	90	6.27	5350	3.7	48	**2KJ3503- ■ FN23- ■■ E1 -Z**	–
	273	77	5.37	5130	4.3	48	**2KJ3503- ■ FN23- ■■ D1 -Z**	–
	310	68	4.72	4950	4.9	48	**2KJ3503- ■ FN23- ■■ C1 -Z**	–
	B.39-LE100ZLSA4P							
	67	310	21.90	6230	0.8	41	**2KJ3502- ■ FN23- ■■ Q1 -Z**	–
	72	290	20.21	6160	0.86	41	**2KJ3502- ■ FN23- ■■ P1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**B.39-LE100ZLSA4P**							
	82	255	17.90	6090	0.97	41	**2KJ3502- ■ FN23- ■ ■ N1 -Z**	–
	98	210	14.90	5960	1.2	41	**2KJ3502- ■ FN23- ■ ■ M1 -Z**	–
	104	200	14.02	5890	1.2	41	**2KJ3502- ■ FN23- ■ ■ L1 -Z**	–
	117	180	12.56	5780	1.4	41	**2KJ3502- ■ FN23- ■ ■ K1 -Z**	–
	137	153	10.69	5610	1.6	41	**2KJ3502- ■ FN23- ■ ■ J1 -Z**	–
	160	132	9.17	5430	1.7	41	**2KJ3502- ■ FN23- ■ ■ H1 -Z**	–
	186	113	7.89	5260	1.9	41	**2KJ3502- ■ FN23- ■ ■ G1 -Z**	–
	222	95	6.60	5120	2.1	41	**2KJ3502- ■ FN23- ■ ■ F1 -Z**	–
	236	89	6.21	5050	2.2	41	**2KJ3502- ■ FN23- ■ ■ E1 -Z**	–
	263	80	5.56	4900	2.5	41	**2KJ3502- ■ FN23- ■ ■ D1 -Z**	–
	309	68	4.74	4700	2.9	41	**2KJ3502- ■ FN23- ■ ■ C1 -Z**	–
	361	58	4.06	4510	3.4	41	**2KJ3502- ■ FN23- ■ ■ B1 -Z**	–
	419	50	3.50	4330	3.8	41	**2KJ3502- ■ FN23- ■ ■ A1 -Z**	–
	B.29-LE100ZLSA4P							
	154	136	9.51	3110	0.81	36	**2KJ3501- ■ FN23- ■ ■ K1 -Z**	–
	178	118	8.25	3080	0.93	36	**2KJ3501- ■ FN23- ■ ■ J1 -Z**	–
	225	93	6.51	2900	0.8	36	**2KJ3501- ■ FN23- ■ ■ F1 -Z**	–
	259	81	5.65	2850	0.93	36	**2KJ3501- ■ FN23- ■ ■ E1 -Z**	–
	289	73	5.07	2900	1	36	**2KJ3501- ■ FN23- ■ ■ D1 -Z**	–
	306	69	4.78	2860	1.1	36	**2KJ3501- ■ FN23- ■ ■ C1 -Z**	–
	348	60	4.21	2800	1.2	36	**2KJ3501- ■ FN23- ■ ■ B1 -Z**	–
	401	52	3.65	2720	1.4	36	**2KJ3501- ■ FN23- ■ ■ A1 -Z**	–
3	**K.169-LE132SQB6P**							
	4.4	6560	223.30	70000	2	451	**2KJ3514- ■ HH23- ■ ■ F2 -Z**	**P01**
	K.149-LE132SQB6P							
	4.1	6960	237.03	65000	1.1	281	**2KJ3513- ■ HH23- ■ ■ J2 -Z**	**P01**
	4.8	5960	202.86	65000	1.3	281	**2KJ3513- ■ HH23- ■ ■ H2 -Z**	**P01**
	5.1	5610	190.92	65000	1.4	281	**2KJ3513- ■ HH23- ■ ■ G2 -Z**	**P01**
	5.4	5250	178.97	65000	1.5	281	**2KJ3513- ■ HH23- ■ ■ F2 -Z**	**P01**
	K.149-LE100ZLSB4P							
	6.2	4650	237.03	65000	1.7	253	**2KJ3513- ■ FP23- ■ ■ J2 -Z**	–
	7.2	3980	202.86	65000	2	253	**2KJ3513- ■ FP23- ■ ■ H2 -Z**	–
	7.6	3740	190.92	65000	2.1	253	**2KJ3513- ■ FP23- ■ ■ G2 -Z**	–
	K.129-LE132SQB6P							
	5.9	4860	165.47	37100	0.9	198	**2KJ3512- ■ HH23- ■ ■ F2 -Z**	**P01**
	K.129-LE100ZLSB4P							
	6.4	4480	228.30	37500	0.98	170	**2KJ3512- ■ FP23- ■ ■ J2 -Z**	–
	6.9	4130	210.74	37900	1.1	170	**2KJ3512- ■ FP23- ■ ■ H2 -Z**	–
	7.5	3800	194.04	38200	1.2	170	**2KJ3512- ■ FP23- ■ ■ G2 -Z**	–
	8.8	3240	165.47	38700	1.4	170	**2KJ3512- ■ FP23- ■ ■ F2 -Z**	–
	9.4	3050	155.74	38900	1.4	170	**2KJ3512- ■ FP23- ■ ■ E2 -Z**	–
	10	2830	144.53	39100	1.6	170	**2KJ3512- ■ FP23- ■ ■ D2 -Z**	–
	11	2500	127.77	39400	1.8	170	**2KJ3512- ■ FP23- ■ ■ C2 -Z**	–
	13	2230	114.06	39700	2	170	**2KJ3512- ■ FP23- ■ ■ B2 -Z**	–
	14	2010	102.64	39900	2.2	170	**2KJ3512- ■ FP23- ■ ■ A2 -Z**	–
	K.109-LE100ZLSB4P							
	8.2	3480	177.43	24500	0.83	119	**2KJ3511- ■ FP23- ■ ■ F2 -Z**	–
	8.9	3210	163.78	24500	0.9	119	**2KJ3511- ■ FP23- ■ ■ E2 -Z**	–
	9.8	2920	148.88	24500	0.99	119	**2KJ3511- ■ FP23- ■ ■ D2 -Z**	–
	12	2320	118.65	24500	1.2	119	**2KJ3511- ■ FP23- ■ ■ B2 -Z**	–
	12	2470	126.07	24500	1.2	119	**2KJ3511- ■ FP23- ■ ■ C2 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**K.109-LE100ZLSB4P**							
	13	2150	109.57	24500	1.3	119	**2KJ3511- ■ FP23- ■ ■ A2 -Z**	–
	15	1910	97.49	24500	1.5	119	**2KJ3511- ■ FP23- ■ ■ X1 -Z**	–
	17	1690	86.59	24500	1.7	119	**2KJ3511- ■ FP23- ■ ■ W1 -Z**	–
	19	1520	77.51	24500	1.9	119	**2KJ3511- ■ FP23- ■ ■ V1 -Z**	–
	22	1300	66.26	24500	2.2	119	**2KJ3511- ■ FP23- ■ ■ U1 -Z**	–
	K.89-LE100ZLSB4P							
	16	1840	94.16	18100	0.87	84	**2KJ3510- ■ FP23- ■ ■ A2 -Z**	–
	18	1610	82.25	18100	0.99	84	**2KJ3510- ■ FP23- ■ ■ X1 -Z**	–
	20	1440	73.64	18100	1.1	84	**2KJ3510- ■ FP23- ■ ■ W1 -Z**	–
	23	1260	64.39	18100	1.3	84	**2KJ3510- ■ FP23- ■ ■ V1 -Z**	–
	26	1080	55.27	18100	1.5	84	**2KJ3510- ■ FP23- ■ ■ U1 -Z**	–
	30	955	48.85	18100	1.7	84	**2KJ3510- ■ FP23- ■ ■ T1 -Z**	–
	35	815	41.54	18100	1.9	84	**2KJ3510- ■ FP23- ■ ■ S1 -Z**	–
	37	770	39.29	18100	2.1	84	**2KJ3510- ■ FP23- ■ ■ R1 -Z**	–
	44	645	32.96	18100	2.5	84	**2KJ3510- ■ FP23- ■ ■ Q1 -Z**	–
	47	605	31.03	18100	2.6	84	**2KJ3510- ■ FP23- ■ ■ P1 -Z**	–
	K.79-LE100ZLSB4P							
	30	965	49.31	13600	0.85	63	**2KJ3508- ■ FP23- ■ ■ S1 -Z**	–
	35	815	41.60	13900	0.98	63	**2KJ3508- ■ FP23- ■ ■ R1 -Z**	–
	40	710	36.26	14100	1.1	63	**2KJ3508- ■ FP23- ■ ■ Q1 -Z**	–
	45	640	32.78	14300	1.3	63	**2KJ3508- ■ FP23- ■ ■ P1 -Z**	–
	54	530	27.20	14400	1.5	63	**2KJ3508- ■ FP23- ■ ■ N1 -Z**	–
	57	500	25.60	14400	1.6	63	**2KJ3508- ■ FP23- ■ ■ M1 -Z**	–
	60	470	24.17	14400	1.6	63	**2KJ3508- ■ FP23- ■ ■ L1 -Z**	–
	71	400	20.57	14400	1.8	63	**2KJ3508- ■ FP23- ■ ■ K1 -Z**	–
	83	345	17.62	14400	2.1	63	**2KJ3508- ■ FP23- ■ ■ J1 -Z**	–
	94	300	15.49	14400	2.3	63	**2KJ3508- ■ FP23- ■ ■ H1 -Z**	–
	112	255	13.07	14400	2.6	63	**2KJ3508- ■ FP23- ■ ■ G1 -Z**	–
	128	220	11.39	14400	2.9	63	**2KJ3508- ■ FP23- ■ ■ F1 -Z**	–
	139	205	10.51	14000	2.2	63	**2KJ3508- ■ FP23- ■ ■ E1 -Z**	–
	162	177	9.01	13500	2.5	63	**2KJ3508- ■ FP23- ■ ■ D1 -Z**	–
	184	155	7.92	13100	2.9	63	**2KJ3508- ■ FP23- ■ ■ C1 -Z**	–
	219	131	6.68	12500	3.5	63	**2KJ3508- ■ FP23- ■ ■ B1 -Z**	–
	251	114	5.82	12100	3.8	63	**2KJ3508- ■ FP23- ■ ■ A1 -Z**	–
	K.69-LE100ZLSB4P							
	44	655	33.48	5940	0.88	57	**2KJ3507- ■ FP23- ■ ■ Q1 -Z**	–
	50	570	29.18	6070	0.97	57	**2KJ3507- ■ FP23- ■ ■ P1 -Z**	–
	56	510	26.05	6120	1.2	57	**2KJ3507- ■ FP23- ■ ■ N1 -Z**	–
	60	480	24.52	6140	1.2	57	**2KJ3507- ■ FP23- ■ ■ M1 -Z**	–
	63	450	23.15	6180	1.3	57	**2KJ3507- ■ FP23- ■ ■ L1 -Z**	–
	74	385	19.70	6150	1.4	57	**2KJ3507- ■ FP23- ■ ■ K1 -Z**	–
	86	330	16.88	6090	1.6	57	**2KJ3507- ■ FP23- ■ ■ J1 -Z**	–
	98	290	14.84	6020	1.8	57	**2KJ3507- ■ FP23- ■ ■ H1 -Z**	–
	117	245	12.52	5900	2	57	**2KJ3507- ■ FP23- ■ ■ G1 -Z**	–
	134	210	10.91	5800	2.2	57	**2KJ3507- ■ FP23- ■ ■ F1 -Z**	–
	156	183	9.34	5300	2	57	**2KJ3507- ■ FP23- ■ ■ E1 -Z**	–
	182	157	8.01	5180	2.3	57	**2KJ3507- ■ FP23- ■ ■ D1 -Z**	–
	207	138	7.04	5070	2.6	57	**2KJ3507- ■ FP23- ■ ■ C1 -Z**	–
	246	117	5.94	4910	3	57	**2KJ3507- ■ FP23- ■ ■ B1 -Z**	–
	282	102	5.18	4780	3.2	57	**2KJ3507- ■ FP23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**K.49-LE100ZLSB4P**							
	56	515	26.30	3060	0.81	51	**2KJ3505- ■ FP23- ■ ■ P1 -Z**	–
	63	455	23.28	3250	0.92	51	**2KJ3505- ■ FP23- ■ ■ N1 -Z**	–
	75	380	19.38	3430	1.1	51	**2KJ3505- ■ FP23- ■ ■ M1 -Z**	–
	80	355	18.24	3500	1.2	51	**2KJ3505- ■ FP23- ■ ■ L1 -Z**	–
	89	320	16.34	3550	1.3	51	**2KJ3505- ■ FP23- ■ ■ K1 -Z**	–
	105	270	13.91	3620	1.5	51	**2KJ3505- ■ FP23- ■ ■ J1 -Z**	–
	122	230	11.93	3640	1.8	51	**2KJ3505- ■ FP23- ■ ■ H1 -Z**	–
	142	200	10.27	3610	2.1	51	**2KJ3505- ■ FP23- ■ ■ G1 -Z**	–
	150	191	9.75	3490	1.4	51	**2KJ3505- ■ FP23- ■ ■ F1 -Z**	–
	159	180	9.18	3480	1.5	51	**2KJ3505- ■ FP23- ■ ■ E1 -Z**	–
	178	161	8.22	3460	1.6	51	**2KJ3505- ■ FP23- ■ ■ D1 -Z**	–
	209	137	7.00	3410	1.7	51	**2KJ3505- ■ FP23- ■ ■ C1 -Z**	–
	243	118	6.00	3340	1.9	51	**2KJ3505- ■ FP23- ■ ■ B1 -Z**	–
	282	101	5.17	3270	2.1	51	**2KJ3505- ■ FP23- ■ ■ A1 -Z**	–
	K.39-LE100ZLSB4P							
	114	250	12.78	2940	0.88	41	**2KJ3504- ■ FP23- ■ ■ H1 -Z**	–
	132	215	11.09	3020	1	41	**2KJ3504- ■ FP23- ■ ■ G1 -Z**	–
	145	197	10.04	2740	0.93	41	**2KJ3504- ■ FP23- ■ ■ F1 -Z**	–
	166	173	8.81	2780	1.1	41	**2KJ3504- ■ FP23- ■ ■ E1 -Z**	–
	183	157	7.99	2810	1.1	41	**2KJ3504- ■ FP23- ■ ■ D1 -Z**	–
	194	148	7.52	2810	1.2	41	**2KJ3504- ■ FP23- ■ ■ C1 -Z**	–
	220	130	6.63	2820	1.2	41	**2KJ3504- ■ FP23- ■ ■ B1 -Z**	–
	254	113	5.75	2800	1.3	41	**2KJ3504- ■ FP23- ■ ■ A1 -Z**	–
	B.49-LE100ZLSB4P							
	53	540	27.74	6090	0.83	48	**2KJ3503- ■ FP23- ■ ■ T1 -Z**	–
	58	495	25.32	6100	0.91	48	**2KJ3503- ■ FP23- ■ ■ S1 -Z**	–
	69	410	21.01	6100	1.1	48	**2KJ3503- ■ FP23- ■ ■ R1 -Z**	–
	74	385	19.77	6090	1.2	48	**2KJ3503- ■ FP23- ■ ■ Q1 -Z**	–
	78	365	18.67	6060	1.2	48	**2KJ3503- ■ FP23- ■ ■ P1 -Z**	–
	92	310	15.89	5980	1.4	48	**2KJ3503- ■ FP23- ■ ■ N1 -Z**	–
	107	265	13.61	5880	1.7	48	**2KJ3503- ■ FP23- ■ ■ M1 -Z**	–
	122	235	11.97	5750	1.9	48	**2KJ3503- ■ FP23- ■ ■ L1 -Z**	–
	145	198	10.10	5600	2.3	48	**2KJ3503- ■ FP23- ■ ■ K1 -Z**	–
	166	173	8.80	5450	2.6	48	**2KJ3503- ■ FP23- ■ ■ J1 -Z**	–
	176	163	8.29	5490	2	48	**2KJ3503- ■ FP23- ■ ■ H1 -Z**	–
	187	153	7.80	5420	2.2	48	**2KJ3503- ■ FP23- ■ ■ G1 -Z**	–
	198	145	7.37	5350	2.3	48	**2KJ3503- ■ FP23- ■ ■ F1 -Z**	–
	233	123	6.27	5150	2.7	48	**2KJ3503- ■ FP23- ■ ■ E1 -Z**	–
	272	105	5.37	4970	3.1	48	**2KJ3503- ■ FP23- ■ ■ D1 -Z**	–
	309	93	4.72	4800	3.6	48	**2KJ3503- ■ FP23- ■ ■ C1 -Z**	–
	367	78	3.98	4600	4.2	48	**2KJ3503- ■ FP23- ■ ■ B1 -Z**	–
	421	68	3.47	4430	4.8	48	**2KJ3503- ■ FP23- ■ ■ A1 -Z**	–
	B.39-LE100ZLSB4P							
	98	290	14.90	5350	0.86	41	**2KJ3502- ■ FP23- ■ ■ M1 -Z**	–
	104	275	14.02	5320	0.91	41	**2KJ3502- ■ FP23- ■ ■ L1 -Z**	–
	116	245	12.56	5280	1	41	**2KJ3502- ■ FP23- ■ ■ K1 -Z**	–
	137	210	10.69	5180	1.1	41	**2KJ3502- ■ FP23- ■ ■ J1 -Z**	–
	159	180	9.17	5070	1.3	41	**2KJ3502- ■ FP23- ■ ■ H1 -Z**	–
	185	155	7.89	4950	1.4	41	**2KJ3502- ■ FP23- ■ ■ G1 -Z**	–
	221	130	6.60	4880	1.5	41	**2KJ3502- ■ FP23- ■ ■ F1 -Z**	–
	B.39-LE100ZLSB4P							
	235	122	6.21	4820	1.6	41	**2KJ3502- ■ FP23- ■ ■ E1 -Z**	–
	263	109	5.56	4710	1.8	41	**2KJ3502- ■ FP23- ■ ■ D1 -Z**	–
	308	93	4.74	4530	2.2	41	**2KJ3502- ■ FP23- ■ ■ C1 -Z**	–
	360	80	4.06	4370	2.5	41	**2KJ3502- ■ FP23- ■ ■ B1 -Z**	–
	417	69	3.50	4200	2.8	41	**2KJ3502- ■ FP23- ■ ■ A1 -Z**	–
	B.29-LE100ZLSB4P							
	347	83	4.21	2600	0.9	36	**2KJ3501- ■ FP23- ■ ■ B1 -Z**	–
	400	72	3.65	2540	1	36	**2KJ3501- ■ FP23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**K.169-LE132MJ6P**							
	4.4	8740	223.30	70000	1.5	451	**2KJ3514- ■ HK23- ■ ■ F2 -Z**	**P01**
	4.7	8160	208.35	70000	1.6	451	**2KJ3514- ■ HK23- ■ ■ E2 -Z**	**P01**
	5.3	7250	185.23	70000	1.8	451	**2KJ3514- ■ HK23- ■ ■ D2 -Z**	**P01**
	5.9	6510	166.31	70000	2	451	**2KJ3514- ■ HK23- ■ ■ C2 -Z**	**P01**
	K.149-LE132MJ6P							
	4.1	9280	237.03	65000	0.86	281	**2KJ3513- ■ HK23- ■ ■ J2 -Z**	**P01**
	4.8	7940	202.86	65000	1	281	**2KJ3513- ■ HK23- ■ ■ H2 -Z**	**P01**
	5.1	7480	190.92	65000	1.1	281	**2KJ3513- ■ HK23- ■ ■ G2 -Z**	**P01**
	5.4	7010	178.97	65000	1.1	281	**2KJ3513- ■ HK23- ■ ■ F2 -Z**	**P01**
	K.149-LE112ZMKB4P							
	6.2	6200	237.03	65000	1.3	254	**2KJ3513- ■ GJ23- ■ ■ J2 -Z**	**–**
	7.2	5300	202.86	65000	1.5	254	**2KJ3513- ■ GJ23- ■ ■ H2 -Z**	**–**
	7.6	4990	190.92	65000	1.6	254	**2KJ3513- ■ GJ23- ■ ■ G2 -Z**	**–**
	8.2	4680	178.97	65000	1.7	254	**2KJ3513- ■ GJ23- ■ ■ F2 -Z**	**–**
	9.2	4150	158.65	65000	1.9	254	**2KJ3513- ■ GJ23- ■ ■ E2 -Z**	**–**
	10	3680	140.93	65000	2.2	254	**2KJ3513- ■ GJ23- ■ ■ D2 -Z**	**–**
	K.129-LE112ZMKB4P							
	6.9	5510	210.74	36500	0.8	170	**2KJ3512- ■ GJ23- ■ ■ H2 -Z**	**–**
	7.5	5070	194.04	36900	0.87	170	**2KJ3512- ■ GJ23- ■ ■ G2 -Z**	**–**
	8.8	4320	165.47	37700	1	170	**2KJ3512- ■ GJ23- ■ ■ F2 -Z**	**–**
	9.4	4070	155.74	37900	1.1	170	**2KJ3512- ■ GJ23- ■ ■ E2 -Z**	**–**
	10	3780	144.53	38200	1.2	170	**2KJ3512- ■ GJ23- ■ ■ D2 -Z**	**–**
	11	3340	127.77	38600	1.3	170	**2KJ3512- ■ GJ23- ■ ■ C2 -Z**	**–**
	13	2980	114.06	39000	1.5	170	**2KJ3512- ■ GJ23- ■ ■ B2 -Z**	**–**
	14	2680	102.64	39300	1.6	170	**2KJ3512- ■ GJ23- ■ ■ A2 -Z**	**–**
	16	2330	89.09	39600	1.9	170	**2KJ3512- ■ GJ23- ■ ■ X1 -Z**	**–**
	18	2090	80.12	39900	2.1	170	**2KJ3512- ■ GJ23- ■ ■ W1 -Z**	**–**
	21	1830	70.03	40000	2.4	170	**2KJ3512- ■ GJ23- ■ ■ V1 -Z**	**–**
	K.109-LE112ZMKB4P							
	12	3100	118.65	24500	0.93	120	**2KJ3511- ■ GJ23- ■ ■ B2 -Z**	**–**
	12	3290	126.07	24500	0.88	120	**2KJ3511- ■ GJ23- ■ ■ C2 -Z**	**–**
	13	2860	109.57	24500	1	120	**2KJ3511- ■ GJ23- ■ ■ A2 -Z**	**–**
	15	2550	97.49	24500	1.1	120	**2KJ3511- ■ GJ23- ■ ■ X1 -Z**	**–**
	17	2260	86.59	24500	1.3	120	**2KJ3511- ■ GJ23- ■ ■ W1 -Z**	**–**
	19	2020	77.51	24500	1.4	120	**2KJ3511- ■ GJ23- ■ ■ V1 -Z**	**–**
	22	1730	66.26	24500	1.7	120	**2KJ3511- ■ GJ23- ■ ■ U1 -Z**	**–**
	25	1540	59.17	24500	1.9	120	**2KJ3511- ■ GJ23- ■ ■ T1 -Z**	**–**
	28	1360	52.29	24500	2.1	120	**2KJ3511- ■ GJ23- ■ ■ S1 -Z**	**–**
	32	1200	45.89	24500	2.4	120	**2KJ3511- ■ GJ23- ■ ■ R1 -Z**	**–**
	K.89-LE112ZMKB4P							
	20	1920	73.64	18100	0.83	84	**2KJ3510- ■ GJ23- ■ ■ W1 -Z**	**–**
	23	1680	64.39	18100	0.95	84	**2KJ3510- ■ GJ23- ■ ■ V1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**K.89-LE112ZMKB4P**							
	26	1440	55.27	18100	1.1	84	**2KJ3510- ■ GJ23- ■ ■ U1 -Z**	–
	30	1270	48.85	18100	1.3	84	**2KJ3510- ■ GJ23- ■ ■ T1 -Z**	–
	35	1080	41.54	18100	1.4	84	**2KJ3510- ■ GJ23- ■ ■ S1 -Z**	–
	37	1020	39.29	18100	1.6	84	**2KJ3510- ■ GJ23- ■ ■ R1 -Z**	–
	44	860	32.96	18100	1.9	84	**2KJ3510- ■ GJ23- ■ ■ Q1 -Z**	–
	47	810	31.03	18100	2	84	**2KJ3510- ■ GJ23- ■ ■ P1 -Z**	–
	51	745	28.46	18100	2.1	84	**2KJ3510- ■ GJ23- ■ ■ N1 -Z**	–
	59	650	24.86	18100	2.5	84	**2KJ3510- ■ GJ23- ■ ■ M1 -Z**	–
	66	580	22.26	18100	2.7	84	**2KJ3510- ■ GJ23- ■ ■ L1 -Z**	–
	75	505	19.46	18100	3.1	84	**2KJ3510- ■ GJ23- ■ ■ K1 -Z**	–
	139	275	10.51	18100	3.1	84	**2KJ3510- ■ GJ23- ■ ■ E1 -Z**	–
	162	235	9.02	18100	3.4	84	**2KJ3510- ■ GJ23- ■ ■ D1 -Z**	–
	183	205	7.97	18000	3.7	84	**2KJ3510- ■ GJ23- ■ ■ C1 -Z**	–
	215	177	6.78	17300	4.1	84	**2KJ3510- ■ GJ23- ■ ■ B1 -Z**	–
	251	152	5.81	16600	4.4	84	**2KJ3510- ■ GJ23- ■ ■ A1 -Z**	–
	K.79-LE112ZMKB4P							
	40	945	36.26	13700	0.81	64	**2KJ3508- ■ GJ23- ■ ■ Q1 -Z**	–
	45	855	32.78	13900	0.96	64	**2KJ3508- ■ GJ23- ■ ■ P1 -Z**	–
	54	710	27.20	14100	1.1	64	**2KJ3508- ■ GJ23- ■ ■ N1 -Z**	–
	57	670	25.60	14200	1.2	64	**2KJ3508- ■ GJ23- ■ ■ M1 -Z**	–
	60	630	24.17	14300	1.2	64	**2KJ3508- ■ GJ23- ■ ■ L1 -Z**	–
	71	535	20.57	14400	1.4	64	**2KJ3508- ■ GJ23- ■ ■ K1 -Z**	–
	83	460	17.62	14400	1.6	64	**2KJ3508- ■ GJ23- ■ ■ J1 -Z**	–
	94	405	15.49	14400	1.7	64	**2KJ3508- ■ GJ23- ■ ■ H1 -Z**	–
	112	340	13.07	14400	1.9	64	**2KJ3508- ■ GJ23- ■ ■ G1 -Z**	–
	128	295	11.39	14000	2.2	64	**2KJ3508- ■ GJ23- ■ ■ F1 -Z**	–
	139	275	10.51	13600	1.6	64	**2KJ3508- ■ GJ23- ■ ■ E1 -Z**	–
	162	235	9.01	13200	1.9	64	**2KJ3508- ■ GJ23- ■ ■ D1 -Z**	–
	184	205	7.92	12800	2.2	64	**2KJ3508- ■ GJ23- ■ ■ C1 -Z**	–
	219	175	6.68	12300	2.6	64	**2KJ3508- ■ GJ23- ■ ■ B1 -Z**	–
	251	152	5.82	11900	2.8	64	**2KJ3508- ■ GJ23- ■ ■ A1 -Z**	–
	K.69-LE112ZMKB4P							
	56	680	26.05	4910	0.88	58	**2KJ3507- ■ GJ23- ■ ■ N1 -Z**	–
	60	640	24.52	5000	0.93	58	**2KJ3507- ■ GJ23- ■ ■ M1 -Z**	–
	63	605	23.15	5070	0.97	58	**2KJ3507- ■ GJ23- ■ ■ L1 -Z**	–
	74	515	19.70	5220	1.1	58	**2KJ3507- ■ GJ23- ■ ■ K1 -Z**	–
	86	440	16.88	5310	1.2	58	**2KJ3507- ■ GJ23- ■ ■ J1 -Z**	–
	98	385	14.84	5350	1.3	58	**2KJ3507- ■ GJ23- ■ ■ H1 -Z**	–
	117	325	12.52	5330	1.5	58	**2KJ3507- ■ GJ23- ■ ■ G1 -Z**	–
	134	285	10.91	5270	1.6	58	**2KJ3507- ■ GJ23- ■ ■ F1 -Z**	–
	156	240	9.34	4790	1.5	58	**2KJ3507- ■ GJ23- ■ ■ E1 -Z**	–
	182	210	8.01	4710	1.7	58	**2KJ3507- ■ GJ23- ■ ■ D1 -Z**	–
	207	184	7.04	4660	2	58	**2KJ3507- ■ GJ23- ■ ■ C1 -Z**	–
	246	155	5.94	4570	2.2	58	**2KJ3507- ■ GJ23- ■ ■ B1 -Z**	–
	282	136	5.18	4480	2.4	58	**2KJ3507- ■ GJ23- ■ ■ A1 -Z**	–
	K.49-LE112ZMKB4P							
	75	505	19.38	2460	0.83	52	**2KJ3505- ■ GJ23- ■ ■ M1 -Z**	–
	80	475	18.24	2560	0.88	52	**2KJ3505- ■ GJ23- ■ ■ L1 -Z**	–
	89	425	16.34	2730	0.98	52	**2KJ3505- ■ GJ23- ■ ■ K1 -Z**	–
	105	360	13.91	2920	1.2	52	**2KJ3505- ■ GJ23- ■ ■ J1 -Z**	–
	122	310	11.93	3020	1.3	52	**2KJ3505- ■ GJ23- ■ ■ H1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**K.49-LE112ZMKB4P**							
	142	265	10.27	3110	1.5	52	**2KJ3505- ■ GJ23- ■ ■ G1 -Z**	–
	150	255	9.75	2960	1.1	52	**2KJ3505- ■ GJ23- ■ ■ F1 -Z**	–
	159	240	9.18	2980	1.1	52	**2KJ3505- ■ GJ23- ■ ■ E1 -Z**	–
	178	215	8.22	3010	1.2	52	**2KJ3505- ■ GJ23- ■ ■ D1 -Z**	–
	209	183	7.00	3030	1.3	52	**2KJ3505- ■ GJ23- ■ ■ C1 -Z**	–
	243	157	6.00	3020	1.4	52	**2KJ3505- ■ GJ23- ■ ■ B1 -Z**	–
	282	135	5.17	2990	1.6	52	**2KJ3505- ■ GJ23- ■ ■ A1 -Z**	–
	K.39-LE112ZMKB4P							
	183	205	7.99	2300	0.84	45	**2KJ3504- ■ GJ23- ■ ■ D1 -Z**	–
	194	197	7.52	2300	0.87	45	**2KJ3504- ■ GJ23- ■ ■ C1 -Z**	–
	220	173	6.63	2370	0.93	45	**2KJ3504- ■ GJ23- ■ ■ B1 -Z**	–
	254	150	5.75	2420	1	45	**2KJ3504- ■ GJ23- ■ ■ A1 -Z**	–
	B.49-LE112ZMKB4P							
	69	550	21.01	5170	0.82	49	**2KJ3503- ■ GJ23- ■ ■ R1 -Z**	–
	74	515	19.77	5230	0.87	49	**2KJ3503- ■ GJ23- ■ ■ Q1 -Z**	–
	78	485	18.67	5260	0.92	49	**2KJ3503- ■ GJ23- ■ ■ P1 -Z**	–
	92	415	15.89	5280	1.1	49	**2KJ3503- ■ GJ23- ■ ■ N1 -Z**	–
	107	355	13.61	5280	1.3	49	**2KJ3503- ■ GJ23- ■ ■ M1 -Z**	–
	122	310	11.97	5250	1.4	49	**2KJ3503- ■ GJ23- ■ ■ L1 -Z**	–
	145	260	10.10	5180	1.7	49	**2KJ3503- ■ GJ23- ■ ■ K1 -Z**	–
	166	230	8.80	5070	2	49	**2KJ3503- ■ GJ23- ■ ■ J1 -Z**	–
	176	215	8.29	5170	1.5	49	**2KJ3503- ■ GJ23- ■ ■ H1 -Z**	–
	187	200	7.80	5130	1.6	49	**2KJ3503- ■ GJ23- ■ ■ G1 -Z**	–
	198	193	7.37	5050	1.7	49	**2KJ3503- ■ GJ23- ■ ■ F1 -Z**	–
	233	164	6.27	4900	2	49	**2KJ3503- ■ GJ23- ■ ■ E1 -Z**	–
	272	141	5.37	4750	2.3	49	**2KJ3503- ■ GJ23- ■ ■ D1 -Z**	–
	309	123	4.72	4620	2.7	49	**2KJ3503- ■ GJ23- ■ ■ C1 -Z**	–
	367	104	3.98	4440	3.2	49	**2KJ3503- ■ GJ23- ■ ■ B1 -Z**	–
	421	91	3.47	4290	3.6	49	**2KJ3503- ■ GJ23- ■ ■ A1 -Z**	–
	B.39-LE112ZMKB4P							
	137	280	10.69	4640	0.86	44	**2KJ3502- ■ GJ23- ■ ■ J1 -Z**	–
	159	240	9.17	4600	0.96	44	**2KJ3502- ■ GJ23- ■ ■ H1 -Z**	–
	185	205	7.89	4560	1.1	44	**2KJ3502- ■ GJ23- ■ ■ G1 -Z**	–
	221	173	6.60	4580	1.2	44	**2KJ3502- ■ GJ23- ■ ■ F1 -Z**	–
	235	162	6.21	4550	1.2	44	**2KJ3502- ■ GJ23- ■ ■ E1 -Z**	–
	263	145	5.56	4460	1.4	44	**2KJ3502- ■ GJ23- ■ ■ D1 -Z**	–
	308	124	4.74	4320	1.6	44	**2KJ3502- ■ GJ23- ■ ■ C1 -Z**	–
	360	106	4.06	4180	1.9	44	**2KJ3502- ■ GJ23- ■ ■ B1 -Z**	–
	417	92	3.50	4040	2.1	44	**2KJ3502- ■ GJ23- ■ ■ A1 -Z**	–
5.5	**K.189-LE132ZMS6P**							
	4.9	10700	199.51	104000	1.8	683	**2KJ3515- ■ HL23- ■ ■ W1 -Z**	**P01**
	5.5	9610	178.49	104000	2	683	**2KJ3515- ■ HL23- ■ ■ V1 -Z**	**P01**
	K.169-LE132ZMS6P							
	4.4	12000	223.30	70000	1.1	453	**2KJ3514- ■ HL23- ■ ■ F2 -Z**	**P01**
	4.7	11200	208.35	70000	1.2	453	**2KJ3514- ■ HL23- ■ ■ E2 -Z**	**P01**
	5.3	9970	185.23	70000	1.3	453	**2KJ3514- ■ HL23- ■ ■ D2 -Z**	**P01**
	5.9	8950	166.31	70000	1.5	453	**2KJ3514- ■ HL23- ■ ■ C2 -Z**	**P01**
	K.169-LE132ZST4P							
	6.6	7970	223.30	70000	1.6	453	**2KJ3514- ■ HJ23- ■ ■ F2 -Z**	–
	7.1	7440	208.35	70000	1.7	453	**2KJ3514- ■ HJ23- ■ ■ E2 -Z**	–
	7.9	6610	185.23	70000	2	453	**2KJ3514- ■ HJ23- ■ ■ D2 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
5.5	**K.149-LE132ZMS6P**							
	5.4	9640	178.97	65000	0.83	283	**2KJ3513- ■ HL23- ■ ■ F2 -Z**	**P01**
	K.149-LE132ZST4P							
	6.2	8460	237.03	65000	0.94	283	**2KJ3513- ■ HJ23- ■ ■ J2 -Z**	**–**
	7.2	7240	202.86	65000	1.1	283	**2KJ3513- ■ HJ23- ■ ■ H2 -Z**	**–**
	7.7	6820	190.92	65000	1.2	283	**2KJ3513- ■ HJ23- ■ ■ G2 -Z**	**–**
	8.2	6390	178.97	65000	1.3	283	**2KJ3513- ■ HJ23- ■ ■ F2 -Z**	**–**
	9.3	5660	158.65	65000	1.4	283	**2KJ3513- ■ HJ23- ■ ■ E2 -Z**	**–**
	10	5030	140.93	65000	1.6	283	**2KJ3513- ■ HJ23- ■ ■ D2 -Z**	**–**
	12	4540	127.16	65000	1.8	283	**2KJ3513- ■ HJ23- ■ ■ C2 -Z**	**–**
	13	4020	112.68	65000	2	283	**2KJ3513- ■ HJ23- ■ ■ B2 -Z**	**–**
	15	3560	99.79	65000	2.2	283	**2KJ3513- ■ HJ23- ■ ■ A2 -Z**	**–**
	K.129-LE132ZST4P							
	10	5160	144.53	36900	0.85	200	**2KJ3512- ■ HJ23- ■ ■ D2 -Z**	**–**
	12	4560	127.77	37400	0.96	200	**2KJ3512- ■ HJ23- ■ ■ C2 -Z**	**–**
	13	4070	114.06	37900	1.1	200	**2KJ3512- ■ HJ23- ■ ■ B2 -Z**	**–**
	14	3660	102.64	38300	1.2	200	**2KJ3512- ■ HJ23- ■ ■ A2 -Z**	**–**
	17	3180	89.09	38800	1.4	200	**2KJ3512- ■ HJ23- ■ ■ X1 -Z**	**–**
	18	2860	80.12	39100	1.5	200	**2KJ3512- ■ HJ23- ■ ■ W1 -Z**	**–**
	21	2500	70.03	39400	1.8	200	**2KJ3512- ■ HJ23- ■ ■ V1 -Z**	**–**
	24	2230	62.49	39700	2	200	**2KJ3512- ■ HJ23- ■ ■ U1 -Z**	**–**
	27	1960	55.05	40000	2.2	200	**2KJ3512- ■ HJ23- ■ ■ T1 -Z**	**–**
	K.109-LE132ZST4P							
	15	3480	97.49	24500	0.83	151	**2KJ3511- ■ HJ23- ■ ■ X1 -Z**	**–**
	17	3090	86.59	24500	0.94	151	**2KJ3511- ■ HJ23- ■ ■ W1 -Z**	**–**
	19	2770	77.51	24500	1	151	**2KJ3511- ■ HJ23- ■ ■ V1 -Z**	**–**
	22	2360	66.26	24500	1.2	151	**2KJ3511- ■ HJ23- ■ ■ U1 -Z**	**–**
	25	2110	59.17	24500	1.4	151	**2KJ3511- ■ HJ23- ■ ■ T1 -Z**	**–**
	28	1860	52.29	24500	1.6	151	**2KJ3511- ■ HJ23- ■ ■ S1 -Z**	**–**
	32	1640	45.89	24500	1.8	151	**2KJ3511- ■ HJ23- ■ ■ R1 -Z**	**–**
	37	1420	39.95	24500	2	151	**2KJ3511- ■ HJ23- ■ ■ Q1 -Z**	**–**
	43	1220	34.15	24500	2.2	151	**2KJ3511- ■ HJ23- ■ ■ P1 -Z**	**–**
	50	1040	29.23	24500	2.5	151	**2KJ3511- ■ HJ23- ■ ■ N1 -Z**	**–**
	59	890	24.98	24500	2.7	151	**2KJ3511- ■ HJ23- ■ ■ M1 -Z**	**–**
	66	795	22.31	24500	3	151	**2KJ3511- ■ HJ23- ■ ■ L1 -Z**	**–**
	141	370	10.45	21400	3.4	151	**2KJ3511- ■ HJ23- ■ ■ E1 -Z**	**–**
	160	325	9.17	20700	3.9	151	**2KJ3511- ■ HJ23- ■ ■ D1 -Z**	**–**
	K.89-LE132ZST4P							
	27	1970	55.27	18100	0.81	115	**2KJ3510- ■ HJ23- ■ ■ U1 -Z**	**–**
	30	1740	48.85	18100	0.92	115	**2KJ3510- ■ HJ23- ■ ■ T1 -Z**	**–**
	35	1480	41.54	18100	1.1	115	**2KJ3510- ■ HJ23- ■ ■ S1 -Z**	**–**
	37	1400	39.29	18100	1.1	115	**2KJ3510- ■ HJ23- ■ ■ R1 -Z**	**–**
	45	1170	32.96	18100	1.4	115	**2KJ3510- ■ HJ23- ■ ■ Q1 -Z**	**–**
	47	1100	31.03	18100	1.4	115	**2KJ3510- ■ HJ23- ■ ■ P1 -Z**	**–**
	52	1010	28.46	18100	1.6	115	**2KJ3510- ■ HJ23- ■ ■ N1 -Z**	**–**
	59	885	24.86	18100	1.8	115	**2KJ3510- ■ HJ23- ■ ■ M1 -Z**	**–**
	66	795	22.26	18100	2	115	**2KJ3510- ■ HJ23- ■ ■ L1 -Z**	**–**
	76	695	19.46	18100	2.2	115	**2KJ3510- ■ HJ23- ■ ■ K1 -Z**	**–**
	88	595	16.71	18100	2.5	115	**2KJ3510- ■ HJ23- ■ ■ J1 -Z**	**–**
	100	525	14.77	18100	2.7	115	**2KJ3510- ■ HJ23- ■ ■ H1 -Z**	**–**
	117	445	12.56	18100	3	115	**2KJ3510- ■ HJ23- ■ ■ G1 -Z**	**–**
	137	380	10.76	18100	3.3	115	**2KJ3510- ■ HJ23- ■ ■ F1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
5.5	**K.89-LE132ZST4P**							
	140	375	10.51	18100	2.3	115	**2KJ3510- ■ HJ23- ■ ■ E1 -Z**	–
	163	320	9.02	18000	2.5	115	**2KJ3510- ■ HJ23- ■ ■ D1 -Z**	–
	184	285	7.97	17500	2.7	115	**2KJ3510- ■ HJ23- ■ ■ C1 -Z**	–
	217	240	6.78	16900	3	115	**2KJ3510- ■ HJ23- ■ ■ B1 -Z**	–
	253	205	5.81	16200	3.3	115	**2KJ3510- ■ HJ23- ■ ■ A1 -Z**	–
	K.79-LE132ZST4P							
	54	970	27.20	13600	0.82	94	**2KJ3508- ■ HJ23- ■ ■ N1 -Z**	–
	57	915	25.60	13700	0.86	94	**2KJ3508- ■ HJ23- ■ ■ M1 -Z**	–
	61	860	24.17	13800	0.89	94	**2KJ3508- ■ HJ23- ■ ■ L1 -Z**	–
	71	735	20.57	14100	1	94	**2KJ3508- ■ HJ23- ■ ■ K1 -Z**	–
	83	630	17.62	14200	1.1	94	**2KJ3508- ■ HJ23- ■ ■ J1 -Z**	–
	95	550	15.49	14000	1.3	94	**2KJ3508- ■ HJ23- ■ ■ H1 -Z**	–
	112	465	13.07	13600	1.4	94	**2KJ3508- ■ HJ23- ■ ■ G1 -Z**	–
	129	405	11.39	13300	1.6	94	**2KJ3508- ■ HJ23- ■ ■ F1 -Z**	–
	140	375	10.51	13000	1.2	94	**2KJ3508- ■ HJ23- ■ ■ E1 -Z**	–
	163	320	9.01	12600	1.4	94	**2KJ3508- ■ HJ23- ■ ■ D1 -Z**	–
	186	280	7.92	12300	1.6	94	**2KJ3508- ■ HJ23- ■ ■ C1 -Z**	–
	220	235	6.68	11900	1.9	94	**2KJ3508- ■ HJ23- ■ ■ B1 -Z**	–
	253	205	5.82	11500	2.1	94	**2KJ3508- ■ HJ23- ■ ■ A1 -Z**	–
	K.69-LE132ZST4P							
	87	600	16.88	4150	0.88	88	**2KJ3507- ■ HJ23- ■ ■ J1 -Z**	–
	99	530	14.84	4290	0.97	88	**2KJ3507- ■ HJ23- ■ ■ H1 -Z**	–
	117	445	12.52	4450	1.1	88	**2KJ3507- ■ HJ23- ■ ■ G1 -Z**	–
	135	390	10.91	4500	1.2	88	**2KJ3507- ■ HJ23- ■ ■ F1 -Z**	–
	157	330	9.34	3970	1.1	88	**2KJ3507- ■ HJ23- ■ ■ E1 -Z**	–
	184	285	8.01	4020	1.3	88	**2KJ3507- ■ HJ23- ■ ■ D1 -Z**	–
	209	250	7.04	4060	1.5	88	**2KJ3507- ■ HJ23- ■ ■ C1 -Z**	–
	247	210	5.94	4070	1.6	88	**2KJ3507- ■ HJ23- ■ ■ B1 -Z**	–
	284	185	5.18	4030	1.8	88	**2KJ3507- ■ HJ23- ■ ■ A1 -Z**	–
	K.49-LE132ZST4P							
	106	495	13.91	1850	0.85	82	**2KJ3505- ■ HJ23- ■ ■ J1 -Z**	–
	123	425	11.93	2110	0.99	82	**2KJ3505- ■ HJ23- ■ ■ H1 -Z**	–
	143	365	10.27	2320	1.1	82	**2KJ3505- ■ HJ23- ■ ■ G1 -Z**	–
	160	325	9.18	2260	0.82	82	**2KJ3505- ■ HJ23- ■ ■ E1 -Z**	–
	179	290	8.22	2380	0.87	82	**2KJ3505- ■ HJ23- ■ ■ D1 -Z**	–
	210	250	7.00	2460	0.96	82	**2KJ3505- ■ HJ23- ■ ■ C1 -Z**	–
	245	210	6.00	2560	1	82	**2KJ3505- ■ HJ23- ■ ■ B1 -Z**	–
	284	185	5.17	2560	1.1	82	**2KJ3505- ■ HJ23- ■ ■ A1 -Z**	–
	B.49-LE132ZST4P							
	108	485	13.61	4390	0.93	79	**2KJ3503- ■ HJ23- ■ ■ M1 -Z**	–
	123	425	11.97	4470	1.1	79	**2KJ3503- ■ HJ23- ■ ■ L1 -Z**	–
	146	360	10.10	4500	1.2	79	**2KJ3503- ■ HJ23- ■ ■ K1 -Z**	–
	167	310	8.80	4530	1.4	79	**2KJ3503- ■ HJ23- ■ ■ J1 -Z**	–
	177	295	8.29	4670	1.1	79	**2KJ3503- ■ HJ23- ■ ■ H1 -Z**	–
	188	275	7.80	4660	1.2	79	**2KJ3503- ■ HJ23- ■ ■ G1 -Z**	–
	199	260	7.37	4640	1.3	79	**2KJ3503- ■ HJ23- ■ ■ F1 -Z**	–
	234	220	6.27	4550	1.5	79	**2KJ3503- ■ HJ23- ■ ■ E1 -Z**	–
	274	192	5.37	4430	1.7	79	**2KJ3503- ■ HJ23- ■ ■ D1 -Z**	–
	311	169	4.72	4330	2	79	**2KJ3503- ■ HJ23- ■ ■ C1 -Z**	–
	369	142	3.98	4200	2.3	79	**2KJ3503- ■ HJ23- ■ ■ B1 -Z**	–
	424	124	3.47	4080	2.6	79	**2KJ3503- ■ HJ23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
7.5	**K.189-LE132ZMS4P**							
	7.3	9750	199.51	104000	2	683	**2KJ3515- ■ HL23- ■ ■ W1 -Z**	–
	K.169-LE132ZMS4P							
	6.6	10900	223.30	70000	1.2	453	**2KJ3514- ■ HL23- ■ ■ F2 -Z**	–
	7	10100	208.35	70000	1.3	453	**2KJ3514- ■ HL23- ■ ■ E2 -Z**	–
	7.9	9050	185.23	70000	1.4	453	**2KJ3514- ■ HL23- ■ ■ D2 -Z**	–
	8.8	8130	166.31	70000	1.6	453	**2KJ3514- ■ HL23- ■ ■ C2 -Z**	–
	9.7	7360	150.55	70000	1.8	453	**2KJ3514- ■ HL23- ■ ■ B2 -Z**	–
	11	6460	132.24	70000	2	453	**2KJ3514- ■ HL23- ■ ■ A2 -Z**	–
	12	5850	119.83	70000	2.2	453	**2KJ3514- ■ HL23- ■ ■ X1 -Z**	–
	K.149-LE132ZMS4P							
	7.2	9910	202.86	65000	0.81	283	**2KJ3513- ■ HL23- ■ ■ H2 -Z**	–
	7.7	9330	190.92	65000	0.86	283	**2KJ3513- ■ HL23- ■ ■ G2 -Z**	–
	8.2	8750	178.97	65000	0.91	283	**2KJ3513- ■ HL23- ■ ■ F2 -Z**	–
	9.2	7750	158.65	65000	1	283	**2KJ3513- ■ HL23- ■ ■ E2 -Z**	–
	10	6890	140.93	65000	1.2	283	**2KJ3513- ■ HL23- ■ ■ D2 -Z**	–
	12	6210	127.16	65000	1.3	283	**2KJ3513- ■ HL23- ■ ■ C2 -Z**	–
	13	5500	112.68	65000	1.5	283	**2KJ3513- ■ HL23- ■ ■ B2 -Z**	–
	15	4870	99.79	64100	1.6	283	**2KJ3513- ■ HL23- ■ ■ A2 -Z**	–
	16	4340	88.81	62900	1.8	283	**2KJ3513- ■ HL23- ■ ■ X1 -Z**	–
	18	3890	79.59	61700	2.1	283	**2KJ3513- ■ HL23- ■ ■ W1 -Z**	–
	21	3450	70.56	60400	2.3	283	**2KJ3513- ■ HL23- ■ ■ V1 -Z**	–
	K.129-LE132ZMS4P							
	14	5010	102.64	37000	0.88	200	**2KJ3512- ■ HL23- ■ ■ A2 -Z**	–
	16	4350	89.09	37600	1	200	**2KJ3512- ■ HL23- ■ ■ X1 -Z**	–
	18	3910	80.12	38100	1.1	200	**2KJ3512- ■ HL23- ■ ■ W1 -Z**	–
	21	3420	70.03	38600	1.3	200	**2KJ3512- ■ HL23- ■ ■ V1 -Z**	–
	23	3050	62.49	38900	1.4	200	**2KJ3512- ■ HL23- ■ ■ U1 -Z**	–
	27	2690	55.05	39300	1.6	200	**2KJ3512- ■ HL23- ■ ■ T1 -Z**	–
	30	2350	48.24	39300	1.9	200	**2KJ3512- ■ HL23- ■ ■ S1 -Z**	–
	35	2050	42.04	38400	2.1	200	**2KJ3512- ■ HL23- ■ ■ R1 -Z**	–
	38	1870	38.37	37700	2.3	200	**2KJ3512- ■ HL23- ■ ■ Q1 -Z**	–
	44	1610	33.03	36700	2.7	200	**2KJ3512- ■ HL23- ■ ■ P1 -Z**	–
	K.109-LE132ZMS4P							
	22	3240	66.26	24500	0.9	151	**2KJ3511- ■ HL23- ■ ■ U1 -Z**	–
	25	2890	59.17	24500	1	151	**2KJ3511- ■ HL23- ■ ■ T1 -Z**	–
	28	2550	52.29	24500	1.1	151	**2KJ3511- ■ HL23- ■ ■ S1 -Z**	–
	32	2240	45.89	24500	1.3	151	**2KJ3511- ■ HL23- ■ ■ R1 -Z**	–
	37	1950	39.95	24500	1.4	151	**2KJ3511- ■ HL23- ■ ■ Q1 -Z**	–
	43	1670	34.15	24500	1.6	151	**2KJ3511- ■ HL23- ■ ■ P1 -Z**	–
	50	1420	29.23	24500	1.8	151	**2KJ3511- ■ HL23- ■ ■ N1 -Z**	–
	59	1220	24.98	24500	1.9	151	**2KJ3511- ■ HL23- ■ ■ M1 -Z**	–
	66	1090	22.31	24500	2.2	151	**2KJ3511- ■ HL23- ■ ■ L1 -Z**	–
	74	960	19.71	24200	2.5	151	**2KJ3511- ■ HL23- ■ ■ K1 -Z**	–
	85	845	17.30	23600	2.8	151	**2KJ3511- ■ HL23- ■ ■ J1 -Z**	–
	97	735	15.06	22900	3.1	151	**2KJ3511- ■ HL23- ■ ■ H1 -Z**	–
	114	625	12.87	22100	3.5	151	**2KJ3511- ■ HL23- ■ ■ G1 -Z**	–
	140	510	10.45	20800	2.5	151	**2KJ3511- ■ HL23- ■ ■ E1 -Z**	–
	160	445	9.17	20200	2.8	151	**2KJ3511- ■ HL23- ■ ■ D1 -Z**	–
	183	390	7.99	19500	3.3	151	**2KJ3511- ■ HL23- ■ ■ C1 -Z**	–
	214	330	6.83	18800	3.9	151	**2KJ3511- ■ HL23- ■ ■ B1 -Z**	–
	251	285	5.84	18100	4.6	151	**2KJ3511- ■ HL23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
7.5	**K.89-LE132ZMS4P**							
	37	1920	39.29	18100	0.83	115	**2KJ3510- ■ HL23- ■ ■ R1 -Z**	–
	44	1610	32.96	18100	0.99	115	**2KJ3510- ■ HL23- ■ ■ Q1 -Z**	–
	47	1510	31.03	18100	1.1	115	**2KJ3510- ■ HL23- ■ ■ P1 -Z**	–
	51	1390	28.46	18100	1.1	115	**2KJ3510- ■ HL23- ■ ■ N1 -Z**	–
	59	1210	24.86	18100	1.3	115	**2KJ3510- ■ HL23- ■ ■ M1 -Z**	–
	66	1080	22.26	18100	1.5	115	**2KJ3510- ■ HL23- ■ ■ L1 -Z**	–
	75	950	19.46	18100	1.6	115	**2KJ3510- ■ HL23- ■ ■ K1 -Z**	–
	88	815	16.71	18100	1.8	115	**2KJ3510- ■ HL23- ■ ■ J1 -Z**	–
	99	720	14.77	18100	2	115	**2KJ3510- ■ HL23- ■ ■ H1 -Z**	–
	117	610	12.56	18100	2.2	115	**2KJ3510- ■ HL23- ■ ■ G1 -Z**	–
	136	525	10.76	18100	2.4	115	**2KJ3510- ■ HL23- ■ ■ F1 -Z**	–
	139	510	10.51	17900	1.6	115	**2KJ3510- ■ HL23- ■ ■ E1 -Z**	–
	162	440	9.02	17400	1.8	115	**2KJ3510- ■ HL23- ■ ■ D1 -Z**	–
	184	390	7.97	16900	2	115	**2KJ3510- ■ HL23- ■ ■ C1 -Z**	–
	216	330	6.78	16400	2.2	115	**2KJ3510- ■ HL23- ■ ■ B1 -Z**	–
	252	280	5.81	15800	2.4	115	**2KJ3510- ■ HL23- ■ ■ A1 -Z**	–
	K.79-LE132ZMS4P							
	83	860	17.62	12900	0.83	94	**2KJ3508- ■ HL23- ■ ■ J1 -Z**	–
	95	755	15.49	12900	0.92	94	**2KJ3508- ■ HL23- ■ ■ H1 -Z**	–
	112	635	13.07	12700	1	94	**2KJ3508- ■ HL23- ■ ■ G1 -Z**	–
	129	555	11.39	12500	1.2	94	**2KJ3508- ■ HL23- ■ ■ F1 -Z**	–
	139	510	10.51	12100	0.87	94	**2KJ3508- ■ HL23- ■ ■ E1 -Z**	–
	163	440	9.01	11900	1	94	**2KJ3508- ■ HL23- ■ ■ D1 -Z**	–
	185	385	7.92	11700	1.2	94	**2KJ3508- ■ HL23- ■ ■ C1 -Z**	–
	219	325	6.68	11300	1.4	94	**2KJ3508- ■ HL23- ■ ■ B1 -Z**	–
	252	285	5.82	11000	1.5	94	**2KJ3508- ■ HL23- ■ ■ A1 -Z**	–
	K.69-LE132ZMS4P							
	117	610	12.52	3290	0.8	88	**2KJ3507- ■ HL23- ■ ■ G1 -Z**	–
	134	530	10.91	3520	0.88	88	**2KJ3507- ■ HL23- ■ ■ F1 -Z**	–
	157	455	9.34	2860	0.81	88	**2KJ3507- ■ HL23- ■ ■ E1 -Z**	–
	183	390	8.01	3090	0.93	88	**2KJ3507- ■ HL23- ■ ■ D1 -Z**	–
	208	340	7.04	3260	1.1	88	**2KJ3507- ■ HL23- ■ ■ C1 -Z**	–
	247	290	5.94	3360	1.2	88	**2KJ3507- ■ HL23- ■ ■ B1 -Z**	–
	283	250	5.18	3450	1.3	88	**2KJ3507- ■ HL23- ■ ■ A1 -Z**	–
	K.49-LE132ZMS4P							
	143	500	10.27	1270	0.83	82	**2KJ3505- ■ HL23- ■ ■ G1 -Z**	–
	283	250	5.17	2030	0.83	82	**2KJ3505- ■ HL23- ■ ■ A1 -Z**	–
	B.49-LE132ZMS4P							
	145	490	10.10	3650	0.91	79	**2KJ3503- ■ HL23- ■ ■ K1 -Z**	–
	166	430	8.80	3740	1	79	**2KJ3503- ■ HL23- ■ ■ J1 -Z**	–
	177	405	8.29	4010	0.81	79	**2KJ3503- ■ HL23- ■ ■ H1 -Z**	–
	188	380	7.80	4030	0.87	79	**2KJ3503- ■ HL23- ■ ■ G1 -Z**	–
	199	360	7.37	4040	0.92	79	**2KJ3503- ■ HL23- ■ ■ F1 -Z**	–
	234	305	6.27	4040	1.1	79	**2KJ3503- ■ HL23- ■ ■ E1 -Z**	–
	273	260	5.37	4020	1.3	79	**2KJ3503- ■ HL23- ■ ■ D1 -Z**	–
	310	230	4.72	3970	1.4	79	**2KJ3503- ■ HL23- ■ ■ C1 -Z**	–
	368	195	3.98	3880	1.7	79	**2KJ3503- ■ HL23- ■ ■ B1 -Z**	–
	422	170	3.47	3810	1.9	79	**2KJ3503- ■ HL23- ■ ■ A1 -Z**	–
9.2	**K.189-LE160MPA4P**							
	7.4	11800	199.51	104000	1.6	700	**2KJ3515- ■ JQ23- ■ ■ W1 -Z**	–
	8.3	10500	178.49	104000	1.8	700	**2KJ3515- ■ JQ23- ■ ■ V1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
9.2	**K.189-LE160MPA4P**							
	9.2	9550	160.98	104000	2	700	**2KJ3515- ■ JQ23- ■ ■ U1 -Z**	–
	K.169-LE160MPA4P							
	6.6	13200	223.30	70000	0.98	469	**2KJ3514- ■ JQ23- ■ ■ F2 -Z**	–
	7.1	12300	208.35	70000	1.1	469	**2KJ3514- ■ JQ23- ■ ■ E2 -Z**	–
	8	10900	185.23	70000	1.2	469	**2KJ3514- ■ JQ23- ■ ■ D2 -Z**	–
	8.9	9870	166.31	70000	1.3	469	**2KJ3514- ■ JQ23- ■ ■ C2 -Z**	–
	9.8	8930	150.55	70000	1.5	469	**2KJ3514- ■ JQ23- ■ ■ B2 -Z**	–
	11	7850	132.24	70000	1.7	469	**2KJ3514- ■ JQ23- ■ ■ A2 -Z**	–
	12	7110	119.83	70000	1.8	469	**2KJ3514- ■ JQ23- ■ ■ X1 -Z**	–
	14	6330	106.72	70000	2.1	469	**2KJ3514- ■ JQ23- ■ ■ W1 -Z**	–
	K.149-LE160MPA4P							
	9.3	9410	158.65	62700	0.85	301	**2KJ3513- ■ JQ23- ■ ■ E2 -Z**	–
	11	8360	140.93	62600	0.96	301	**2KJ3513- ■ JQ23- ■ ■ D2 -Z**	–
	12	7540	127.16	62200	1.1	301	**2KJ3513- ■ JQ23- ■ ■ C2 -Z**	–
	13	6680	112.68	61700	1.2	301	**2KJ3513- ■ JQ23- ■ ■ B2 -Z**	–
	15	5920	99.79	60900	1.4	301	**2KJ3513- ■ JQ23- ■ ■ A2 -Z**	–
	17	5270	88.81	60100	1.5	301	**2KJ3513- ■ JQ23- ■ ■ X1 -Z**	–
	19	4720	79.59	59200	1.7	301	**2KJ3513- ■ JQ23- ■ ■ W1 -Z**	–
	21	4180	70.56	58100	1.9	301	**2KJ3513- ■ JQ23- ■ ■ V1 -Z**	–
	24	3690	62.28	56900	2.2	301	**2KJ3513- ■ JQ23- ■ ■ U1 -Z**	–
	27	3250	54.76	55600	2.5	301	**2KJ3513- ■ JQ23- ■ ■ T1 -Z**	–
	K.129-LE160MPA4P							
	17	5280	89.09	36700	0.83	218	**2KJ3512- ■ JQ23- ■ ■ X1 -Z**	–
	18	4750	80.12	37300	0.93	218	**2KJ3512- ■ JQ23- ■ ■ W1 -Z**	–
	21	4150	70.03	37800	1.1	218	**2KJ3512- ■ JQ23- ■ ■ V1 -Z**	–
	24	3710	62.49	38300	1.2	218	**2KJ3512- ■ JQ23- ■ ■ U1 -Z**	–
	27	3260	55.05	37900	1.3	218	**2KJ3512- ■ JQ23- ■ ■ T1 -Z**	–
	31	2860	48.24	37400	1.5	218	**2KJ3512- ■ JQ23- ■ ■ S1 -Z**	–
	35	2490	42.04	36700	1.8	218	**2KJ3512- ■ JQ23- ■ ■ R1 -Z**	–
	39	2270	38.37	36200	1.9	218	**2KJ3512- ■ JQ23- ■ ■ Q1 -Z**	–
	45	1960	33.03	35400	2.2	218	**2KJ3512- ■ JQ23- ■ ■ P1 -Z**	–
	47	1870	31.55	35100	2.3	218	**2KJ3512- ■ JQ23- ■ ■ N1 -Z**	–
	54	1630	27.58	34300	2.7	218	**2KJ3512- ■ JQ23- ■ ■ M1 -Z**	–
	60	1460	24.61	33500	3	218	**2KJ3512- ■ JQ23- ■ ■ L1 -Z**	–
	K.109-LE160MPA4P							
	25	3510	59.17	24500	0.83	170	**2KJ3511- ■ JQ23- ■ ■ T1 -Z**	–
	28	3100	52.29	24500	0.93	170	**2KJ3511- ■ JQ23- ■ ■ S1 -Z**	–
	32	2720	45.89	24500	1.1	170	**2KJ3511- ■ JQ23- ■ ■ R1 -Z**	–
	37	2370	39.95	24500	1.2	170	**2KJ3511- ■ JQ23- ■ ■ Q1 -Z**	–
	43	2020	34.15	24500	1.3	170	**2KJ3511- ■ JQ23- ■ ■ P1 -Z**	–
	51	1730	29.23	24500	1.5	170	**2KJ3511- ■ JQ23- ■ ■ N1 -Z**	–
	59	1480	24.98	24200	1.6	170	**2KJ3511- ■ JQ23- ■ ■ M1 -Z**	–
	66	1320	22.31	23800	1.8	170	**2KJ3511- ■ JQ23- ■ ■ L1 -Z**	–
	75	1170	19.71	23300	2	170	**2KJ3511- ■ JQ23- ■ ■ K1 -Z**	–
	86	1020	17.30	22800	2.3	170	**2KJ3511- ■ JQ23- ■ ■ J1 -Z**	–
	98	890	15.06	22200	2.6	170	**2KJ3511- ■ JQ23- ■ ■ H1 -Z**	–
	115	760	12.87	21600	2.9	170	**2KJ3511- ■ JQ23- ■ ■ G1 -Z**	–
	134	650	11.02	20900	3.2	170	**2KJ3511- ■ JQ23- ■ ■ F1 -Z**	–
	142	620	10.45	20300	2	170	**2KJ3511- ■ JQ23- ■ ■ E1 -Z**	–
	161	540	9.17	19700	2.3	170	**2KJ3511- ■ JQ23- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
9.2	**K.109-LE160MPA4P**							
	185	470	7.99	19100	2.7	170	**2KJ3511- ■ JQ23- ■ ■ C1 -Z**	–
	217	405	6.83	18400	3.2	170	**2KJ3511- ■ JQ23- ■ ■ B1 -Z**	–
	253	345	5.84	17800	3.7	170	**2KJ3511- ■ JQ23- ■ ■ A1 -Z**	–
	K.89-LE160MPA4P							
	45	1950	32.96	18100	0.82	133	**2KJ3510- ■ JQ23- ■ ■ Q1 -Z**	–
	48	1840	31.03	18100	0.87	133	**2KJ3510- ■ JQ23- ■ ■ P1 -Z**	–
	52	1690	28.46	18100	0.95	133	**2KJ3510- ■ JQ23- ■ ■ N1 -Z**	–
	60	1470	24.86	18100	1.1	133	**2KJ3510- ■ JQ23- ■ ■ M1 -Z**	–
	66	1320	22.26	18100	1.2	133	**2KJ3510- ■ JQ23- ■ ■ L1 -Z**	–
	76	1150	19.46	18100	1.4	133	**2KJ3510- ■ JQ23- ■ ■ K1 -Z**	–
	89	990	16.71	18100	1.5	133	**2KJ3510- ■ JQ23- ■ ■ J1 -Z**	–
	100	875	14.77	18100	1.6	133	**2KJ3510- ■ JQ23- ■ ■ H1 -Z**	–
	118	745	12.56	18100	1.8	133	**2KJ3510- ■ JQ23- ■ ■ G1 -Z**	–
	138	635	10.76	18000	2	133	**2KJ3510- ■ JQ23- ■ ■ F1 -Z**	–
	141	620	10.51	17200	1.4	133	**2KJ3510- ■ JQ23- ■ ■ E1 -Z**	–
	164	535	9.02	16800	1.5	133	**2KJ3510- ■ JQ23- ■ ■ D1 -Z**	–
	186	470	7.97	16400	1.6	133	**2KJ3510- ■ JQ23- ■ ■ C1 -Z**	–
	218	400	6.78	15900	1.8	133	**2KJ3510- ■ JQ23- ■ ■ B1 -Z**	–
	255	345	5.81	15400	2	133	**2KJ3510- ■ JQ23- ■ ■ A1 -Z**	–
11	**K.189-LE160MPB4P**							
	7.4	14200	199.51	104000	1.3	692	**2KJ3515- ■ JR23- ■ ■ W1 -Z**	–
	8.3	12700	178.49	104000	1.5	692	**2KJ3515- ■ JR23- ■ ■ V1 -Z**	–
	9.2	11400	160.98	104000	1.7	692	**2KJ3515- ■ JR23- ■ ■ U1 -Z**	–
	10	10100	142.28	104000	1.9	692	**2KJ3515- ■ JR23- ■ ■ T1 -Z**	–
	11	9260	130.05	104000	2.1	692	**2KJ3515- ■ JR23- ■ ■ S1 -Z**	–
	K.169-LE160MPB4P							
	6.6	15900	223.30	70000	0.82	461	**2KJ3514- ■ JR23- ■ ■ F2 -Z**	–
	7.1	14800	208.35	70000	0.88	461	**2KJ3514- ■ JR23- ■ ■ E2 -Z**	–
	8	13100	185.23	70000	0.99	461	**2KJ3514- ■ JR23- ■ ■ D2 -Z**	–
	8.9	11800	166.31	70000	1.1	461	**2KJ3514- ■ JR23- ■ ■ C2 -Z**	–
	9.8	10700	150.55	70000	1.2	461	**2KJ3514- ■ JR23- ■ ■ B2 -Z**	–
	11	9410	132.24	70000	1.4	461	**2KJ3514- ■ JR23- ■ ■ A2 -Z**	–
	12	8530	119.83	70000	1.5	461	**2KJ3514- ■ JR23- ■ ■ X1 -Z**	–
	14	7600	106.72	70000	1.7	461	**2KJ3514- ■ JR23- ■ ■ W1 -Z**	–
	15	6820	95.83	70000	1.9	461	**2KJ3514- ■ JR23- ■ ■ V1 -Z**	–
	17	6090	85.51	70000	2.1	461	**2KJ3514- ■ JR23- ■ ■ U1 -Z**	–
	K.149-LE160MPB4P							
	10	10000	140.93	58100	0.8	293	**2KJ3513- ■ JR23- ■ ■ D2 -Z**	–
	12	9050	127.16	58100	0.88	293	**2KJ3513- ■ JR23- ■ ■ C2 -Z**	–
	13	8020	112.68	58000	1	293	**2KJ3513- ■ JR23- ■ ■ B2 -Z**	–
	15	7100	99.79	57700	1.1	293	**2KJ3513- ■ JR23- ■ ■ A2 -Z**	–
	17	6320	88.81	57200	1.3	293	**2KJ3513- ■ JR23- ■ ■ X1 -Z**	–
	19	5660	79.59	56600	1.4	293	**2KJ3513- ■ JR23- ■ ■ W1 -Z**	–
	21	5020	70.56	55900	1.6	293	**2KJ3513- ■ JR23- ■ ■ V1 -Z**	–
	24	4430	62.28	54900	1.8	293	**2KJ3513- ■ JR23- ■ ■ U1 -Z**	–
	27	3900	54.76	53900	2.1	293	**2KJ3513- ■ JR23- ■ ■ T1 -Z**	–
	30	3530	49.60	53000	2.3	293	**2KJ3513- ■ JR23- ■ ■ S1 -Z**	–
	34	3070	43.18	51700	2.6	293	**2KJ3513- ■ JR23- ■ ■ R1 -Z**	–
	K.129-LE160MPB4P							
	21	4980	70.03	35800	0.88	210	**2KJ3512- ■ JR23- ■ ■ V1 -Z**	–
	24	4450	62.49	35800	0.99	210	**2KJ3512- ■ JR23- ■ ■ U1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
11	**K.129-LE160MPB4P**							
	27	3920	55.05	35700	1.1	210	**2KJ3512- ■ JR23- ■ ■ T1 -Z**	–
	31	3430	48.24	35500	1.3	210	**2KJ3512- ■ JR23- ■ ■ S1 -Z**	–
	35	2990	42.04	35100	1.5	210	**2KJ3512- ■ JR23- ■ ■ R1 -Z**	–
	38	2730	38.37	34700	1.6	210	**2KJ3512- ■ JR23- ■ ■ Q1 -Z**	–
	45	2350	33.03	34100	1.9	210	**2KJ3512- ■ JR23- ■ ■ P1 -Z**	–
	47	2240	31.55	33900	2	210	**2KJ3512- ■ JR23- ■ ■ N1 -Z**	–
	53	1960	27.58	33200	2.2	210	**2KJ3512- ■ JR23- ■ ■ M1 -Z**	–
	60	1750	24.61	32600	2.5	210	**2KJ3512- ■ JR23- ■ ■ L1 -Z**	–
	68	1540	21.68	31800	2.8	210	**2KJ3512- ■ JR23- ■ ■ K1 -Z**	–
	78	1350	19.00	31100	3.1	210	**2KJ3512- ■ JR23- ■ ■ J1 -Z**	–
	89	1170	16.56	30200	3.4	210	**2KJ3512- ■ JR23- ■ ■ H1 -Z**	–
	125	840	11.80	28000	3.4	210	**2KJ3512- ■ JR23- ■ ■ E1 -Z**	–
	143	735	10.34	27200	3.9	210	**2KJ3512- ■ JR23- ■ ■ D1 -Z**	–
	K.109-LE160MPB4P							
	32	3260	45.89	23500	0.89	162	**2KJ3511- ■ JR23- ■ ■ R1 -Z**	–
	37	2840	39.95	23600	0.99	162	**2KJ3511- ■ JR23- ■ ■ Q1 -Z**	–
	43	2430	34.15	23600	1.1	162	**2KJ3511- ■ JR23- ■ ■ P1 -Z**	–
	50	2080	29.23	23400	1.3	162	**2KJ3511- ■ JR23- ■ ■ N1 -Z**	–
	59	1770	24.98	23200	1.3	162	**2KJ3511- ■ JR23- ■ ■ M1 -Z**	–
	66	1580	22.31	22900	1.5	162	**2KJ3511- ■ JR23- ■ ■ L1 -Z**	–
	75	1400	19.71	22500	1.7	162	**2KJ3511- ■ JR23- ■ ■ K1 -Z**	–
	85	1230	17.30	22100	1.9	162	**2KJ3511- ■ JR23- ■ ■ J1 -Z**	–
	98	1070	15.06	21600	2.2	162	**2KJ3511- ■ JR23- ■ ■ H1 -Z**	–
	115	915	12.87	21000	2.4	162	**2KJ3511- ■ JR23- ■ ■ G1 -Z**	–
	134	785	11.02	20400	2.7	162	**2KJ3511- ■ JR23- ■ ■ F1 -Z**	–
	141	740	10.45	19800	1.7	162	**2KJ3511- ■ JR23- ■ ■ E1 -Z**	–
	161	650	9.17	19300	1.9	162	**2KJ3511- ■ JR23- ■ ■ D1 -Z**	–
	185	565	7.99	18800	2.2	162	**2KJ3511- ■ JR23- ■ ■ C1 -Z**	–
	216	485	6.83	18100	2.7	162	**2KJ3511- ■ JR23- ■ ■ B1 -Z**	–
	253	415	5.84	17500	3.1	162	**2KJ3511- ■ JR23- ■ ■ A1 -Z**	–
	K.89-LE160MPB4P							
	59	1770	24.86	18100	0.9	125	**2KJ3510- ■ JR23- ■ ■ M1 -Z**	–
	66	1580	22.26	18100	1	125	**2KJ3510- ■ JR23- ■ ■ L1 -Z**	–
	76	1380	19.46	18100	1.1	125	**2KJ3510- ■ JR23- ■ ■ K1 -Z**	–
	88	1190	16.71	18100	1.2	125	**2KJ3510- ■ JR23- ■ ■ J1 -Z**	–
	100	1050	14.77	18100	1.3	125	**2KJ3510- ■ JR23- ■ ■ H1 -Z**	–
	117	895	12.56	17800	1.5	125	**2KJ3510- ■ JR23- ■ ■ G1 -Z**	–
	137	765	10.76	17400	1.6	125	**2KJ3510- ■ JR23- ■ ■ F1 -Z**	–
	140	745	10.51	16500	1.1	125	**2KJ3510- ■ JR23- ■ ■ E1 -Z**	–
	164	640	9.02	16200	1.2	125	**2KJ3510- ■ JR23- ■ ■ D1 -Z**	–
	185	565	7.97	15900	1.4	125	**2KJ3510- ■ JR23- ■ ■ C1 -Z**	–
	218	480	6.78	15500	1.5	125	**2KJ3510- ■ JR23- ■ ■ B1 -Z**	–
	254	410	5.81	15100	1.6	125	**2KJ3510- ■ JR23- ■ ■ A1 -Z**	–
15	**K.189-LE160ZLL4P**							
	7.4	19300	199.51	104000	0.99	717	**2KJ3515- ■ JU23- ■ ■ W1 -Z**	–
	8.3	17300	178.49	104000	1.1	717	**2KJ3515- ■ JU23- ■ ■ V1 -Z**	–
	9.2	15600	160.98	104000	1.2	717	**2KJ3515- ■ JU23- ■ ■ U1 -Z**	–
	10	13800	142.28	104000	1.4	717	**2KJ3515- ■ JU23- ■ ■ T1 -Z**	–
	11	12600	130.05	104000	1.5	717	**2KJ3515- ■ JU23- ■ ■ S1 -Z**	–
	13	11300	117.00	104000	1.7	717	**2KJ3515- ■ JU23- ■ ■ R1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
15	**K.189-LE160ZLL4P**							
	14	10100	104.56	104000	1.9	717	**2KJ3515- ■ JU23- ■ ■ Q1 -Z**	–
	16	9180	94.55	104000	2.1	717	**2KJ3515- ■ JU23- ■ ■ P1 -Z**	–
	K.169-LE160ZLL4P							
	8.9	16100	166.31	70000	0.8	486	**2KJ3514- ■ JU23- ■ ■ C2 -Z**	–
	9.8	14600	150.55	70000	0.89	486	**2KJ3514- ■ JU23- ■ ■ B2 -Z**	–
	11	12800	132.24	70000	1	486	**2KJ3514- ■ JU23- ■ ■ A2 -Z**	–
	12	11600	119.83	70000	1.1	486	**2KJ3514- ■ JU23- ■ ■ X1 -Z**	–
	14	10300	106.72	70000	1.3	486	**2KJ3514- ■ JU23- ■ ■ W1 -Z**	–
	15	9300	95.83	70000	1.4	486	**2KJ3514- ■ JU23- ■ ■ V1 -Z**	–
	17	8300	85.51	70000	1.6	486	**2KJ3514- ■ JU23- ■ ■ U1 -Z**	–
	19	7400	76.23	70000	1.8	486	**2KJ3514- ■ JU23- ■ ■ T1 -Z**	–
	22	6560	67.61	70000	2	486	**2KJ3514- ■ JU23- ■ ■ S1 -Z**	–
	24	6020	62.07	70000	2.2	486	**2KJ3514- ■ JU23- ■ ■ R1 -Z**	–
	27	5310	54.68	70000	2.4	486	**2KJ3514- ■ JU23- ■ ■ Q1 -Z**	–
	K.149-LE160ZLL4P							
	15	9690	99.79	50500	0.83	318	**2KJ3513- ■ JU23- ■ ■ A2 -Z**	–
	17	8620	88.81	50800	0.93	318	**2KJ3513- ■ JU23- ■ ■ X1 -Z**	–
	19	7730	79.59	50800	1	318	**2KJ3513- ■ JU23- ■ ■ W1 -Z**	–
	21	6850	70.56	50700	1.2	318	**2KJ3513- ■ JU23- ■ ■ V1 -Z**	–
	24	6040	62.28	50400	1.3	318	**2KJ3513- ■ JU23- ■ ■ U1 -Z**	–
	27	5310	54.76	49900	1.5	318	**2KJ3513- ■ JU23- ■ ■ T1 -Z**	–
	30	4810	49.60	49400	1.7	318	**2KJ3513- ■ JU23- ■ ■ S1 -Z**	–
	34	4190	43.18	48600	1.9	318	**2KJ3513- ■ JU23- ■ ■ R1 -Z**	–
	42	3430	35.40	47200	2.3	318	**2KJ3513- ■ JU23- ■ ■ Q1 -Z**	–
	46	3140	32.33	46500	2.5	318	**2KJ3513- ■ JU23- ■ ■ P1 -Z**	–
	51	2780	28.66	45500	2.7	318	**2KJ3513- ■ JU23- ■ ■ N1 -Z**	–
	58	2450	25.30	44500	3	318	**2KJ3513- ■ JU23- ■ ■ M1 -Z**	–
	104	1370	14.15	39100	3	318	**2KJ3513- ■ JU23- ■ ■ G1 -Z**	–
	119	1200	12.44	38000	3.3	318	**2KJ3513- ■ JU23- ■ ■ F1 -Z**	–
	131	1090	11.26	37100	3.6	318	**2KJ3513- ■ JU23- ■ ■ E1 -Z**	–
	150	950	9.81	35800	4	318	**2KJ3513- ■ JU23- ■ ■ D1 -Z**	–
	K.129-LE160ZLL4P							
	27	5340	55.05	30800	0.82	235	**2KJ3512- ■ JU23- ■ ■ T1 -Z**	–
	31	4680	48.24	31200	0.94	235	**2KJ3512- ■ JU23- ■ ■ S1 -Z**	–
	35	4080	42.04	31300	1.1	235	**2KJ3512- ■ JU23- ■ ■ R1 -Z**	–
	38	3720	38.37	31300	1.2	235	**2KJ3512- ■ JU23- ■ ■ Q1 -Z**	–
	45	3200	33.03	31200	1.4	235	**2KJ3512- ■ JU23- ■ ■ P1 -Z**	–
	47	3060	31.55	31100	1.4	235	**2KJ3512- ■ JU23- ■ ■ N1 -Z**	–
	53	2670	27.58	30800	1.6	235	**2KJ3512- ■ JU23- ■ ■ M1 -Z**	–
	60	2390	24.61	30400	1.8	235	**2KJ3512- ■ JU23- ■ ■ L1 -Z**	–
	68	2100	21.68	29900	2	235	**2KJ3512- ■ JU23- ■ ■ K1 -Z**	–
	78	1840	19.00	29400	2.2	235	**2KJ3512- ■ JU23- ■ ■ J1 -Z**	–
	89	1600	16.56	28800	2.5	235	**2KJ3512- ■ JU23- ■ ■ H1 -Z**	–
	98	1460	15.11	28300	2.7	235	**2KJ3512- ■ JU23- ■ ■ G1 -Z**	–
	113	1260	13.01	27500	3	235	**2KJ3512- ■ JU23- ■ ■ F1 -Z**	–
	125	1140	11.80	27000	2.5	235	**2KJ3512- ■ JU23- ■ ■ E1 -Z**	–
	143	1000	10.34	26300	2.8	235	**2KJ3512- ■ JU23- ■ ■ D1 -Z**	–
	164	875	9.01	25500	3.2	235	**2KJ3512- ■ JU23- ■ ■ C1 -Z**	–
	179	795	8.22	25000	3.4	235	**2KJ3512- ■ JU23- ■ ■ B1 -Z**	–
	208	685	7.08	24200	3.7	235	**2KJ3512- ■ JU23- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
15	**K.109-LE160ZLL4P**							
	43	3310	34.15	20300	0.82	187	**2KJ3511- ■ JU23- ■ ■ P1 -Z**	–
	50	2830	29.23	20600	0.92	187	**2KJ3511- ■ JU23- ■ ■ N1 -Z**	–
	59	2420	24.98	20700	0.98	187	**2KJ3511- ■ JU23- ■ ■ M1 -Z**	–
	66	2160	22.31	20700	1.1	187	**2KJ3511- ■ JU23- ■ ■ L1 -Z**	–
	75	1910	19.71	20600	1.2	187	**2KJ3511- ■ JU23- ■ ■ K1 -Z**	–
	85	1680	17.30	20400	1.4	187	**2KJ3511- ■ JU23- ■ ■ J1 -Z**	–
	98	1460	15.06	20100	1.6	187	**2KJ3511- ■ JU23- ■ ■ H1 -Z**	–
	115	1250	12.87	19700	1.8	187	**2KJ3511- ■ JU23- ■ ■ G1 -Z**	–
	134	1070	11.02	19300	2	187	**2KJ3511- ■ JU23- ■ ■ F1 -Z**	–
	141	1010	10.45	18600	1.2	187	**2KJ3511- ■ JU23- ■ ■ E1 -Z**	–
	161	890	9.17	18300	1.4	187	**2KJ3511- ■ JU23- ■ ■ D1 -Z**	–
	185	775	7.99	17800	1.6	187	**2KJ3511- ■ JU23- ■ ■ C1 -Z**	–
	216	660	6.83	17400	2	187	**2KJ3511- ■ JU23- ■ ■ B1 -Z**	–
	253	565	5.84	16900	2.3	187	**2KJ3511- ■ JU23- ■ ■ A1 -Z**	–
	K.89-LE160ZLL4P							
	76	1890	19.46	16300	0.83	150	**2KJ3510- ■ JU23- ■ ■ K1 -Z**	–
	88	1620	16.71	16400	0.91	150	**2KJ3510- ■ JU23- ■ ■ J1 -Z**	–
	100	1430	14.77	16400	0.99	150	**2KJ3510- ■ JU23- ■ ■ H1 -Z**	–
	117	1220	12.56	16300	1.1	150	**2KJ3510- ■ JU23- ■ ■ G1 -Z**	–
	137	1040	10.76	16100	1.2	150	**2KJ3510- ■ JU23- ■ ■ F1 -Z**	–
	140	1020	10.51	15000	0.83	150	**2KJ3510- ■ JU23- ■ ■ E1 -Z**	–
	164	875	9.02	14900	0.91	150	**2KJ3510- ■ JU23- ■ ■ D1 -Z**	–
	185	770	7.97	14700	0.99	150	**2KJ3510- ■ JU23- ■ ■ C1 -Z**	–
	218	655	6.78	14500	1.1	150	**2KJ3510- ■ JU23- ■ ■ B1 -Z**	–
	254	560	5.81	14200	1.2	150	**2KJ3510- ■ JU23- ■ ■ A1 -Z**	–
18.5	**K.189-LES180MQ4P**							
	11	15600	130.05	104000	1.2	794	**2KJ3515- ■ KL33- ■ ■ S1 -Z**	–
	13	14000	117.00	104000	1.4	794	**2KJ3515- ■ KL33- ■ ■ R1 -Z**	–
	14	12500	104.56	104000	1.6	794	**2KJ3515- ■ KL33- ■ ■ Q1 -Z**	–
	16	11300	94.55	104000	1.7	794	**2KJ3515- ■ KL33- ■ ■ P1 -Z**	–
	18	10000	83.44	104000	1.9	794	**2KJ3515- ■ KL33- ■ ■ N1 -Z**	–
	20	8930	74.35	104000	2.2	794	**2KJ3515- ■ KL33- ■ ■ M1 -Z**	–
	22	8090	67.36	104000	2.4	794	**2KJ3515- ■ KL33- ■ ■ L1 -Z**	–
	K.169-LES180MQ4P							
	12	14400	119.83	70000	0.9	565	**2KJ3514- ■ KL33- ■ ■ X1 -Z**	–
	14	12800	106.72	70000	1	565	**2KJ3514- ■ KL33- ■ ■ W1 -Z**	–
	15	11500	95.83	70000	1.1	565	**2KJ3514- ■ KL33- ■ ■ V1 -Z**	–
	17	10200	85.51	70000	1.3	565	**2KJ3514- ■ KL33- ■ ■ U1 -Z**	–
	19	9160	76.23	70000	1.4	565	**2KJ3514- ■ KL33- ■ ■ T1 -Z**	–
	22	8120	67.61	70000	1.6	565	**2KJ3514- ■ KL33- ■ ■ S1 -Z**	–
	24	7460	62.07	70000	1.7	565	**2KJ3514- ■ KL33- ■ ■ R1 -Z**	–
	27	6570	54.68	70000	2	565	**2KJ3514- ■ KL33- ■ ■ Q1 -Z**	–
	33	5390	44.86	70000	2.4	565	**2KJ3514- ■ KL33- ■ ■ P1 -Z**	–
	K.149-LES180MQ4P							
	18	9560	79.59	45800	0.84	394	**2KJ3513- ■ KL33- ■ ■ W1 -Z**	–
	21	8480	70.56	46300	0.94	394	**2KJ3513- ■ KL33- ■ ■ V1 -Z**	–
	24	7480	62.28	46500	1.1	394	**2KJ3513- ■ KL33- ■ ■ U1 -Z**	–
	27	6580	54.76	46400	1.2	394	**2KJ3513- ■ KL33- ■ ■ T1 -Z**	–
	30	5960	49.60	46300	1.3	394	**2KJ3513- ■ KL33- ■ ■ S1 -Z**	–
	34	5190	43.18	45900	1.5	394	**2KJ3513- ■ KL33- ■ ■ R1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
18.5	**K.149-LES180MQ4P**							
	42	4250	35.40	45000	1.8	394	**2KJ3513- ■ KL33- ■ ■ Q1 -Z**	–
	45	3880	32.33	44500	2	394	**2KJ3513- ■ KL33- ■ ■ P1 -Z**	–
	51	3440	28.66	43800	2.2	394	**2KJ3513- ■ KL33- ■ ■ N1 -Z**	–
	58	3040	25.30	42900	2.4	394	**2KJ3513- ■ KL33- ■ ■ M1 -Z**	–
	66	2670	22.25	42000	2.7	394	**2KJ3513- ■ KL33- ■ ■ L1 -Z**	–
	73	2420	20.15	41200	2.9	394	**2KJ3513- ■ KL33- ■ ■ K1 -Z**	–
	84	2100	17.54	40200	3.3	394	**2KJ3513- ■ KL33- ■ ■ J1 -Z**	–
	104	1700	14.15	38200	2.4	394	**2KJ3513- ■ KL33- ■ ■ G1 -Z**	–
	118	1490	12.44	37200	2.7	394	**2KJ3513- ■ KL33- ■ ■ F1 -Z**	–
	131	1350	11.26	36300	2.9	394	**2KJ3513- ■ KL33- ■ ■ E1 -Z**	–
	150	1170	9.81	35200	3.3	394	**2KJ3513- ■ KL33- ■ ■ D1 -Z**	–
	183	965	8.04	33600	3.8	394	**2KJ3513- ■ KL33- ■ ■ C1 -Z**	–
	216	820	6.82	32300	4.4	394	**2KJ3513- ■ KL33- ■ ■ B1 -Z**	–
	K.129-LES180MQ4P							
	35	5050	42.04	28100	0.87	312	**2KJ3512- ■ KL33- ■ ■ R1 -Z**	–
	38	4610	38.37	28300	0.95	312	**2KJ3512- ■ KL33- ■ ■ Q1 -Z**	–
	45	3970	33.03	28600	1.1	312	**2KJ3512- ■ KL33- ■ ■ P1 -Z**	–
	47	3790	31.55	28600	1.2	312	**2KJ3512- ■ KL33- ■ ■ N1 -Z**	–
	53	3310	27.58	28600	1.3	312	**2KJ3512- ■ KL33- ■ ■ M1 -Z**	–
	60	2950	24.61	28500	1.5	312	**2KJ3512- ■ KL33- ■ ■ L1 -Z**	–
	68	2600	21.68	28300	1.6	312	**2KJ3512- ■ KL33- ■ ■ K1 -Z**	–
	77	2280	19.00	27900	1.8	312	**2KJ3512- ■ KL33- ■ ■ J1 -Z**	–
	89	1990	16.56	27500	2	312	**2KJ3512- ■ KL33- ■ ■ H1 -Z**	–
	97	1810	15.11	27100	2.2	312	**2KJ3512- ■ KL33- ■ ■ G1 -Z**	–
	113	1560	13.01	26500	2.4	312	**2KJ3512- ■ KL33- ■ ■ F1 -Z**	–
	125	1410	11.80	26100	2	312	**2KJ3512- ■ KL33- ■ ■ E1 -Z**	–
	142	1240	10.34	25500	2.3	312	**2KJ3512- ■ KL33- ■ ■ D1 -Z**	–
	163	1080	9.01	24800	2.5	312	**2KJ3512- ■ KL33- ■ ■ C1 -Z**	–
	179	985	8.22	24400	2.7	312	**2KJ3512- ■ KL33- ■ ■ B1 -Z**	–
	208	850	7.08	23600	3	312	**2KJ3512- ■ KL33- ■ ■ A1 -Z**	–
	K.109-LES180MQ4P							
	66	2680	22.31	18800	0.89	263	**2KJ3511- ■ KL33- ■ ■ L1 -Z**	–
	75	2360	19.71	18900	1	263	**2KJ3511- ■ KL33- ■ ■ K1 -Z**	–
	85	2070	17.30	18900	1.2	263	**2KJ3511- ■ KL33- ■ ■ J1 -Z**	–
	98	1810	15.06	18800	1.3	263	**2KJ3511- ■ KL33- ■ ■ H1 -Z**	–
	114	1540	12.87	18700	1.4	263	**2KJ3511- ■ KL33- ■ ■ G1 -Z**	–
	133	1320	11.02	18400	1.6	263	**2KJ3511- ■ KL33- ■ ■ F1 -Z**	–
	141	1250	10.45	17600	1	263	**2KJ3511- ■ KL33- ■ ■ E1 -Z**	–
	160	1100	9.17	17400	1.2	263	**2KJ3511- ■ KL33- ■ ■ D1 -Z**	–
	184	960	7.99	17100	1.3	263	**2KJ3511- ■ KL33- ■ ■ C1 -Z**	–
	215	820	6.83	16700	1.6	263	**2KJ3511- ■ KL33- ■ ■ B1 -Z**	–
	252	700	5.84	16300	1.9	263	**2KJ3511- ■ KL33- ■ ■ A1 -Z**	–
22	**K.189-LES180ZLN4P**							
	11	18500	130.05	104000	1	799	**2KJ3515- ■ KN33- ■ ■ S1 -Z**	–
	13	16700	117.00	104000	1.2	799	**2KJ3515- ■ KN33- ■ ■ R1 -Z**	–
	14	14900	104.56	104000	1.3	799	**2KJ3515- ■ KN33- ■ ■ Q1 -Z**	–
	16	13500	94.55	104000	1.4	799	**2KJ3515- ■ KN33- ■ ■ P1 -Z**	–
	18	11900	83.44	104000	1.6	799	**2KJ3515- ■ KN33- ■ ■ N1 -Z**	–
	20	10600	74.35	104000	1.8	799	**2KJ3515- ■ KN33- ■ ■ M1 -Z**	–
	22	9620	67.36	104000	2	799	**2KJ3515- ■ KN33- ■ ■ L1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
22	**K.189-LES180ZLN4P**							
	24	8650	60.58	104000	2.3	799	**2KJ3515- ■ KN33- ■ ■ K1 -Z**	–
	K.169-LES180ZLN4P							
	14	15200	106.72	70000	0.85	570	**2KJ3514- ■ KN33- ■ ■ W1 -Z**	–
	15	13600	95.83	70000	0.95	570	**2KJ3514- ■ KN33- ■ ■ V1 -Z**	–
	17	12200	85.51	70000	1.1	570	**2KJ3514- ■ KN33- ■ ■ U1 -Z**	–
	19	10800	76.23	70000	1.2	570	**2KJ3514- ■ KN33- ■ ■ T1 -Z**	–
	22	9660	67.61	70000	1.3	570	**2KJ3514- ■ KN33- ■ ■ S1 -Z**	–
	24	8870	62.07	70000	1.5	570	**2KJ3514- ■ KN33- ■ ■ R1 -Z**	–
	27	7810	54.68	70000	1.7	570	**2KJ3514- ■ KN33- ■ ■ Q1 -Z**	–
	33	6410	44.86	70000	2	570	**2KJ3514- ■ KN33- ■ ■ P1 -Z**	–
	37	5620	39.33	69200	2.3	570	**2KJ3514- ■ KN33- ■ ■ N1 -Z**	–
	K.149-LES180ZLN4P							
	24	8900	62.28	42500	0.9	399	**2KJ3513- ■ KN33- ■ ■ U1 -Z**	–
	27	7820	54.76	43000	1	399	**2KJ3513- ■ KN33- ■ ■ T1 -Z**	–
	30	7080	49.60	43100	1.1	399	**2KJ3513- ■ KN33- ■ ■ S1 -Z**	–
	34	6170	43.18	43100	1.3	399	**2KJ3513- ■ KN33- ■ ■ R1 -Z**	–
	42	5060	35.40	42700	1.6	399	**2KJ3513- ■ KN33- ■ ■ Q1 -Z**	–
	45	4620	32.33	42400	1.7	399	**2KJ3513- ■ KN33- ■ ■ P1 -Z**	–
	51	4090	28.66	41900	1.9	399	**2KJ3513- ■ KN33- ■ ■ N1 -Z**	–
	58	3610	25.30	41300	2.1	399	**2KJ3513- ■ KN33- ■ ■ M1 -Z**	–
	66	3180	22.25	40600	2.3	399	**2KJ3513- ■ KN33- ■ ■ L1 -Z**	–
	73	2880	20.15	40000	2.5	399	**2KJ3513- ■ KN33- ■ ■ K1 -Z**	–
	84	2500	17.54	39100	2.7	399	**2KJ3513- ■ KN33- ■ ■ J1 -Z**	–
	102	2050	14.38	37700	3.2	399	**2KJ3513- ■ KN33- ■ ■ H1 -Z**	–
	104	2020	14.15	37200	2	399	**2KJ3513- ■ KN33- ■ ■ G1 -Z**	–
	118	1770	12.44	36300	2.3	399	**2KJ3513- ■ KN33- ■ ■ F1 -Z**	–
	131	1600	11.26	35600	2.5	399	**2KJ3513- ■ KN33- ■ ■ E1 -Z**	–
	150	1400	9.81	34600	2.7	399	**2KJ3513- ■ KN33- ■ ■ D1 -Z**	–
	183	1140	8.04	33100	3.2	399	**2KJ3513- ■ KN33- ■ ■ C1 -Z**	–
	216	975	6.82	31800	3.7	399	**2KJ3513- ■ KN33- ■ ■ B1 -Z**	–
	K.129-LES180ZLN4P							
	38	5480	38.37	25400	0.8	317	**2KJ3512- ■ KN33- ■ ■ Q1 -Z**	–
	45	4720	33.03	26000	0.93	317	**2KJ3512- ■ KN33- ■ ■ P1 -Z**	–
	47	4500	31.55	26200	0.98	317	**2KJ3512- ■ KN33- ■ ■ N1 -Z**	–
	53	3940	27.58	26500	1.1	317	**2KJ3512- ■ KN33- ■ ■ M1 -Z**	–
	60	3510	24.61	26600	1.3	317	**2KJ3512- ■ KN33- ■ ■ L1 -Z**	–
	68	3090	21.68	26600	1.4	317	**2KJ3512- ■ KN33- ■ ■ K1 -Z**	–
	77	2710	19.00	26400	1.5	317	**2KJ3512- ■ KN33- ■ ■ J1 -Z**	–
	89	2360	16.56	26200	1.7	317	**2KJ3512- ■ KN33- ■ ■ H1 -Z**	–
	97	2160	15.11	25900	1.8	317	**2KJ3512- ■ KN33- ■ ■ G1 -Z**	–
	113	1850	13.01	25500	2	317	**2KJ3512- ■ KN33- ■ ■ F1 -Z**	–
	125	1680	11.80	25200	1.7	317	**2KJ3512- ■ KN33- ■ ■ E1 -Z**	–
	142	1470	10.34	24700	1.9	317	**2KJ3512- ■ KN33- ■ ■ D1 -Z**	–
	163	1280	9.01	24100	2.1	317	**2KJ3512- ■ KN33- ■ ■ C1 -Z**	–
	179	1170	8.22	23800	2.3	317	**2KJ3512- ■ KN33- ■ ■ B1 -Z**	–
	208	1010	7.08	23100	2.5	317	**2KJ3512- ■ KN33- ■ ■ A1 -Z**	–
	K.109-LES180ZLN4P							
	75	2810	19.71	17200	0.84	268	**2KJ3511- ■ KN33- ■ ■ K1 -Z**	–
	85	2470	17.30	17400	0.97	268	**2KJ3511- ■ KN33- ■ ■ J1 -Z**	–
	98	2150	15.06	17500	1.1	268	**2KJ3511- ■ KN33- ■ ■ H1 -Z**	–
	114	1830	12.87	17600	1.2	268	**2KJ3511- ■ KN33- ■ ■ G1 -Z**	–
	K.109-LES180ZLN4P							
	133	1570	11.02	17400	1.3	268	**2KJ3511- ■ KN33- ■ ■ F1 -Z**	–
	141	1490	10.45	16600	0.84	268	**2KJ3511- ■ KN33- ■ ■ E1 -Z**	–
	160	1310	9.17	16500	0.97	268	**2KJ3511- ■ KN33- ■ ■ D1 -Z**	–
	184	1140	7.99	16300	1.1	268	**2KJ3511- ■ KN33- ■ ■ C1 -Z**	–
	215	975	6.83	16000	1.3	268	**2KJ3511- ■ KN33- ■ ■ B1 -Z**	–
	252	835	5.84	15700	1.6	268	**2KJ3511- ■ KN33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
30	**K.189-LES200ZLU4P**							
	13	22800	117.00	104000	0.86	875	**2KJ3515- ■ LN33- ■ ■ R1 -Z**	–
	14	20300	104.56	104000	0.96	875	**2KJ3515- ■ LN33- ■ ■ Q1 -Z**	–
	16	18400	94.55	104000	1.1	875	**2KJ3515- ■ LN33- ■ ■ P1 -Z**	–
	18	16200	83.44	104000	1.2	875	**2KJ3515- ■ LN33- ■ ■ N1 -Z**	–
	20	14400	74.35	104000	1.3	875	**2KJ3515- ■ LN33- ■ ■ M1 -Z**	–
	22	13100	67.36	104000	1.5	875	**2KJ3515- ■ LN33- ■ ■ L1 -Z**	–
	24	11800	60.58	104000	1.7	875	**2KJ3515- ■ LN33- ■ ■ K1 -Z**	–
	29	9810	50.34	104000	2	875	**2KJ3515- ■ LN33- ■ ■ J1 -Z**	–
	33	8720	44.76	104000	2.2	875	**2KJ3515- ■ LN33- ■ ■ H1 -Z**	–
	K.169-LES200ZLU4P							
	19	14800	76.23	65900	0.88	645	**2KJ3514- ■ LN33- ■ ■ T1 -Z**	–
	22	13100	67.61	66300	0.99	645	**2KJ3514- ■ LN33- ■ ■ S1 -Z**	–
	24	12000	62.07	66400	1.1	645	**2KJ3514- ■ LN33- ■ ■ R1 -Z**	–
	27	10600	54.68	66200	1.2	645	**2KJ3514- ■ LN33- ■ ■ Q1 -Z**	–
	33	8740	44.86	65300	1.5	645	**2KJ3514- ■ LN33- ■ ■ P1 -Z**	–
	37	7660	39.33	64500	1.7	645	**2KJ3514- ■ LN33- ■ ■ N1 -Z**	–
	48	5990	30.75	62500	2.2	645	**2KJ3514- ■ LN33- ■ ■ M1 -Z**	–
	50	5730	29.43	62100	2.3	645	**2KJ3514- ■ LN33- ■ ■ L1 -Z**	–
	54	5260	27.02	61300	2.5	645	**2KJ3514- ■ LN33- ■ ■ K1 -Z**	–
	62	4630	23.80	60000	2.8	645	**2KJ3514- ■ LN33- ■ ■ J1 -Z**	–
	120	2370	12.20	51100	2.8	645	**2KJ3514- ■ LN33- ■ ■ E1 -Z**	–
	147	1950	10.01	49000	3.3	645	**2KJ3514- ■ LN33- ■ ■ D1 -Z**	–
	167	1710	8.78	47600	3.7	645	**2KJ3514- ■ LN33- ■ ■ C1 -Z**	–
	K.149-LES200ZLU4P							
	30	9660	49.60	35900	0.83	474	**2KJ3513- ■ LN33- ■ ■ S1 -Z**	–
	34	8410	43.18	36900	0.95	474	**2KJ3513- ■ LN33- ■ ■ R1 -Z**	–
	42	6890	35.40	37600	1.1	474	**2KJ3513- ■ LN33- ■ ■ Q1 -Z**	–
	45	6300	32.33	37700	1.2	474	**2KJ3513- ■ LN33- ■ ■ P1 -Z**	–
	51	5580	28.66	37800	1.4	474	**2KJ3513- ■ LN33- ■ ■ N1 -Z**	–
	58	4930	25.30	37600	1.5	474	**2KJ3513- ■ LN33- ■ ■ M1 -Z**	–
	66	4330	22.25	37400	1.7	474	**2KJ3513- ■ LN33- ■ ■ L1 -Z**	–
	73	3920	20.15	37100	1.8	474	**2KJ3513- ■ LN33- ■ ■ K1 -Z**	–
	84	3410	17.54	36500	2	474	**2KJ3513- ■ LN33- ■ ■ J1 -Z**	–
	102	2800	14.38	35600	2.4	474	**2KJ3513- ■ LN33- ■ ■ H1 -Z**	–
	104	2750	14.15	35100	1.5	474	**2KJ3513- ■ LN33- ■ ■ G1 -Z**	–
	118	2420	12.44	34400	1.7	474	**2KJ3513- ■ LN33- ■ ■ F1 -Z**	–
	131	2190	11.26	33900	1.8	474	**2KJ3513- ■ LN33- ■ ■ E1 -Z**	–
	150	1910	9.81	33100	2	474	**2KJ3513- ■ LN33- ■ ■ D1 -Z**	–
	183	1560	8.04	31800	2.4	474	**2KJ3513- ■ LN33- ■ ■ C1 -Z**	–
	216	1320	6.82	30800	2.7	474	**2KJ3513- ■ LN33- ■ ■ B1 -Z**	–
	K.129-LES200ZLU4P							
	53	5370	27.58	21600	0.82	393	**2KJ3512- ■ LN33- ■ ■ M1 -Z**	–
	60	4790	24.61	22200	0.92	393	**2KJ3512- ■ LN33- ■ ■ L1 -Z**	–
	K.129-LES200ZLU4P							
	68	4220	21.68	22700	1	393	**2KJ3512- ■ LN33- ■ ■ K1 -Z**	–
	77	3700	19.00	23100	1.1	393	**2KJ3512- ■ LN33- ■ ■ J1 -Z**	–
	89	3220	16.56	23300	1.2	393	**2KJ3512- ■ LN33- ■ ■ H1 -Z**	–
	97	2940	15.11	23300	1.3	393	**2KJ3512- ■ LN33- ■ ■ G1 -Z**	–
	113	2530	13.01	23200	1.5	393	**2KJ3512- ■ LN33- ■ ■ F1 -Z**	–
	125	2300	11.80	23100	1.2	393	**2KJ3512- ■ LN33- ■ ■ E1 -Z**	–
	142	2010	10.34	22800	1.4	393	**2KJ3512- ■ LN33- ■ ■ D1 -Z**	–
	163	1750	9.01	22500	1.6	393	**2KJ3512- ■ LN33- ■ ■ C1 -Z**	–
	179	1600	8.22	22300	1.7	393	**2KJ3512- ■ LN33- ■ ■ B1 -Z**	–
	208	1380	7.08	21800	1.8	393	**2KJ3512- ■ LN33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
37	**K.189-LES225SD4P**							
	16	22600	94.55	104000	0.86	917	**2KJ3515- ■ MF33- ■ ■ P1 -Z**	–
	18	19900	83.44	104000	0.98	917	**2KJ3515- ■ MF33- ■ ■ N1 -Z**	–
	20	17700	74.35	104000	1.1	917	**2KJ3515- ■ MF33- ■ ■ M1 -Z**	–
	22	16100	67.36	104000	1.2	917	**2KJ3515- ■ MF33- ■ ■ L1 -Z**	–
	24	14400	60.58	104000	1.3	917	**2KJ3515- ■ MF33- ■ ■ K1 -Z**	–
	29	12000	50.34	104000	1.6	917	**2KJ3515- ■ MF33- ■ ■ J1 -Z**	–
	33	10700	44.76	104000	1.8	917	**2KJ3515- ■ MF33- ■ ■ H1 -Z**	–
	41	8520	35.67	104000	2.3	917	**2KJ3515- ■ MF33- ■ ■ G1 -Z**	–
	52	6780	28.39	104000	2.9	917	**2KJ3515- ■ MF33- ■ ■ F1 -Z**	–
	K.169-LES225SD4P							
	22	16100	67.61	59200	0.8	690	**2KJ3514- ■ MF33- ■ ■ S1 -Z**	–
	24	14800	62.07	59800	0.88	690	**2KJ3514- ■ MF33- ■ ■ R1 -Z**	–
	27	13000	54.68	60400	0.99	690	**2KJ3514- ■ MF33- ■ ■ Q1 -Z**	–
	33	10700	44.86	60600	1.2	690	**2KJ3514- ■ MF33- ■ ■ P1 -Z**	–
	38	9400	39.33	60300	1.4	690	**2KJ3514- ■ MF33- ■ ■ N1 -Z**	–
	48	7350	30.75	59200	1.8	690	**2KJ3514- ■ MF33- ■ ■ M1 -Z**	–
	50	7030	29.43	58900	1.8	690	**2KJ3514- ■ MF33- ■ ■ L1 -Z**	–
	55	6460	27.02	58400	2	690	**2KJ3514- ■ MF33- ■ ■ K1 -Z**	–
	62	5690	23.80	57400	2.3	690	**2KJ3514- ■ MF33- ■ ■ J1 -Z**	–
	76	4660	19.53	55700	2.7	690	**2KJ3514- ■ MF33- ■ ■ H1 -Z**	–
	86	4090	17.12	54500	3	690	**2KJ3514- ■ MF33- ■ ■ G1 -Z**	–
	121	2910	12.20	49500	2.3	690	**2KJ3514- ■ MF33- ■ ■ E1 -Z**	–
	148	2390	10.01	47600	2.7	690	**2KJ3514- ■ MF33- ■ ■ D1 -Z**	–
	168	2090	8.78	46400	3	690	**2KJ3514- ■ MF33- ■ ■ C1 -Z**	–
	215	1640	6.86	43900	3.7	690	**2KJ3514- ■ MF33- ■ ■ B1 -Z**	–
	K.149-LES225SD4P							
	42	8460	35.40	33100	0.93	518	**2KJ3513- ■ MF33- ■ ■ Q1 -Z**	–
	46	7720	32.33	33700	1	518	**2KJ3513- ■ MF33- ■ ■ P1 -Z**	–
	52	6850	28.66	34100	1.1	518	**2KJ3513- ■ MF33- ■ ■ N1 -Z**	–
	58	6040	25.30	34400	1.2	518	**2KJ3513- ■ MF33- ■ ■ M1 -Z**	–
	66	5310	22.25	34500	1.4	518	**2KJ3513- ■ MF33- ■ ■ L1 -Z**	–
	73	4810	20.15	34500	1.5	518	**2KJ3513- ■ MF33- ■ ■ K1 -Z**	–
	84	4190	17.54	34300	1.6	518	**2KJ3513- ■ MF33- ■ ■ J1 -Z**	–
	103	3430	14.38	33700	1.9	518	**2KJ3513- ■ MF33- ■ ■ H1 -Z**	–
	104	3380	14.15	33200	1.2	518	**2KJ3513- ■ MF33- ■ ■ G1 -Z**	–
	119	2970	12.44	32700	1.4	518	**2KJ3513- ■ MF33- ■ ■ F1 -Z**	–
	131	2690	11.26	32300	1.5	518	**2KJ3513- ■ MF33- ■ ■ E1 -Z**	–
	151	2340	9.81	31700	1.6	518	**2KJ3513- ■ MF33- ■ ■ D1 -Z**	–
	184	1920	8.04	30700	1.9	518	**2KJ3513- ■ MF33- ■ ■ C1 -Z**	–
	K.149-LES225SD4P							
	217	1630	6.82	29800	2.2	518	**2KJ3513- ■ MF33- ■ ■ B1 -Z**	–
	K.129-LES225SD4P							
	68	5180	21.68	19400	0.82	435	**2KJ3512- ■ MF33- ■ ■ K1 -Z**	–
	78	4540	19.00	20100	0.91	435	**2KJ3512- ■ MF33- ■ ■ J1 -Z**	–
	89	3950	16.56	20700	1	435	**2KJ3512- ■ MF33- ■ ■ H1 -Z**	–
	98	3610	15.11	20900	1.1	435	**2KJ3512- ■ MF33- ■ ■ G1 -Z**	–
	114	3110	13.01	21200	1.2	435	**2KJ3512- ■ MF33- ■ ■ F1 -Z**	–
	125	2820	11.80	21200	1	435	**2KJ3512- ■ MF33- ■ ■ E1 -Z**	–
	143	2470	10.34	21200	1.2	435	**2KJ3512- ■ MF33- ■ ■ D1 -Z**	–
	164	2150	9.01	21100	1.3	435	**2KJ3512- ■ MF33- ■ ■ C1 -Z**	–
	180	1960	8.22	21000	1.4	435	**2KJ3512- ■ MF33- ■ ■ B1 -Z**	–
	209	1690	7.08	20700	1.5	435	**2KJ3512- ■ MF33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Bevel geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
45	**K.189-LES225YMF4P**							
	18	24200	83.44	104000	0.8	962	**2KJ3515- ■ MT33- ■ ■ N1 -Z**	–
	20	21600	74.35	104000	0.9	962	**2KJ3515- ■ MT33- ■ ■ M1 -Z**	–
	22	19500	67.36	104000	1	962	**2KJ3515- ■ MT33- ■ ■ L1 -Z**	–
	24	17600	60.58	104000	1.1	962	**2KJ3515- ■ MT33- ■ ■ K1 -Z**	–
	29	14600	50.34	104000	1.3	962	**2KJ3515- ■ MT33- ■ ■ J1 -Z**	–
	33	13000	44.76	104000	1.5	962	**2KJ3515- ■ MT33- ■ ■ H1 -Z**	–
	41	10300	35.67	104000	1.9	962	**2KJ3515- ■ MT33- ■ ■ G1 -Z**	–
	52	8250	28.39	103900	2.4	962	**2KJ3515- ■ MT33- ■ ■ F1 -Z**	–
	58	7370	25.37	101700	2.6	962	**2KJ3515- ■ MT33- ■ ■ E1 -Z**	–
	K.169-LES225YMF4P							
	27	15800	54.68	53900	0.82	735	**2KJ3514- ■ MT33- ■ ■ Q1 -Z**	–
	33	13000	44.86	55200	1	735	**2KJ3514- ■ MT33- ■ ■ P1 -Z**	–
	38	11400	39.33	55600	1.1	735	**2KJ3514- ■ MT33- ■ ■ N1 -Z**	–
	48	8940	30.75	55500	1.5	735	**2KJ3514- ■ MT33- ■ ■ M1 -Z**	–
	50	8550	29.43	55400	1.5	735	**2KJ3514- ■ MT33- ■ ■ L1 -Z**	–
	55	7850	27.02	55100	1.7	735	**2KJ3514- ■ MT33- ■ ■ K1 -Z**	–
	62	6920	23.80	54600	1.9	735	**2KJ3514- ■ MT33- ■ ■ J1 -Z**	–
	76	5670	19.53	53400	2.2	735	**2KJ3514- ■ MT33- ■ ■ H1 -Z**	–
	86	4970	17.12	52400	2.5	735	**2KJ3514- ■ MT33- ■ ■ G1 -Z**	–
	110	3890	13.39	50400	3.1	735	**2KJ3514- ■ MT33- ■ ■ F1 -Z**	–
	121	3540	12.20	47700	1.9	735	**2KJ3514- ■ MT33- ■ ■ E1 -Z**	–
	148	2910	10.01	46100	2.2	735	**2KJ3514- ■ MT33- ■ ■ D1 -Z**	–
	168	2550	8.78	45100	2.5	735	**2KJ3514- ■ MT33- ■ ■ C1 -Z**	–
	215	1990	6.86	42900	3.1	735	**2KJ3514- ■ MT33- ■ ■ B1 -Z**	–
	K.149-LES225YMF4P							
	46	9400	32.33	29000	0.83	563	**2KJ3513- ■ MT33- ■ ■ P1 -Z**	–
	52	8330	28.66	30000	0.92	563	**2KJ3513- ■ MT33- ■ ■ N1 -Z**	–
	58	7350	25.30	30800	1	563	**2KJ3513- ■ MT33- ■ ■ M1 -Z**	–
	66	6470	22.25	31300	1.1	563	**2KJ3513- ■ MT33- ■ ■ L1 -Z**	–
	73	5850	20.15	31600	1.2	563	**2KJ3513- ■ MT33- ■ ■ K1 -Z**	–
	84	5100	17.54	31700	1.4	563	**2KJ3513- ■ MT33- ■ ■ J1 -Z**	–
	103	4180	14.38	31600	1.6	563	**2KJ3513- ■ MT33- ■ ■ H1 -Z**	–
	104	4110	14.15	31000	1	563	**2KJ3513- ■ MT33- ■ ■ G1 -Z**	–
	119	3610	12.44	30800	1.1	563	**2KJ3513- ■ MT33- ■ ■ F1 -Z**	–
	131	3270	11.26	30600	1.2	563	**2KJ3513- ■ MT33- ■ ■ E1 -Z**	–
	151	2850	9.81	30200	1.3	563	**2KJ3513- ■ MT33- ■ ■ D1 -Z**	–
	184	2330	8.04	29500	1.6	563	**2KJ3513- ■ MT33- ■ ■ C1 -Z**	–
	217	1980	6.82	28800	1.8	563	**2KJ3513- ■ MT33- ■ ■ B1 -Z**	–
	K.129-LES225YMF4P							
	89	4810	16.56	17800	0.83	480	**2KJ3512- ■ MT33- ■ ■ H1 -Z**	–
	98	4390	15.11	18300	0.9	480	**2KJ3512- ■ MT33- ■ ■ G1 -Z**	–
	114	3780	13.01	18900	1	480	**2KJ3512- ■ MT33- ■ ■ F1 -Z**	–
	125	3430	11.80	19100	0.82	480	**2KJ3512- ■ MT33- ■ ■ E1 -Z**	–
	143	3000	10.34	19400	0.95	480	**2KJ3512- ■ MT33- ■ ■ D1 -Z**	–
	164	2620	9.01	19500	1.1	480	**2KJ3512- ■ MT33- ■ ■ C1 -Z**	–
	180	2390	8.22	19500	1.1	480	**2KJ3512- ■ MT33- ■ ■ B1 -Z**	–
	209	2050	7.08	19500	1.2	480	**2KJ3512- ■ MT33- ■ ■ A1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
55	**K.189-LES250MD4P**							
	22	23800	67.36	104000	0.82	1066	**2KJ3515- ■ NM33- ■ ■ L1 -Z**	–
	24	21400	60.58	104000	0.91	1066	**2KJ3515- ■ NM33- ■ ■ K1 -Z**	–
	29	17800	50.34	104000	1.1	1066	**2KJ3515- ■ NM33- ■ ■ J1 -Z**	–
	33	15800	44.76	104000	1.2	1066	**2KJ3515- ■ NM33- ■ ■ H1 -Z**	–
	42	12600	35.67	103400	1.5	1066	**2KJ3515- ■ NM33- ■ ■ G1 -Z**	–
	52	10000	28.39	100200	1.9	1066	**2KJ3515- ■ NM33- ■ ■ F1 -Z**	–
	58	8990	25.37	98300	2.2	1066	**2KJ3515- ■ NM33- ■ ■ E1 -Z**	–
	70	7470	21.09	95100	2.6	1066	**2KJ3515- ■ NM33- ■ ■ D1 -Z**	–
	79	6640	18.75	93000	2.9	1066	**2KJ3515- ■ NM33- ■ ■ C1 -Z**	–
	K.169-LES250MD4P							
	33	15800	44.86	48600	0.82	837	**2KJ3514- ■ NM33- ■ ■ P1 -Z**	–
	38	13900	39.33	49700	0.93	837	**2KJ3514- ■ NM33- ■ ■ N1 -Z**	–
	48	10800	30.75	51100	1.2	837	**2KJ3514- ■ NM33- ■ ■ M1 -Z**	–
	50	10400	29.43	51000	1.2	837	**2KJ3514- ■ NM33- ■ ■ L1 -Z**	–
	55	9570	27.02	51100	1.4	837	**2KJ3514- ■ NM33- ■ ■ K1 -Z**	–
	62	8430	23.80	51000	1.5	837	**2KJ3514- ■ NM33- ■ ■ J1 -Z**	–
	76	6920	19.53	50400	1.8	837	**2KJ3514- ■ NM33- ■ ■ H1 -Z**	–
	87	6060	17.12	49800	2	837	**2KJ3514- ■ NM33- ■ ■ G1 -Z**	–
	111	4740	13.39	48400	2.5	837	**2KJ3514- ■ NM33- ■ ■ F1 -Z**	–
	121	4320	12.20	45400	1.6	837	**2KJ3514- ■ NM33- ■ ■ E1 -Z**	–
	148	3540	10.01	44300	1.8	837	**2KJ3514- ■ NM33- ■ ■ D1 -Z**	–
	169	3110	8.78	43400	2	837	**2KJ3514- ■ NM33- ■ ■ C1 -Z**	–
	216	2430	6.86	41600	2.5	837	**2KJ3514- ■ NM33- ■ ■ B1 -Z**	–
	K.149-LES250MD4P							
	59	8960	25.30	26200	0.83	664	**2KJ3513- ■ NM33- ■ ■ M1 -Z**	–
	67	7880	22.25	27300	0.91	664	**2KJ3513- ■ NM33- ■ ■ L1 -Z**	–
	74	7140	20.15	27900	0.99	664	**2KJ3513- ■ NM33- ■ ■ K1 -Z**	–
	84	6210	17.54	28600	1.1	664	**2KJ3513- ■ NM33- ■ ■ J1 -Z**	–
	103	5090	14.38	29100	1.3	664	**2KJ3513- ■ NM33- ■ ■ H1 -Z**	–
	105	5010	14.15	28300	0.83	664	**2KJ3513- ■ NM33- ■ ■ G1 -Z**	–
	119	4400	12.44	28500	0.91	664	**2KJ3513- ■ NM33- ■ ■ F1 -Z**	–
	132	3990	11.26	28500	0.99	664	**2KJ3513- ■ NM33- ■ ■ E1 -Z**	–
	151	3470	9.81	28400	1.1	664	**2KJ3513- ■ NM33- ■ ■ D1 -Z**	–
	184	2850	8.04	28000	1.3	664	**2KJ3513- ■ NM33- ■ ■ C1 -Z**	–
	217	2410	6.82	27500	1.5	664	**2KJ3513- ■ NM33- ■ ■ B1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
B.19																			
42.10	34	50	3880	13.0	0.02	3410/81	✓	✓											**2KJ3500 - ■ ■■■■ - ■■ A2**
37.28	39	50	3700	13.5	0.03	671/18	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ X1**
32.39	45	50	3510	13.6	0.04	583/18	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ W1**
29.44	49	50	3380	13.6	0.04	265/9	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ V1**
25.06	58	50	3170	13.7	0.06	451/18	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ U1**
22.78	64	50	3050	13.7	0.08	205/9	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ T1**
19.86	73	50	2890	13.9	0.09	715/36	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ S1**
17.78	82	50	2770	14.0	0.12	160/9	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ R1**
15.79	92	50	2640	14.1	0.14	1705/108	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ Q1**
14.57	100	50	2550	14.1	0.17	1705/117	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ P1**
12.66	115	50	2410	14.4	0.19	1595/126	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ N1**
11.00	132	50	2270	14.1	0.19	11/1	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ M1**
9.93	146	50	2190	14.2	0.25	715/72	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ L1**
9.35	155	50	2160	14.2	0.29	1430/153	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ K1**
8.15	178	47	2110	14.6	0.33	220/27	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ J1**
7.87	184	38	2160	21.4	0.14	1472/187	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ H1**
6.99	207	38	2100	21.7	0.17	713/102	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ G1**
6.45	225	39	2060	21.6	0.20	1426/221	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ F1**
5.61	258	37	1990	22.3	0.22	667/119	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ E1**
4.87	298	35	1930	21.6	0.24	414/85	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ D1**
4.40	330	34	1880	22.0	0.32	299/68	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ C1**
4.14	350	33	1850	22.0	0.37	1196/289	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ B1**
3.61	402	31	1780	22.8	0.43	184/51	✓	✓	✓										**2KJ3500 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
B.29																			
46.85	31	110	4130	10.6	0.04	1265/27	✓	✓											**2KJ3501 - ■ ■■■■ - ■■ B2**
41.56	35	110	4130	11.0	0.05	374/9	✓	✓	✓	✓									**2KJ3501 - ■ ■■■■ - ■■ A2**
36.06	40	110	4130	11.1	0.06	649/18	✓	✓	✓	✓									**2KJ3501 - ■ ■■■■ - ■■ X1**
32.78	44	110	4130	11.1	0.07	295/9	✓	✓	✓	✓									**2KJ3501 - ■ ■■■■ - ■■ W1**
28.11	52	110	4130	11.2	0.09	253/9	✓	✓	✓	✓									**2KJ3501 - ■ ■■■■ - ■■ V1**
25.56	57	110	4130	11.2	0.11	230/9	✓	✓	✓	✓									**2KJ3501 - ■ ■■■■ - ■■ U1**
22.41	65	110	4130	11.4	0.13	605/27	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ T1**
20.00	72	110	4130	11.4	0.16	20/1	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ S1**
17.82	81	110	4130	11.5	0.19	1925/108	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ R1**
16.45	88	110	4130	11.5	0.23	1925/117	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ Q1**
14.40	101	110	4020	11.7	0.28	605/42	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ P1**
12.63	115	110	3800	12.0	0.27	341/27	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ N1**
11.46	127	110	3650	12.1	0.38	275/24	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ M1**
10.78	135	110	3560	12.1	0.44	550/51	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ L1**
9.51	152	110	3370	11.8	0.50	770/81	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ K1**
8.25	176	110	3160	12.0	0.67	33/4	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ J1**
7.84	185	75	3350	16.5	0.41	345/44	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ H1**
7.38	196	75	3260	16.5	0.48	1380/187	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ G1**
6.51	223	75	3100	16.1	0.54	644/99	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ F1**
5.65	257	75	2920	16.3	0.73	621/110	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ E1**
5.07	286	74	2900	18.9	0.60	345/68	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ D1**
4.78	303	74	2830	18.9	0.70	1380/289	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ C1**
4.21	344	74	2680	18.2	0.82	644/153	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ B1**
3.65	397	73	2550	18.6	1.10	621/170	✓	✓	✓	✓	✓								**2KJ3501 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Bevel geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
B.39																			
56.36	26	250	6980	8.5	0.06	4565/81	✓	✓											**2KJ3502 - ■ ■■■■ - ■■ A2**
50.11	29	210	6980	8.8	0.08	451/9	✓	✓	✓	✓									**2KJ3502 - ■ ■■■■ - ■■ X1**
44.00	33	250	6980	8.9	0.09	44/1	✓	✓	✓	✓									**2KJ3502 - ■ ■■■■ - ■■ W1**
40.00	36	230	6980	8.9	0.11	40/1	✓	✓	✓	✓									**2KJ3502 - ■ ■■■■ - ■■ V1**
34.22	42	250	6980	8.9	0.13	308/9	✓	✓	✓	✓									**2KJ3502 - ■ ■■■■ - ■■ U1**
31.11	47	250	6980	8.9	0.16	280/9	✓	✓	✓	✓									**2KJ3502 - ■ ■■■■ - ■■ T1**
27.50	53	250	6980	9.0	0.20	55/2	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ S1**
25.00	58	250	6980	9.0	0.26	25/1	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ R1**
21.90	66	250	6720	9.2	0.30	2365/108	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ Q1**
20.21	72	250	6490	9.2	0.36	2365/117	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ P1**
17.90	81	250	6160	9.3	0.43	2255/126	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ N1**
14.90	97	250	5680	9.5	0.58	715/48	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ M1**
14.02	103	250	5520	9.5	0.67	715/51	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ L1**
12.56	115	250	5260	9.6	0.75	2035/162	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ K1**
10.69	136	240	4960	9.8	0.98	385/36	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ J1**
9.17	158	230	4690	10.1	1.29	55/6			✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ H1**
7.89	184	220	4550	10.3	1.66	1705/216			✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ G1**
6.60	220	200	4590	15.1	0.94	897/136	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ F1**
6.21	233	200	4550	15.1	1.08	1794/289	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ E1**
5.56	261	200	4460	15.5	1.26	851/153	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ D1**
4.74	306	200	4330	16.0	1.69	161/34	✓	✓	✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ C1**
4.06	357	200	4190	16.5	2.30	69/17			✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ B1**
3.50	414	192	4050	17.1	3.00	713/204			✓	✓	✓	✓							**2KJ3502 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
B.49																			
59.28	24	450	9510	8.3	0.19	1067/18	✓	✓	✓	✓									**2KJ3503 - ■ ■■■■ - ■■ C2**
53.89	27	450	9120	8.3	0.23	485/9	✓	✓	✓	✓									**2KJ3503 - ■ ■■■■ - ■■ B2**
45.83	32	450	8480	8.3	0.28	275/6	✓	✓	✓	✓									**2KJ3503 - ■ ■■■■ - ■■ A2**
41.67	35	450	8120	8.3	0.34	125/3	✓	✓	✓	✓									**2KJ3503 - ■ ■■■■ - ■■ X1**
37.18	39	450	7710	8.4	0.40	4015/108	✓	✓	✓	✓	✓	✓							**2KJ3503 - ■ ■■■■ - ■■ W1**
33.33	44	450	7320	8.4	0.48	100/3	✓	✓	✓	✓	✓	✓							**2KJ3503 - ■ ■■■■ - ■■ V1**
30.05	48	450	6970	8.4	0.56	3245/108	✓	✓	✓	✓	✓	✓							**2KJ3503 - ■ ■■■■ - ■■ U1**
27.74	52	450	6710	8.4	0.67	3245/117	✓	✓	✓	✓	✓	✓							**2KJ3503 - ■ ■■■■ - ■■ T1**
25.32	57	450	6420	8.5	0.80	1595/63	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ S1**
21.01	69	450	5850	8.6	1.03	3025/144	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ R1**
19.77	73	450	5670	8.6	1.18	3025/153	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ Q1**
18.67	78	450	5510	8.6	1.34	3025/162	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ P1**
15.89	91	450	5060	8.7	1.66	143/9	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ N1**
13.61	107	450	4660	8.9	2.10	245/18			✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ M1**
11.97	121	450	4340	9.0	2.50	2585/216			✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ L1**
10.10	144	450	3930	9.2	3.30	2090/207			✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ K1**
8.80	165	450	3620	9.7	4.40	44/5			✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ J1**
8.29	175	330	4540	14.1	1.52	2255/272	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ H1**
7.80	186	330	4410	14.1	1.74	2255/289	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ G1**
7.37	197	330	4290	14.1	1.97	2255/306	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ F1**
6.27	231	330	3970	14.4	2.50	533/85	✓	✓	✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ E1**
5.37	270	330	3700	14.8	3.30	2009/374			✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ D1**
4.72	307	330	3690	15.1	4.10	1927/408			✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ C1**
3.98	364	330	3660	15.6	5.40	1558/391			✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ B1**
3.47	418	325	3610	17.0	7.20	1476/425			✓	✓	✓	✓	✓						**2KJ3503 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.39																			
157.32	9.2	220	6080	7.3	0.04	3933/25	✓	✓											**2KJ3504 - ■ ■■■■ - ■■ J2**
139.54	10	220	6080	7.4	0.05	17442/125	✓	✓	✓	✓									**2KJ3504 - ■ ■■■■ - ■■ H2**
121.07	12	220	6080	7.4	0.06	30267/250	✓	✓	✓	✓									**2KJ3504 - ■ ■■■■ - ■■ G2**
110.06	13	220	6080	7.4	0.07	30267/275	✓	✓	✓	✓									**2KJ3504 - ■ ■■■■ - ■■ F2**
94.39	15	220	6080	7.4	0.09	11799/125	✓	✓	✓	✓									**2KJ3504 - ■ ■■■■ - ■■ E2**
85.81	17	220	6080	7.4	0.11	23598/275	✓	✓	✓	✓									**2KJ3504 - ■ ■■■■ - ■■ D2**
75.24	19	220	6080	7.5	0.12	1881/25	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ C2**
67.16	22	220	6080	7.5	0.15	18468/275	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ B2**
59.85	24	220	6080	7.5	0.18	1197/20	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ A2**
55.25	26	220	6080	7.5	0.22	3591/65	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ X1**
48.37	30	220	6080	7.6	0.26	16929/350	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ W1**
42.41	34	220	5790	7.7	0.24	5301/125	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ V1**
38.47	38	220	5540	7.7	0.34	1539/40	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ U1**
36.21	40	220	5390	7.7	0.40	3078/85	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ T1**
31.92	45	220	5080	7.6	0.44	798/25	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ S1**
27.70	52	220	4760	7.7	0.60	13851/500	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ R1**
26.89	54	220	4690	9.2	0.26	6804/253	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ Q1**
23.97	60	220	4440	9.3	0.32	2205/92	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ P1**
22.12	66	220	4270	9.3	0.38	6615/299	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ N1**
19.37	75	220	4000	9.4	0.47	891/46	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ M1**
16.98	85	220	3740	9.6	0.51	1953/115	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ L1**
15.41	94	220	3560	9.7	0.67	2835/184	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ K1**
14.50	100	220	3450	9.7	0.78	5670/391	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ J1**
12.78	113	220	3220	9.7	0.92	294/23	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ H1**
11.09	131	220	2990	9.8	1.24	5103/460	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ G1**
10.04	144	184	2880	14.7	0.55	231/23	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ F1**
8.81	165	183	2790	15.1	0.62	3038/345	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ E1**
7.99	181	175	2810	15.3	0.80	735/92	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ D1**
7.52	193	171	2810	15.3	0.92	2940/391	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ C1**
6.63	219	161	2820	15.3	1.11	1372/207	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ B1**
5.75	252	150	2810	15.4	1.49	1323/230	✓	✓	✓	✓	✓	✓							**2KJ3504 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.49																			
200.25	7.2	420	7820	6.7	0.06	12616/63	✓	✓											**2KJ3505 - ■ ■■■■ - ■■ J2**
178.06	8.1	420	7820	6.8	0.07	6232/35	✓	✓	✓	✓									**2KJ3505 - ■ ■■■■ - ■■ H2**
156.34	9.3	420	7820	6.8	0.08	5472/35	✓	✓	✓	✓									**2KJ3505 - ■ ■■■■ - ■■ G2**
142.13	10	420	7820	6.8	0.10	10944/77	✓	✓	✓	✓									**2KJ3505 - ■ ■■■■ - ■■ F2**
121.60	12	420	7820	6.8	0.12	608/5	✓	✓	✓	✓									**2KJ3505 - ■ ■■■■ - ■■ E2**
110.55	13	420	7820	6.8	0.14	1216/11	✓	✓	✓	✓									**2KJ3505 - ■ ■■■■ - ■■ D2**
97.71	15	420	7710	6.8	0.17	684/7	✓	✓	✓	✓	✓	✓							**2KJ3505 - ■ ■■■■ - ■■ C2**
88.83	16	420	7370	6.8	0.22	6840/77	✓	✓	✓	✓	✓	✓							**2KJ3505 - ■ ■■■■ - ■■ B2**
77.81	19	420	6910	6.9	0.25	1634/21	✓	✓	✓	✓	✓	✓							**2KJ3505 - ■ ■■■■ - ■■ A2**
71.82	20	420	6640	6.9	0.30	6536/91	✓	✓	✓	✓	✓	✓							**2KJ3505 - ■ ■■■■ - ■■ X1**
63.59	23	420	6250	6.9	0.37	3116/49	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ W1**
52.93	27	420	5680	7.0	0.50	741/14	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ V1**
49.82	29	420	5500	7.0	0.58	5928/119	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ U1**
44.63	32	420	5190	7.0	0.65	2812/63	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ T1**
38.00	38	420	4740	7.1	0.84	38/1	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ S1**
32.57	45	420	4340	7.1	1.11	228/7			✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ R1**
28.05	52	420	3970	7.2	1.43	589/21			✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ Q1**
26.30	55	420	3820	8.6	0.52	55040/2093	✓	✓	✓	✓	✓	✓							**2KJ3505 - ■ ■■■■ - ■■ P1**
23.28	62	420	3540	8.7	0.65	26240/1127	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ N1**
19.38	75	420	3130	8.8	0.90	3120/161	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ M1**
18.24	79	420	3000	8.8	1.03	49920/2737	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ L1**
16.34	89	420	2780	9.0	1.21	23680/1449	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ K1**
13.91	104	420	2880	9.1	1.62	320/23	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ J1**
11.93	122	420	3000	9.3	2.20	1920/161			✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ H1**
10.27	141	415	3080	9.5	2.90	4960/483			✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ G1**
9.75	149	275	2960	14.2	1.03	39/4	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ F1**
9.18	158	270	2980	14.2	1.19	156/17	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ E1**
8.22	176	255	3010	14.5	1.40	74/9	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ D1**
7.00	207	240	3030	14.8	1.88	7/1	✓	✓	✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ C1**
6.00	242	225	3020	15.2	2.50	6/1			✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ B1**
5.17	280	210	2990	15.4	3.30	31/6			✓	✓	✓	✓	✓						**2KJ3505 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Bevel geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.69																			
196.59	7.4	600	10800	6.4	0.17	14744/75	✓	✓	✓	✓									**2KJ3507 - ■ ■■■■ - ■■ H2**
178.72	8.1	600	10800	6.4	0.20	29488/165	✓	✓	✓	✓									**2KJ3507 - ■ ■■■■ - ■■ G2**
152.00	9.5	600	10800	6.4	0.25	152/1	✓	✓	✓	✓									**2KJ3507 - ■ ■■■■ - ■■ F2**
138.18	10	600	10800	6.4	0.30	1520/11	✓	✓	✓	✓									**2KJ3507 - ■ ■■■■ - ■■ E2**
123.29	12	600	10800	6.4	0.35	5548/45	✓	✓	✓	✓	✓	✓							**2KJ3507 - ■ ■■■■ - ■■ D2**
110.55	13	600	10800	6.4	0.42	1216/11	✓	✓	✓	✓	✓	✓							**2KJ3507 - ■ ■■■■ - ■■ C2**
99.64	15	600	10800	6.4	0.49	4484/45	✓	✓	✓	✓	✓	✓							**2KJ3507 - ■ ■■■■ - ■■ B2**
91.98	16	600	10600	6.4	0.58	17936/195	✓	✓	✓	✓	✓	✓							**2KJ3507 - ■ ■■■■ - ■■ A2**
83.96	17	600	10100	6.4	0.69	8816/105	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ X1**
69.67	21	600	9300	6.5	0.87	209/3	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ W1**
65.57	22	600	9030	6.5	1.01	3344/51	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ V1**
61.93	23	600	8770	6.5	1.15	1672/27	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ U1**
52.69	28	600	8090	6.5	1.40	3952/75	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ T1**
45.14	32	600	7470	6.5	1.70	7448/165			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ S1**
39.69	37	600	6980	6.5	2.10	1786/45			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ R1**
33.48	43	580	6500	6.5	2.60	11552/345			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ Q1**
29.18	50	555	6200	6.5	3.50	3648/125			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ P1**
26.05	56	600	5500	7.8	1.25	3751/144	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ N1**
24.52	59	595	5340	7.8	1.44	3751/153	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ M1**
23.15	63	585	5230	7.8	1.63	3751/162	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ L1**
19.70	74	555	4950	8.0	2.10	4433/225	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ K1**
16.88	86	530	4680	8.0	2.60	1519/90			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ J1**
14.84	98	515	4430	8.0	3.30	16027/1080			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ H1**
12.52	116	490	4170	8.0	4.30	12958/1035			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ G1**
10.91	133	470	3960	8.0	5.70	1364/125			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ F1**
9.34	155	370	3640	13.0	2.40	3224/345	✓	✓	✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ E1**
8.01	181	365	3330	13.0	3.10	6076/759			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ D1**
7.04	206	365	3210	13.0	3.90	1457/207			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ C1**
5.94	244	345	3350	13.0	5.10	9424/1587			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ B1**
5.18	280	330	3420	13.0	6.80	2976/575			✓	✓	✓	✓	✓						**2KJ3507 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.79																			
244.25	5.9	820	13900	5.7	0.17	175861/720	✓	✓	✓	✓									**2KJ3508 - ■ ■■■■ - ■■ J2**
222.05	6.5	820	13900	5.7	0.20	175861/792	✓	✓	✓	✓									**2KJ3508 - ■ ■■■■ - ■■ H2**
188.85	7.7	820	13900	5.7	0.25	9065/48	✓	✓	✓	✓									**2KJ3508 - ■ ■■■■ - ■■ G2**
171.69	8.4	820	13900	5.7	0.31	45325/264	✓	✓	✓	✓									**2KJ3508 - ■ ■■■■ - ■■ F2**
153.18	9.5	820	13900	5.8	0.35	132349/864	✓	✓	✓	✓	✓	✓							**2KJ3508 - ■ ■■■■ - ■■ E2**
137.35	11	820	13900	5.8	0.42	9065/66	✓	✓	✓	✓	✓	✓							**2KJ3508 - ■ ■■■■ - ■■ D2**
123.80	12	820	13900	5.8	0.50	106967/864	✓	✓	✓	✓	✓	✓							**2KJ3508 - ■ ■■■■ - ■■ C2**
114.28	13	820	13900	5.8	0.59	106967/936	✓	✓	✓	✓	✓	✓							**2KJ3508 - ■ ■■■■ - ■■ B2**
104.32	14	820	13900	5.8	0.70	7511/72	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ A2**
86.56	17	820	13900	5.8	0.89	99715/1152	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ X1**
81.47	18	820	13900	5.8	1.02	99715/1224	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ W1**
76.94	19	820	13900	5.8	1.16	99715/1296	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ V1**
65.47	22	820	13900	5.9	1.42	23569/360	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ U1**
56.08	26	820	13900	5.9	1.73	88837/1584			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ T1**
49.31	29	820	13900	5.9	2.10	85211/1728			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ S1**
41.60	35	800	14000	6.0	2.70	34447/828			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ R1**
36.26	40	770	14000	6.1	3.60	1813/50			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ Q1**
32.78	44	820	13900	7.2	0.94	6293/192	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ P1**
27.20	53	800	14000	7.3	1.23	83545/3072	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ N1**
25.60	57	785	14000	7.3	1.41	83545/3264	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ M1**
24.17	60	770	14000	7.3	1.60	83545/3456	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ L1**
20.57	70	740	14100	7.4	2.00	19747/960	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ K1**
17.62	82	715	13800	7.5	2.60	74431/4224			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ J1**
15.49	94	695	13300	7.6	3.20	71393/4608			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ H1**
13.07	111	665	12600	7.8	4.20	28861/2208			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ G1**
11.39	127	645	12000	8.3	5.50	4557/400			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ F1**
10.51	138	445	12600	10.4	2.30	1209/115	✓	✓	✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ E1**
9.01	161	450	11900	10.6	3.00	4557/506			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ D1**
7.92	183	450	11300	10.8	3.70	1457/184			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ C1**
6.68	217	455	10900	11.1	4.90	3534/529			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ B1**
5.82	249	430	10700	12.1	6.60	3348/575			✓	✓	✓	✓	✓						**2KJ3508 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Bevel geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.89																			
231.80	6.3	1600	18100	5.6	0.42	10199/44		✓	✓	✓									**2KJ3510 - ■ ■■■■ - ■■ K2**
210.72	6.9	1600	18100	5.6	0.51	50995/242		✓	✓	✓									**2KJ3510 - ■ ■■■■ - ■■ J2**
189.01	7.7	1600	18100	5.6	0.71	149695/792		✓	✓	✓	✓	✓							**2KJ3510 - ■ ■■■■ - ■■ H2**
169.94	8.5	1600	18100	5.6	0.80	41125/242		✓	✓	✓	✓	✓							**2KJ3510 - ■ ■■■■ - ■■ G2**
153.70	9.4	1600	18100	5.6	0.88	60865/396		✓	✓	✓	✓	✓							**2KJ3510 - ■ ■■■■ - ■■ F2**
141.88	10	1600	18100	5.6	1.05	60865/429		✓	✓	✓	✓	✓							**2KJ3510 - ■ ■■■■ - ■■ E2**
129.96	11	1600	18100	5.6	1.37	17155/132		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ D2**
109.04	13	1600	18100	5.6	1.45	57575/528		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ C2**
102.63	14	1600	18100	5.6	1.66	57575/561		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ B2**
94.16	15	1600	18100	5.6	1.81	27965/297		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ A2**
82.25	18	1600	18100	5.6	2.60	329/4		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ X1**
73.64	20	1600	18100	5.6	3.20	106925/1452			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ W1**
64.39	23	1600	18100	5.6	3.70	50995/792			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ V1**
55.27	26	1600	18100	5.6	4.10	27965/506			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ U1**
48.85	30	1600	18100	5.6	5.20	16121/330			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ T1**
41.54	35	1570	18100	5.6	6.60	8225/198					✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ S1**
39.29	37	1600	18100	7.0	1.86	11315/288		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ R1**
32.96	44	1600	18100	7.0	2.10	37975/1152		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ Q1**
31.03	47	1600	18100	7.0	2.40	37975/1224		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ P1**
28.46	51	1600	18100	7.0	2.70	18445/648		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ N1**
24.86	58	1600	18100	7.1	3.80	2387/96		✓	✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ M1**
22.26	65	1600	18100	7.1	4.70	70525/3168			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ L1**
19.46	75	1560	17900	7.1	5.70	33635/1728			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ K1**
16.71	87	1480	17200	7.1	6.80	18445/1104			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ J1**
14.77	98	1420	16600	7.1	8.60	10633/720			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ H1**
12.56	115	1330	16300	7.1	11.00	5425/432					✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ G1**
10.76	135	1250	16100	7.1	15.00	775/72					✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ F1**
10.51	138	845	16100	10.8	6.40	6727/640			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ E1**
9.02	161	800	15400	10.8	7.70	33201/3680			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ D1**
7.97	182	770	14800	10.8	9.80	31899/4000			✓	✓	✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ C1**
6.78	214	720	14500	10.8	13.00	217/32					✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ B1**
5.81	250	675	14200	10.8	17.00	93/16					✓	✓	✓	✓					**2KJ3510 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ[1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.109																			
216.65	6.7	2900	24500	5.6	1.27	107242/495			✓	✓	✓	✓							**2KJ3511 - ■ ■■■■ - ■■ H2**
195.60	7.4	2900	24500	5.6	1.37	118336/605			✓	✓	✓	✓							**2KJ3511 - ■ ■■■■ - ■■ G2**
177.43	8.2	2900	24500	5.6	1.61	35131/198			✓	✓	✓	✓							**2KJ3511 - ■ ■■■■ - ■■ F2**
163.78	8.9	2900	24500	5.6	1.9	70262/429			✓	✓	✓	✓							**2KJ3511 - ■ ■■■■ - ■■ E2**
148.88	9.7	2900	24500	5.6	2.2	57319/385			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ D2**
126.07	12	2900	24500	5.6	2.6	5547/44			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ C2**
118.65	12	2900	24500	5.6	2.6	22188/187			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ B2**
109.57	13	2900	24500	5.6	4.1	14792/135			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ A2**
97.49	15	2900	24500	5.6	5.0	53621/550			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ X1**
86.59	17	2900	24500	5.7	6.0	31433/363			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ W1**
77.51	19	2900	24500	5.7	5.9	153467/1980			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ V1**
66.26	22	2900	24500	5.7	6.8	251464/3795			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ U1**
59.17	25	2900	24500	5.8	8.6	7396/125			✓	✓	✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ T1**
52.29	28	2900	24500	5.8	9.7	25886/495					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ S1**
45.89	32	2900	24500	5.8	14	159014/3465					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ R1**
39.95	36	2820	23900	5.8	17	151618/3795					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ Q1**
34.15	42	2710	22700	5.8	21	118336/3465					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ P1**
29.23	50	2620	21500	5.8	27	7396/253					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ N1**
24.98	58	2380	21000	6.9	9.9	163744/6555			✓	✓	✓	✓	✓	✓					**2KJ3511 - ■ ■■■■ - ■■ M1**
22.31	65	2380	20000	7.1	13	52976/2375			✓	✓	✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ L1**
19.71	74	2380	18900	7.1	15	16856/855					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ K1**
17.30	84	2400	17800	7.1	20	14792/855					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ J1**
15.06	96	2310	17500	7.1	25	98728/6555					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ H1**
12.87	113	2200	17500	7.1	33	11008/855					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ G1**
11.02	132	2100	17400	7.2	43	4816/437					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ F1**
10.45	139	1260	17600	10.8	17	784/75					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ E1**
9.17	158	1270	16700	10.8	23	688/75					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ D1**
7.99	181	1280	16300	10.8	29	4592/575					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ C1**
6.83	212	1300	16000	10.8	38	512/75					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ B1**
5.84	248	1300	15700	11.0	49	672/115					✓	✓	✓	✓	✓				**2KJ3511 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.129																			
228.30	6.4	4400	37600	6.3	3.3	30821/135				✓	✓	✓							**2KJ3512 - ■ ■■■■ - ■■ J2**
210.74	6.9	4400	37600	6.3	3.9	123284/585				✓	✓	✓							**2KJ3512 - ■ ■■■■ - ■■ H2**
194.04	7.5	4400	37600	6.3	4.5	8732/45				✓	✓	✓	✓	✓					**2KJ3512 - ■ ■■■■ - ■■ G2**
165.47	8.8	4400	37600	6.3	5.6	5957/36				✓	✓	✓	✓	✓					**2KJ3512 - ■ ■■■■ - ■■ F2**
155.74	9.3	4400	37600	6.3	6.4	23828/153				✓	✓	✓	✓	✓					**2KJ3512 - ■ ■■■■ - ■■ E2**
144.53	10	4400	37600	6.3	7.0	58534/405				✓	✓	✓	✓	✓					**2KJ3512 - ■ ■■■■ - ■■ D2**
127.77	11	4400	37600	6.3	8.4	9583/75				✓	✓	✓	✓	✓					**2KJ3512 - ■ ■■■■ - ■■ C2**
114.06	13	4400	37600	6.3	10	56462/495				✓	✓	✓	✓	✓					**2KJ3512 - ■ ■■■■ - ■■ B2**
102.64	14	4400	37600	6.3	12	27713/270				✓	✓	✓	✓	✓					**2KJ3512 - ■ ■■■■ - ■■ A2**
89.09	16	4400	37600	6.3	14	92204/1035				✓	✓	✓	✓	✓					**2KJ3512 - ■ ■■■■ - ■■ X1**
80.12	18	4400	37600	6.3	17	30044/375				✓	✓	✓	✓	✓	✓				**2KJ3512 - ■ ■■■■ - ■■ W1**
70.03	21	4400	37600	6.3	19	18907/270					✓	✓	✓	✓	✓	✓			**2KJ3512 - ■ ■■■■ - ■■ V1**
62.49	23	4400	36200	6.4	23	2812/45					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ U1**
55.05	26	4400	34300	6.4	27	11396/207					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ T1**
48.24	30	4400	32400	6.4	33	6512/135					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ S1**
42.04	34	4400	30500	6.4	39	14504/345					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ R1**
38.37	38	4400	29200	6.9	45	1036/27					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ Q1**
33.03	44	4400	27300	7.0	55	11396/345							✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ P1**
31.55	46	4400	26700	7.0	23	3944/125				✓	✓	✓	✓	✓	✓				**2KJ3512 - ■ ■■■■ - ■■ N1**
27.58	53	4400	25000	7.0	27	1241/45					✓	✓	✓	✓	✓	✓			**2KJ3512 - ■ ■■■■ - ■■ M1**
24.61	59	4400	23700	7.1	33	2584/105					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ L1**
21.68	67	4270	22700	7.1	40	1496/69					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ K1**
19.00	76	4140	21700	7.1	50	5984/315					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ J1**
16.56	88	4020	20600	7.2	62	1904/115					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ H1**
15.11	96	3940	20000	7.2	72	136/9					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ G1**
13.01	111	3810	19000	7.2	91	1496/115							✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ F1**
11.80	123	2830	21400	9.5	46	119680/10143					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ E1**
10.34	140	2850	20100	9.6	57	95744/9261					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ D1**
9.01	161	2760	19500	9.7	71	4352/483					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ C1**
8.22	176	2680	19500	9.8	83	10880/1323					✓	✓	✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ B1**
7.08	205	2530	19500	9.9	107	23936/3381							✓	✓	✓	✓	✓		**2KJ3512 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.149																			
237.03	6.1	8000	65000	5.3	7.1	83433/352				✓	✓	✓	✓	✓					**2KJ3513 - ■ ■■■■ - ■■ J2**
202.86	7.1	8000	65000	5.3	9.0	285621/1408				✓	✓	✓	✓	✓					**2KJ3513 - ■ ■■■■ - ■■ H2**
190.92	7.6	8000	65000	5.3	10	285621/1496				✓	✓	✓	✓	✓					**2KJ3513 - ■ ■■■■ - ■■ G2**
178.97	8.1	8000	65000	5.3	11	188993/1056				✓	✓	✓	✓	✓					**2KJ3513 - ■ ■■■■ - ■■ F2**
158.65	9.1	8000	65000	5.3	14	558453/3520				✓	✓	✓	✓	✓					**2KJ3513 - ■ ■■■■ - ■■ E2**
140.93	10	8000	64100	5.3	16	17052/121				✓	✓	✓	✓	✓					**2KJ3513 - ■ ■■■■ - ■■ D2**
127.16	11	8000	61400	5.3	19	89523/704				✓	✓	✓	✓	✓					**2KJ3513 - ■ ■■■■ - ■■ C2**
112.68	13	8000	58400	5.3	23	456141/4048				✓	✓	✓	✓	✓					**2KJ3513 - ■ ■■■■ - ■■ B2**
99.79	15	8000	55600	5.4	26	439089/4400				✓	✓	✓	✓	✓	✓				**2KJ3513 - ■ ■■■■ - ■■ A2**
88.81	16	8000	52900	5.4	31	1421/16					✓	✓	✓	✓	✓	✓			**2KJ3513 - ■ ■■■■ - ■■ X1**
79.59	18	8000	50400	5.4	37	14007/176					✓	✓	✓	✓	✓	✓	✓		**2KJ3513 - ■ ■■■■ - ■■ W1**
70.56	21	8000	47900	5.4	43	285621/4048					✓	✓	✓	✓	✓	✓	✓		**2KJ3513 - ■ ■■■■ - ■■ V1**
62.28	23	8000	45300	5.4	52	5481/88					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ U1**
54.76	26	8000	42700	5.4	63	55419/1012					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ T1**
49.60	29	8000	40800	5.4	70	8729/176					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ S1**
43.18	34	8000	38200	5.4	85	174783/4048							✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ R1**
35.40	41	7850	35100	5.5	110	80997/2288							✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ Q1**
32.33	45	7760	33900	6.1	49	12673/392					✓	✓	✓	✓	✓	✓	✓		**2KJ3513 - ■ ■■■■ - ■■ P1**
28.66	51	7630	32200	6.1	59	36917/1288					✓	✓	✓	✓	✓	✓	✓		**2KJ3513 - ■ ■■■■ - ■■ N1**
25.30	57	7420	30900	6.1	73	4959/196					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ M1**
22.25	65	7210	29500	6.2	89	7163/322					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ L1**
20.15	72	7070	28400	6.2	103	23693/1176					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ K1**
17.54	83	6890	28500	6.3	128	22591/1288							✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ J1**
14.38	101	6660	29000	6.3	174	10469/728							✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ H1**
14.15	102	4140	31100	8.0	79	17328/1225					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ G1**
12.44	117	4030	29800	8.0	97	150176/12075					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ F1**
11.26	129	3950	28800	8.1	113	124184/11025					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ E1**
9.81	148	3850	28400	8.2	141	118408/12075							✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ D1**
8.04	180	3720	28000	8.3	194	54872/6825							✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ C1**
6.82	213	3630	27500	8.4	266	89528/13125							✓	✓	✓	✓	✓	✓	**2KJ3513 - ■ ■■■■ - ■■ B1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Bevel geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.169																			
223.30	6.5	13000	70000	5.2	18	273319/1224					✓	✓	✓	✓					**2KJ3514 - ■ ■■■■ - ■■ F2**
208.35	7.0	13000	70000	5.2	20	135013/648					✓	✓	✓	✓					**2KJ3514 - ■ ■■■■ - ■■ E2**
185.23	7.8	13000	70000	5.2	24	29637/160					✓	✓	✓	✓					**2KJ3514 - ■ ■■■■ - ■■ D2**
166.31	8.7	13000	70000	5.2	28	16465/99					✓	✓	✓	✓					**2KJ3514 - ■ ■■■■ - ■■ C2**
150.55	9.6	13000	70000	5.2	33	260147/1728					✓	✓	✓	✓					**2KJ3514 - ■ ■■■■ - ■■ B2**
132.24	11	13000	70000	5.2	40	437969/3312					✓	✓	✓	✓					**2KJ3514 - ■ ■■■■ - ■■ A2**
119.83	12	13000	70000	5.2	47	431383/3600					✓	✓	✓	✓	✓				**2KJ3514 - ■ ■■■■ - ■■ X1**
106.72	14	13000	70000	5.2	54	23051/216					✓	✓	✓	✓	✓	✓			**2KJ3514 - ■ ■■■■ - ■■ W1**
95.83	15	13000	70000	5.2	65	36223/378					✓	✓	✓	✓	✓	✓	✓		**2KJ3514 - ■ ■■■■ - ■■ V1**
85.51	17	13000	70000	5.2	75	141599/1656					✓	✓	✓	✓	✓	✓	✓		**2KJ3514 - ■ ■■■■ - ■■ U1**
76.23	19	13000	70000	5.2	88	16465/216					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ T1**
67.61	21	13000	66900	5.3	103	55981/828					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ S1**
62.07	23	13000	64500	5.3	114	62567/1008					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ R1**
54.68	27	13000	60900	5.3	134	181115/3312							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ Q1**
44.86	32	13000	55700	5.3	180	55981/1248							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ P1**
39.33	37	13000	52300	5.3	198	141599/3600							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ N1**
30.75	47	13000	46500	5.4	309	42809/1392							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ M1**
29.43	49	13000	45500	5.8	133	25721/874					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ L1**
27.02	54	13000	43500	5.9	151	1513/56					✓	✓	✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ K1**
23.80	61	13000	40800	5.9	181	83215/3496							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ J1**
19.53	74	12700	40000	6.0	249	77163/3952							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ H1**
17.12	85	12400	40800	6.0	288	65059/3800							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ G1**
13.39	108	11900	41300	6.2	457	59007/4408							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ F1**
12.20	119	6760	38700	8.1	202	143990/11799							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ E1**
10.01	145	6530	37800	8.3	280	22253/2223							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ D1**
8.78	165	6360	37800	8.3	328	112574/12825							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ C1**
6.86	211	6130	37300	8.8	523	34034/4959							✓	✓	✓	✓	✓	✓	**2KJ3514 - ■ ■■■■ - ■■ B1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$\varphi^{1)}$ ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	180	200	225	250	Article No. (Article No. supplement, see below)
K.189																			
199.51	7.3	19100	104000	4.8	37	186543/935						✓	✓	✓					**2KJ3515 - ■ ■■■■ - ■■ W1**
178.49	8.1	19500	104000	4.8	43	367164/2057						✓	✓	✓					**2KJ3515 - ■ ■■■■ - ■■ V1**
160.98	9	19500	104000	4.8	50	60207/374						✓	✓	✓					**2KJ3515 - ■ ■■■■ - ■■ U1**
142.28	10	19500	104000	4.8	62	611940/4301						✓	✓	✓					**2KJ3515 - ■ ■■■■ - ■■ T1**
130.05	11	19500	104000	4.8	73	55272/425						✓	✓	✓	✓				**2KJ3515 - ■ ■■■■ - ■■ S1**
117.00	12	19500	104000	4.8	86	43757/374						✓	✓	✓	✓	✓			**2KJ3515 - ■ ■■■■ - ■■ R1**
104.56	14	19500	104000	4.8	100	19552/187						✓	✓	✓	✓	✓	✓		**2KJ3515 - ■ ■■■■ - ■■ Q1**
94.55	15	19500	104000	4.8	119	406644/4301						✓	✓	✓	✓	✓	✓		**2KJ3515 - ■ ■■■■ - ■■ P1**
83.44	17	19500	104000	4.8	140	15604/187						✓	✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ N1**
74.35	20	19500	104000	4.8	164	319788/4301						✓	✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ M1**
67.36	22	19500	104000	4.8	182	12596/187						✓	✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ L1**
60.58	24	19500	104000	4.8	220	23688/391							✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ K1**
50.34	29	19500	104000	4.8	273	122388/2431							✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ J1**
44.76	32	19500	99100	4.8	334	209244/4675							✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ H1**
35.67	41	19500	89900	4.9	455	193452/5423							✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ G1**
28.39	51	19500	81300	5.0	586	153972/5423									✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ F1**
25.37	57	19500	77300	5.3	335	11088/437							✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ E1**
21.09	69	19500	70900	5.4	439	5208/247							✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ D1**
18.75	77	19500	67000	5.4	545	8904/475							✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ C1**
14.94	97	19500	60000	5.6	786	8232/551							✓	✓	✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ B1**
11.89	122	19500	61300	5.7	1109	6552/551									✓	✓	✓	✓	**2KJ3515 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

1) Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] ‘	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.39-Z19															
3001	0.48	220	6080	–	0.02	975384/325	✓	✓							**2KJ3520 - ■ ■■■■ - ■■ E2**
2657	0.55	220	6080	–	0.03	4318434/1625	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ D2**
2309	0.63	220	6080	–	0.04	3752082/1625	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ C2**
2099	0.69	220	6080	–	0.05	7504164/3575	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ B2**
1786	0.81	220	6080	–	0.07	2902554/162	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ A2**
1624	0.89	220	6080	–	0.08	5805108/3575	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ X1**
1416	1.0	220	6080	–	0.09	35397/25	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ W1**
1267	1.1	220	6080	–	0.12	4530816/3575	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ V1**
1125	1.3	220	6080	–	0.15	365769/325	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ U1**
1039	1.4	220	6080	–	0.18	4389228/4225	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ T1**
902	1.6	220	6080	–	0.20	2053026/2275	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ S1**
784	1.8	220	6080	–	0.21	1274292/1625	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ R1**
708	2.0	220	6080	–	0.27	35397/50	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ Q1**
666	2.2	220	6080	–	0.32	283176/425	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ P1**
581	2.5	220	6080	–	0.36	188784/325	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ N1**
536	2.7	220	6080	–	0.19	243846/455	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ M1**
466	3.1	220	6080	–	0.22	114057/245	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ L1**
405	3.6	220	6080	–	0.23	70794/175	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ K1**
365	4.0	220	6080	–	0.29	51129/140	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ J1**
343.72	4.2	220	6080	–	0.35	204516/595	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ H1**
329.29	4.4	220	6080	–	0.32	699732/2125	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ G1**
287.07	5.1	220	6080	–	0.37	466488/1625	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ F1**
264.86	5.5	220	6080	–	0.19	602547/2275	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ E1**
230.07	6.3	220	6080	–	0.22	563673/2450	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ D1**
199.92	7.3	220	6080	–	0.23	174933/875	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ C1**
180.49	8.0	220	6080	–	0.30	252681/1400	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ B1**
169.87	8.5	220	6080	–	0.35	505362/2975	✓	✓	✓						**2KJ3520 - ■ ■■■■ - ■■ A1**
K.39-D19															
6699	0.22	220	6080	–	0.11	167640192/25025	✓	✓							**2KJ3521 - ■ ■■■■ - ■■ H1**
5949	0.24	220	6080	–	0.13	13533453/2275	✓	✓							**2KJ3521 - ■ ■■■■ - ■■ G1**
5491	0.26	220	6080	–	0.16	162401436/29575	✓	✓							**2KJ3521 - ■ ■■■■ - ■■ F1**
4770	0.30	220	6080	–	0.17	75961962/15925	✓	✓							**2KJ3521 - ■ ■■■■ - ■■ E1**
4145	0.35	220	6080	–	0.18	47148804/11375	✓	✓							**2KJ3521 - ■ ■■■■ - ■■ D1**
3742	0.39	220	6080	–	0.22	1309689/350	✓	✓							**2KJ3521 - ■ ■■■■ - ■■ C1**
3522	0.41	220	6080	–	0.26	10477512/2975	✓	✓							**2KJ3521 - ■ ■■■■ - ■■ B1**
3070	0.47	220	6080	–	0.29	6985008/2275	✓	✓							**2KJ3521 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.49-Z19															
3866	0.38	420	7820	–	0.02	150784/39	✓	✓							2KJ3522 - ■ ■■■■ - ■■ G2
3424	0.42	420	7820	–	0.03	222528/65	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ F2
2975	0.49	420	7820	–	0.04	193344/65	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ E2
2704	0.54	420	7820	–	0.05	386688/143	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ D2
2301	0.63	420	7820	–	0.07	149568/65	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ C2
2092	0.69	420	7820	–	0.08	299136/143	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ B2
1824	0.79	420	7820	–	0.09	1824/1	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ A2
1633	0.89	420	7820	–	0.12	233472/143	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ W1
1450	1.0	420	7820	–	0.15	18848/13	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ V1
1338	1.1	420	7820	–	0.18	226176/169	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ U1
1163	1.2	420	7820	–	0.20	105792/91	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ T1
1010	1.4	420	7820	–	0.21	65664/65	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ S1
912	1.6	420	7820	–	0.27	912/1	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ R1
858	1.7	420	7820	–	0.32	14592/17	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ Q1
748	1.9	420	7820	–	0.36	9728/13	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ P1
690	2.1	420	7820	–	0.19	188480/273	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ N1
600	2.4	420	7820	–	0.22	88160/147	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ M1
521	2.8	420	7820	–	0.23	3648/7	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ L1
470	3.1	420	7820	–	0.30	9880/21	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ K1
443	3.3	420	7820	–	0.35	158080/357	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ J1
437	3.3	420	7820	–	0.27	24453/56	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ H1
411	3.5	420	7820	–	0.32	48906/119	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ G1
358	4.1	420	7820	–	0.37	2508/7	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ F1
330.56	4.4	420	7820	–	0.20	32395/98	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ E1
287.15	5.0	420	7820	–	0.23	393965/1372	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ D1
249.52	5.8	420	7820	–	0.24	24453/98	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ C1
225.26	6.4	420	7820	–	0.31	176605/784	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ B1
212.01	6.8	420	7820	–	0.37	176605/833	✓	✓	✓						2KJ3522 - ■ ■■■■ - ■■ A1
K.49-D19															
9641	0.15	420	7820	–	0.08	67488/7	✓	✓							2KJ3523 - ■ ■■■■ - ■■ J1
8630	0.17	420	7820	–	0.11	8638464/1001	✓	✓							2KJ3523 - ■ ■■■■ - ■■ H1
7663	0.19	420	7820	–	0.13	697376/91	✓	✓							2KJ3523 - ■ ■■■■ - ■■ G1
7074	0.20	420	7820	–	0.16	8368512/1183	✓	✓							2KJ3523 - ■ ■■■■ - ■■ F1
6145	0.24	420	7820	–	0.17	3914304/637	✓	✓							2KJ3523 - ■ ■■■■ - ■■ E1
5340	0.27	420	7820	–	0.18	2429568/455	✓	✓							2KJ3523 - ■ ■■■■ - ■■ D1
4821	0.30	420	7820	–	0.22	33744/7	✓	✓							2KJ3523 - ■ ■■■■ - ■■ C1
4537	0.32	420	7820	–	0.26	539904/119	✓	✓							2KJ3523 - ■ ■■■■ - ■■ B1
3955	0.37	420	7820	–	0.29	359936/91	✓	✓							2KJ3523 - ■ ■■■■ - ■■ A1

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm^2	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.69-Z19															
3866	0.38	600	10800	–	0.02	150784/39	✓	✓							**2KJ3524 - ■ ■■■■ - ■■ F2**
3424	0.42	600	10800	–	0.03	222528/65	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ E2**
2975	0.49	600	10800	–	0.04	193344/65	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ D2**
2704	0.54	600	10800	–	0.05	386688/143	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ C2**
2301	0.63	600	10800	–	0.07	149568/65	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ B2**
2092	0.69	600	10800	–	0.08	299136/143	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ A2**
1824	0.79	600	10800	–	0.10	1824/1	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ W1**
1633	0.89	600	10800	–	0.13	233472/143	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ V1**
1450	1.0	600	10800	–	0.15	18848/13	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ U1**
1338	1.1	600	10800	–	0.18	226176/169	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ T1**
1163	1.2	600	10800	–	0.21	105792/91	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ S1**
1010	1.4	600	10800	–	0.21	65664/65	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ R1**
912	1.6	600	10800	–	0.27	912/1	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ Q1**
858	1.7	600	10800	–	0.32	14592/17	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ P1**
748	1.9	600	10800	–	0.37	9728/13	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ N1**
690	2.1	600	10800	–	0.20	188480/273	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ M1**
600	2.4	600	10800	–	0.23	88160/147	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ L1**
521	2.8	600	10800	–	0.24	3648/7	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ K1**
470	3.1	600	10800	–	0.31	9880/21	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ J1**
443	3.3	600	10800	–	0.37	158080/357	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ H1**
419	3.5	600	10800	–	0.38	147136/351	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ G1**
387	3.7	600	10800	–	0.22	2850760/7371	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ F1**
335.96	4.3	600	10800	–	0.25	1333420/3969	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ E1**
291.94	5.0	600	10800	–	0.27	18392/63	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ D1**
263.55	5.5	600	10800	–	0.35	149435/567	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ C1**
248.05	5.8	600	10800	–	0.41	2390960/9639	✓	✓	✓						**2KJ3524 - ■ ■■■■ - ■■ B1**
216.25	6.7	600	10800	–	0.48	367840/1701			✓						**2KJ3524 - ■ ■■■■ - ■■ A1**
K.69-D19															
9641	0.15	600	10800	–	0.08	67488/7	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ J1**
8630	0.17	600	10800	–	0.11	8638464/1001	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ H1**
7663	0.19	600	10800	–	0.13	697376/91	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ G1**
7074	0.20	600	10800	–	0.16	8368512/1183	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ F1**
6145	0.24	600	10800	–	0.17	3914304/637	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ E1**
5340	0.27	600	10800	–	0.18	2429568/455	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ D1**
4821	0.30	600	10800	–	0.22	33744/7	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ C1**
4537	0.32	600	10800	–	0.26	539904/119	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ B1**
3955	0.37	600	10800	–	0.29	359936/91	✓	✓							**2KJ3525 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.79-Z19															
4804	0.30	820	13900	–	0.02	562030/117	✓	✓							2KJ3526 - ■ ■■■■ - ■■ F2
4254	0.34	820	13900	–	0.03	110593/26	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ E2
3696	0.39	820	13900	–	0.04	96089/26	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ D2
3360	0.43	820	13900	–	0.05	480445/143	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ C2
2859	0.51	820	13900	–	0.07	74333/26	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ B2
2599	0.56	820	13900	–	0.08	371665/143	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ A2
2266	0.64	820	13900	–	0.10	9065/4	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ W1
2029	0.71	820	13900	–	0.13	290080/143	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ V1
1801	0.81	820	13900	–	0.15	281015/156	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ U1
1663	0.87	820	13900	–	0.18	281015/169	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ T1
1444	1.0	820	13900	–	0.21	37555/26	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ S1
1255	1.2	820	13900	–	0.21	16317/13	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ R1
1133	1.3	820	13900	–	0.27	9065/8	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ Q1
1066	1.4	820	13900	–	0.32	18130/17	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ P1
930	1.6	820	13900	–	0.37	36260/39	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ N1
858	1.7	820	13900	–	0.20	200725/234	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ M1
745	1.9	820	13900	–	0.23	26825/36	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ L1
648	2.2	820	13900	–	0.24	1295/2	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ K1
585	2.5	820	13900	–	0.31	84175/144	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ J1
550	2.6	820	13900	–	0.37	84175/153	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ H1
521	2.8	820	13900	–	0.38	1096865/2106	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ G1
481	3.0	820	13900	–	0.22	24287725/50544	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ F1
417	3.5	820	13900	–	0.25	3245825/7776	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ E1
363	4.0	820	13900	–	0.27	156695/432	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ D1
327.46	4.4	820	13900	–	0.35	10185175/31104	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ C1
308.19	4.7	820	13900	–	0.41	10185175/33048	✓	✓	✓						2KJ3526 - ■ ■■■■ - ■■ B1
268.68	5.4	820	13900	–	0.48	783475/2916			✓						2KJ3526 - ■ ■■■■ - ■■ A1
K.79-D19															
9522	0.15	820	13900	–	0.13	1485365/156	✓	✓							2KJ3527 - ■ ■■■■ - ■■ G1
8789	0.16	820	13900	–	0.16	1485365/169	✓	✓							2KJ3527 - ■ ■■■■ - ■■ F1
7635	0.19	820	13900	–	0.17	198505/26	✓	✓							2KJ3527 - ■ ■■■■ - ■■ E1
6634	0.22	820	13900	–	0.18	86247/13	✓	✓							2KJ3527 - ■ ■■■■ - ■■ D1
5989	0.24	820	13900	–	0.22	47915/8	✓	✓							2KJ3527 - ■ ■■■■ - ■■ C1
5637	0.26	820	13900	–	0.26	95830/17	✓	✓							2KJ3527 - ■ ■■■■ - ■■ B1
4914	0.30	820	13900	–	0.29	191660/39	✓	✓							2KJ3527 - ■ ■■■■ - ■■ A1

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Bevel geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm^2	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.89-Z39															
6101	0.24	1600	18100	–	0.06	86972795/14256	✓	✓							**2KJ3528 - ■ ■■■■ - ■■ F2**
5425	0.27	1600	18100	–	0.07	8592493/1584	✓	✓	✓	✓					**2KJ3528 - ■ ■■■■ - ■■ E2**
4763	0.30	1600	18100	–	0.08	209573/44	✓	✓	✓	✓					**2KJ3528 - ■ ■■■■ - ■■ D2**
4330	0.33	1600	18100	–	0.10	1047865/242	✓	✓	✓	✓					**2KJ3528 - ■ ■■■■ - ■■ C2**
3705	0.39	1600	18100	–	0.12	1467011/396	✓	✓	✓	✓					**2KJ3528 - ■ ■■■■ - ■■ B2**
3368	0.43	1600	18100	–	0.14	7335055/2178	✓	✓	✓	✓					**2KJ3528 - ■ ■■■■ - ■■ A2**
2977	0.49	1600	18100	–	0.17	1047865/352	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ W1**
2706	0.54	1600	18100	–	0.22	5239325/1936	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ V1**
2370	0.61	1600	18100	–	0.26	45058195/19008	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ U1**
2188	0.66	1600	18100	–	0.31	3466015/1584	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ T1**
1937	0.75	1600	18100	–	0.36	6137495/3168	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ S1**
1612	0.90	1600	18100	–	0.48	13622245/8448	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ R1**
1518	0.96	1600	18100	–	0.56	13622245/8976	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ Q1**
1360	1.1	1600	18100	–	0.61	38771005/28512	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ P1**
1158	1.3	1600	18100	–	0.79	7335055/6336	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ N1**
992	1.5	1600	18100	–	1.04	1047865/1056			✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ M1**
854	1.7	1600	18100	–	1.32	32483815/38016			✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ L1**
705	2.1	1600	18100	–	0.61	45656975/64768	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ K1**
663	2.2	1600	18100	–	0.70	45656975/68816	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ J1**
594	2.4	1600	18100	–	0.79	129946775/218592	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ H1**
506	2.9	1600	18100	–	1.04	24584525/48576	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ G1**
476	3.0	1600	18100	–	0.65	84791525/178112	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ F1**
448	3.2	1600	18100	–	0.75	84791525/189244	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ E1**
401	3.6	1600	18100	–	0.85	241329725/601128	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ D1**
341.78	4.2	1600	18100	–	1.12	45656975/133584	✓	✓	✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ C1**
292.96	4.9	1600	18100	–	1.48	6522425/22264			✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ B1**
252.27	5.7	1600	18100	–	1.92	202195175/801504			✓	✓	✓				**2KJ3528 - ■ ■■■■ - ■■ A1**
K.89-D39															
9761	0.15	1600	18100	–	0.17	1577036825/161568	✓	✓	✓	✓	✓				**2KJ3530 - ■ ■■■■ - ■■ E1**
9010	0.16	1600	18100	–	0.21	121310525/13464	✓	✓	✓	✓	✓				**2KJ3530 - ■ ■■■■ - ■■ D1**
7888	0.18	1600	18100	–	0.25	6436885/816	✓	✓	✓	✓	✓				**2KJ3530 - ■ ■■■■ - ■■ C1**
6916	0.21	1600	18100	–	0.23	279360809/40392	✓	✓	✓	✓	✓				**2KJ3530 - ■ ■■■■ - ■■ B1**
6275	0.23	1600	18100	–	0.33	225290975/35904	✓	✓	✓	✓	✓				**2KJ3530 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.109-Z39															
6638	0.22	2900	24500	–	0.06	55861988/8415	✓	✓							2KJ3531 - ■ ■■■■ - ■■ F2
5903	0.25	2900	24500	–	0.07	27594476/4675	✓	✓	✓	✓					2KJ3531 - ■ ■■■■ - ■■ F2
5183	0.28	2900	24500	–	0.08	24229296/4675	✓	✓	✓	✓					2KJ3531 - ■ ■■■■ - ■■ E2
4712	0.31	2900	24500	–	0.10	48458592/10285	✓	✓	✓	✓					2KJ3531 - ■ ■■■■ - ■■ D2
4031	0.36	2900	24500	–	0.12	18845008/4675	✓	✓	✓	✓					2KJ3531 - ■ ■■■■ - ■■ C2
3665	0.40	2900	24500	–	0.14	37690016/10285	✓	✓	✓	✓					2KJ3531 - ■ ■■■■ - ■■ B2
3239	0.45	2900	24500	–	0.17	3028662/935	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ A2
2945	0.49	2900	24500	–	0.23	6057324/2057	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ W1
2579	0.56	2900	24500	–	0.26	7235137/2805	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ V1
2381	0.61	2900	24500	–	0.31	2226196/935	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ U1
2108	0.69	2900	24500	–	0.36	1971034/935	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ T1
1755	0.83	2900	24500	–	0.48	6562101/3740	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ S1
1651	0.88	2900	24500	–	0.57	26248404/15895	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ R1
1480	0.98	2900	24500	–	0.62	12451166/8415	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ Q1
1260	1.2	2900	24500	–	0.80	1177813/935	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ P1
1080	1.3	2900	24500	–	1.05	1009554/935			✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ N1
930	1.6	2900	24500	–	1.34	5216029/5610			✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ M1
767	1.9	2900	24500	–	0.63	13196313/17204	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ L1
722	2.0	2900	24500	–	0.73	52785252/73117	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ K1
647	2.2	2900	24500	–	0.83	8346386/12903	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ J1
551	2.6	2900	24500	–	1.09	2368569/4301	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ H1
519	2.8	2900	24500	–	1.40	88672493/170775			✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ G1
428	3.4	2900	24500	–	0.73	24926369/58190	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ F1
403	3.6	2900	24500	–	0.84	11730056/29095	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ E1
361	4.0	2900	24500	–	0.97	283777124/785565	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ D1
307.54	4.7	2900	24500	–	1.28	26843782/87285	✓	✓	✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ C1
263.61	5.5	2900	24500	–	1.70	7669652/29095			✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ B1
227	6.4	2900	24500	–	2.20	59439803/261855			✓	✓	✓				2KJ3531 - ■ ■■■■ - ■■ A1
K.109-D39															
13352	0.11	2900	24500	–	0.12	57881096/4335	✓	✓	✓	✓	✓				2KJ3532 - ■ ■■■■ - ■■ G1
11918	0.12	2900	24500	–	0.15	2083719456/174845	✓	✓	✓	✓	✓				2KJ3532 - ■ ■■■■ - ■■ F1
10621	0.14	2900	24500	–	0.17	101291918/9537	✓	✓	✓	✓	✓				2KJ3532 - ■ ■■■■ - ■■ E1
9804	0.15	2900	24500	–	0.21	31166744/3179	✓	✓	✓	✓	✓				2KJ3532 - ■ ■■■■ - ■■ D1
8583	0.17	2900	24500	–	0.25	12403092/1445	✓	✓	✓	✓	✓				2KJ3532 - ■ ■■■■ - ■■ C1
7526	0.19	2900	24500	–	0.23	1794313976/238425	✓	✓	✓	✓	✓				2KJ3532 - ■ ■■■■ - ■■ B1
6828	0.21	2900	24500	–	0.33	21705411/3179	✓	✓	✓	✓	✓				2KJ3532 - ■ ■■■■ - ■■ A1

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.129-Z39															
5743	0.25	4400	37600	–	0.06	209316289/36450	✓	✓							**2KJ3533 - ■ ■■■■ - ■■ A2**
5106	0.28	4400	37600	–	0.07	103397203/20250	✓	✓	✓	✓					**2KJ3533 - ■ ■■■■ - ■■ X1**
4483	0.32	4400	37600	–	0.09	5043766/1125	✓	✓	✓	✓					**2KJ3533 - ■ ■■■■ - ■■ W1**
4076	0.36	4400	37600	–	0.11	10087532/2475	✓	✓	✓	✓					**2KJ3533 - ■ ■■■■ - ■■ V1**
3487	0.42	4400	37600	–	0.13	35306362/10125	✓	✓	✓	✓					**2KJ3533 - ■ ■■■■ - ■■ U1**
3170	0.46	4400	37600	–	0.15	70612724/22275	✓	✓	✓	✓					**2KJ3533 - ■ ■■■■ - ■■ T1**
2802	0.52	4400	37600	–	0.18	2521883/900	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ S1**
2547	0.57	4400	37600	–	0.24	2521883/990	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ R1**
2231	0.65	4400	37600	–	0.28	108440969/48600	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ Q1**
2060	0.70	4400	37600	–	0.33	8341613/4050	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ P1**
1824	0.79	4400	37600	–	0.39	14771029/8100	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ N1**
1518	0.96	4400	37600	–	0.53	32784479/21600	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ M1**
1429	1.0	4400	37600	–	0.61	32784479/22950	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ L1**
1280	1.1	4400	37600	–	0.68	93309671/72900	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ K1**
1090	1.3	4400	37600	–	0.88	17653181/16200	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ J1**
934	1.6	4400	37600	–	1.16	2521883/2700			✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ H1**
804	1.8	4400	37600	–	1.48	78178373/97200			✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ G1**
664	2.2	4400	37600	–	0.85	21976409/33120	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ F1**
625	2.3	4400	37600	–	0.98	21976409/35190	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ E1**
560	2.6	4400	37600	–	1.13	62548241/111780	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ D1**
476	3.0	4400	37600	–	1.51	11833451/24840	✓	✓	✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ C1**
408	3.6	4400	37600	–	2.00	1690493/4140			✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ B1**
352	4.1	4400	37600	–	2.60	52405283/149040			✓	✓	✓				**2KJ3533 - ■ ■■■■ - ■■ A1**
K.129-D39															
14490	0.10	4400	40000	–	0.09	2494142287/172125	✓	✓	✓	✓					**2KJ3534 - ■ ■■■■ - ■■ H1**
13173	0.11	4400	40000	–	0.10	4988284574/378675	✓	✓	✓	✓					**2KJ3534 - ■ ■■■■ - ■■ G1**
11550	0.13	4400	40000	–	0.12	1192850659/103275	✓	✓	✓	✓	✓				**2KJ3534 - ■ ■■■■ - ■■ F1**
10309	0.14	4400	40000	–	0.15	433763876/42075	✓	✓	✓	✓	✓				**2KJ3534 - ■ ■■■■ - ■■ E1**
9188	0.16	4400	40000	–	0.18	759086783/82620	✓	✓	✓	✓	✓				**2KJ3534 - ■ ■■■■ - ■■ D1**
8481	0.17	4400	40000	–	0.21	58391291/6885	✓	✓	✓	✓	✓				**2KJ3534 - ■ ■■■■ - ■■ C1**
7425	0.20	4400	40000	–	0.25	170407237/22950	✓	✓	✓	✓	✓				**2KJ3534 - ■ ■■■■ - ■■ B1**
6510	0.22	4400	40000	–	0.23	3361670039/516375	✓	✓	✓	✓	✓				**2KJ3534 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.149-Z49															
4149	0.35	8000	65000	–	0.18	58423197/14080	✓	✓	✓	✓					**2KJ3535 - ■ ■■■■ - ■■ B2**
3772	0.38	8000	65000	–	0.22	58423197/15488	✓	✓	✓	✓					**2KJ3535 - ■ ■■■■ - ■■ A2**
3208	0.45	8000	65000	–	0.28	9034515/2816	✓	✓	✓	✓					**2KJ3535 - ■ ■■■■ - ■■ X1**
2917	0.5	8000	65000	–	0.34	45172575/15488	✓	✓	✓	✓					**2KJ3535 - ■ ■■■■ - ■■ W1**
2602	0.56	8000	65000	–	0.39	14655991/5632	✓	✓	✓	✓	✓	✓			**2KJ3535 - ■ ■■■■ - ■■ V1**
2333	0.62	8000	65000	–	0.47	9034515/3872	✓	✓	✓	✓	✓	✓			**2KJ3535 - ■ ■■■■ - ■■ U1**
2103	0.69	8000	65000	–	0.55	11845253/5632	✓	✓	✓	✓	✓	✓			**2KJ3535 - ■ ■■■■ - ■■ T1**
1941	0.75	8000	65000	–	0.66	35535759/18304	✓	✓	✓	✓	✓	✓			**2KJ3535 - ■ ■■■■ - ■■ S1**
1772	0.82	8000	65000	–	0.78	2495247/1408	✓	✓	✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ R1**
1470	0.99	8000	65000	–	1.00	3011505/2048	✓	✓	✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ Q1**
1384	1.0	8000	65000	–	1.16	3011505/2176	✓	✓	✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ P1**
1307	1.1	8000	65000	–	1.31	1003835/768	✓	✓	✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ N1**
1112	1.3	8000	65000	–	1.62	7829913/7040	✓	✓	✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ M1**
953	1.5	8000	65000	–	2.00	29512749/30976			✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ L1**
838	1.7	8000	65000	–	2.50	9436049/11264			✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ K1**
707	2.1	8000	65000	–	3.20	497553/704			✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ J1**
616	2.4	8000	65000	–	4.20	5420709/8800			✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ H1**
608	2.4	8000	65000	–	1.81	826413/1360	✓	✓	✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ G1**
574	2.5	8000	65000	–	2.00	275471/480	✓	✓	✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ F1**
488	3.0	8000	65000	–	2.60	10743369/22000	✓	✓	✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ E1**
418	3.5	8000	65000	–	3.40	40494237/96800			✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ D1**
368	3.9	8000	65000	–	4.30	12947137/35200			✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ C1**
310.31	4.7	8000	65000	–	5.70	682689/2200			✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ B1**
270.46	5.4	8000	65000	–	7.50	7437717/27500			✓	✓	✓	✓	✓		**2KJ3535 - ■ ■■■■ - ■■ A1**
K.149-D49															
13575	0.11	8000	65000	–	0.12	23891273/1760	✓	✓	✓	✓					**2KJ3536 - ■ ■■■■ - ■■ L1**
12341	0.12	8000	65000	–	0.14	23891273/1936	✓	✓	✓	✓					**2KJ3536 - ■ ■■■■ - ■■ K1**
10908	0.13	8000	65000	–	0.17	30717351/2816	✓	✓	✓	✓	✓	✓			**2KJ3536 - ■ ■■■■ - ■■ J1**
9917	0.15	8000	65000	–	0.22	153586755/15488	✓	✓	✓	✓	✓	✓			**2KJ3536 - ■ ■■■■ - ■■ H1**
8686	0.17	8000	65000	–	0.26	146760677/16896	✓	✓	✓	✓	✓	✓			**2KJ3536 - ■ ■■■■ - ■■ G1**
8018	0.18	8000	65000	–	0.31	146760677/18304	✓	✓	✓	✓	✓	✓			**2KJ3536 - ■ ■■■■ - ■■ F1**
7099	0.20	8000	65000	–	0.37	19990657/2816	✓	✓	✓	✓	✓	✓	✓		**2KJ3536 - ■ ■■■■ - ■■ E1**
5909	0.25	8000	65000	–	0.50	133108521/22528	✓	✓	✓	✓	✓	✓	✓		**2KJ3536 - ■ ■■■■ - ■■ D1**
5561	0.26	8000	65000	–	0.59	7829913/1408	✓	✓	✓	✓	✓	✓	✓		**2KJ3536 - ■ ■■■■ - ■■ C1**
4983	0.29	8000	65000	–	0.66	126282443/25344	✓	✓	✓	✓	✓	✓	✓		**2KJ3536 - ■ ■■■■ - ■■ B1**
4242	0.34	8000	65000	–	0.86	23891273/5632	✓	✓	✓	✓	✓	✓	✓		**2KJ3536 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.169-Z49															
6248	0.23	13000	70000	–	0.19	1799298493/288000	✓	✓	✓	✓					**2KJ3537 - ■ ■■■■ - ■■ C2**
5680	0.26	13000	70000	–	0.23	1799298493/316800	✓	✓	✓	✓					**2KJ3537 - ■ ■■■■ - ■■ B2**
4831	0.30	13000	70000	–	0.28	18549469/3840	✓	✓	✓	✓					**2KJ3537 - ■ ■■■■ - ■■ A2**
4391	0.33	13000	70000	–	0.34	18549469/4224	✓	✓	✓	✓					**2KJ3537 - ■ ■■■■ - ■■ X1**
3918	0.37	13000	70000	–	0.40	1354111237/345600	✓	✓	✓	✓	✓	✓			**2KJ3537 - ■ ■■■■ - ■■ W1**
3513	0.41	13000	70000	–	0.48	18549469/5280	✓	✓	✓	✓	✓	✓			**2KJ3537 - ■ ■■■■ - ■■ V1**
3167	0.46	13000	70000	–	0.57	1094418671/345600	✓	✓	✓	✓	✓	✓			**2KJ3537 - ■ ■■■■ - ■■ U1**
2923	0.50	13000	70000	–	0.67	1094418671/374400	✓	✓	✓	✓	✓	✓			**2KJ3537 - ■ ■■■■ - ■■ T1**
2668	0.54	13000	70000	–	0.80	537934601/201600	✓	✓	✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ S1**
2214	0.65	13000	70000	–	1.03	204044159/92160	✓	✓	✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ R1**
2084	0.70	13000	70000	–	1.19	204044159/97920	✓	✓	✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ Q1**
1968	0.74	13000	70000	–	1.35	204044159/103680	✓	✓	✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ P1**
1675	0.87	13000	70000	–	1.67	241143097/144000	✓	✓	✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ N1**
1435	1.0	13000	70000	–	2.10	908923981/633600			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ M1**
1261	1.1	13000	70000	–	2.60	871825043/691200			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ L1**
1064	1.4	13000	70000	–	3.30	352439911/331200			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ K1**
927	1.6	13000	70000	–	4.40	18549469/20000			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ J1**
915	1.6	13000	70000	–	1.98	279967567/306000	✓	✓	✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ H1**
864	1.7	13000	70000	–	2.20	279967567/324000	✓	✓	✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ G1**
735	2.0	13000	70000	–	2.90	330870761/450000	✓	✓	✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ F1**
630	2.3	13000	70000	–	3.80	1247128253/1980000			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ E1**
554	2.6	13000	70000	–	4.70	1196225059/2160000			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ D1**
467	3.1	13000	70000	–	6.30	483580343/1035000			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ C1**
416	3.5	13000	70000	–	6.90	25840171/62100			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ B1**
363	4.0	13000	70000	–	9.10	1360009/3750			✓	✓	✓	✓	✓		**2KJ3537 - ■ ■■■■ - ■■ A1**
K.169-D49															
14931	0.10	13000	70000	–	0.22	315340973/21120	✓	✓	✓	✓	✓	✓			**2KJ3538 - ■ ■■■■ - ■■ H1**
13078	0.11	13000	70000	–	0.26	13559661839/1036800	✓	✓	✓	✓	✓	✓			**2KJ3538 - ■ ■■■■ - ■■ G1**
12072	0.12	13000	70000	–	0.31	13559661839/1123200	✓	✓	✓	✓	✓	✓			**2KJ3538 - ■ ■■■■ - ■■ F1**
10689	0.14	13000	70000	–	0.38	12928979893/1209600	✓	✓	✓	✓	✓	✓	✓		**2KJ3538 - ■ ■■■■ - ■■ E1**
8896	0.16	13000	70000	–	0.51	4099432649/460800	✓	✓	✓	✓	✓	✓	✓		**2KJ3538 - ■ ■■■■ - ■■ D1**
8373	0.17	13000	70000	–	0.59	241143097/28800	✓	✓	✓	✓	✓	✓	✓		**2KJ3538 - ■ ■■■■ - ■■ C1**
7502	0.19	13000	70000	–	0.66	11667616001/1555200	✓	✓	✓	✓	✓	✓	✓		**2KJ3538 - ■ ■■■■ - ■■ B1**
6387	0.23	13000	70000	–	0.86	2207386811/345600	✓	✓	✓	✓	✓	✓	✓		**2KJ3538 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	φ [1] '	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	160	Article No. (Article No. supplement, see below)
K.189-Z69															
6375	0.23	19500	104000	–	0.21	3793088/595	✓	✓	✓	✓					**2KJ3540 - ■ ■■■■ - ■■ C2**
5795	0.25	19500	104000	–	0.26	7586176/1309	✓	✓	✓	✓					**2KJ3540 - ■ ■■■■ - ■■ B2**
4929	0.29	19500	104000	–	0.32	586560/119	✓	✓	✓	✓					**2KJ3540 - ■ ■■■■ - ■■ A2**
4481	0.32	19500	104000	–	0.39	5865600/1309	✓	✓	✓	✓					**2KJ3540 - ■ ■■■■ - ■■ X1**
3998	0.36	19500	104000	–	0.46	1427296/357	✓	✓	✓	✓	✓	✓			**2KJ3540 - ■ ■■■■ - ■■ W1**
3585	0.40	19500	104000	–	0.56	4692480/1309	✓	✓	✓	✓	✓	✓			**2KJ3540 - ■ ■■■■ - ■■ V1**
3231	0.45	19500	104000	–	0.66	1153568/357	✓	✓	✓	✓	✓	✓			**2KJ3540 - ■ ■■■■ - ■■ U1**
2983	0.49	19500	104000	–	0.78	354944/119	✓	✓	✓	✓	✓	✓			**2KJ3540 - ■ ■■■■ - ■■ T1**
2723	0.53	19500	104000	–	0.93	2268032/833	✓	✓	✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ S1**
2259	0.64	19500	104000	–	1.23	268840/119	✓	✓	✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ R1**
2126	0.68	19500	104000	–	1.41	4301440/2023	✓	✓	✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ Q1**
2008	0.72	19500	104000	–	1.59	2150720/1071	✓	✓	✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ P1**
1709	0.85	19500	104000	–	2.0	1016704/595	✓	✓	✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ N1**
1464	0.99	19500	104000	–	2.5	273728/187			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ M1**
1287	1.1	19500	104000	–	3.2	459472/357			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ L1**
1086	1.3	19500	104000	–	4.1	2971904/2737			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ K1**
946	1.5	19500	104000	–	5.5	2815488/2975			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ J1**
889	1.6	19500	104000	–	3.1	3128320/3519	✓	✓	✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ H1**
756	1.9	19500	104000	–	4.0	16267264/21505	✓	✓	✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ G1**
648	2.2	19500	104000	–	5.3	30657536/47311			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ F1**
570	2.5	19500	104000	–	6.7	7351552/12903			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ E1**
481	3.0	19500	104000	–	9.1	47550464/98923			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ D1**
419	3.5	19500	104000	–	12	45047808/107525			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ C1**
384	3.8	19500	104000	–	11	37948928/98923			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ B1**
334.36	4.3	19500	104000	–	14	35951616/107525			✓	✓	✓	✓	✓		**2KJ3540 - ■ ■■■■ - ■■ A1**
K.189-D69															
13345	0.11	19500	104000	–	0.26	840736/63	✓	✓	✓	✓	✓	✓			**2KJ3541 - ■ ■■■■ - ■■ G1**
12318	0.12	19500	104000	–	0.32	258688/21	✓	✓	✓	✓	✓	✓			**2KJ3541 - ■ ■■■■ - ■■ F1**
10907	0.13	19500	104000	–	0.38	1603264/147	✓	✓	✓	✓	✓	✓	✓		**2KJ3541 - ■ ■■■■ - ■■ E1**
9078	0.16	19500	104000	–	0.52	63544/7	✓	✓	✓	✓	✓	✓	✓		**2KJ3541 - ■ ■■■■ - ■■ D1**
8544	0.17	19500	104000	–	0.61	1016704/119	✓	✓	✓	✓	✓	✓	✓		**2KJ3541 - ■ ■■■■ - ■■ C1**
7655	0.19	19500	104000	–	0.67	1446848/189	✓	✓	✓	✓	✓	✓	✓		**2KJ3541 - ■ ■■■■ - ■■ B1**
6517	0.22	19500	104000	–	0.89	19552/3	✓	✓	✓	✓	✓	✓	✓		**2KJ3541 - ■ ■■■■ - ■■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/51
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H, C or D**	see page 10/42

[1] Only in conjunction with reduced-backlash version

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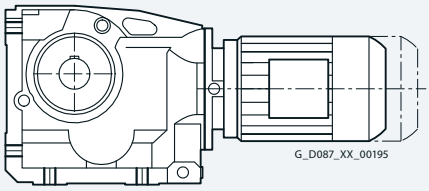
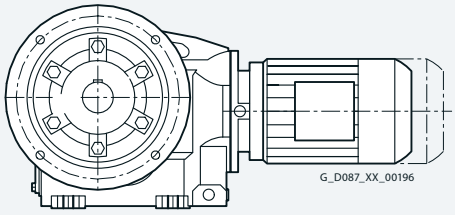
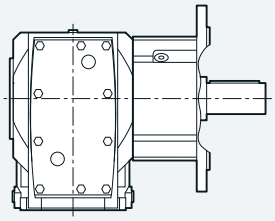
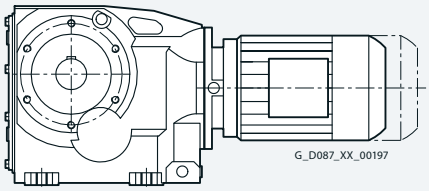
Bevel geared motors

Overview

Information about dimensional drawings can be found in chapter Introduction on page 1/22.

Design	Frame size	Dimensional drawing on page
Bevel geared motors B and K		
Foot-mounted design		
	B..19	5/70
	B..29	5/74
	B..39	5/78
	B..49	5/82
	K..39	5/86
	K..49	5/90
	K..69	5/94
	K..79	5/98
	K..89	5/102
	K..109	5/107
	K..129	5/112
	K..149	5/117
	K..169	5/122
	K..189	5/127
Flange-mounted design		
	B.F.19	5/71
	B.F.29	5/75
	B.F.39	5/79
	B.F.49	5/83
	K.F.39	5/87
	K.F.49	5/91
	K.F.69	5/95
	K.F.79	5/99
	K.F.89	5/103
	K.F.109	5/108
	K.F.129	5/113
	K.F.149	5/118
	K.F.169	5/123
	K.F.189	5/128
Flange-mounted design with VLplus reinforced bearing system		
	K.F.89	5/104
	K.F.109	5/109
	K.F.129	5/114
	K.F.149	5/119
	K.F.169	5/124
Housing flange design		
	B.Z.19	5/72
	B.Z.29	5/76
	B.Z.39	5/80
	B.Z.49	5/84
	K.Z.39	5/88
	K.Z.49	5/92
	K.Z.69	5/96
	K.Z.79	5/100
	K.Z.89	5/105
	K.Z.109	5/110
	K.Z.129	5/115
	K.Z.149	5/120
	K.Z.169	5/125
	K.Z.189	5/129

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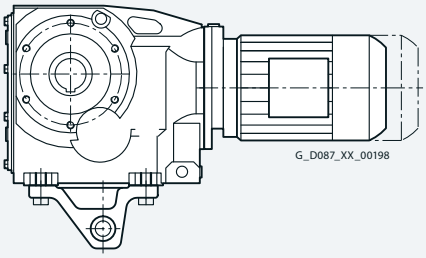
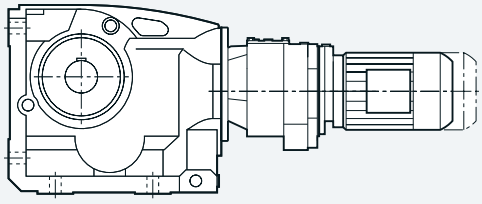
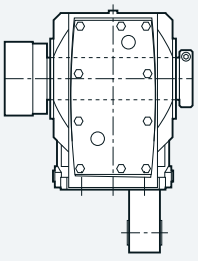
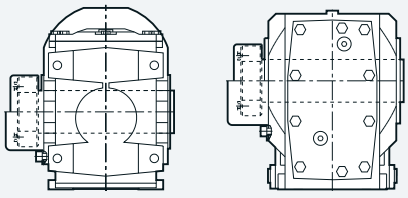
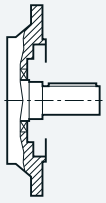
Overview

Design	Frame size	Dimensional drawing on page
Bevel geared motors B and K		
Shaft-mounted design		
	BAD.19	5/73
	BAD.29	5/77
	BAD.39	5/81
	BAD.49	5/85
	KAD.39	5/89
	KAD.49	5/93
	KAD.69	5/97
	KAD.79	5/101
	KAD.89	5/106
	KAD.109	5/111
	KAD.129	5/116
	KAD.149	5/121
	KAD.169	5/126
	KAD.189	5/130
Bevel tandem geared motors		
	K.39-D/Z19 ... K.189-D/Z69	5/131 ... 5/132
Additional versions and options		
ShaftMount assembly system		
	BADR29 ... BADR49 KADR39 ... K..R89	5/133 ... 5/134
Protective covers		
	BA.19 ... KA.189	5/134 ... 5/135
Inner contour of the flange-mounted design		
	BF19 ... KF189 BAF19 ... KAF189	5/136

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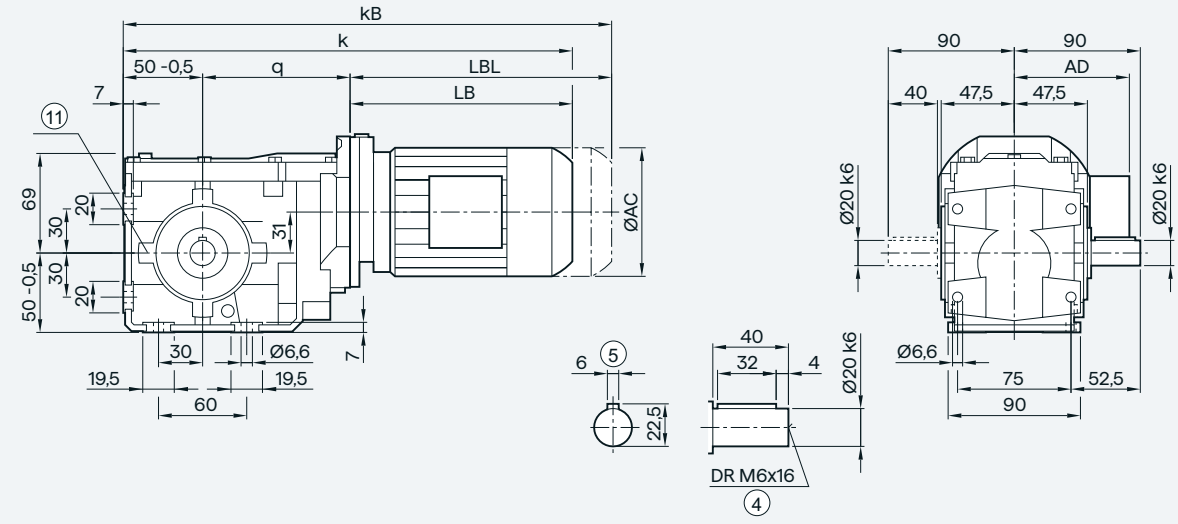
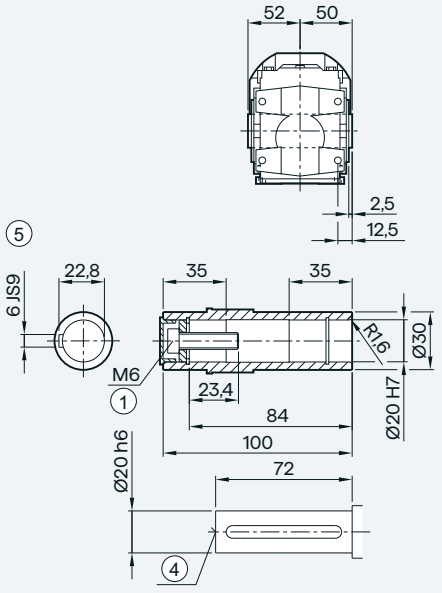
Bevel geared motors

Gearbox B..19 in a foot-mounted design

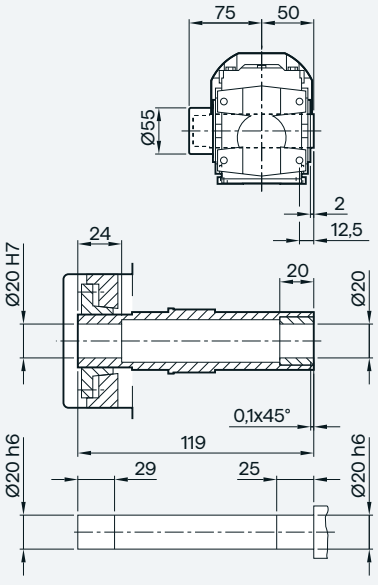
B19



BA19



BAS19



Motor	LE						
	63	63Z	71	71Z	71Y	80	80Z
q	133.0	133.0	141.0	141.0	141.0	149.5	149.5
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2
k	343.5	369.5	375.5	394.5	434.5	439.5	474.5
kB	388.0	414.0	430.5	449.5	489.5	499.5	534.5
LB	160.5	186.5	184.5	203.5	243.5	240.0	275.0
LBL	205.0	231.0	239.5	258.5	298.5	300.0	335.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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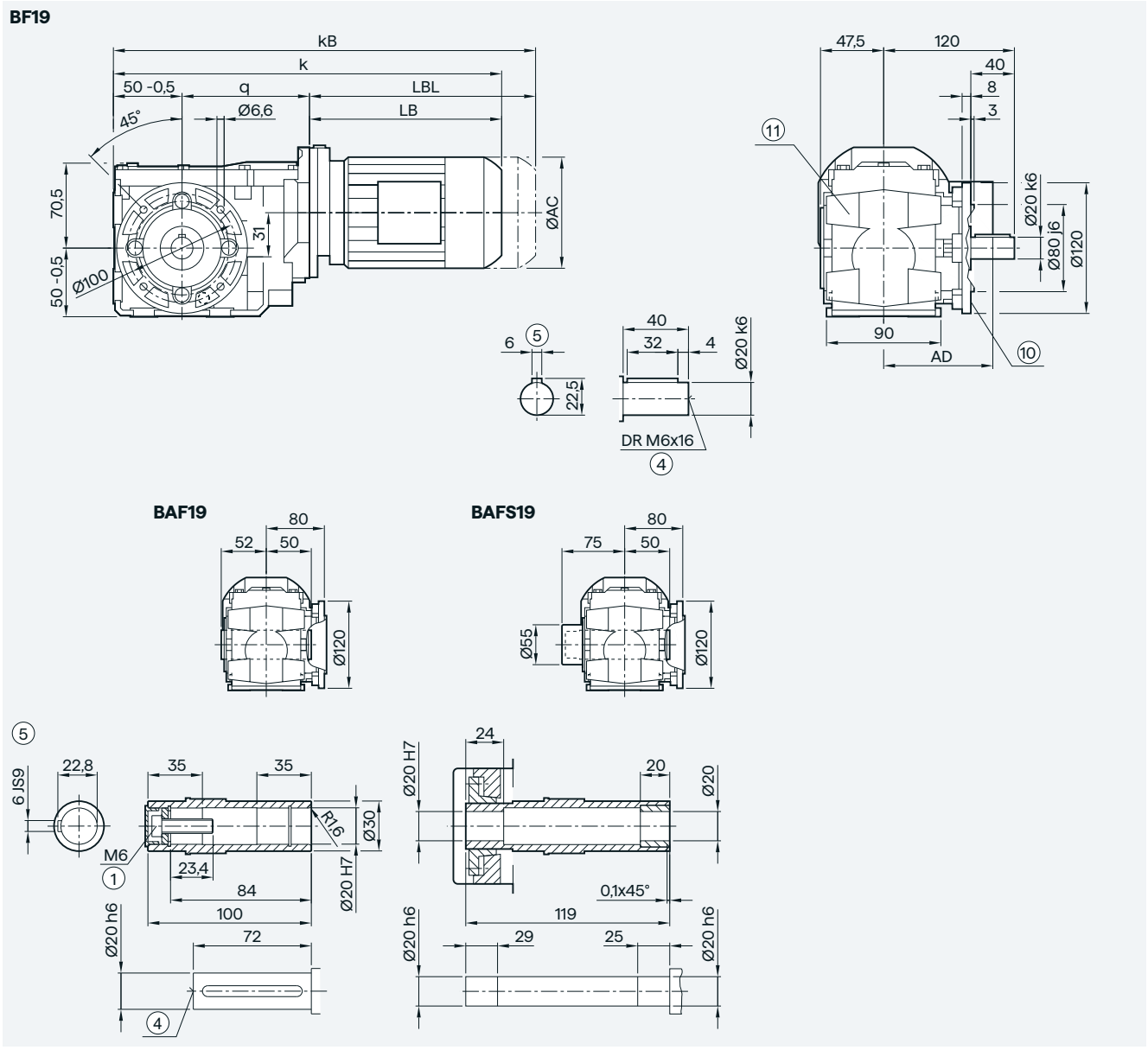
Gearbox B.F.19 in a flange-mounted design



Motor	LE						
	63	63Z	71	71Z	71Y	80	80Z
q	133.0	133.0	141.0	141.0	141.0	149.5	149.5
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2
k	343.5	369.5	375.5	394.5	434.5	439.5	474.5
kB	388.0	414.0	430.5	449.5	489.5	499.5	534.5
LB	160.5	186.5	184.5	203.5	243.5	240.0	275.0
LBL	205.0	231.0	239.5	258.5	298.5	300.0	335.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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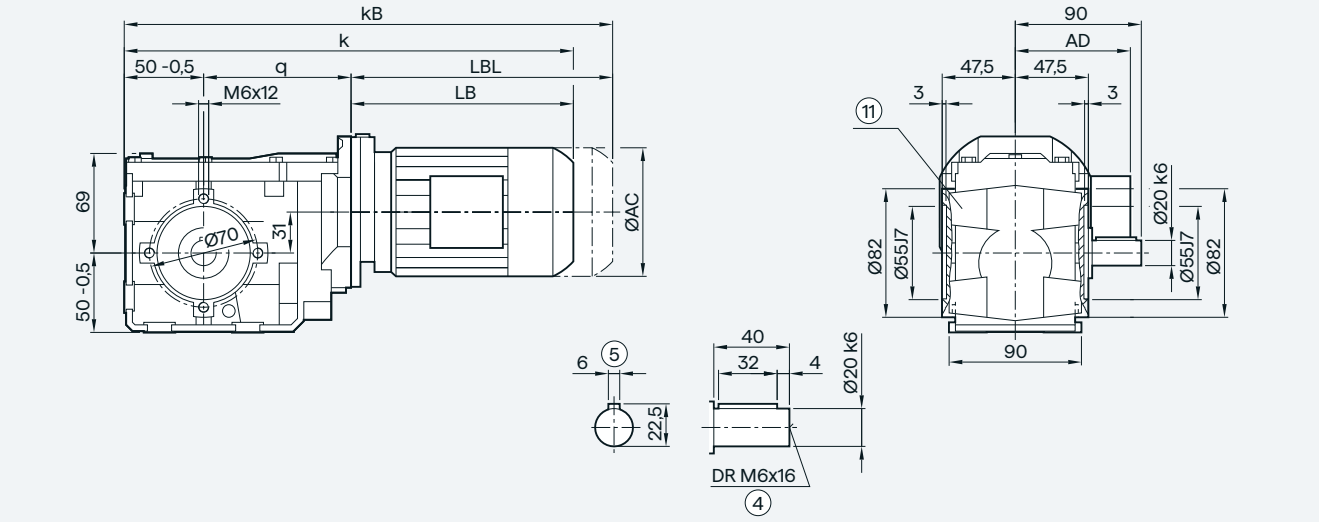
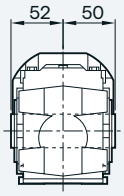
Bevel geared motors

Gearbox B.Z.19 in a housing flange design

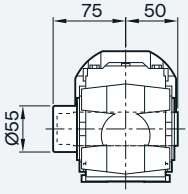
BZ19

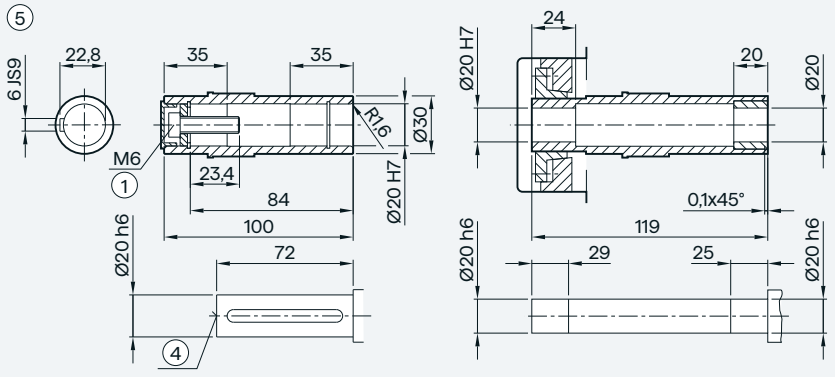


BAZ19



BAZS19





Motor	LE						
	63	63Z	71	71Z	71Y	80	80Z
q	133.0	133.0	141.0	141.0	141.0	149.5	149.5
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2
k	343.5	369.5	375.5	394.5	434.5	439.5	474.5
kB	388.0	414.0	430.5	449.5	489.5	499.5	534.5
LB	160.5	186.5	184.5	203.5	243.5	240.0	275.0
LBL	205.0	231.0	239.5	258.5	298.5	300.0	335.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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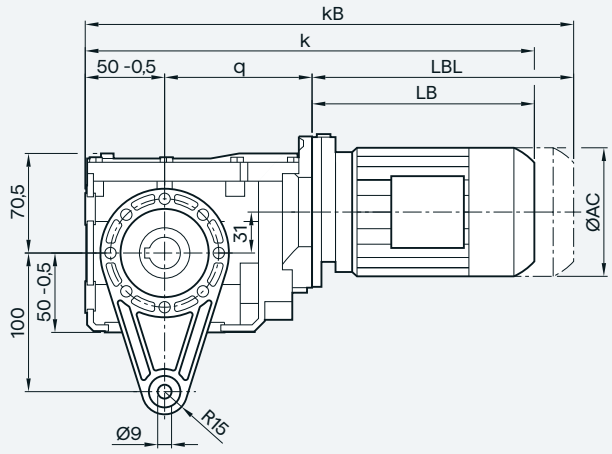
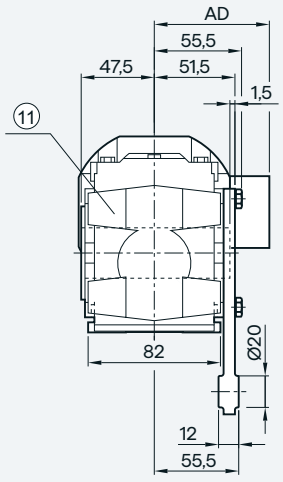
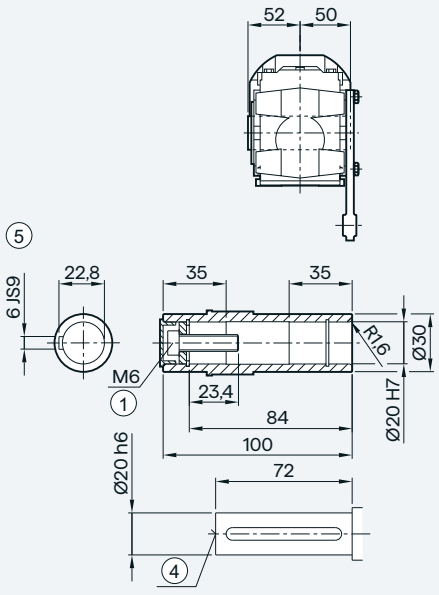
Gearbox BAD.19 in a shaft-mounted design

BAD19

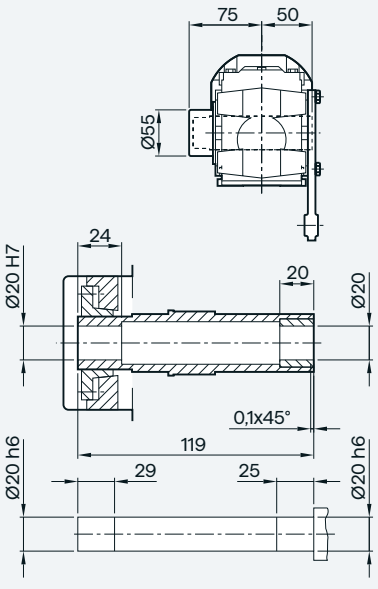




BAD19



BADS19



Motor	LE						
	63	63Z	71	71Z	71Y	80	80Z
q	133.0	133.0	141.0	141.0	141.0	149.5	149.5
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2
k	343.5	369.5	375.5	394.5	434.5	439.5	474.5
kB	388.0	414.0	430.5	449.5	489.5	499.5	534.5
LB	160.5	186.5	184.5	203.5	243.5	240.0	275.0
LBL	205.0	231.0	239.5	258.5	298.5	300.0	335.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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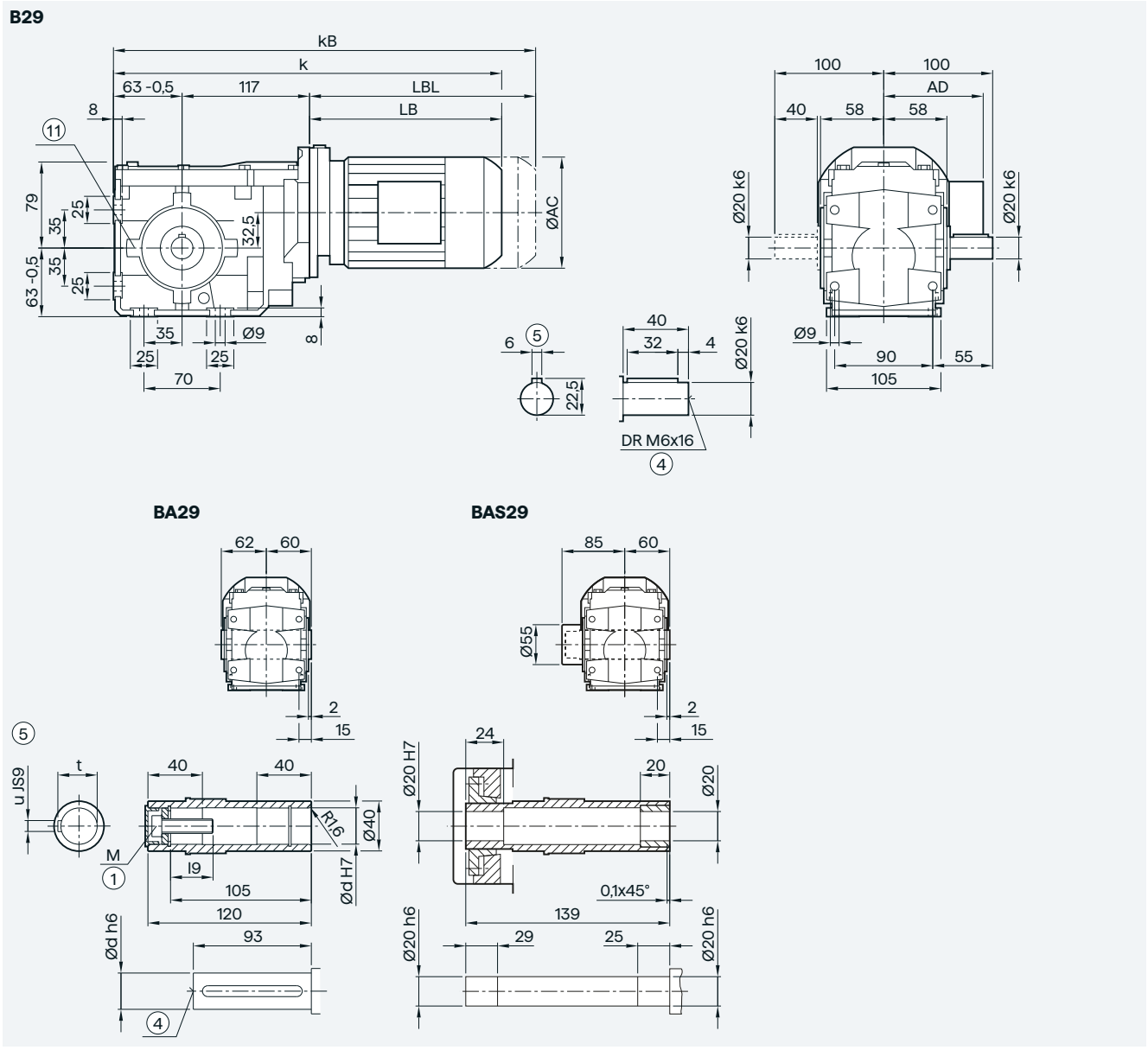
Bevel geared motors

Gearbox B..29 in a foot-mounted design



Shaft	d	l9	M	t	u
	20	23.4	M6	22.8	6
	25	27.6	M10	28.3	8

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	374.0	400.0	406.0	425.0	465.0	470.0	505.0	531.5	571.5	588.0	623.0
kB	418.5	444.5	461.0	480.0	520.0	530.0	565.0	601.5	641.5	666.5	701.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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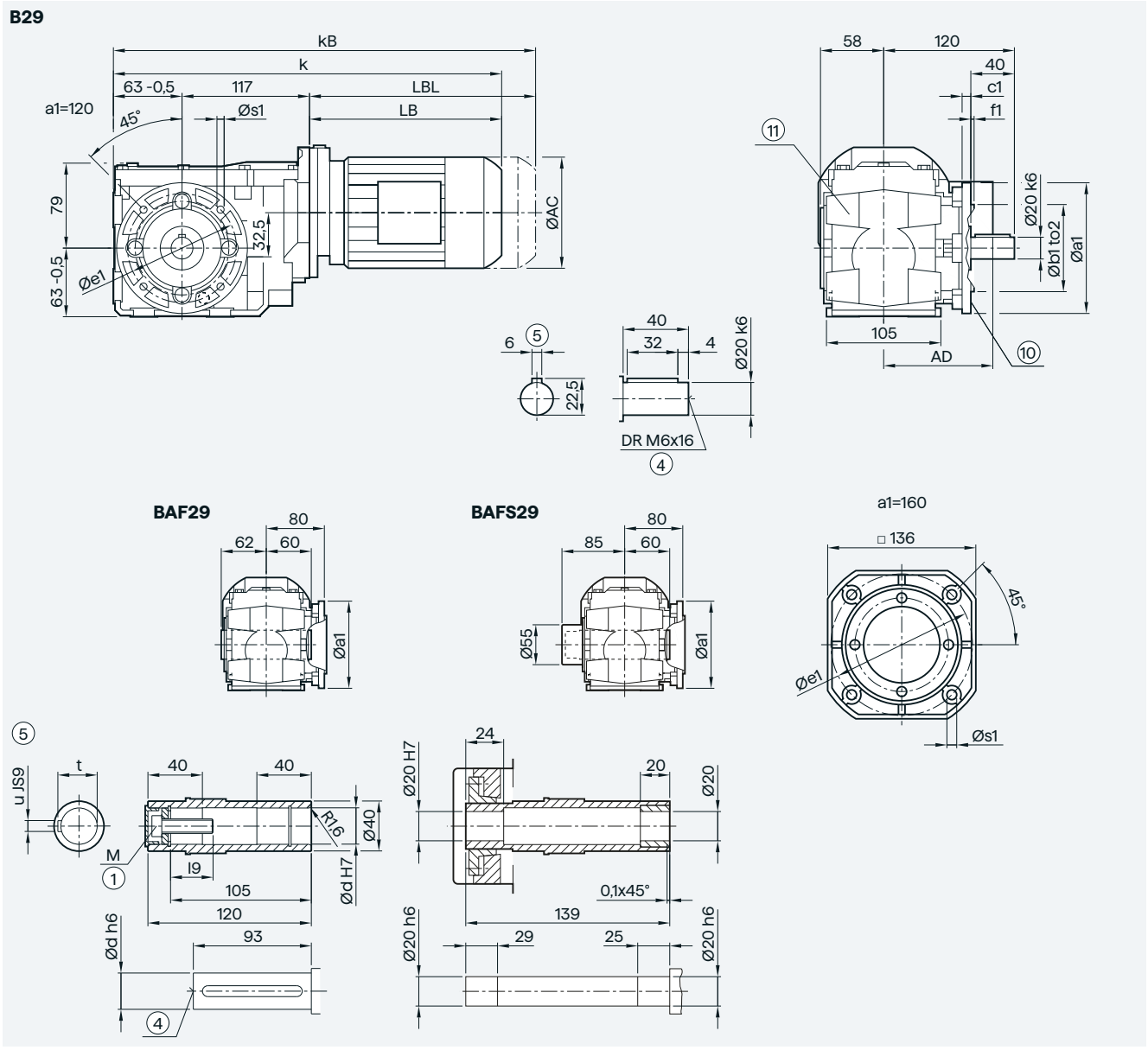
Gearbox B.F.29 in a flange-mounted design



Flange	a1	b1	c1	f1	e1	s1	to2
	120	80	8	3.0	100	6.6	j6
	160	110	9	3.5	130	9.0	j6

Shaft	d	l9	M	t	u
	20	23.4	M6	22.8	6
	25	27.6	M10	28.3	8

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	374.0	400.0	406.0	425.0	465.0	470.0	505.0	531.5	571.5	588.0	623.0
kB	418.5	444.5	461.0	480.0	520.0	530.0	565.0	601.5	641.5	666.5	701.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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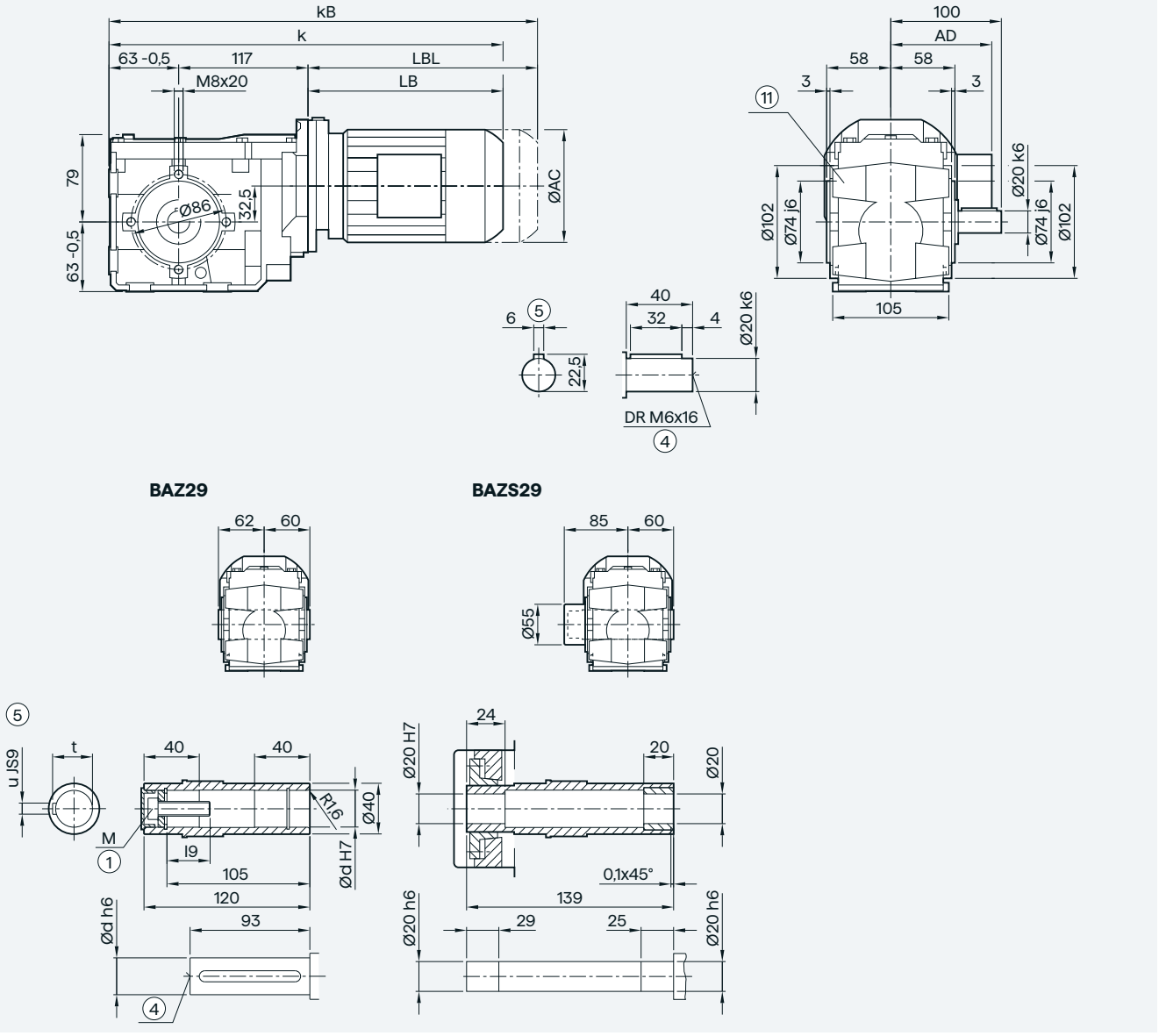
Bevel geared motors

Gearbox B.Z.29 in a housing flange design

BZ29



BAZ29

BAZS29

Shaft	d	l9	M	t	u
	20	23.4	M6	22.8	6
	25	27.6	M10	28.3	8

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	374.0	400.0	406.0	425.0	465.0	470.0	505.0	531.5	571.5	588.0	623.0
kB	418.5	444.5	461.0	480.0	520.0	530.0	565.0	601.5	641.5	666.5	701.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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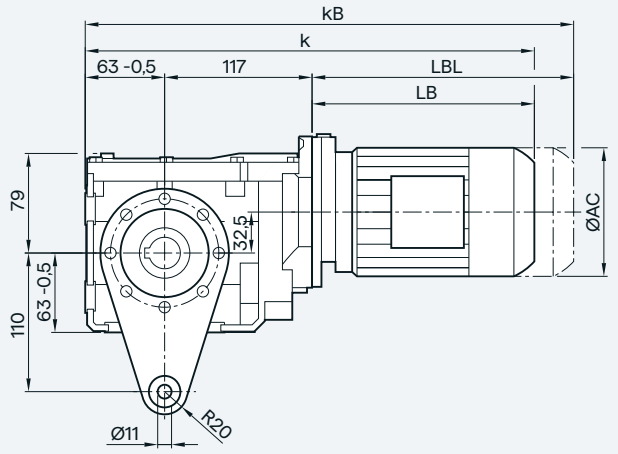
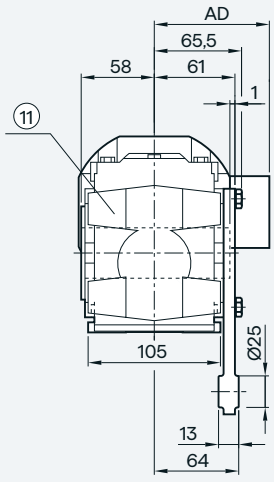
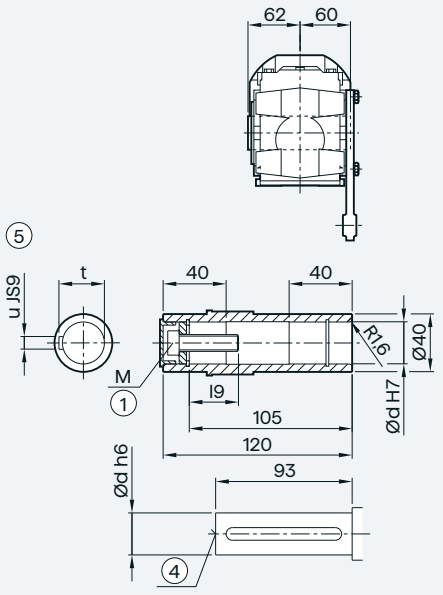
Gearbox BAD.29 in a shaft-mounted design

BAD29

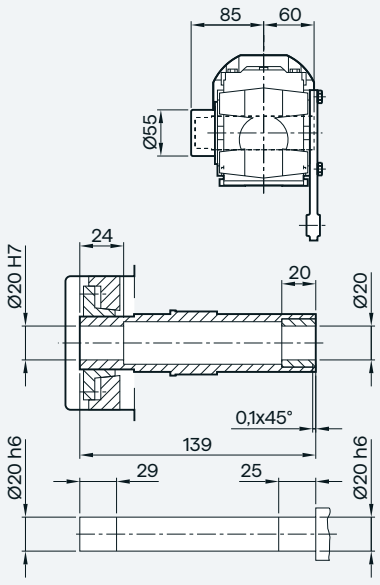




BAD29



BADS29



Shaft	d	l9	M	t	u
	20	23.4	M6	22.8	6
	25	27.6	M10	28.3	8

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	374.0	400.0	406.0	425.0	465.0	470.0	505.0	531.5	571.5	588.0	623.0
kB	418.5	444.5	461.0	480.0	520.0	530.0	565.0	601.5	641.5	666.5	701.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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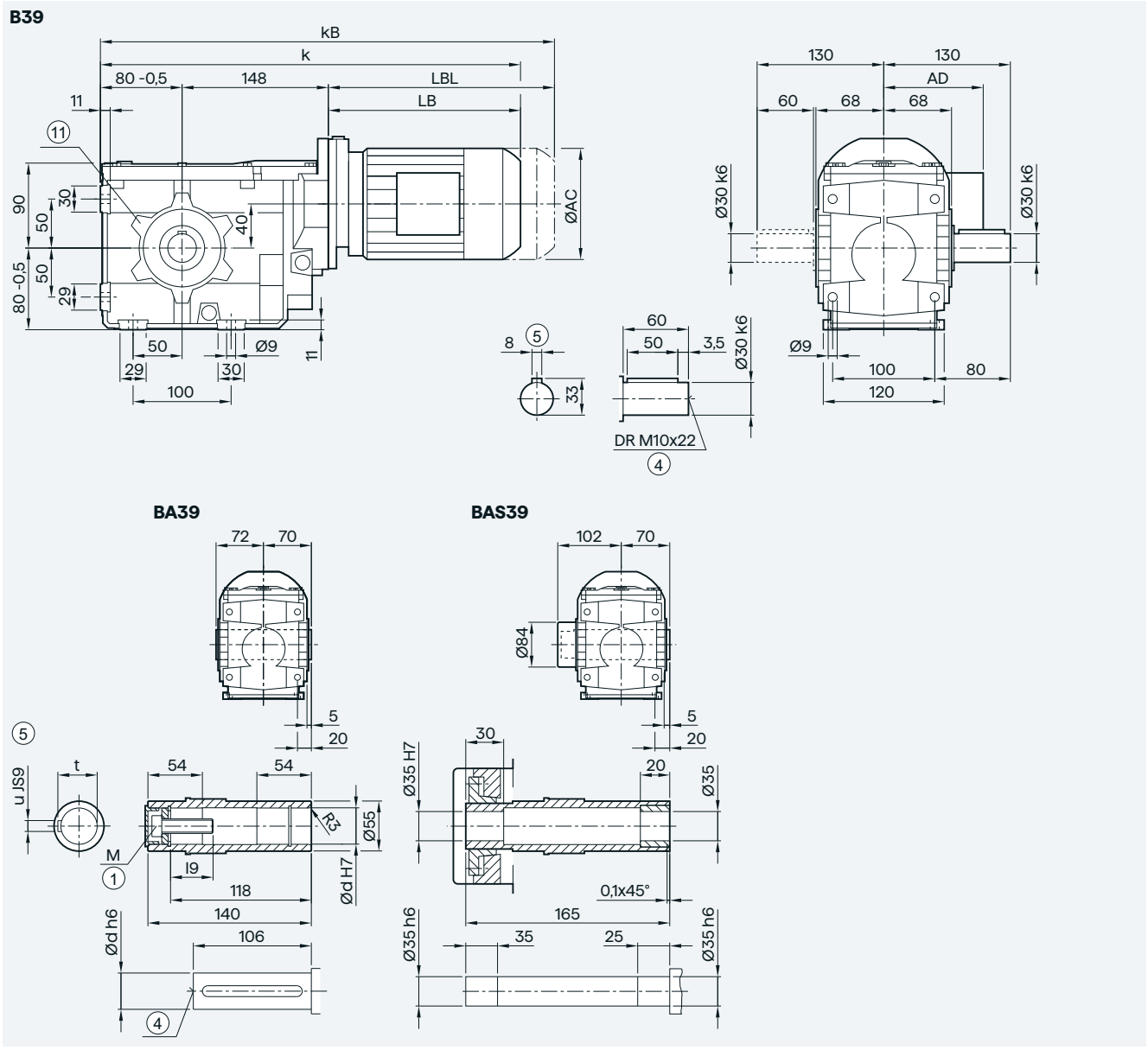
Bevel geared motors

Gearbox B..39 in a foot-mounted design



Shaft	d	l9	M	t	u
	30	32.6	M10	33.3	8
	35	37	M12	38.3	10
	40	47.75	M16	43.3	12

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	422.0	448.0	454.0	473.0	513.0	518.0	553.0	579.5	619.5	636.0	671.0	646.0	671.0
kB	466.5	492.5	509.0	528.0	568.0	578.0	613.0	649.5	689.5	714.5	749.5	719.0	744.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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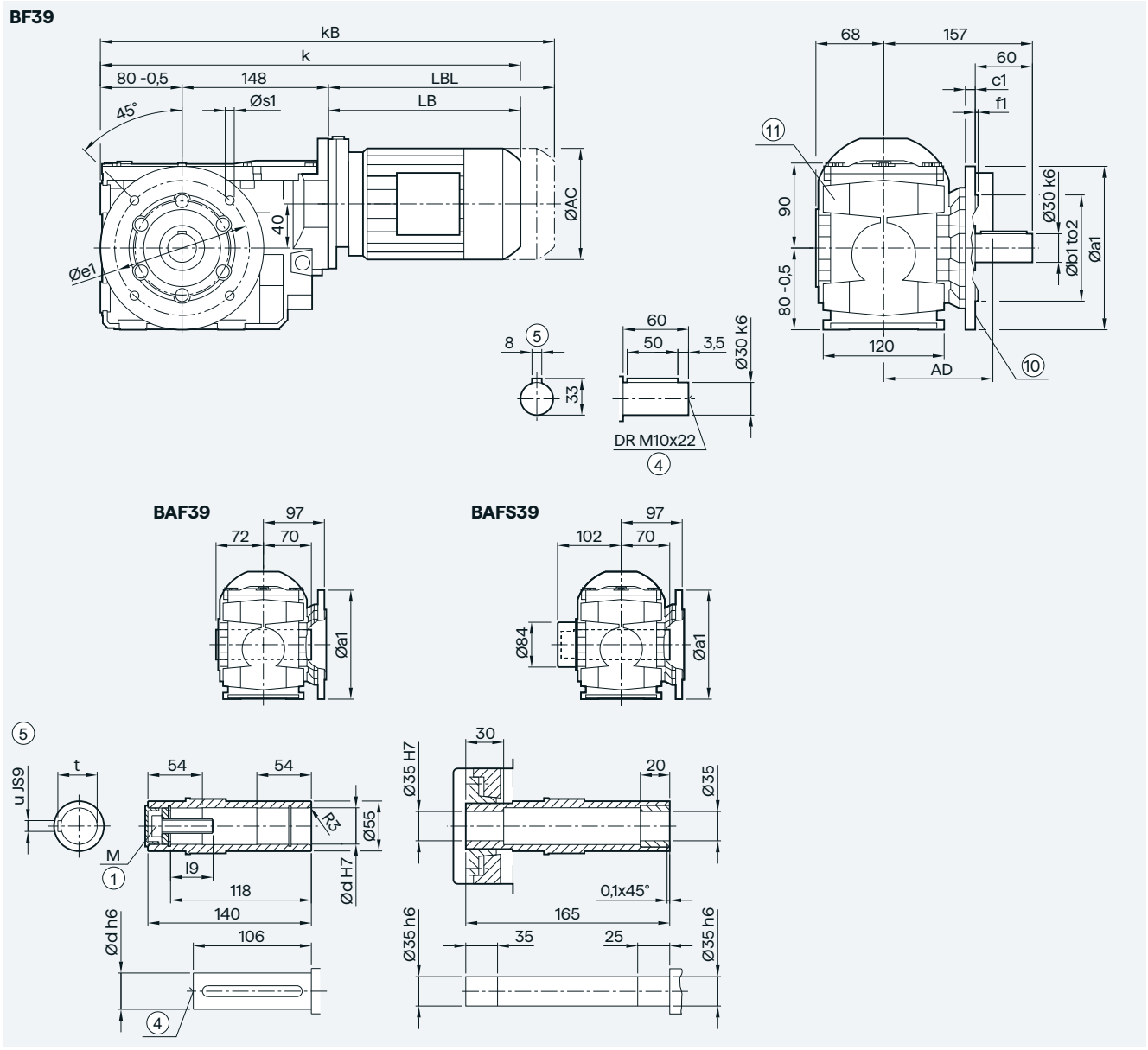
Gearbox B.F.39 in a flange-mounted design



Flange	a1	b1	c1	f1	e1	s	to2
	160	110	10	3.5	130	9	j6
	200	130	12	3.5	165	11	j6

Shaft	d	l9	M	t	u
	30	32.6	M10	33.3	8
	35	37	M12	38.3	10
	40	47.75	M16	43.3	12

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	422.0	448.0	454.0	473.0	513.0	518.0	553.0	579.5	619.5	636.0	671.0	646.0	671.0
kB	466.5	492.5	509.0	528.0	568.0	578.0	613.0	649.5	689.5	714.5	749.5	719.0	744.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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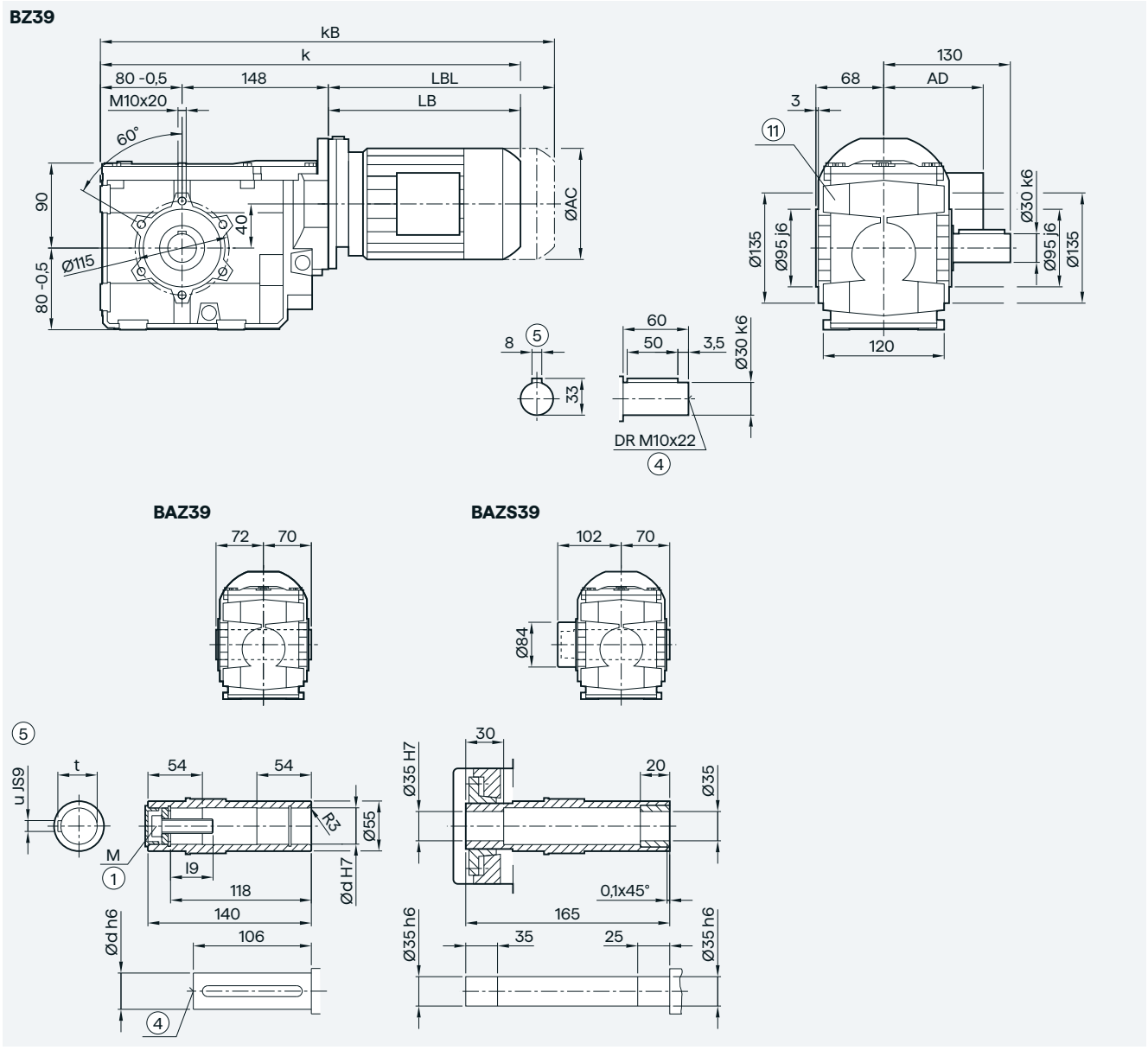
Bevel geared motors

Gearbox B.Z.39 in a housing flange design



Shaft	d	l9	M	t	u
	30	32.6	M10	33.3	8
	35	37	M12	38.3	10
	40	47.75	M16	43.3	12

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	422.0	448.0	454.0	473.0	513.0	518.0	553.0	579.5	619.5	636.0	671.0	646.0	671.0
kB	466.5	492.5	509.0	528.0	568.0	578.0	613.0	649.5	689.5	714.5	749.5	719.0	744.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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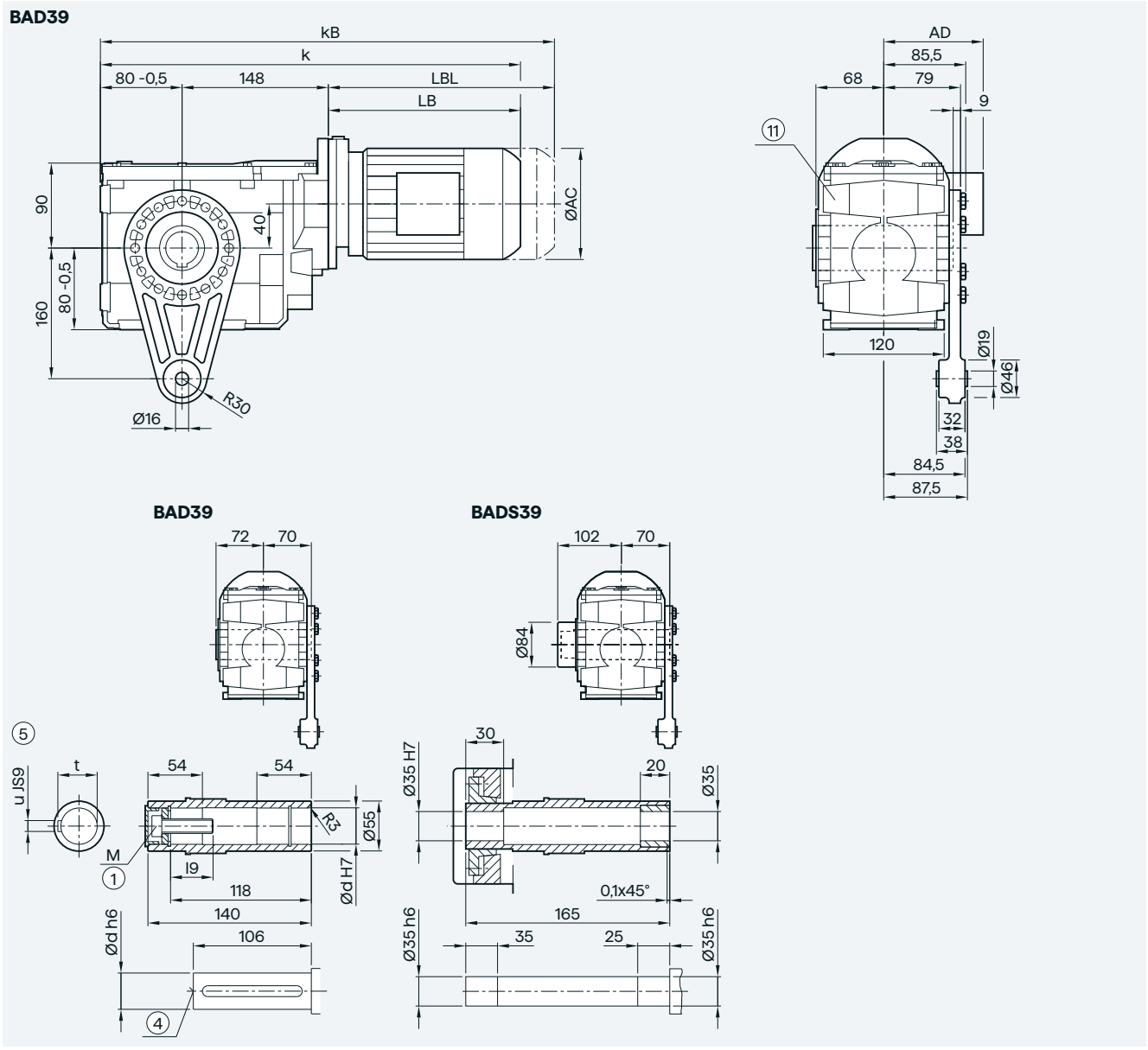
Gearbox BAD.39 in a shaft-mounted design



Shaft	d	l9	M	t	u
	30	32.6	M10	33.3	8
	35	37	M12	38.3	10
	40	47.75	M16	43.3	12

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	422.0	448.0	454.0	473.0	513.0	518.0	553.0	579.5	619.5	636.0	671.0	646.0	671.0
kB	466.5	492.5	509.0	528.0	568.0	578.0	613.0	649.5	689.5	714.5	749.5	719.0	744.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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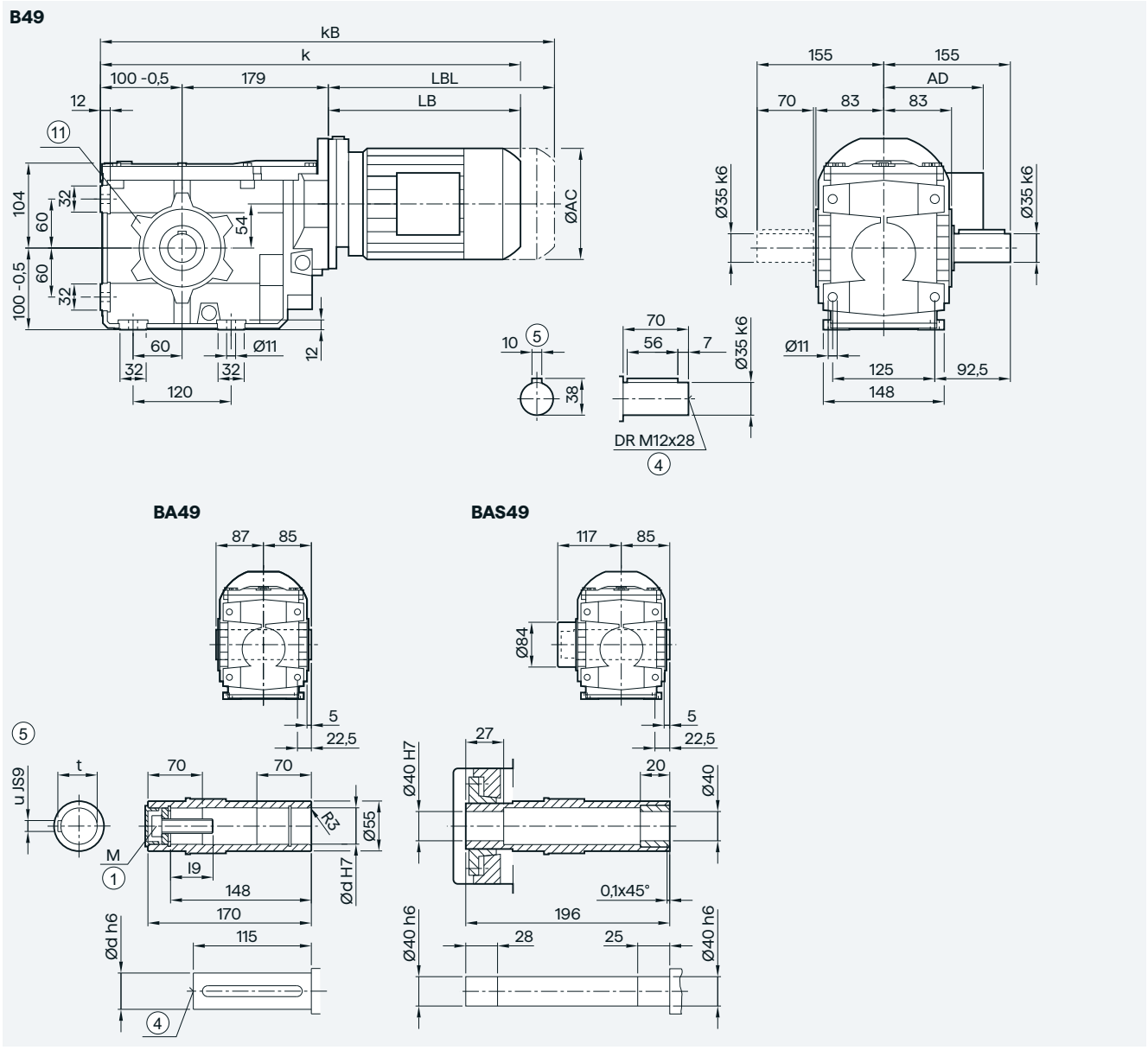
Bevel geared motors

Gearbox B..49 in a foot-mounted design



Shaft	d	l9	M	t	u
	35	57	M12	38.3	10
	40	67.75	M16	43.3	12

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	463.5	489.5	495.5	514.5	554.5	559.5	594.5	621.0	661.0	677.5	712.5	687.5	722.0	740.5	790.5
kB	508.0	534.0	550.5	569.5	609.5	619.5	654.5	691.0	731.0	756.0	791.0	760.5	795.0	845.0	895.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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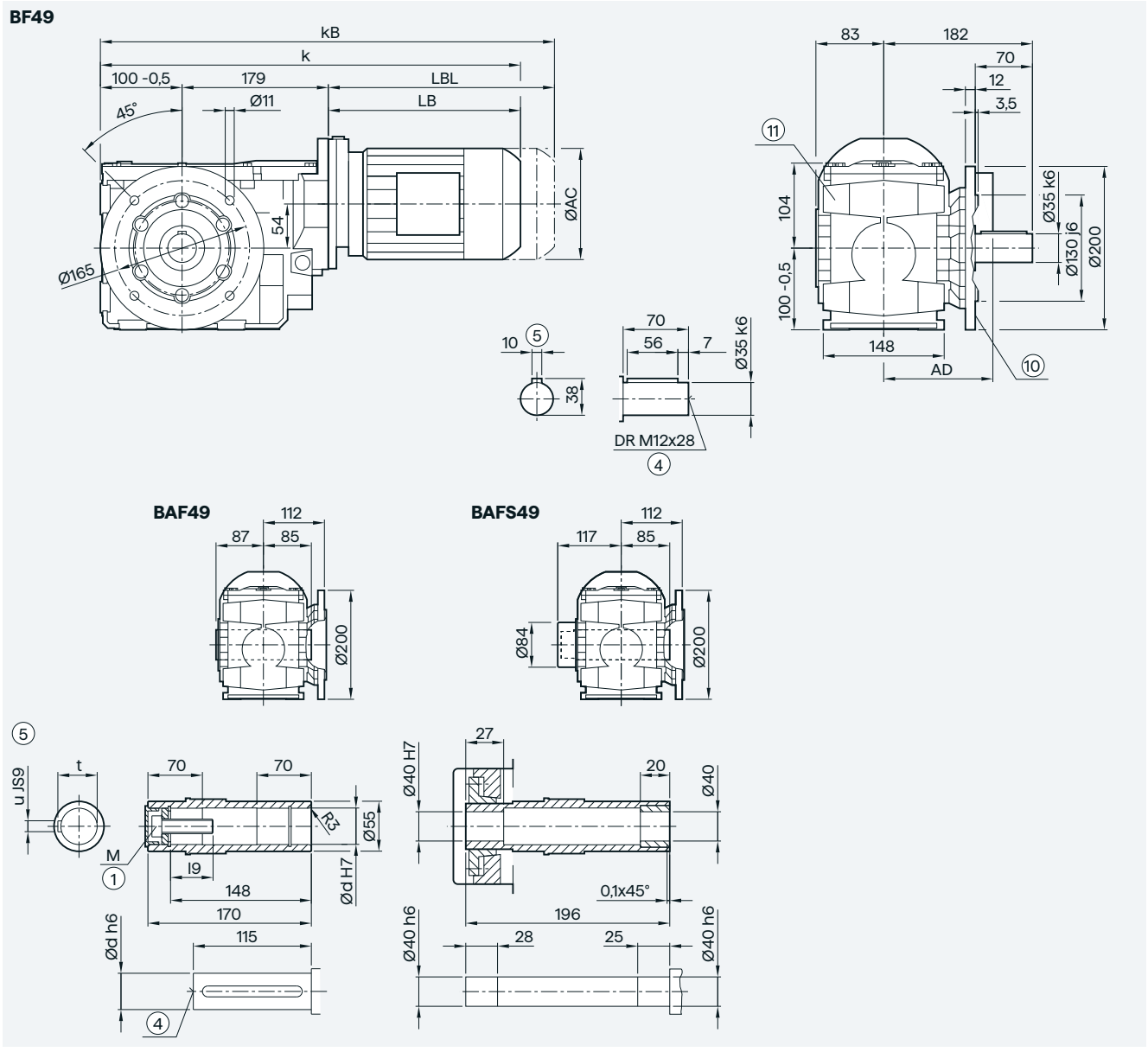
Gearbox B.F.49 in a flange-mounted design



Shaft	d	l9	M	t	u
	35	57	M12	38.3	10
	40	67.75	M16	43.3	12

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	463.5	489.5	495.5	514.5	554.5	559.5	594.5	621.0	661.0	677.5	712.5	687.5	722.0	740.5	790.5
kB	508.0	534.0	550.5	569.5	609.5	619.5	654.5	691.0	731.0	756.0	791.0	760.5	795.0	845.0	895.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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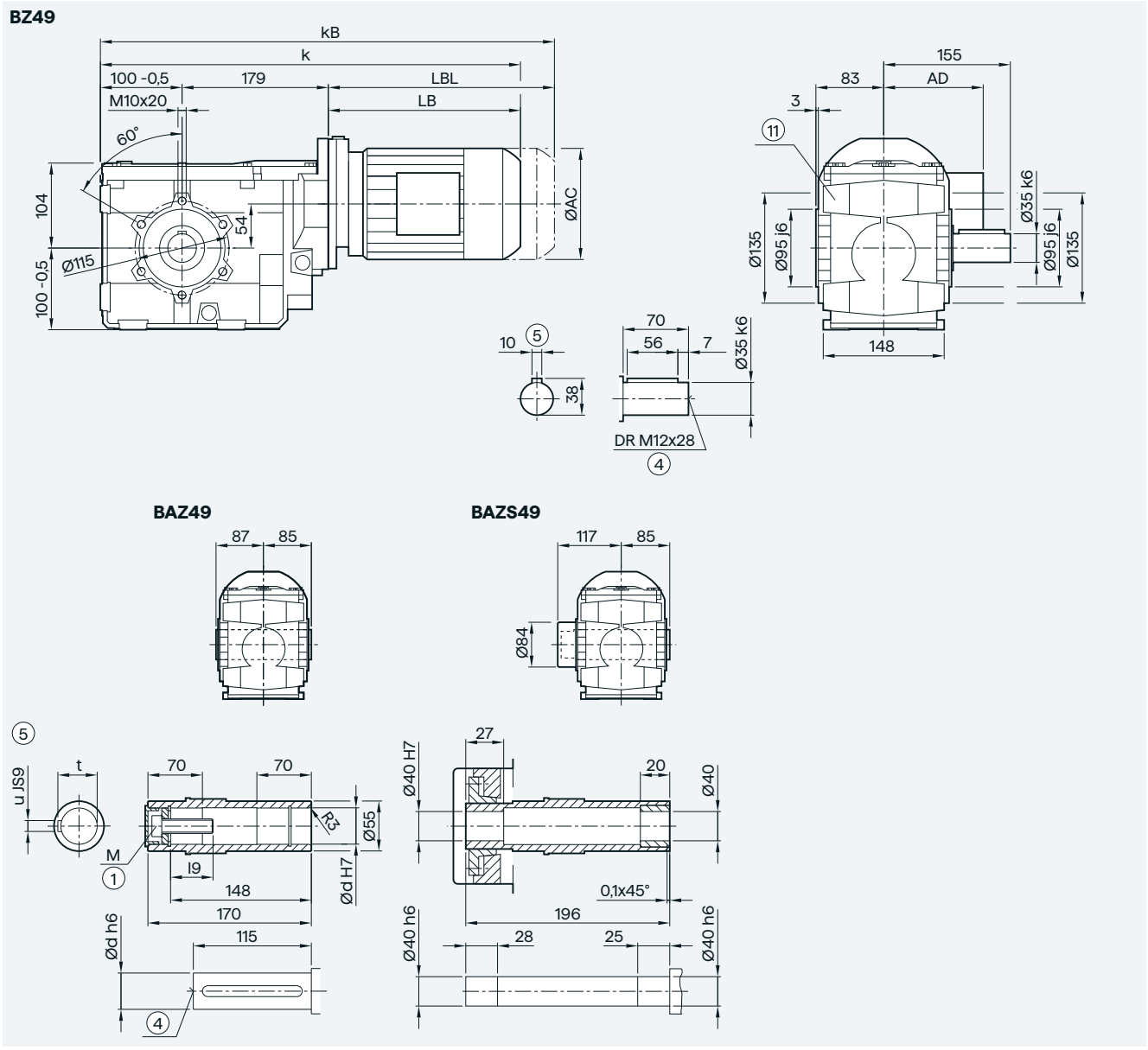
Bevel geared motors

Gearbox B.Z.49 in a housing flange design



Shaft	d	l9	M	t	u
	35	57	M12	38.3	10
	40	67.75	M16	43.3	12

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	463.5	489.5	495.5	514.5	554.5	559.5	594.5	621.0	661.0	677.5	712.5	687.5	722.0	740.5	790.5
kB	508.0	534.0	550.5	569.5	609.5	619.5	654.5	691.0	731.0	756.0	791.0	760.5	795.0	845.0	895.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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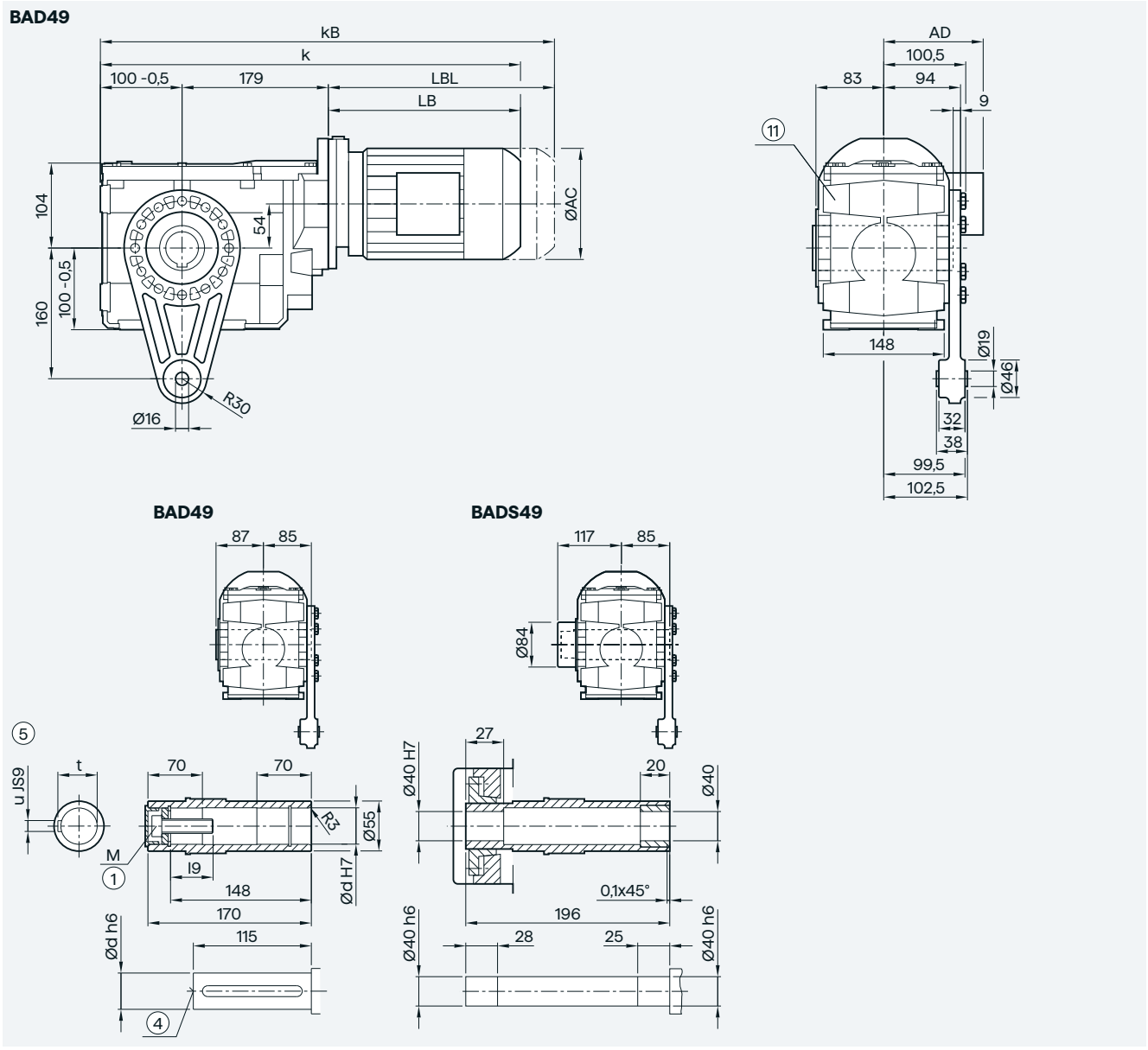
Gearbox BAD.49 in a shaft-mounted design



Shaft	d	l9	M	t	u
	35	57	M12	38.3	10
	40	67.75	M16	43.3	12

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	463.5	489.5	495.5	514.5	554.5	559.5	594.5	621.0	661.0	677.5	712.5	687.5	722.0	740.5	790.5
kB	508.0	534.0	550.5	569.5	609.5	619.5	654.5	691.0	731.0	756.0	791.0	760.5	795.0	845.0	895.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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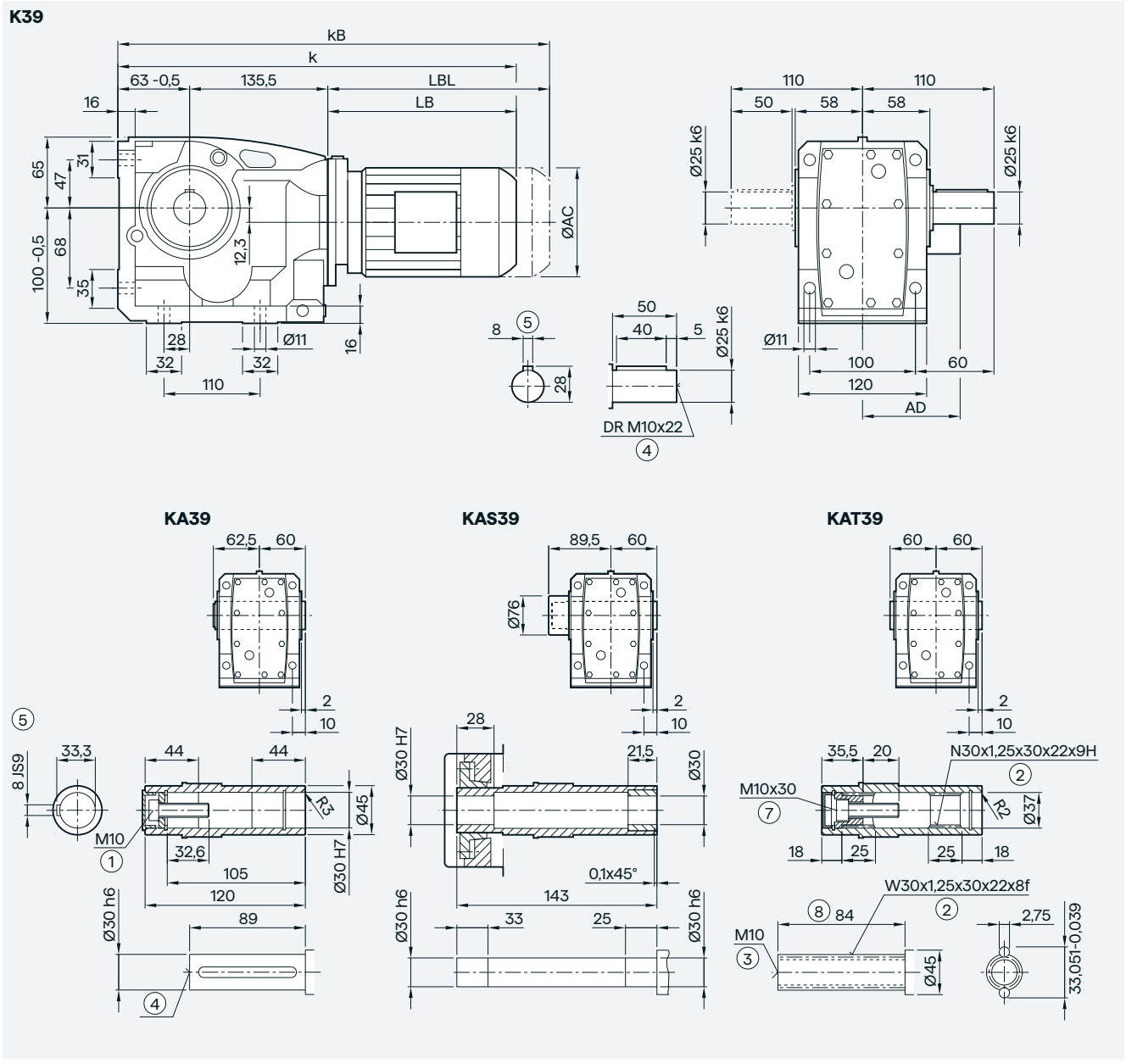
Bevel geared motors

Gearbox K..39 in a foot-mounted design



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	392.0	418.0	424.0	443.0	483.0	488.0	523.0	549.5	589.5	606.0	641.0	616.0	641.0
kB	436.5	462.5	479.0	498.0	538.0	548.0	583.0	619.5	659.5	684.5	719.5	689.0	714.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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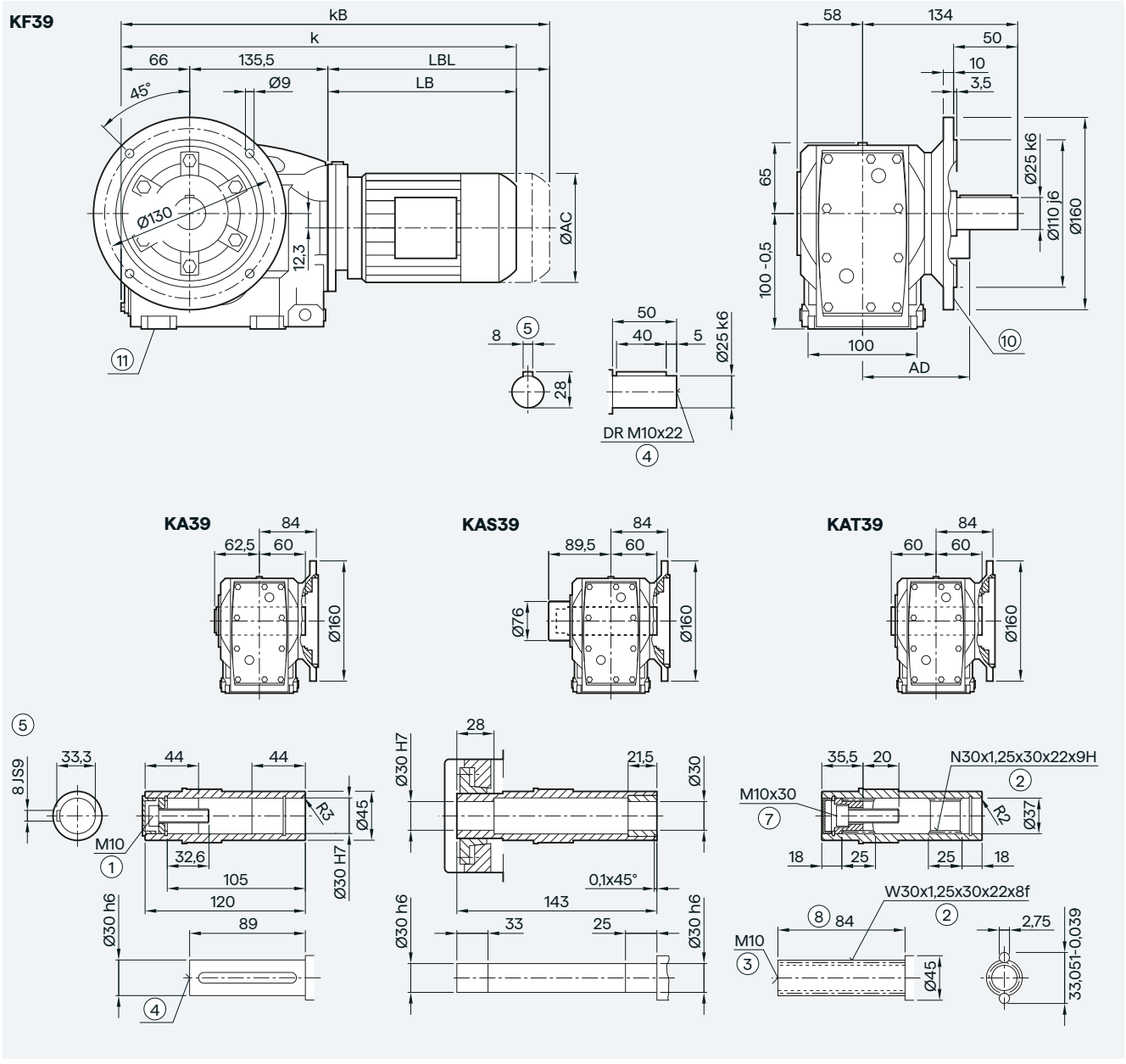
Gearbox K.F.39 in a flange-mounted design



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	395.0	421.0	427.0	446.0	486.0	491.0	526.0	552.5	592.5	609.0	644.0	619.0	644.0
kB	439.5	465.5	482.0	501.0	541.0	551.0	586.0	622.5	662.5	687.5	722.5	692.0	717.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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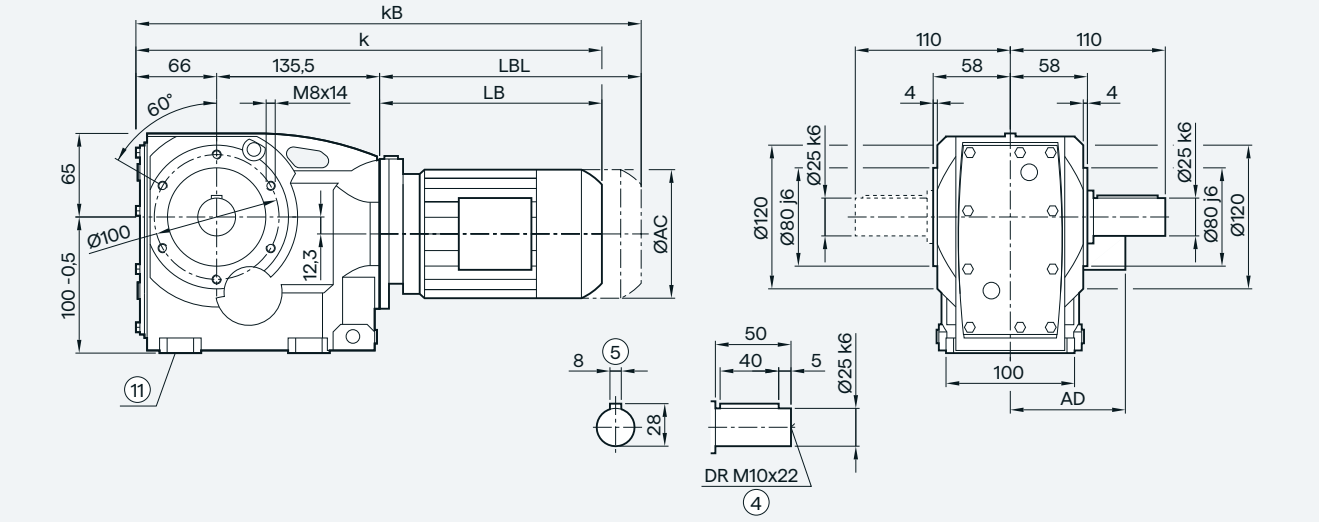
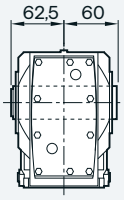
Gearbox K.Z.39 in a housing flange design

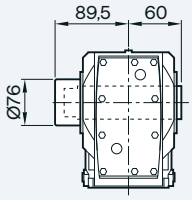
KZ39



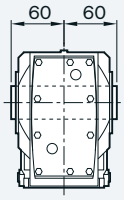
KAZ39

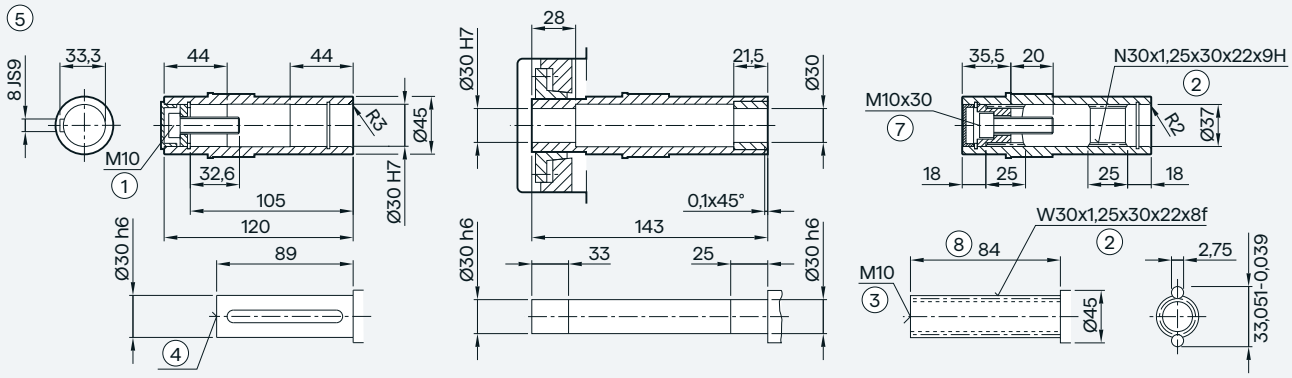


KAZS39



KAZT39





Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	395.0	421.0	427.0	446.0	486.0	491.0	526.0	552.5	592.5	609.0	644.0	619.0	644.0
kB	439.5	465.5	482.0	501.0	541.0	551.0	586.0	622.5	662.5	687.5	722.5	692.0	717.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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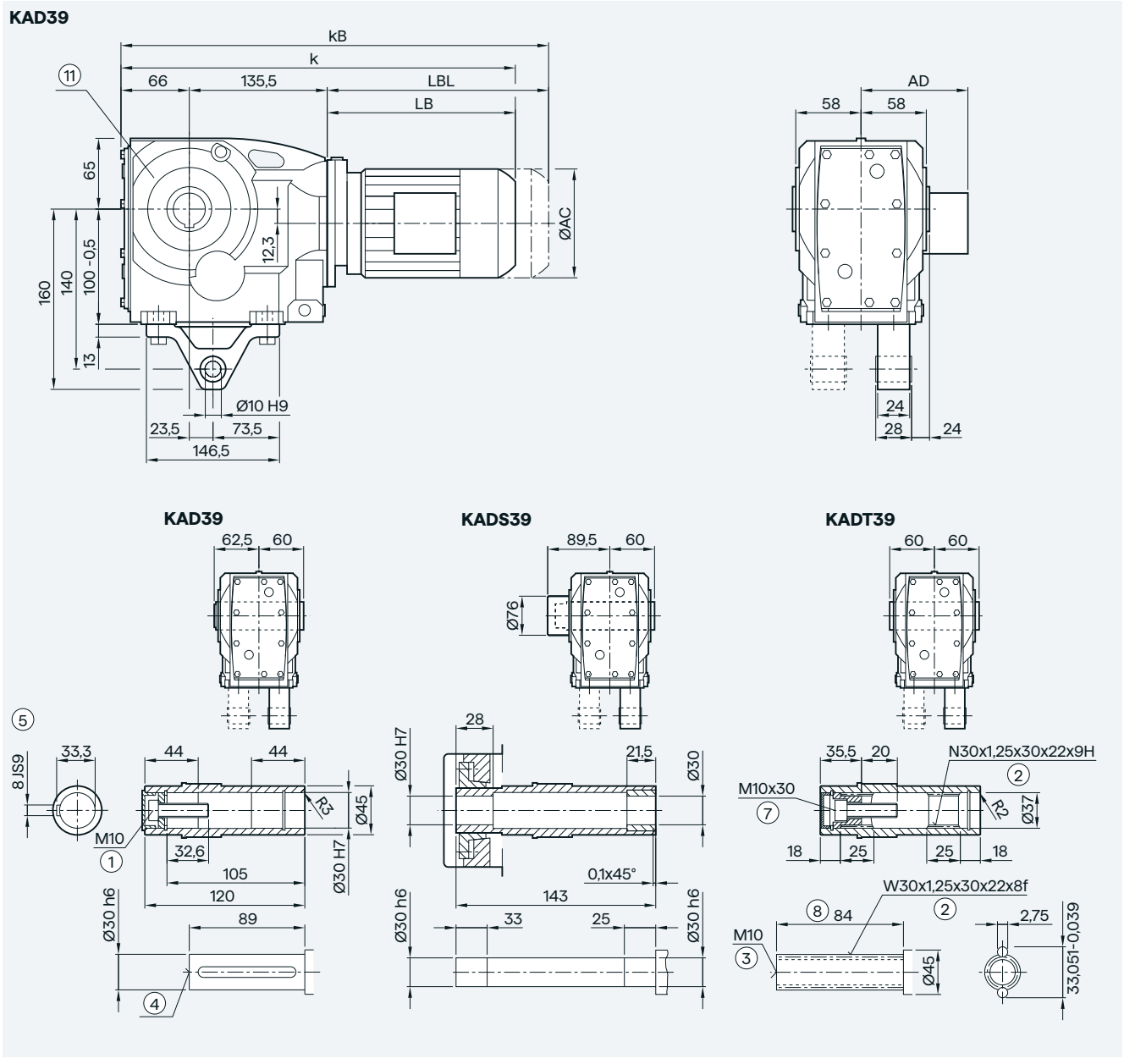
Gearbox KAD.39 in a shaft-mounted design



Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	395.0	421.0	427.0	446.0	486.0	491.0	526.0	552.5	592.5	609.0	644.0	619.0	644.0
kB	439.5	465.5	482.0	501.0	541.0	551.0	586.0	622.5	662.5	687.5	722.5	692.0	717.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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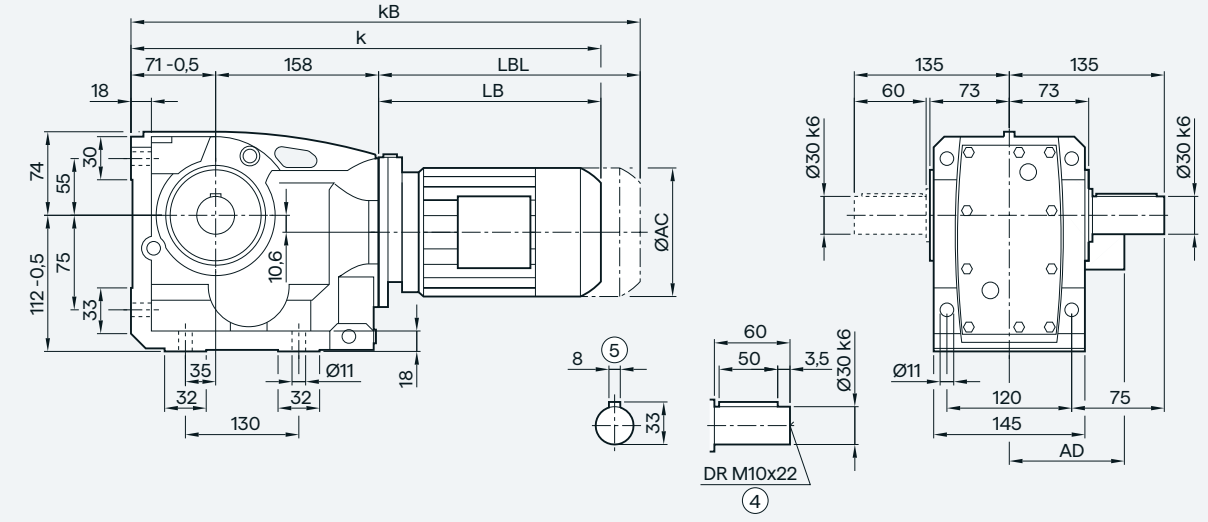
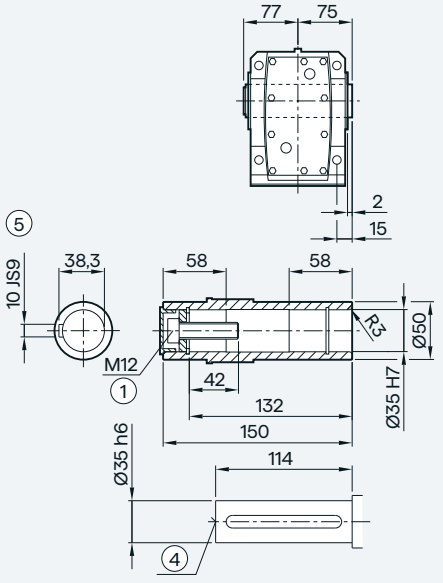
Bevel geared motors

Gearbox K..49 in a foot-mounted design

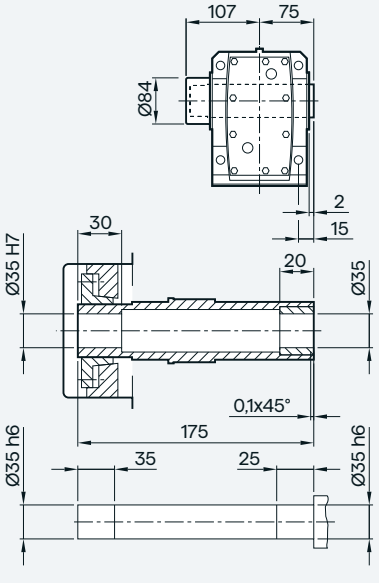
K49



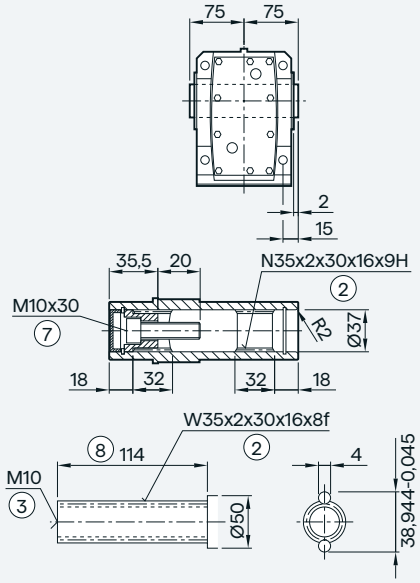
KA49



KAS49



KAT49



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	413.5	439.5	445.5	464.5	504.5	509.5	544.5	571.0	611.0	627.5	662.5	637.5	672.0	690.5	740.5
kB	458.0	484.0	500.5	519.5	559.5	569.5	604.5	641.0	681.0	706.0	741.0	710.5	745.0	795.0	845.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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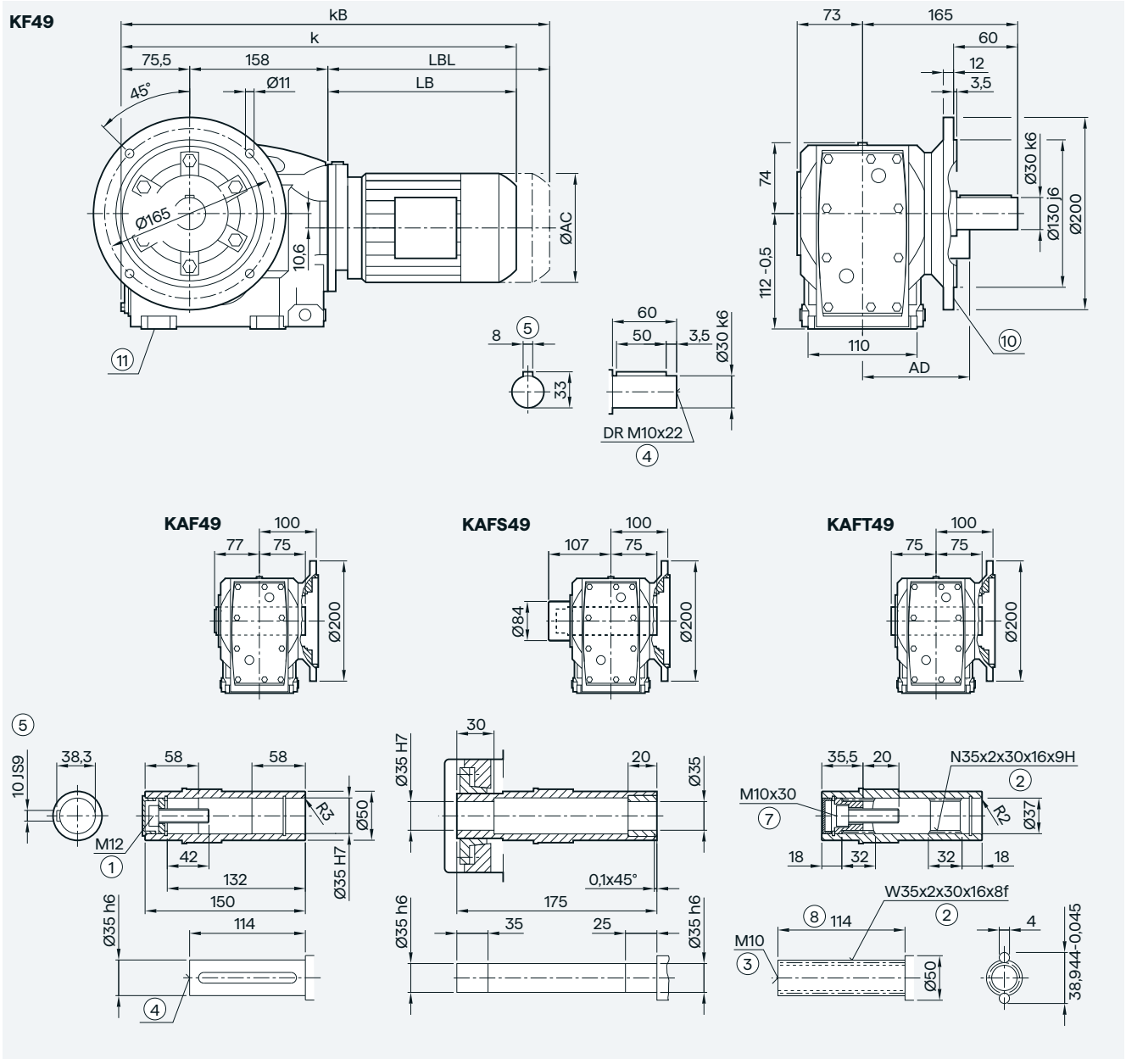
Gearbox K.F.49 in a flange-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	418.0	444.0	450.0	469.0	509.0	514.0	549.0	575.5	615.5	632.0	667.0	642.0	676.5	695.0	745.0
kB	462.5	488.5	505.0	524.0	564.0	574.0	609.0	645.5	685.5	710.5	745.5	715.0	749.5	799.5	849.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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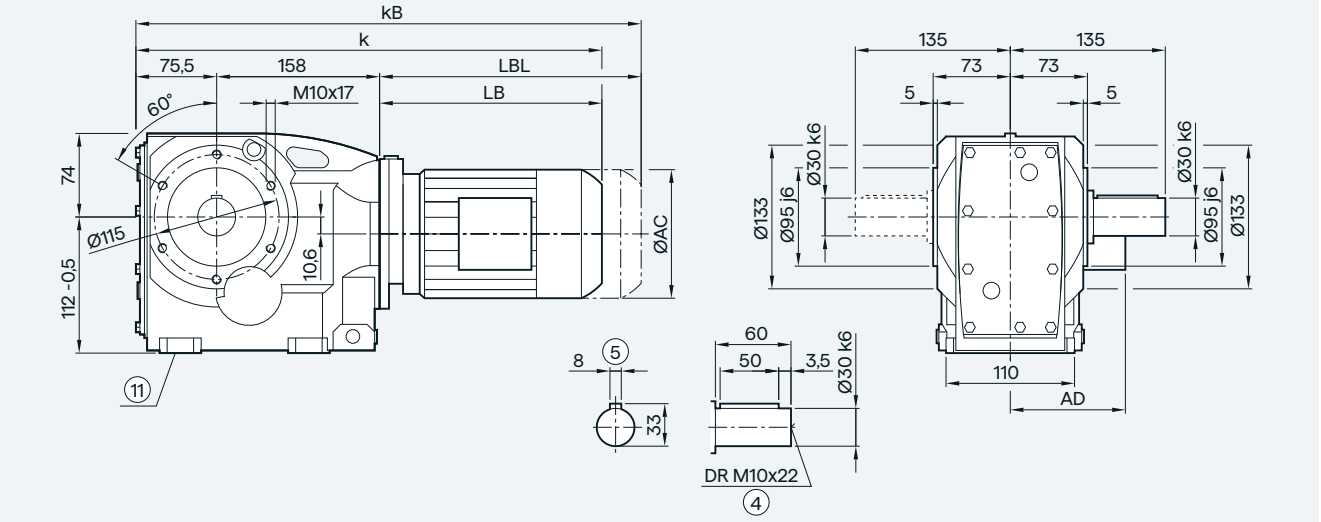
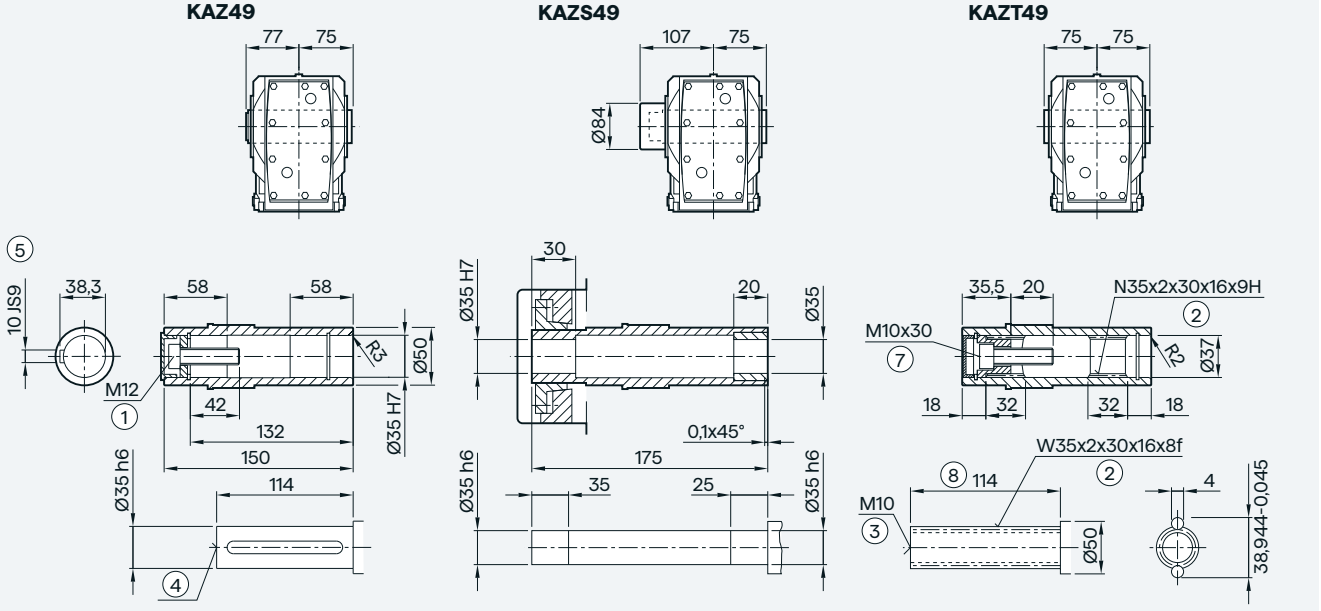
Bevel geared motors

Gearbox K.Z.49 in a housing flange design

KZ49



KAZ49



KAZS49

KAZT49

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	418.0	444.0	450.0	469.0	509.0	514.0	549.0	575.5	615.5	632.0	667.0	642.0	676.5	695.0	745.0
kB	462.5	488.5	505.0	524.0	564.0	574.0	609.0	645.5	685.5	710.5	745.5	715.0	749.5	799.5	849.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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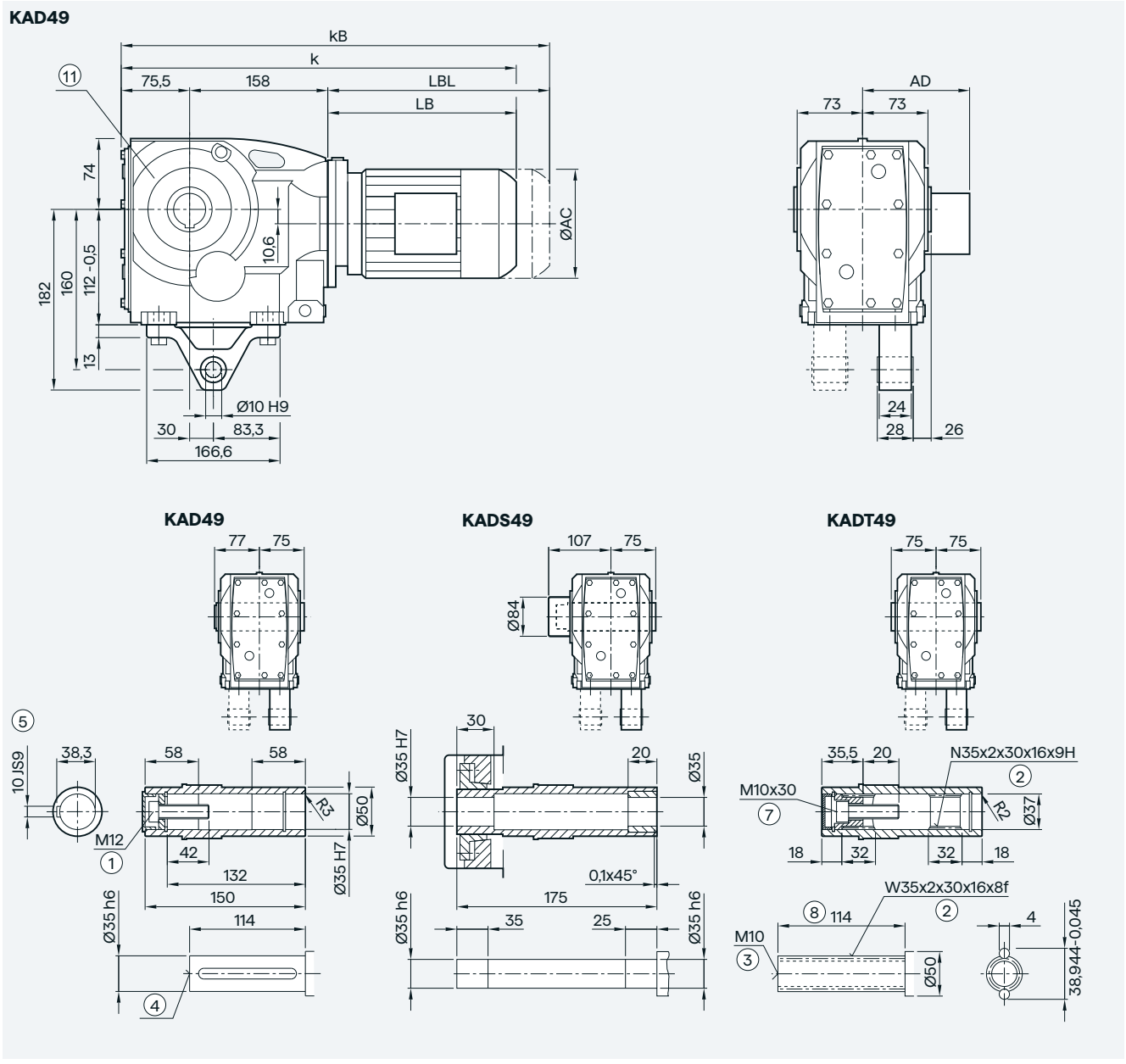
Gearbox KAD.49 in a shaft-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	418.0	444.0	450.0	469.0	509.0	514.0	549.0	575.5	615.5	632.0	667.0	642.0	676.5	695.0	745.0
kB	462.5	488.5	505.0	524.0	564.0	574.0	609.0	645.5	685.5	710.5	745.5	715.0	749.5	799.5	849.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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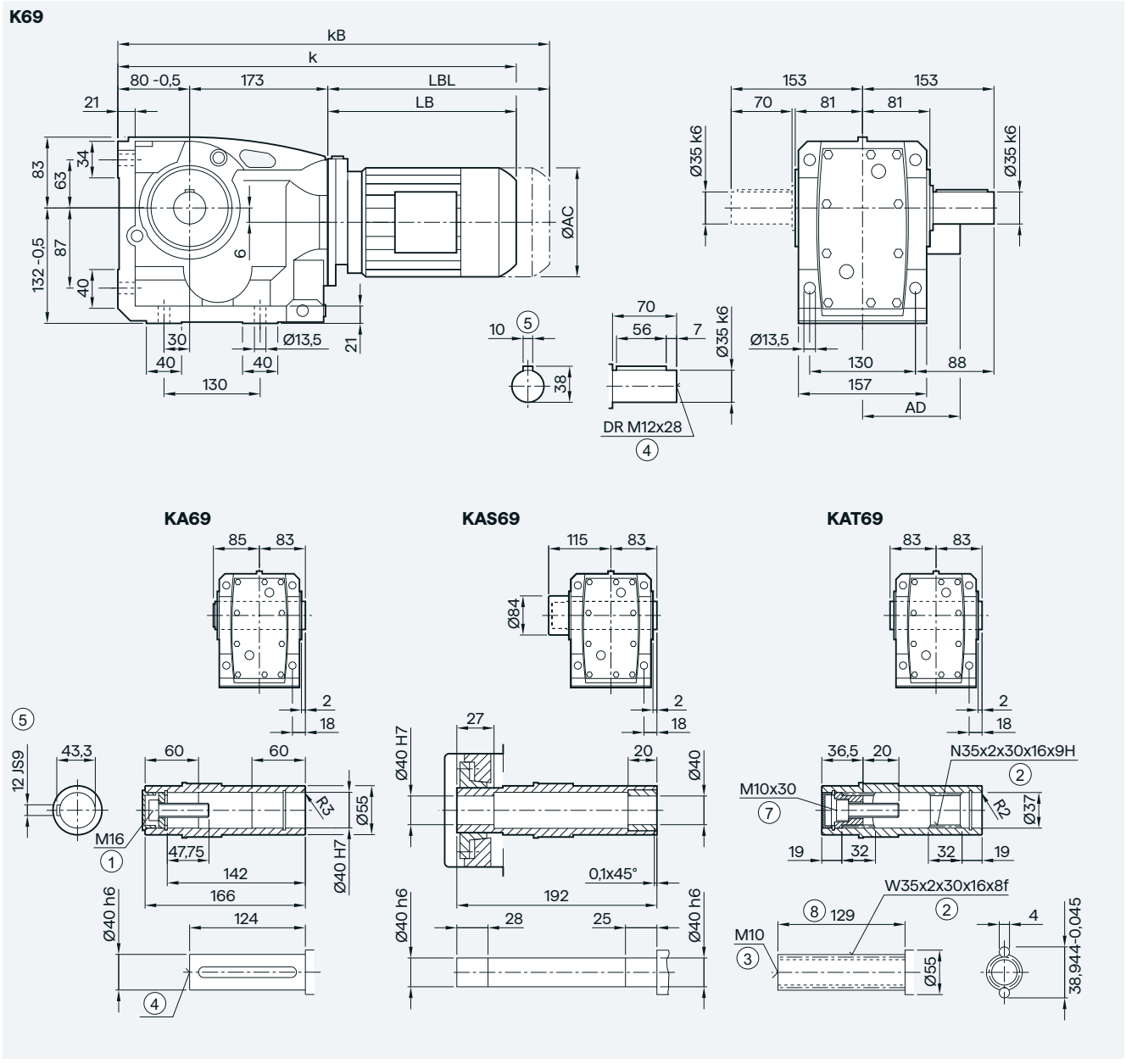
Bevel geared motors

Gearbox K..69 in a foot-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	437.5	463.5	469.5	488.5	528.5	533.5	568.5	595.0	635.0	651.5	686.5	661.5	696.0	714.5	764.5
kB	482.0	508.0	524.5	543.5	583.5	593.5	628.5	665.0	705.0	730.0	765.0	734.5	769.0	819.0	869.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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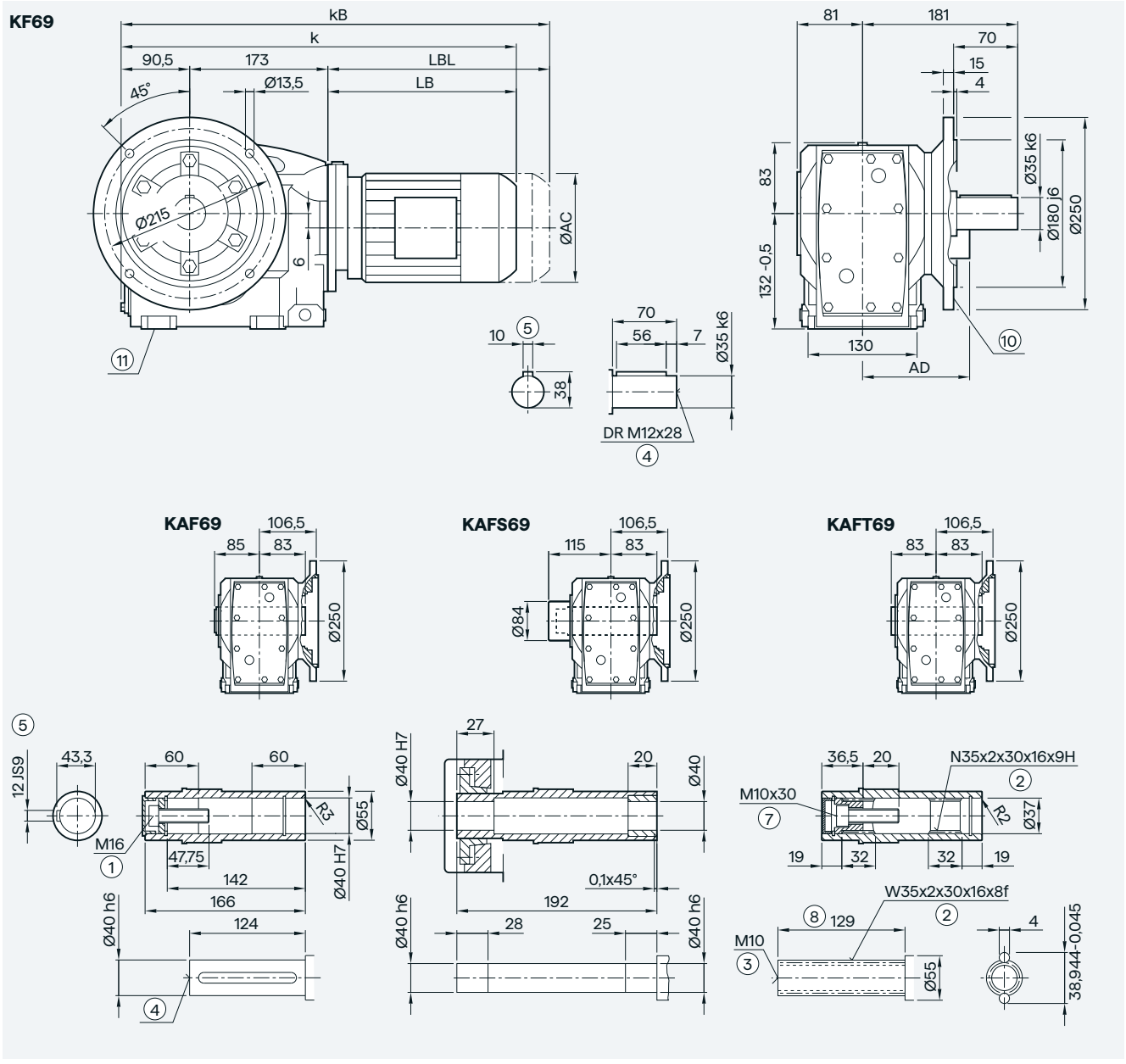
Gearbox K.F.69 in a flange-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	448.0	474.0	480.0	499.0	539.0	544.0	579.0	605.5	645.5	662.0	697.0	672.0	706.5	725.0	775.0
kB	492.5	518.5	535.0	554.0	594.0	604.0	639.0	675.5	715.5	740.5	775.5	745.0	779.5	829.5	879.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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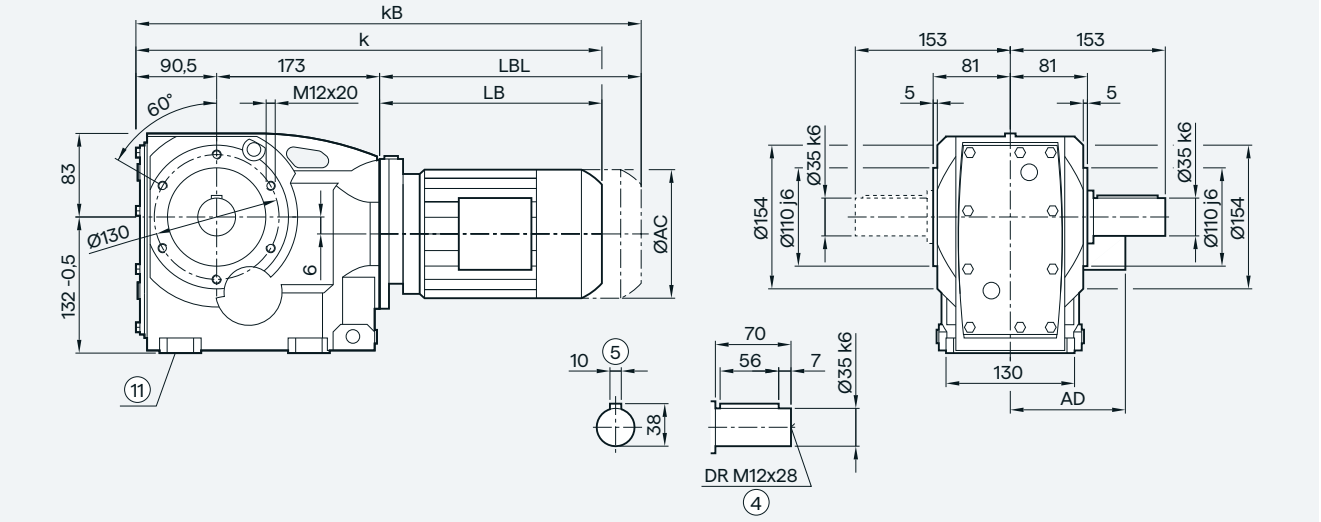
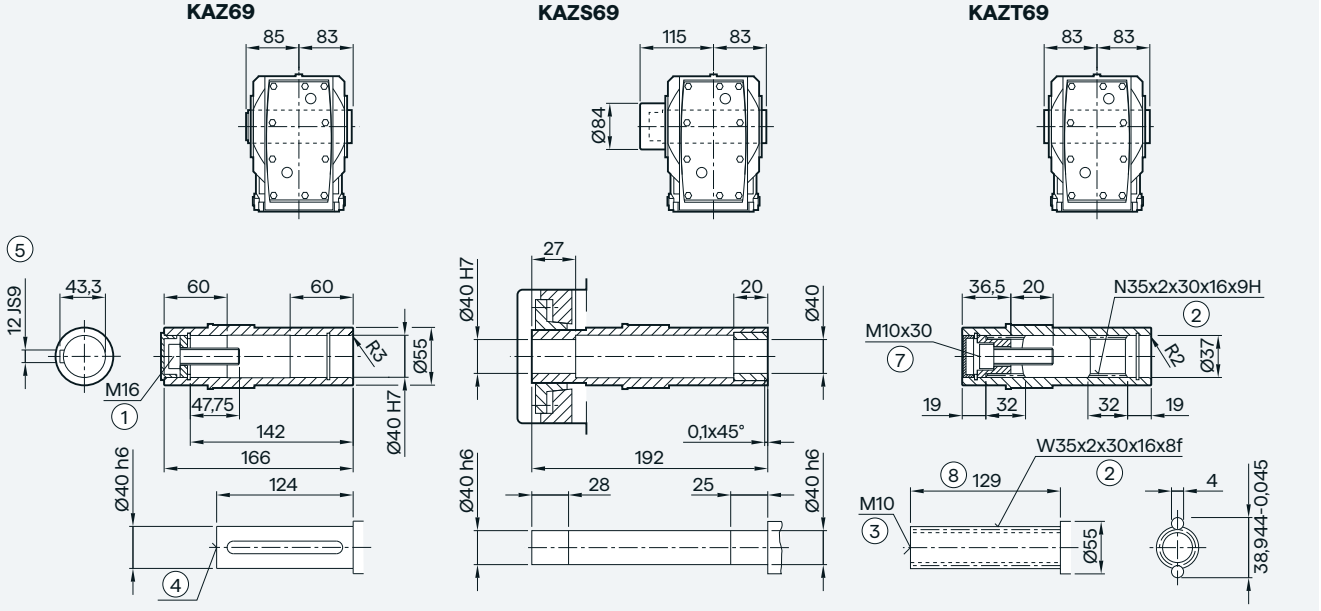
Bevel geared motors

Gearbox K.Z.69 in a housing flange design

KZ69



KAZ69



KAZS69

KAZT69

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	448.0	474.0	480.0	499.0	539.0	544.0	579.0	605.5	645.5	662.0	697.0	672.0	706.5	725.0	775.0
kB	492.5	518.5	535.0	554.0	594.0	604.0	639.0	675.5	715.5	740.5	775.5	745.0	779.5	829.5	879.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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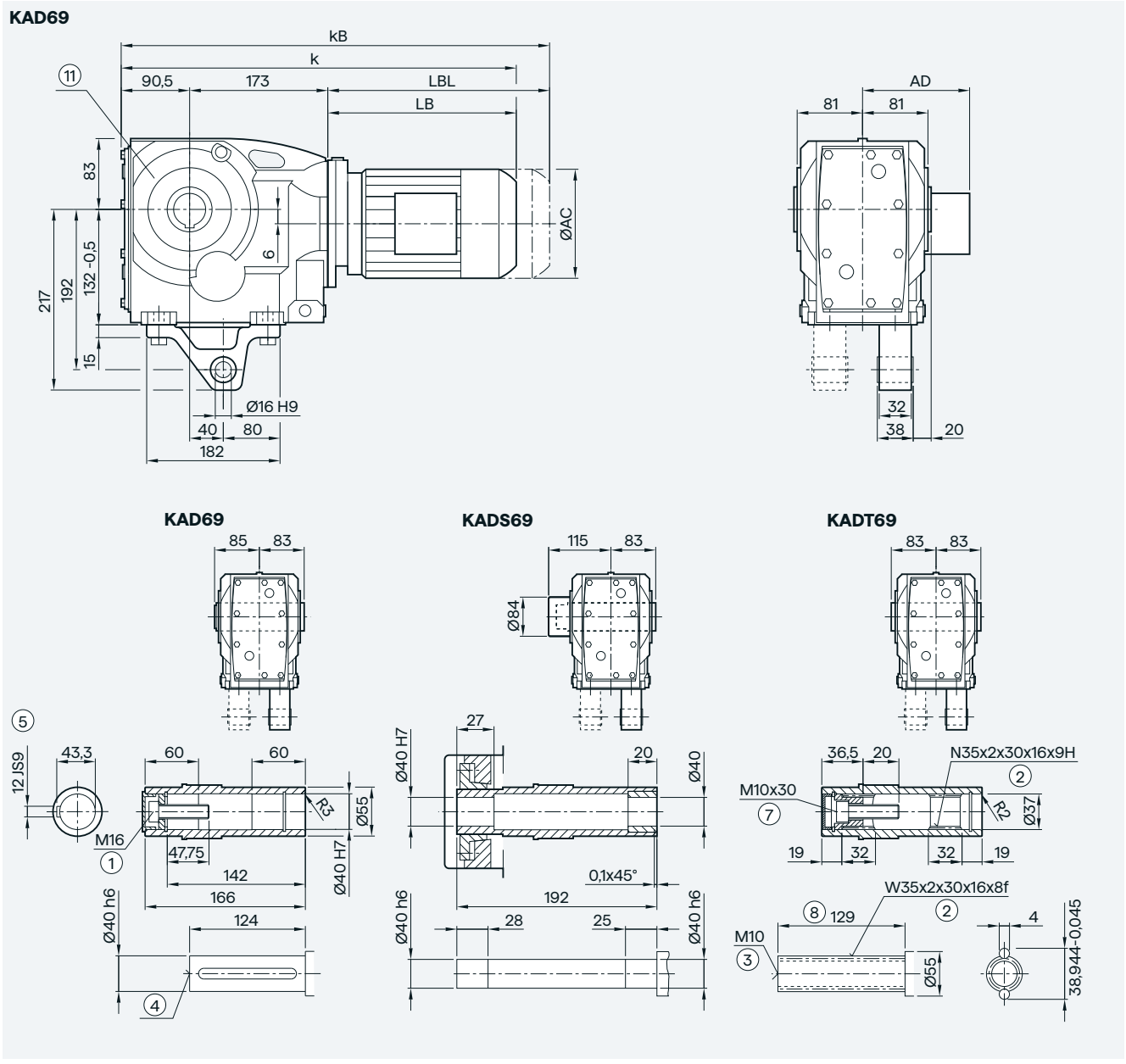
Gearbox KAD.69 in a shaft-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	448.0	474.0	480.0	499.0	539.0	544.0	579.0	605.5	645.5	662.0	697.0	672.0	706.5	725.0	775.0
kB	492.5	518.5	535.0	554.0	594.0	604.0	639.0	675.5	715.5	740.5	775.5	745.0	779.5	829.5	879.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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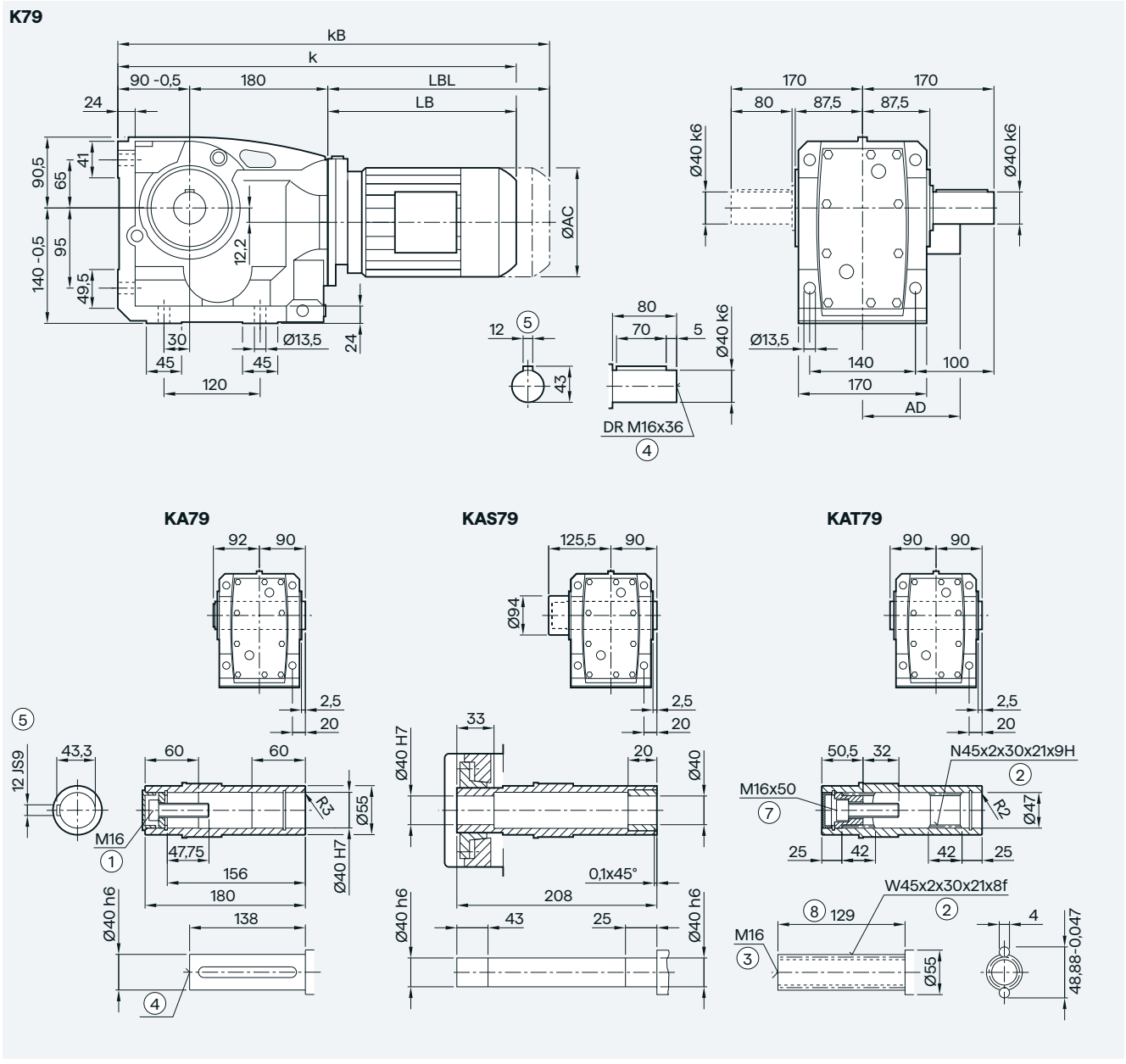
Bevel geared motors

Gearbox K..79 in a foot-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	454.5	480.5	486.5	505.5	545.5	550.5	585.5	612.0	652.0	668.5	703.5	678.5	713.0	731.5	781.5
kB	499.0	525.0	541.5	560.5	600.5	610.5	645.5	682.0	722.0	747.0	782.0	751.5	786.0	836.0	886.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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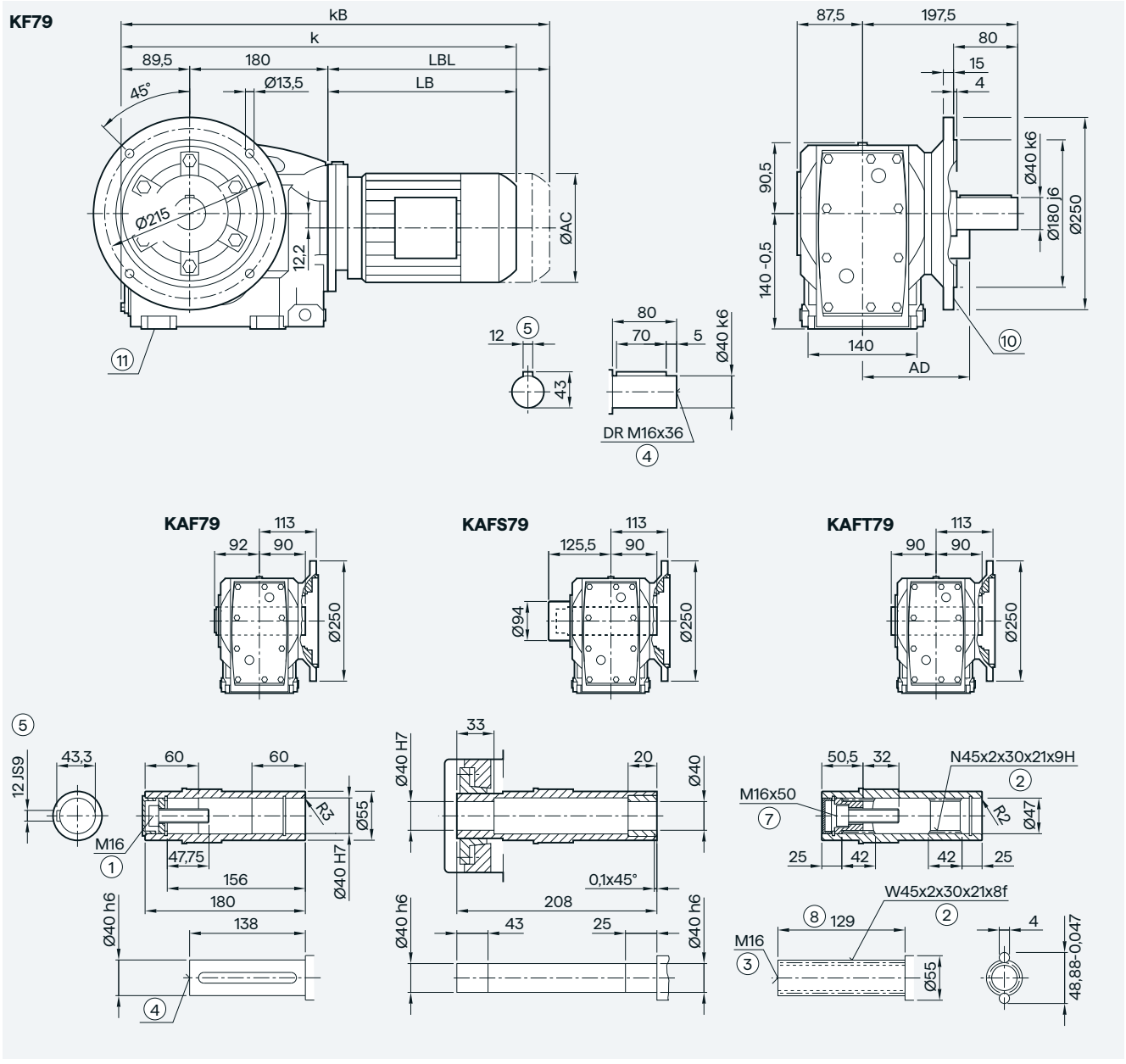
Gearbox K.F.79 in a flange-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	454.0	480.0	486.0	505.0	545.0	550.0	585.0	611.5	651.5	668.0	703.0	678.5	712.5	731.0	781.0
kB	498.5	524.5	541.0	560.0	600.0	610.0	645.0	681.5	721.5	746.5	781.5	751.0	785.5	835.5	885.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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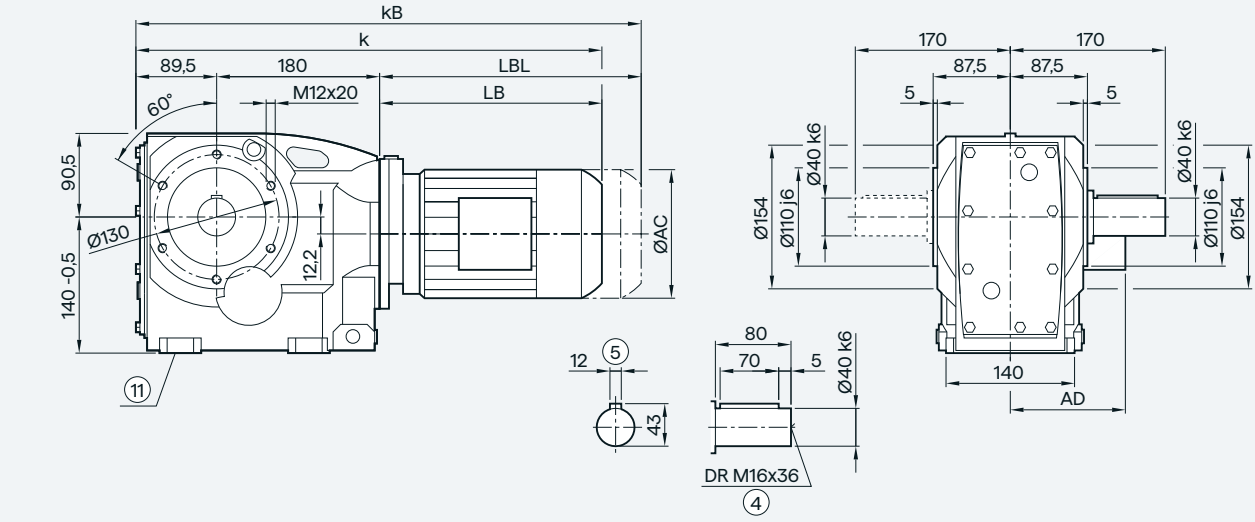
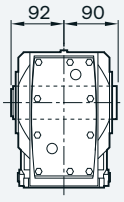
Bevel geared motors

Gearbox K.Z.79 in a housing flange design

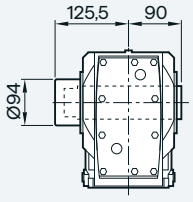
KZ79



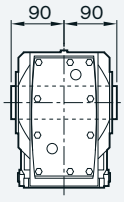
KAZ79

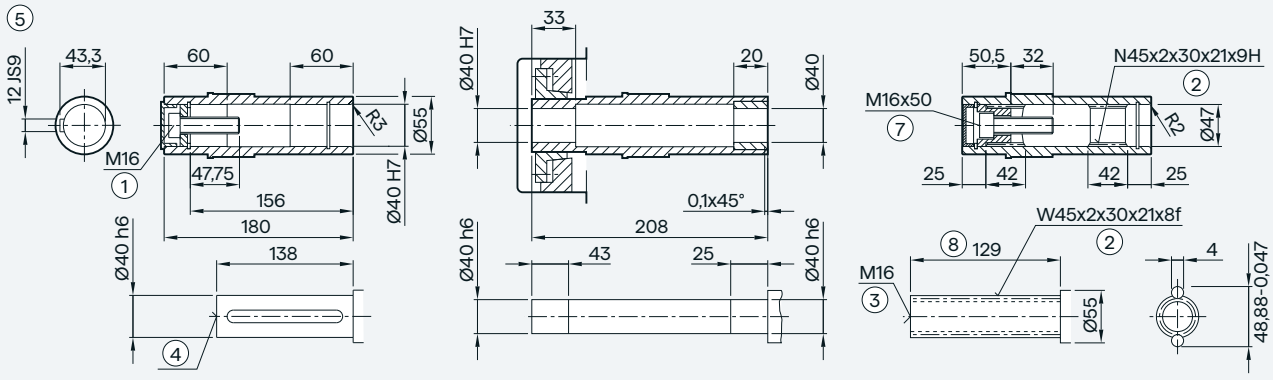


KAZS79



KAZT79





Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	454.0	480.0	486.0	505.0	545.0	550.0	585.0	611.5	651.5	668.0	703.0	678.5	712.5	731.0	781.0
kB	498.5	524.5	541.0	560.0	600.0	610.0	645.0	681.5	721.5	746.5	781.5	751.0	785.5	835.5	885.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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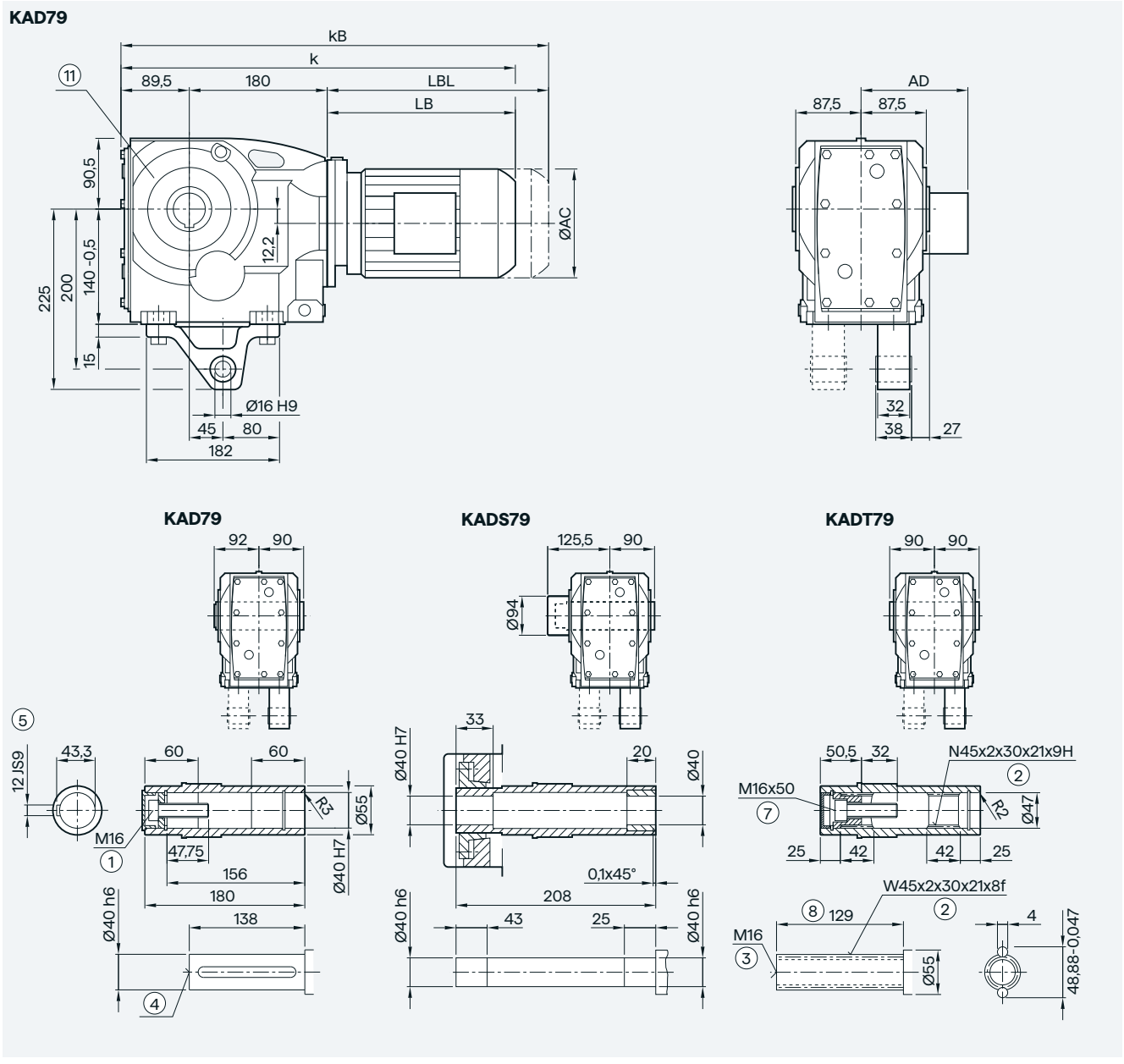
Gearbox KAD.79 in a shaft-mounted design



Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	454.0	480.0	486.0	505.0	545.0	550.0	585.0	611.5	651.5	668.0	703.0	678.5	712.5	731.0	781.0
kB	498.5	524.5	541.0	560.0	600.0	610.0	645.0	681.5	721.5	746.5	781.5	751.0	785.5	835.5	885.5
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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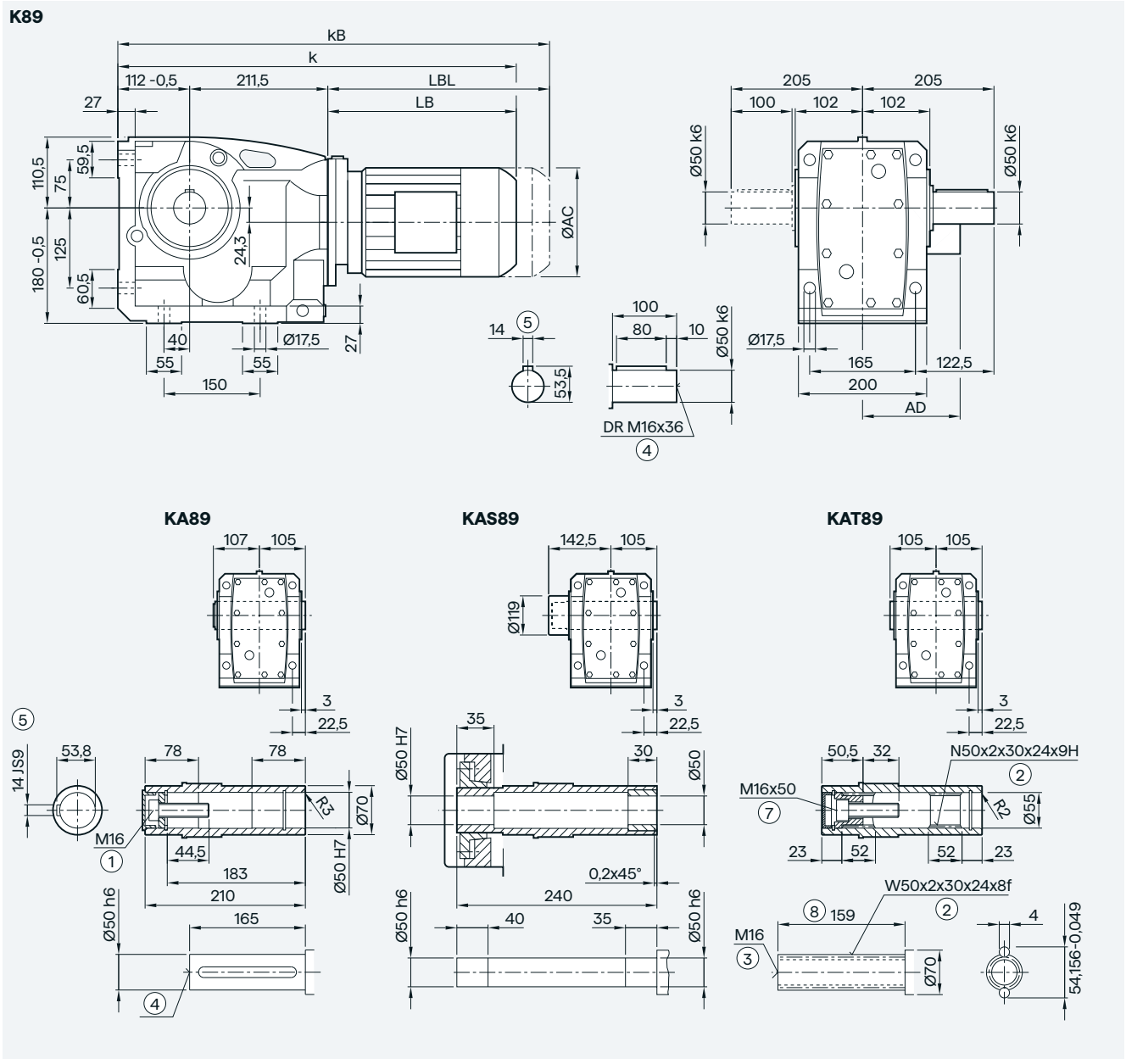
Bevel geared motors

Gearbox K..89 in a foot-mounted design



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	538.0	557.0	597.0	598.0	633.0	659.5	699.5	716.0	751.0	726.0	751.0	779.0	829.0	861.0	921.0
kB	593.0	612.0	652.0	658.0	693.0	729.5	769.5	794.5	829.5	799.0	824.0	883.5	933.5	977.0	1037.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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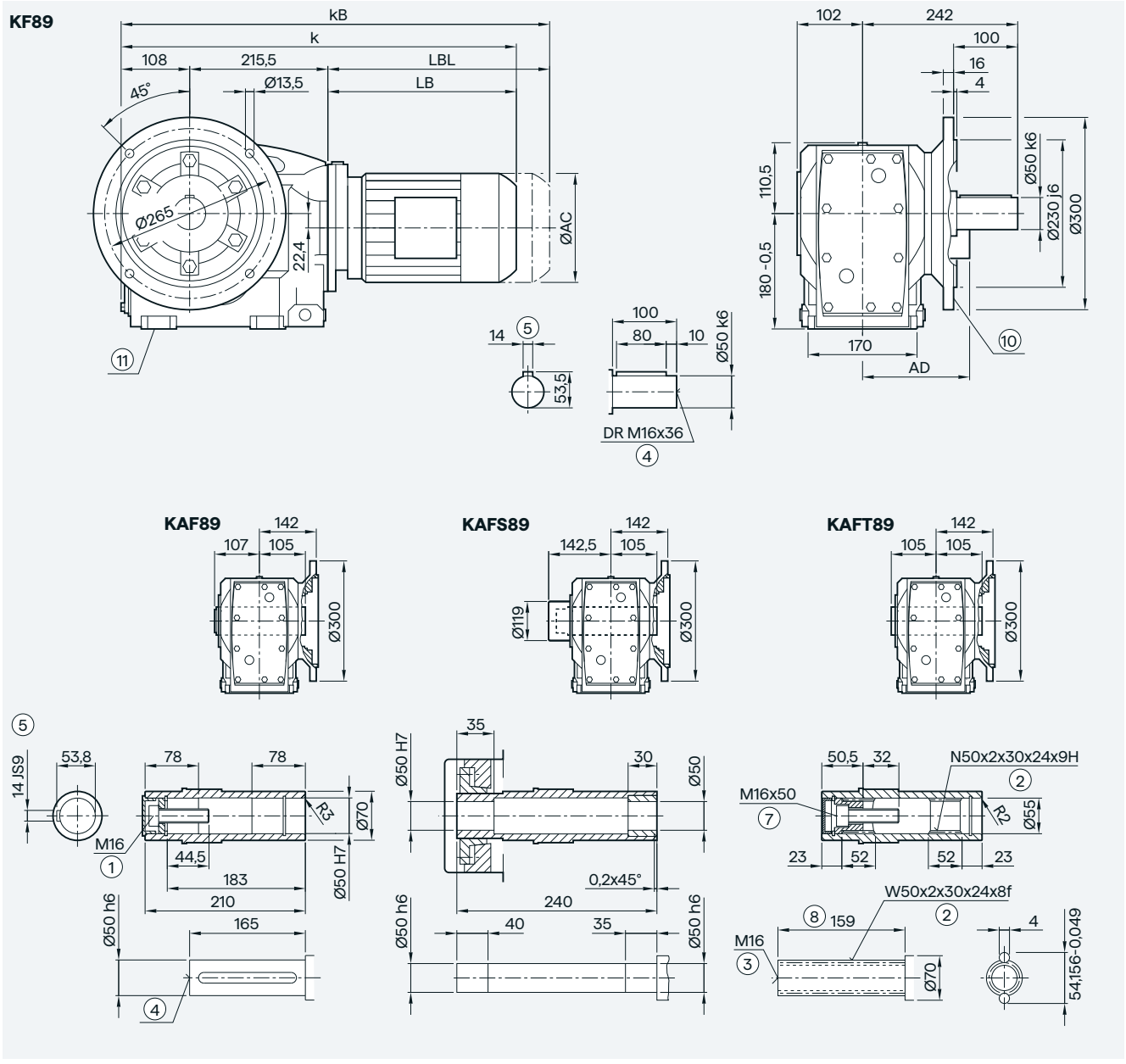
Gearbox K.F.89 in a flange-mounted design



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	538.0	557.0	597.0	598.0	633.0	659.5	699.5	716.0	751.0	726.0	751.0	779.0	829.0	861.0	921.0
kB	593.0	612.0	652.0	658.0	693.0	729.5	769.5	794.5	829.5	799.0	824.0	883.5	933.5	977.0	1037.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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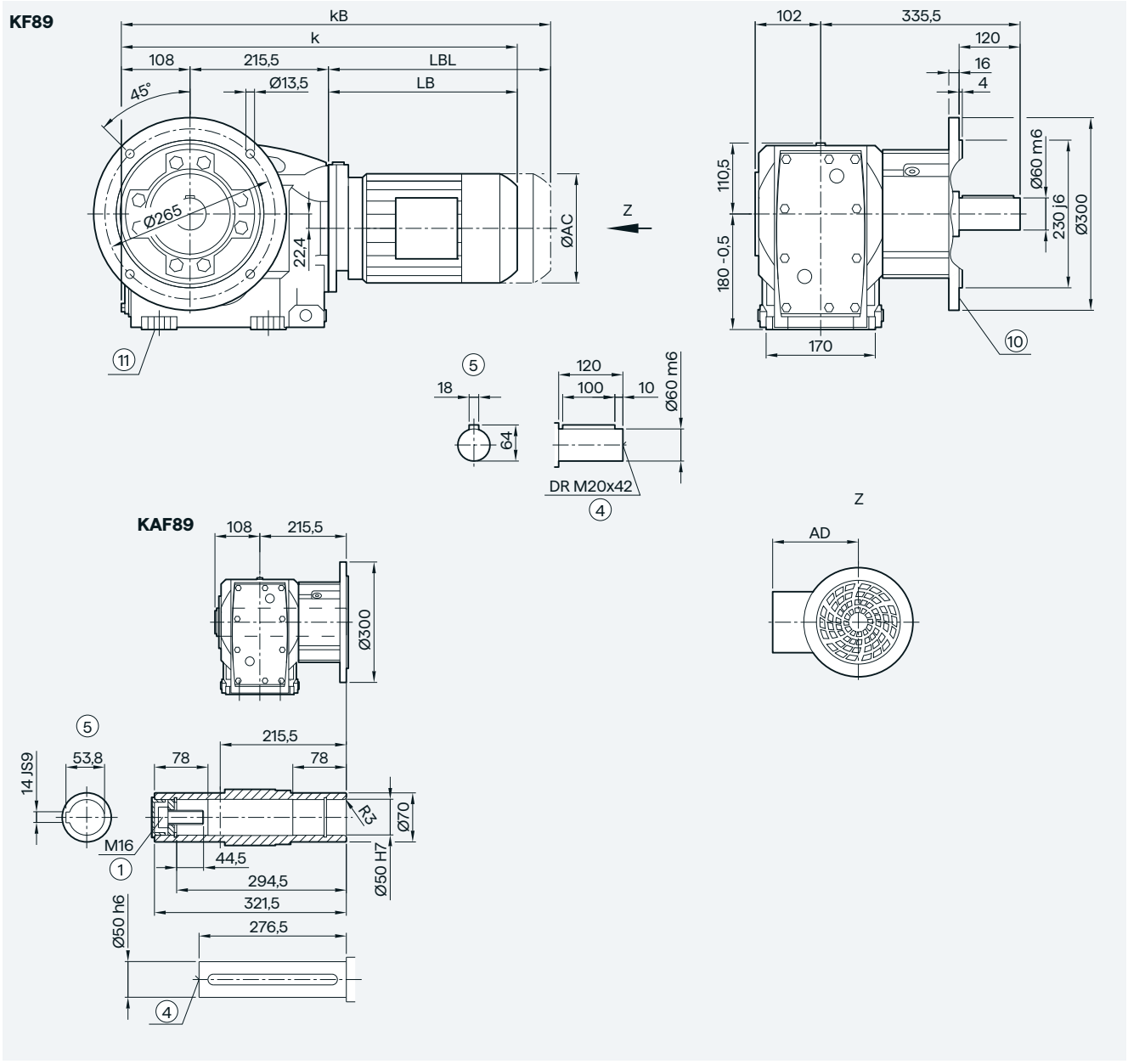
Bevel geared motors

Gearbox K.F.89 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	538.0	557.0	597.0	598.0	633.0	659.5	699.5	716.0	751.0	726.0	751.0	779.0	829.0	861.0	921.0
kB	593.0	612.0	652.0	658.0	693.0	729.5	769.5	794.5	829.5	799.0	824.0	883.5	933.5	977.0	1037.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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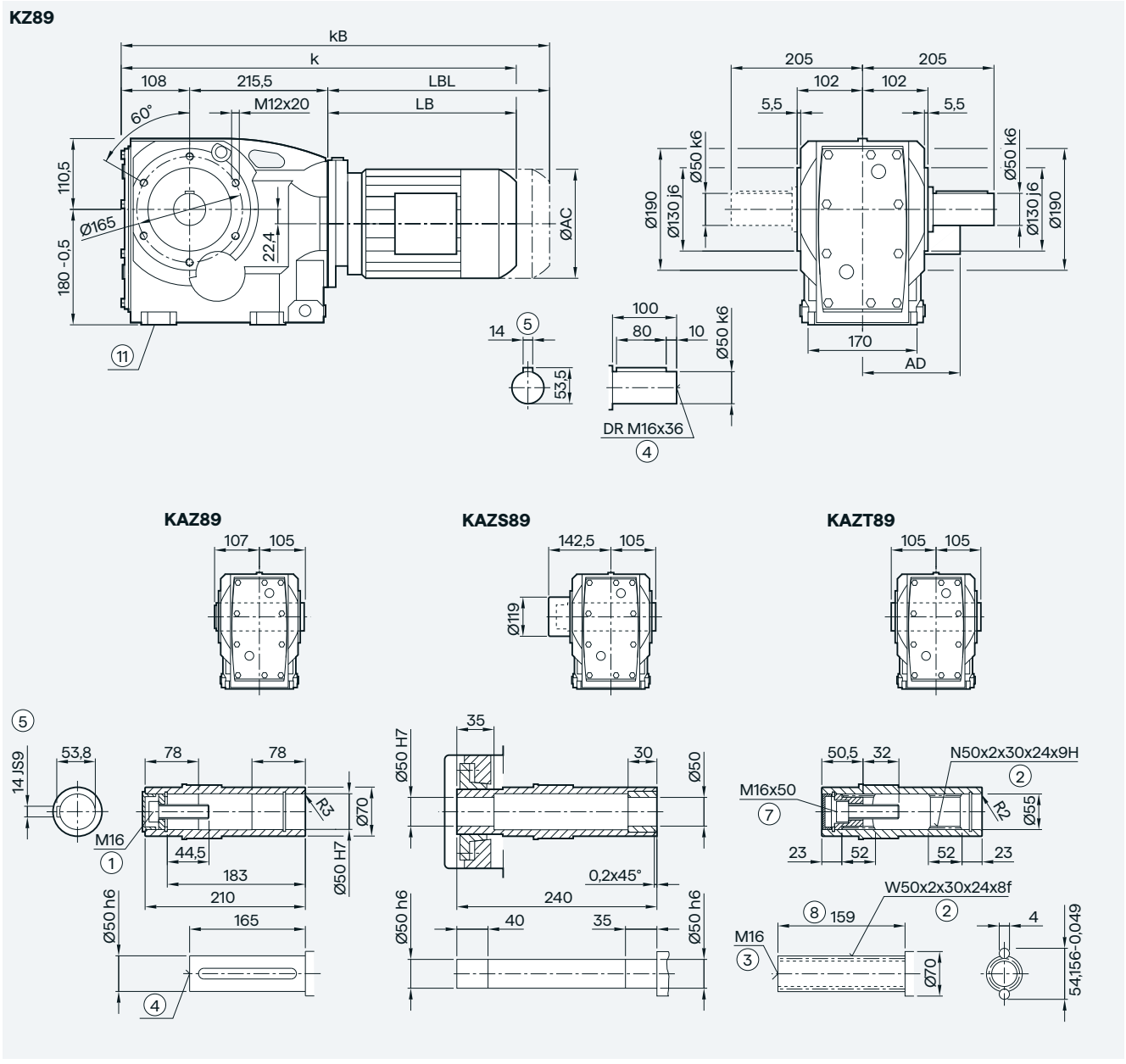
Gearbox K.Z.89 in a housing flange design



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	538.0	557.0	597.0	598.0	633.0	659.5	699.5	716.0	751.0	726.0	751.0	779.0	829.0	861.0	921.0
kB	593.0	612.0	652.0	658.0	693.0	729.5	769.5	794.5	829.5	799.0	824.0	883.5	933.5	977.0	1037.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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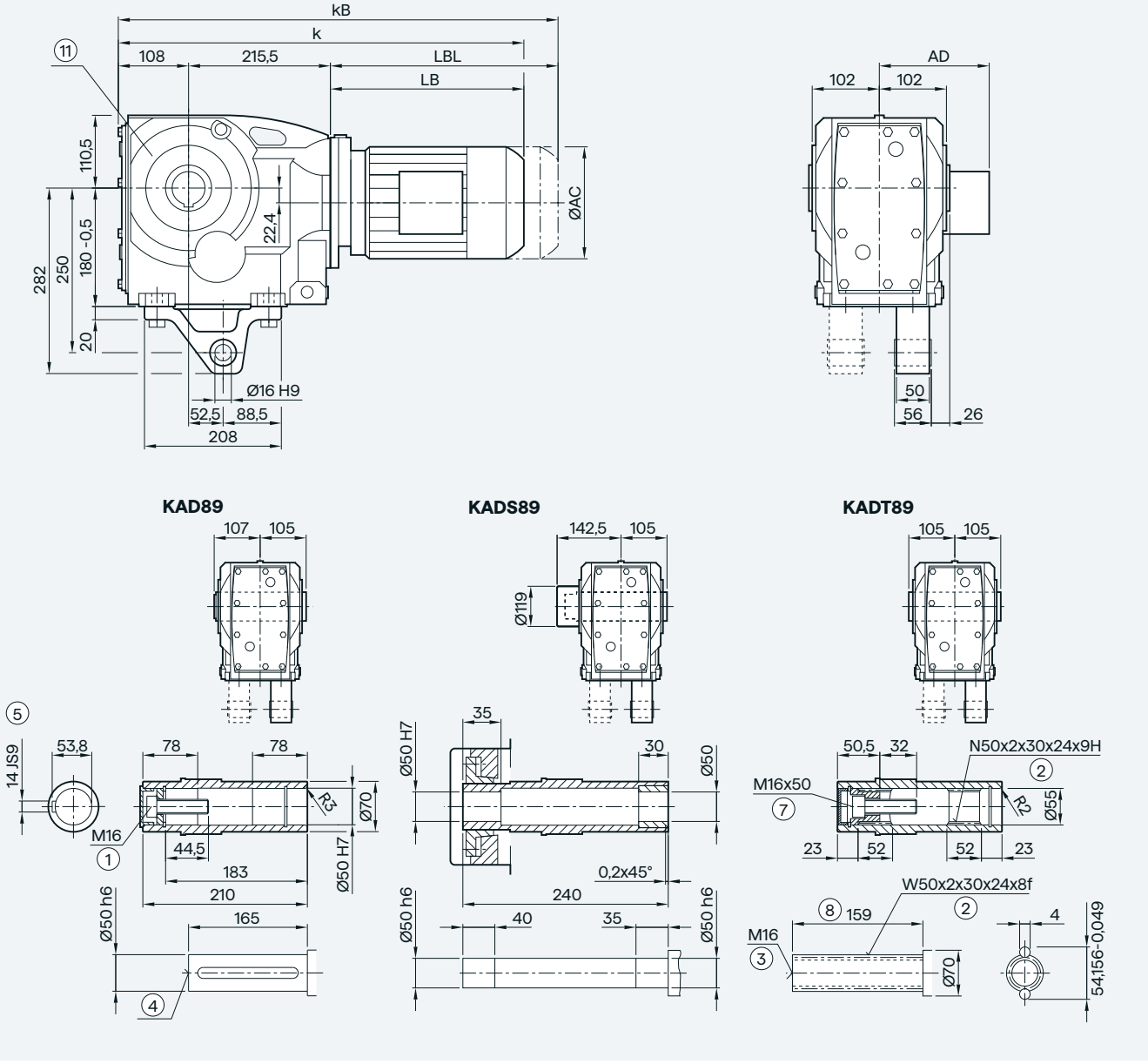
Bevel geared motors

Gearbox KAD.89 in a shaft-mounted design



Motor	LE														
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	538.0	557.0	597.0	598.0	633.0	659.5	699.5	716.0	751.0	726.0	751.0	779.0	829.0	861.0	921.0
kB	593.0	612.0	652.0	658.0	693.0	729.5	769.5	794.5	829.5	799.0	824.0	883.5	933.5	977.0	1037.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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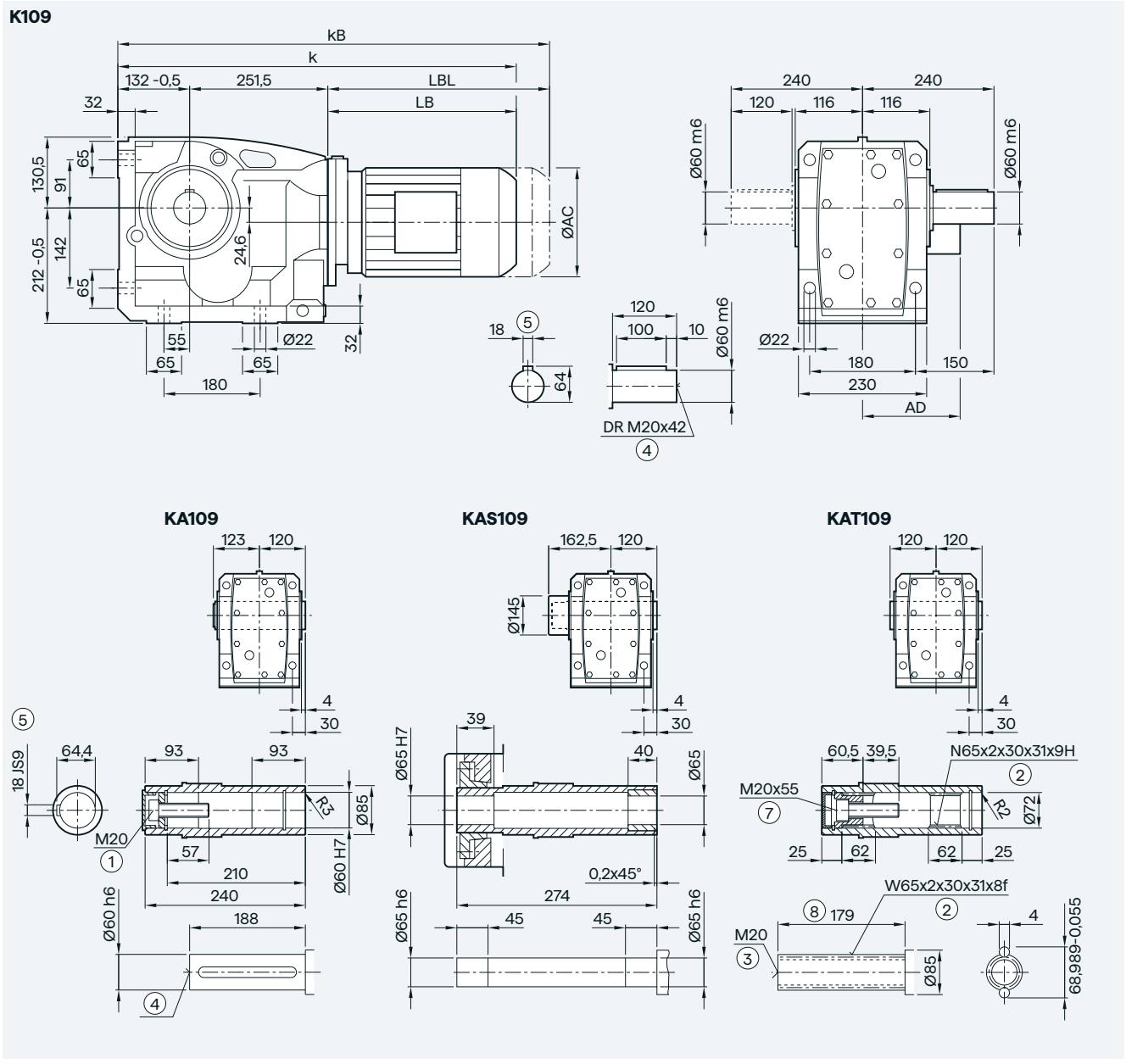
Gearbox K..109 in a foot-mounted design



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	645.0	680.0	706.5	746.5	759.0	794.0	769.0	794.0	822.0	872.0	904.0	964.0	977.0	1007.0
kB	705.0	740.0	776.5	816.5	837.5	872.5	842.0	867.0	926.5	976.5	1020.0	1080.0	1106.0	1136.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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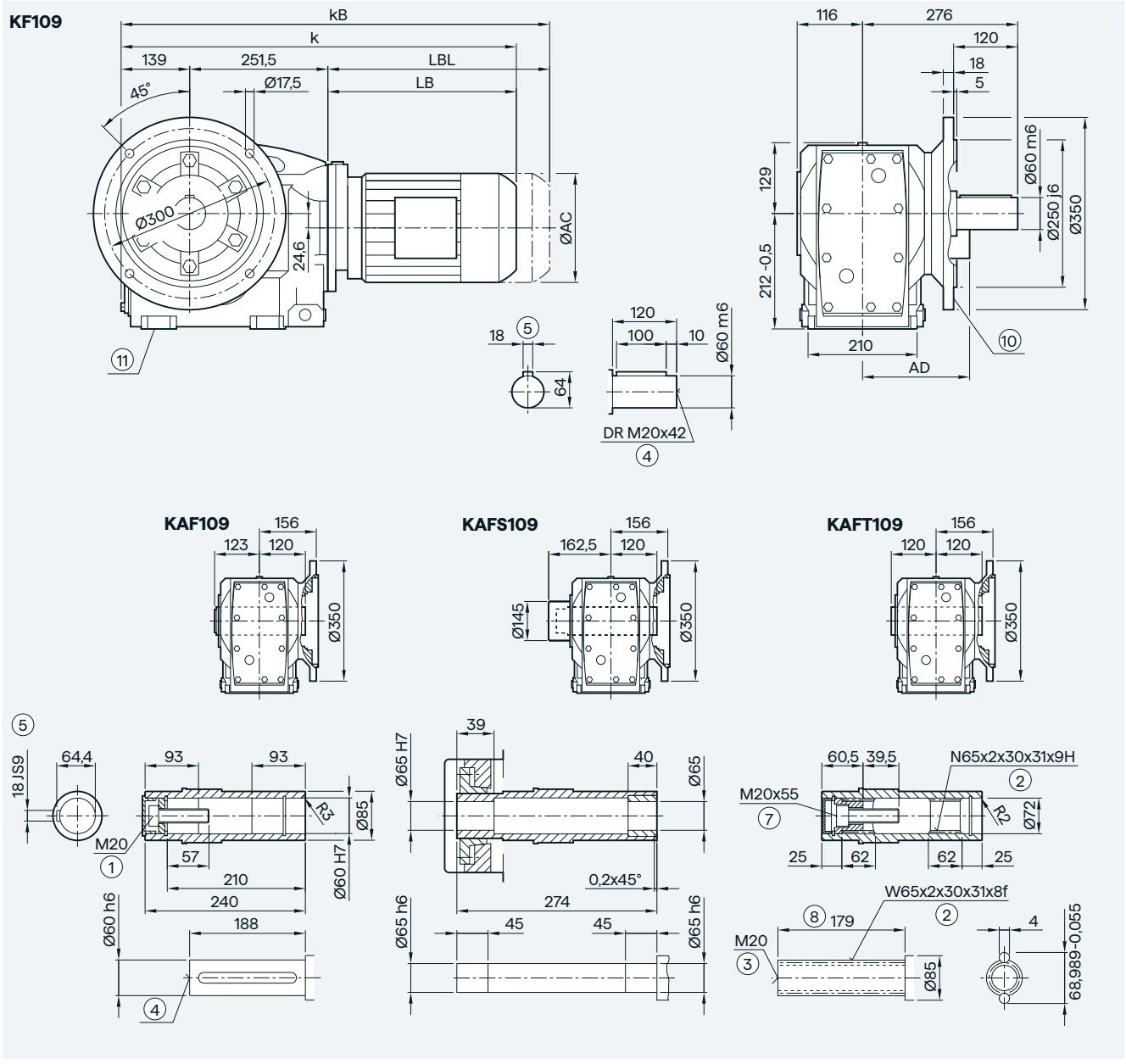
Bevel geared motors

Gearbox K.F.109 in a flange-mounted design



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	652.0	687.0	713.5	753.5	766.0	801.0	776.0	801.0	829.0	879.0	911.0	971.0	984.0	1014.0
kB	712.0	747.0	783.5	823.5	844.5	879.5	849.0	874.0	933.5	983.5	1027.0	1087.0	1113.0	1143.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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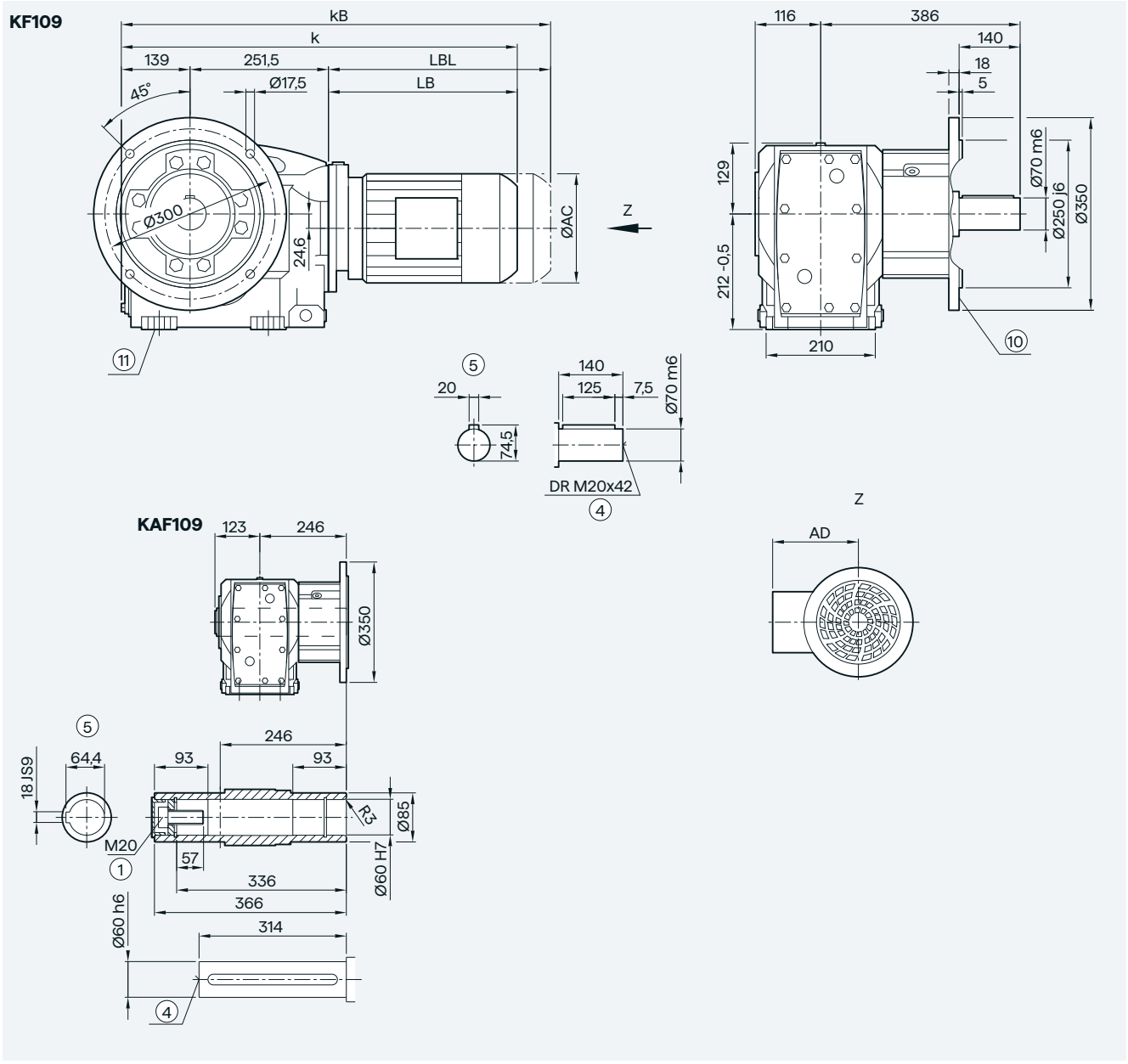
Gearbox K.F.109 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	652.0	687.0	713.5	753.5	766.0	801.0	776.0	801.0	829.0	879.0	911.0	971.0	984.0	1014.0
kB	712.0	747.0	783.5	823.5	844.5	879.5	849.0	874.0	933.5	983.5	1027.0	1087.0	1113.0	1143.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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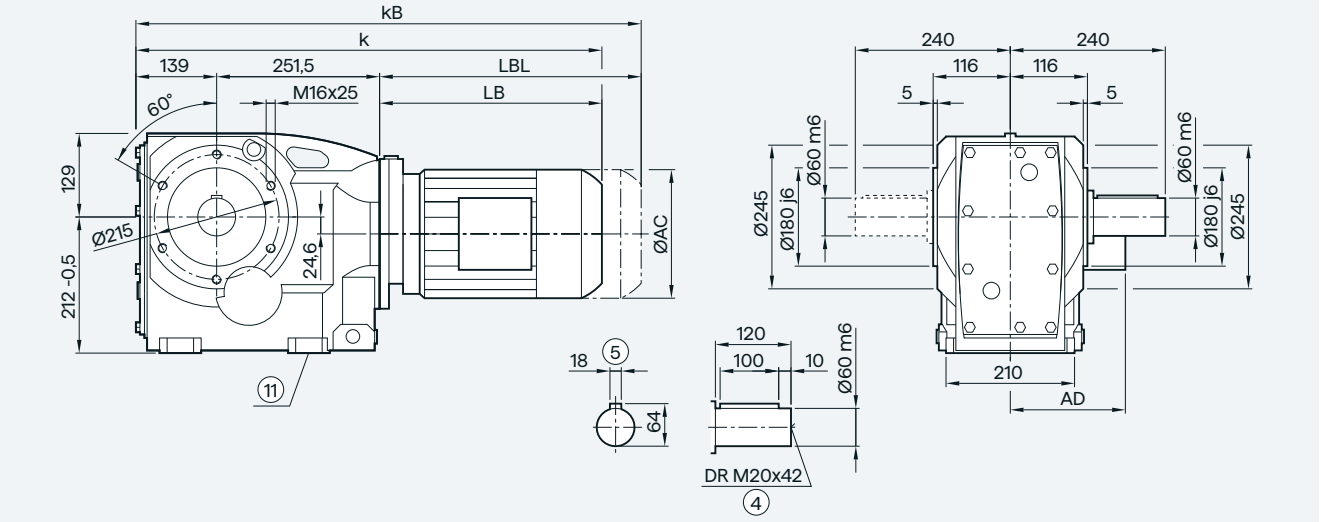
Bevel geared motors

Gearbox K.Z.109 in a housing flange design

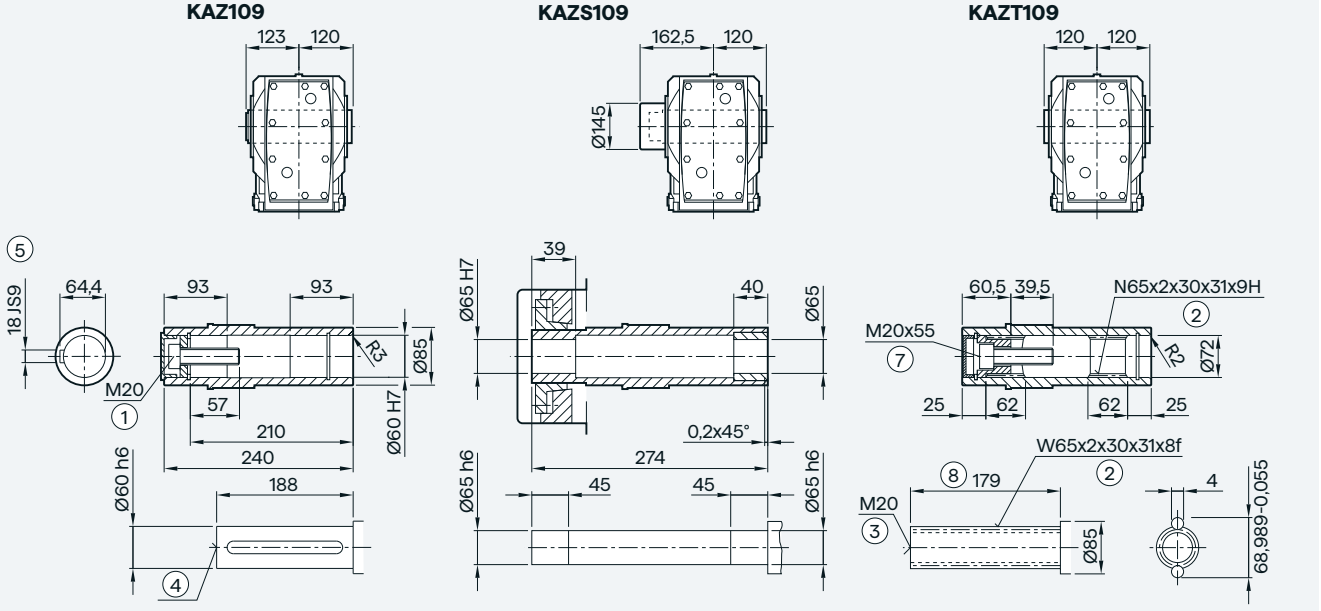
KZ109



KAZ109

KAZS109

KAZT109



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	652.0	687.0	713.5	753.5	766.0	801.0	776.0	801.0	829.0	879.0	911.0	971.0	984.0	1014.0
kB	712.0	747.0	783.5	823.5	844.5	879.5	849.0	874.0	933.5	983.5	1027.0	1087.0	1113.0	1143.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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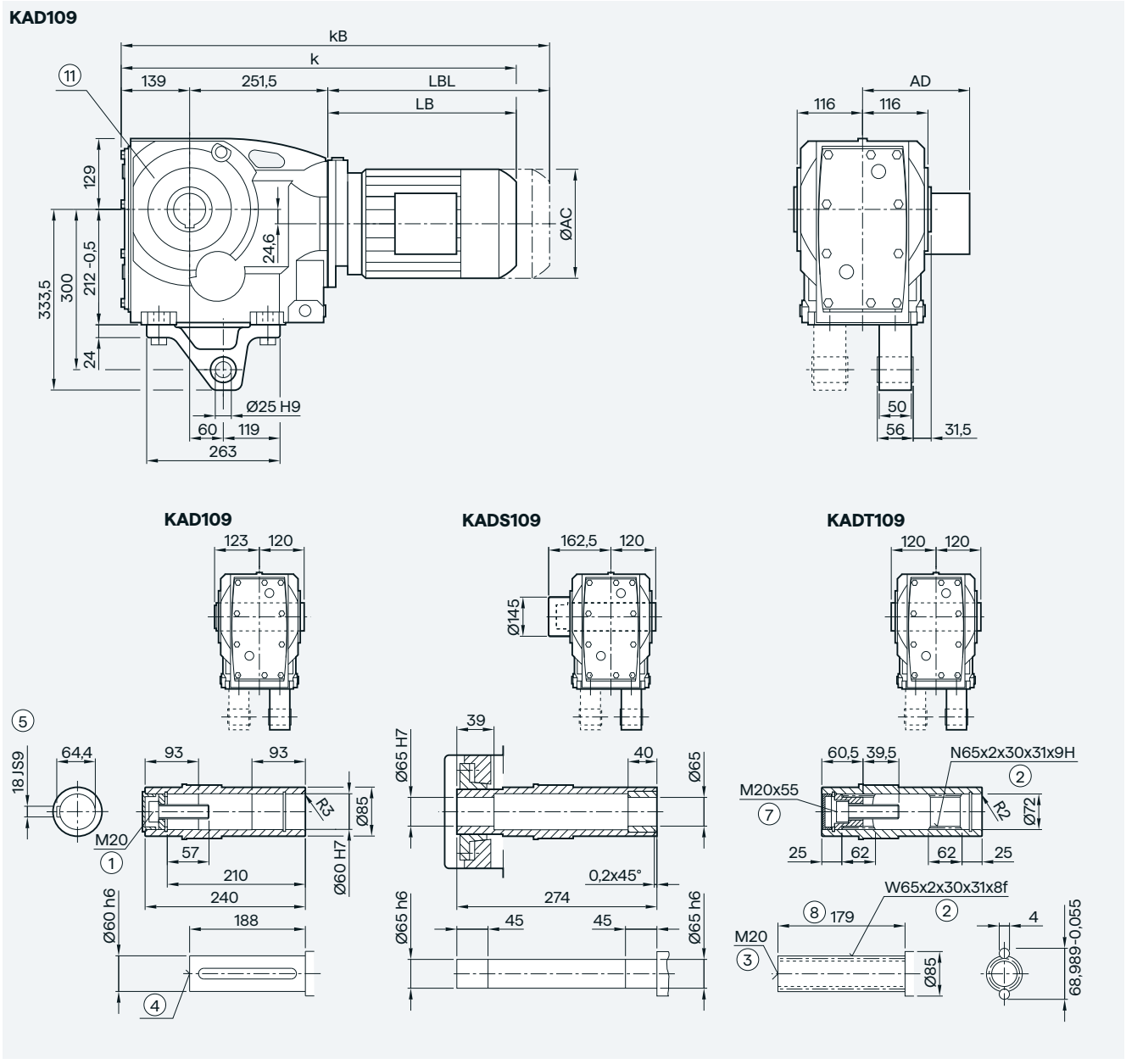
Gearbox KAD.109 in a shaft-mounted design



Motor	LE												LES	
	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1)]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	652.0	687.0	713.5	753.5	766.0	801.0	776.0	801.0	829.0	879.0	911.0	971.0	984.0	1014.0
kB	712.0	747.0	783.5	823.5	844.5	879.5	849.0	874.0	933.5	983.5	1027.0	1087.0	1113.0	1143.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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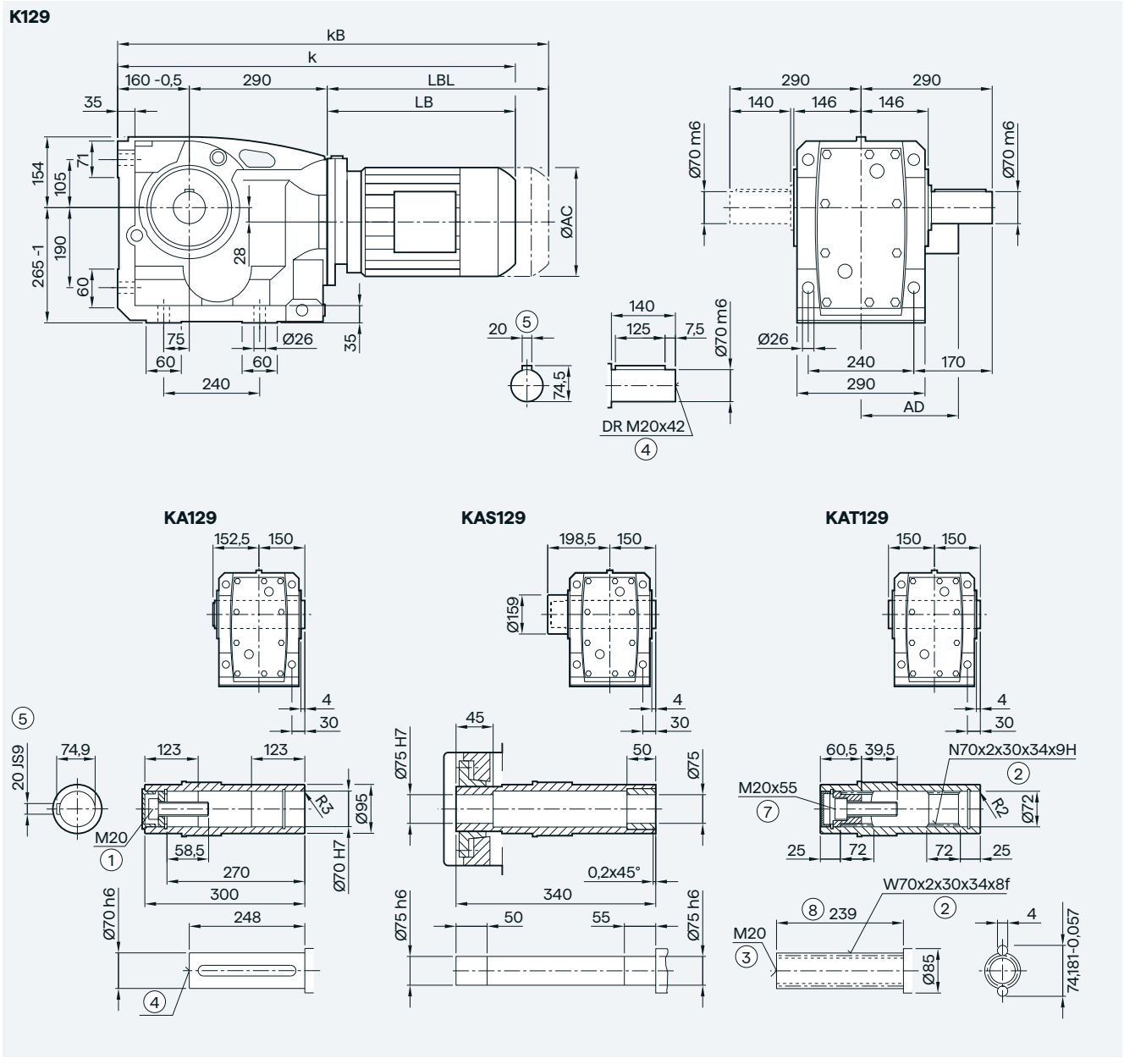
Bevel geared motors

Gearbox K..129 in a foot-mounted design



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	766.0	806.0	816.5	851.5	826.5	851.5	879.5	929.5	961.5	1021.5	1034.5	1064.5	1102.5	1127.5	1148.0	1208.0
kB	836.0	876.0	895.0	930.0	899.5	924.5	984.0	1034.0	1077.5	1137.5	1163.5	1193.5	1249.5	1274.5	1376.0	1436.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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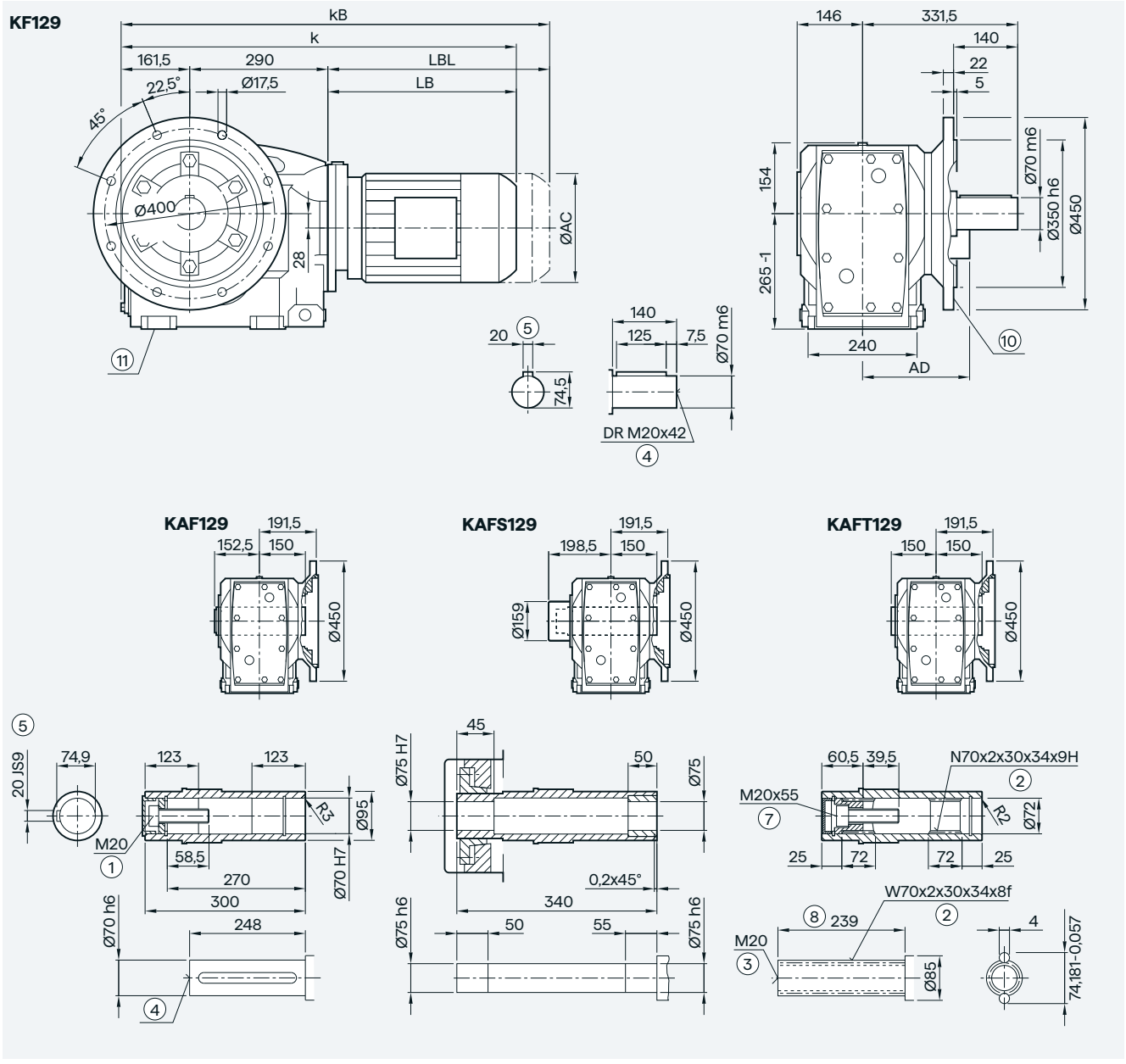
Gearbox K.F.129 in a flange-mounted design



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	767.5	807.5	818.0	853.0	828.0	853.0	881.0	931.0	963.0	1023.0	1036.0	1066.0	1104.0	1129.0	1149.5	1209.5
kB	837.5	877.5	896.5	931.5	901.0	926.0	985.5	1035.5	1079.0	1139.0	1165.0	1195.0	1251.0	1276.0	1377.5	1437.5
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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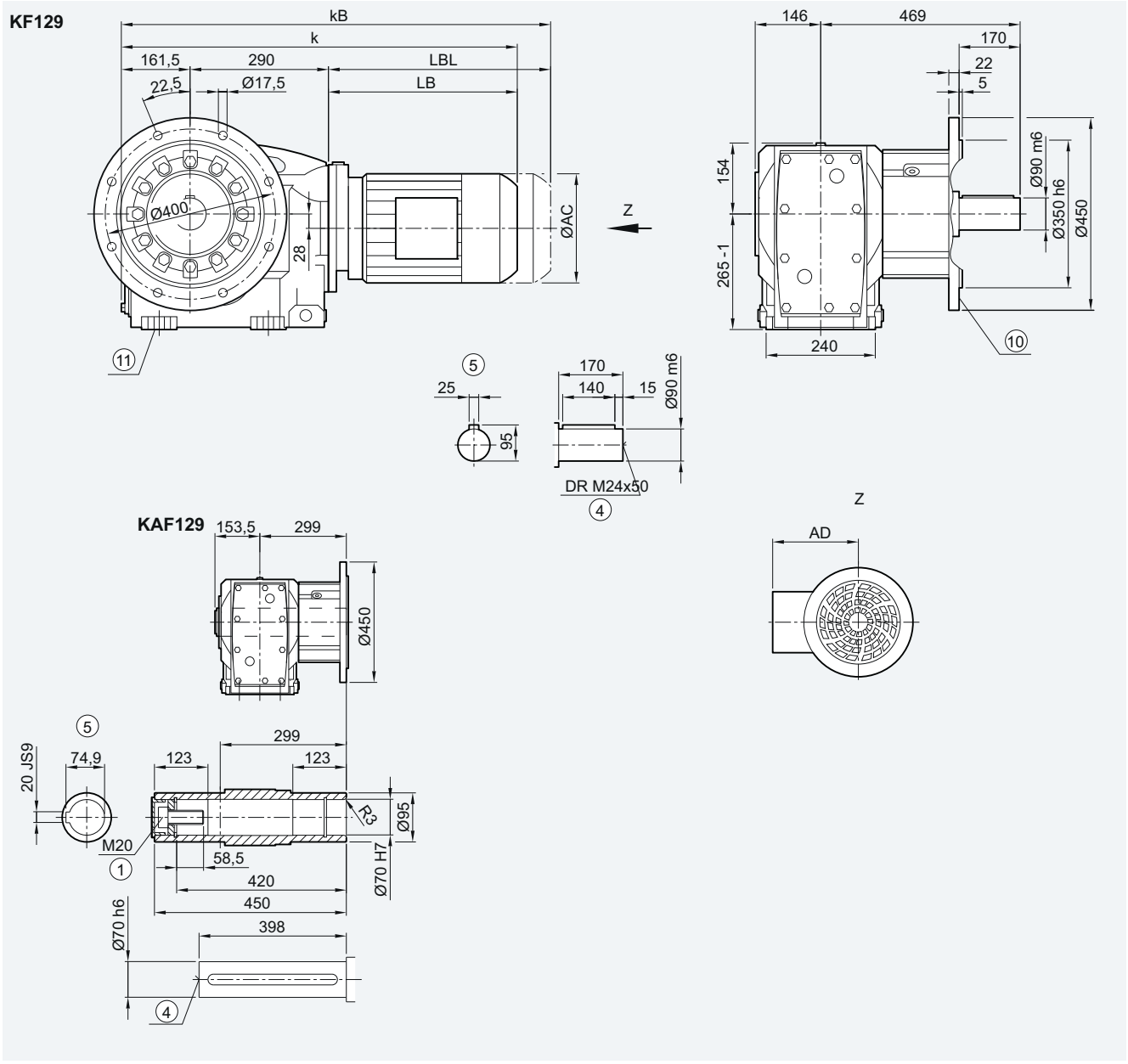
Gearbox K.F.129 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	767.5	807.5	818.0	853.0	828.0	853.0	881.0	931.0	963.0	1023.0	1036.0	1066.0	1104.0	1129.0	1149.5	1209.5
kB	837.5	877.5	896.5	931.5	901.0	926.0	985.5	1035.5	1079.0	1139.0	1165.0	1195.0	1251.0	1276.0	1377.5	1437.5
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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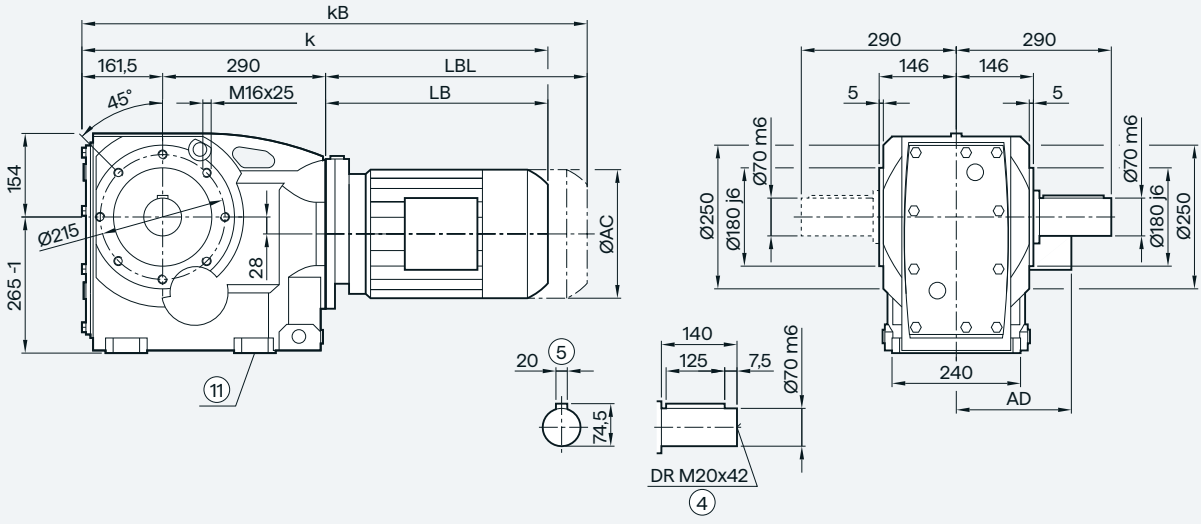
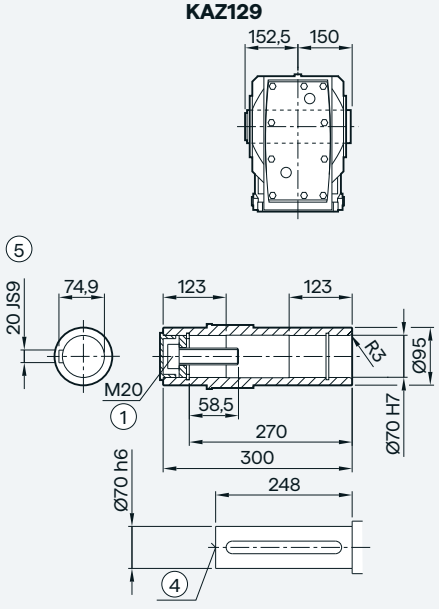
Gearbox K.Z.129 in a housing flange design

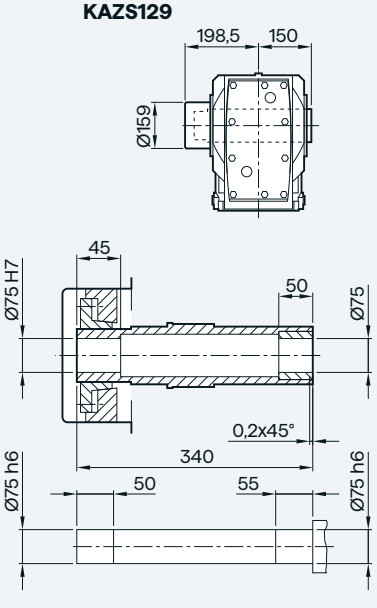
KZ129



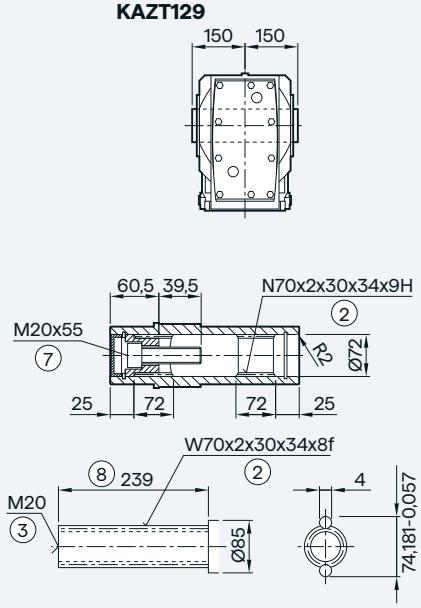
KAZ129



KAZS129



KAZT129



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	767.5	807.5	818.0	853.0	828.0	853.0	881.0	931.0	963.0	1023.0	1036.0	1066.0	1104.0	1129.0	1149.5	1209.5
kB	837.5	877.5	896.5	931.5	901.0	926.0	985.5	1035.5	1079.0	1139.0	1165.0	1195.0	1251.0	1276.0	1377.5	1437.5
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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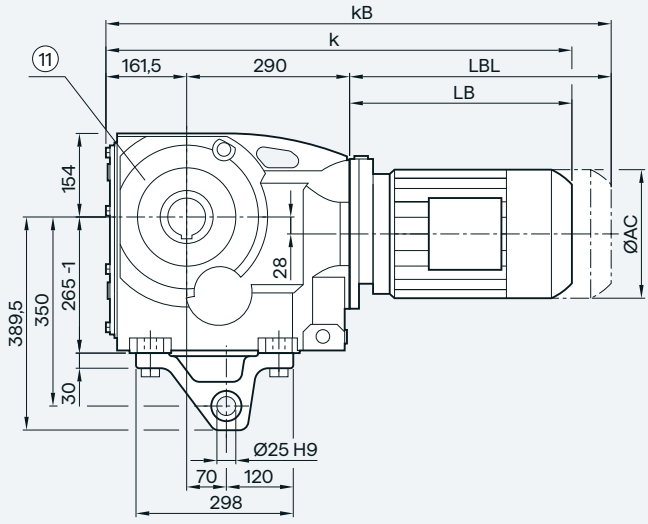
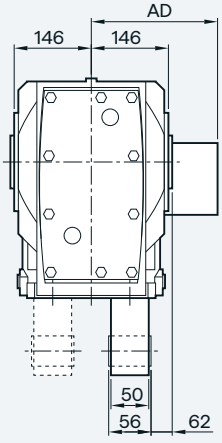
Bevel geared motors

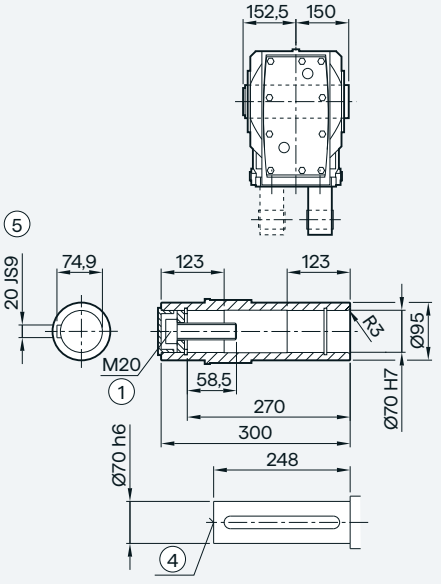
Gearbox KAD.129 in a shaft-mounted design

KAD129

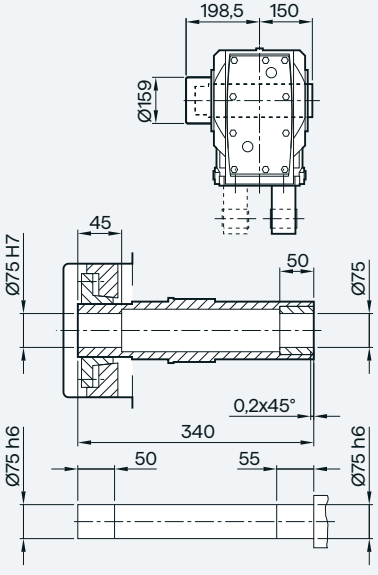




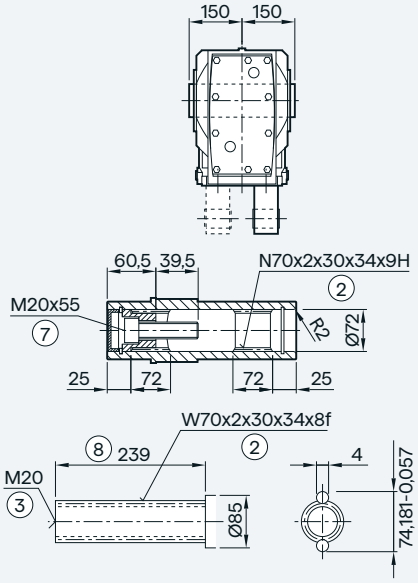
KAD129



KADS129



KADT129



Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	767.5	807.5	818.0	853.0	828.0	853.0	881.0	931.0	963.0	1023.0	1036.0	1066.0	1104.0	1129.0	1149.5	1209.5
kB	837.5	877.5	896.5	931.5	901.0	926.0	985.5	1035.5	1079.0	1139.0	1165.0	1195.0	1251.0	1276.0	1377.5	1437.5
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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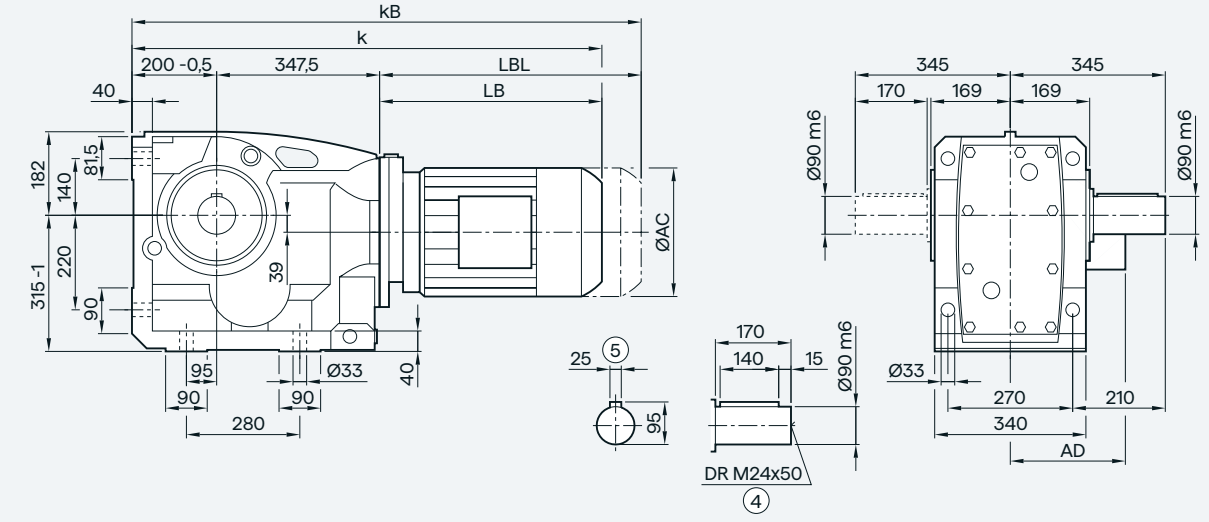
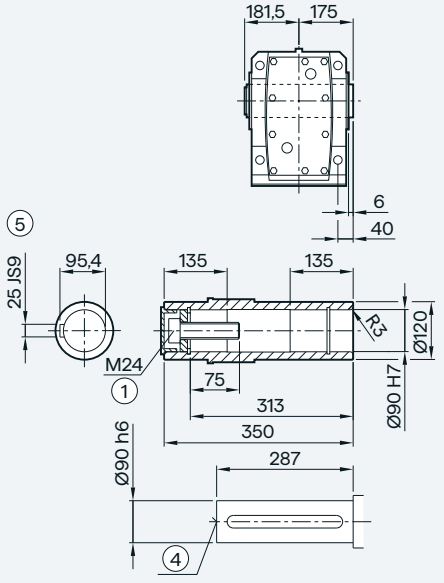
Gearbox K..149 in a foot-mounted design

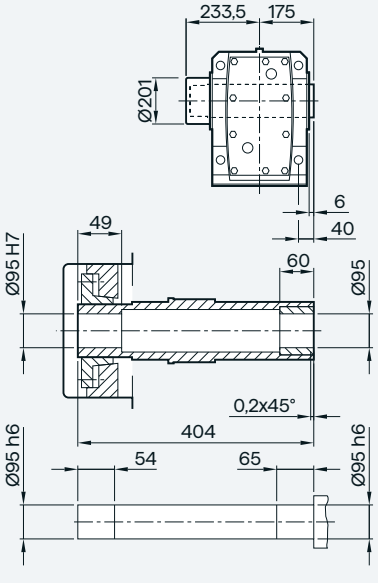
K149



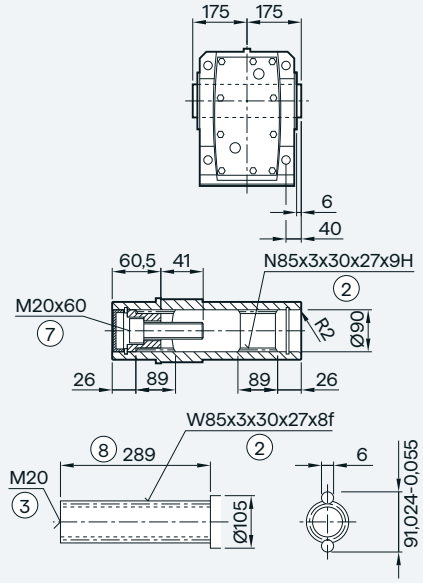
KA149



KAS149



KAT149



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	856.5	896.5	905.0	940.0	915.0	940.0	966.0	1016.0	1048.0	1108.0	1121.0	1151.0	1189.0	1214.0	1234.5	1294.5	1346.0
kB	926.5	966.5	983.5	1018.5	988.0	1013.0	1070.5	1120.5	1164.0	1224.0	1250.0	1280.0	1336.0	1361.0	1462.5	1522.5	1571.0
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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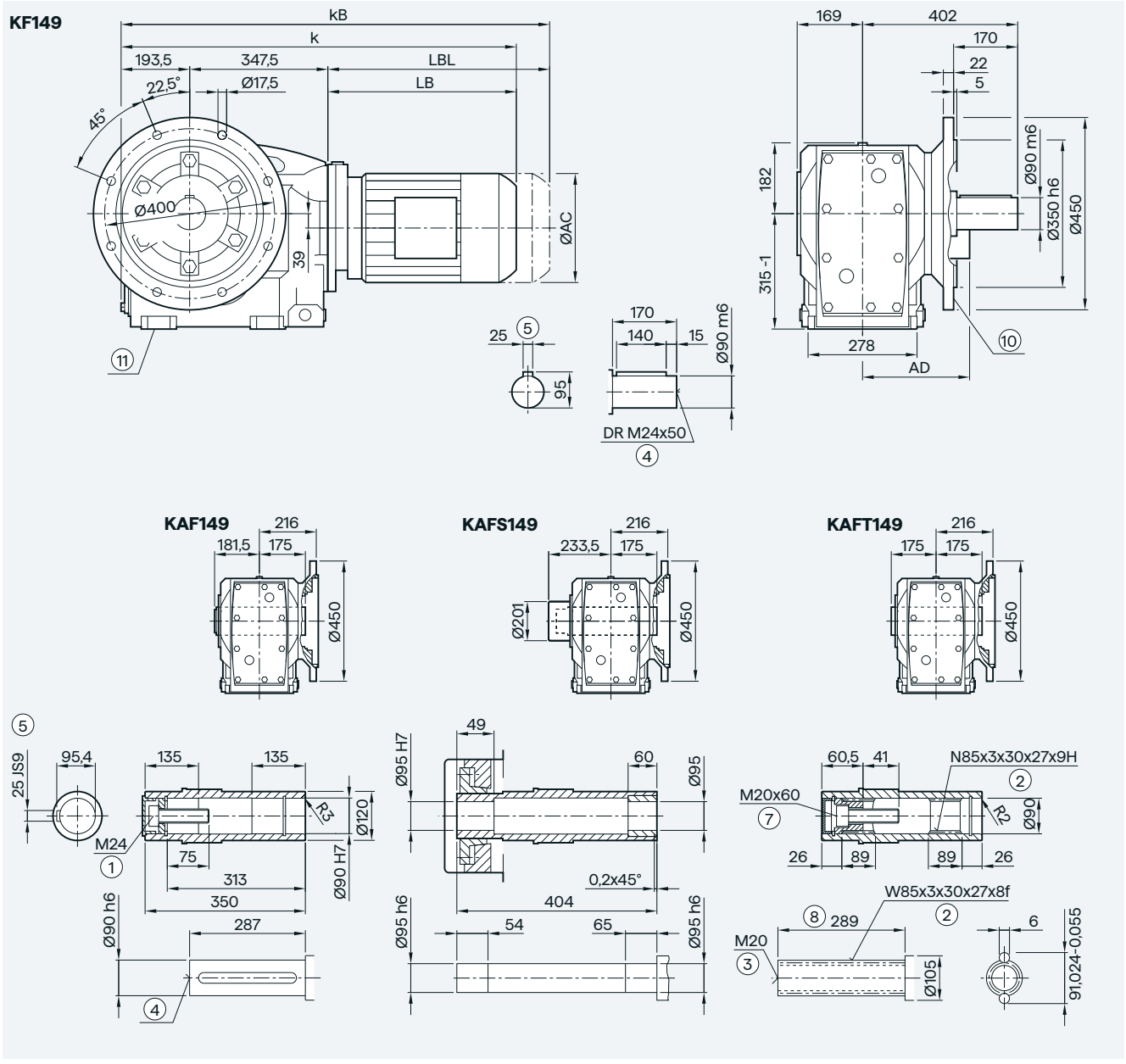
Gearbox K.F.149 in a flange-mounted design



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	850.0	890.0	898.5	933.5	908.5	933.5	959.5	1009.5	1041.5	1101.5	1114.5	1144.5	1182.5	1207.5	1228.0	1288.0	1339.5
kB	920.0	960.0	977.0	1012.0	981.5	1006.5	1064.0	1114.0	1157.5	1217.5	1243.5	1273.5	1329.5	1354.5	1456.0	1516.0	1564.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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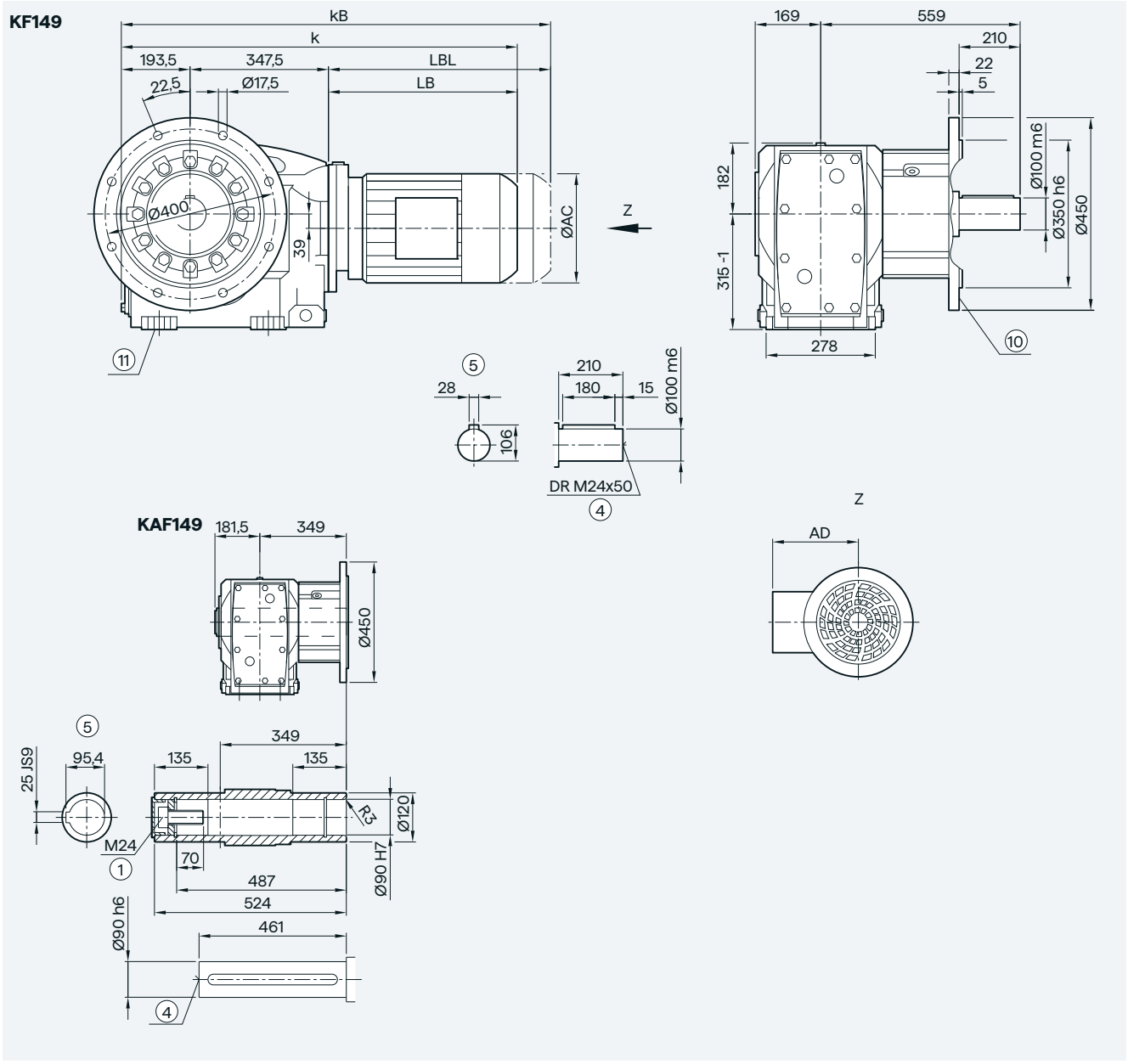
Gearbox K.F.149 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	850.0	890.0	898.5	933.5	908.5	933.5	959.5	1009.5	1041.5	1101.5	1114.5	1144.5	1182.5	1207.5	1228.0	1288.0	1339.5
kB	920.0	960.0	977.0	1012.0	981.5	1006.5	1064.0	1114.0	1157.5	1217.5	1243.5	1273.5	1329.5	1354.5	1456.0	1516.0	1564.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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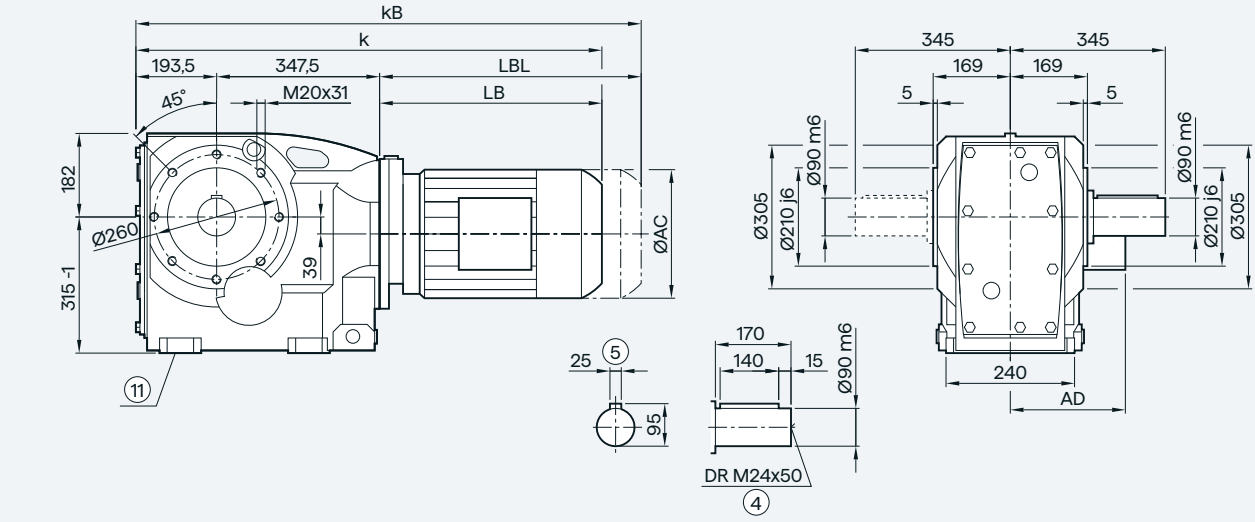
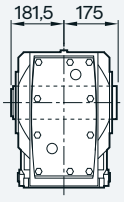
Bevel geared motors

Gearbox K.Z.149 in a housing flange design

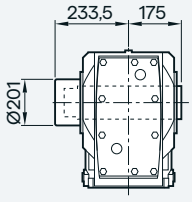
KZ149



KAZ149



KAZS149



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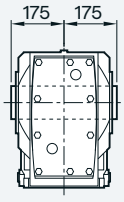

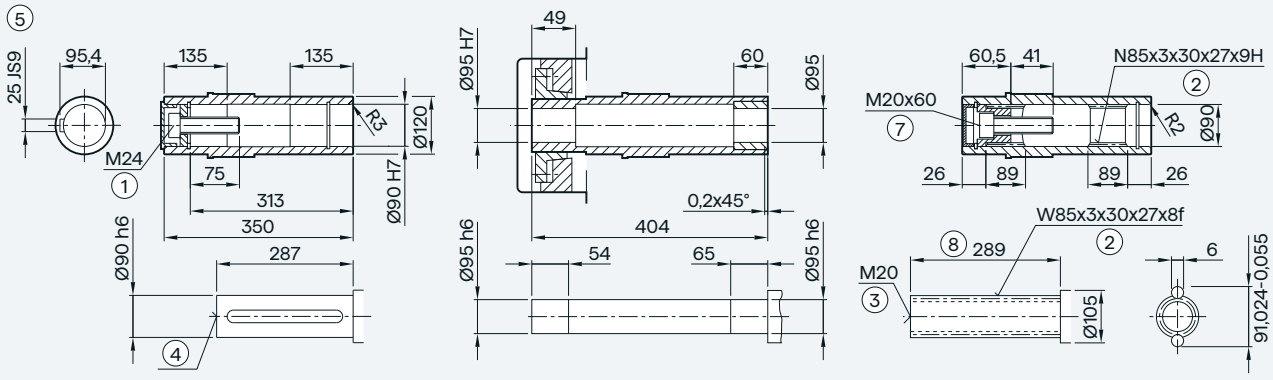

Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	850.0	890.0	898.5	933.5	908.5	933.5	959.5	1009.5	1041.5	1101.5	1114.5	1144.5	1182.5	1207.5	1228.0	1288.0	1339.5
kB	920.0	960.0	977.0	1012.0	981.5	1006.5	1064.0	1114.0	1157.5	1217.5	1243.5	1273.5	1329.5	1354.5	1456.0	1516.0	1564.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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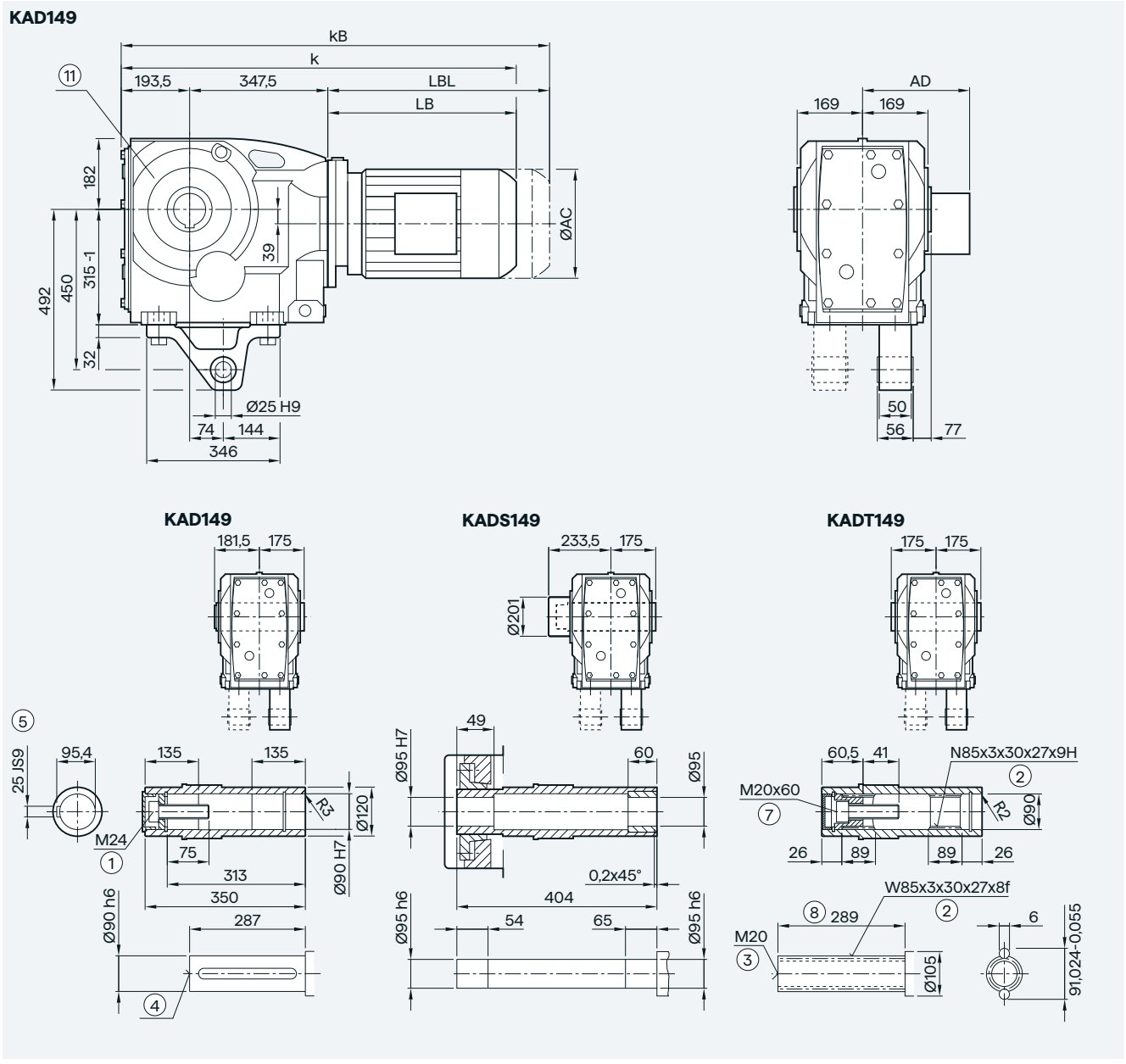
Gearbox KAD.149 in a shaft-mounted design



Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	850.0	890.0	898.5	933.5	908.5	933.5	959.5	1009.5	1041.5	1101.5	1114.5	1144.5	1182.5	1207.5	1228.0	1288.0	1339.5
kB	920.0	960.0	977.0	1012.0	981.5	1006.5	1064.0	1114.0	1157.5	1217.5	1243.5	1273.5	1329.5	1354.5	1456.0	1516.0	1564.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	687.0	747.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	915.0	975.0	1023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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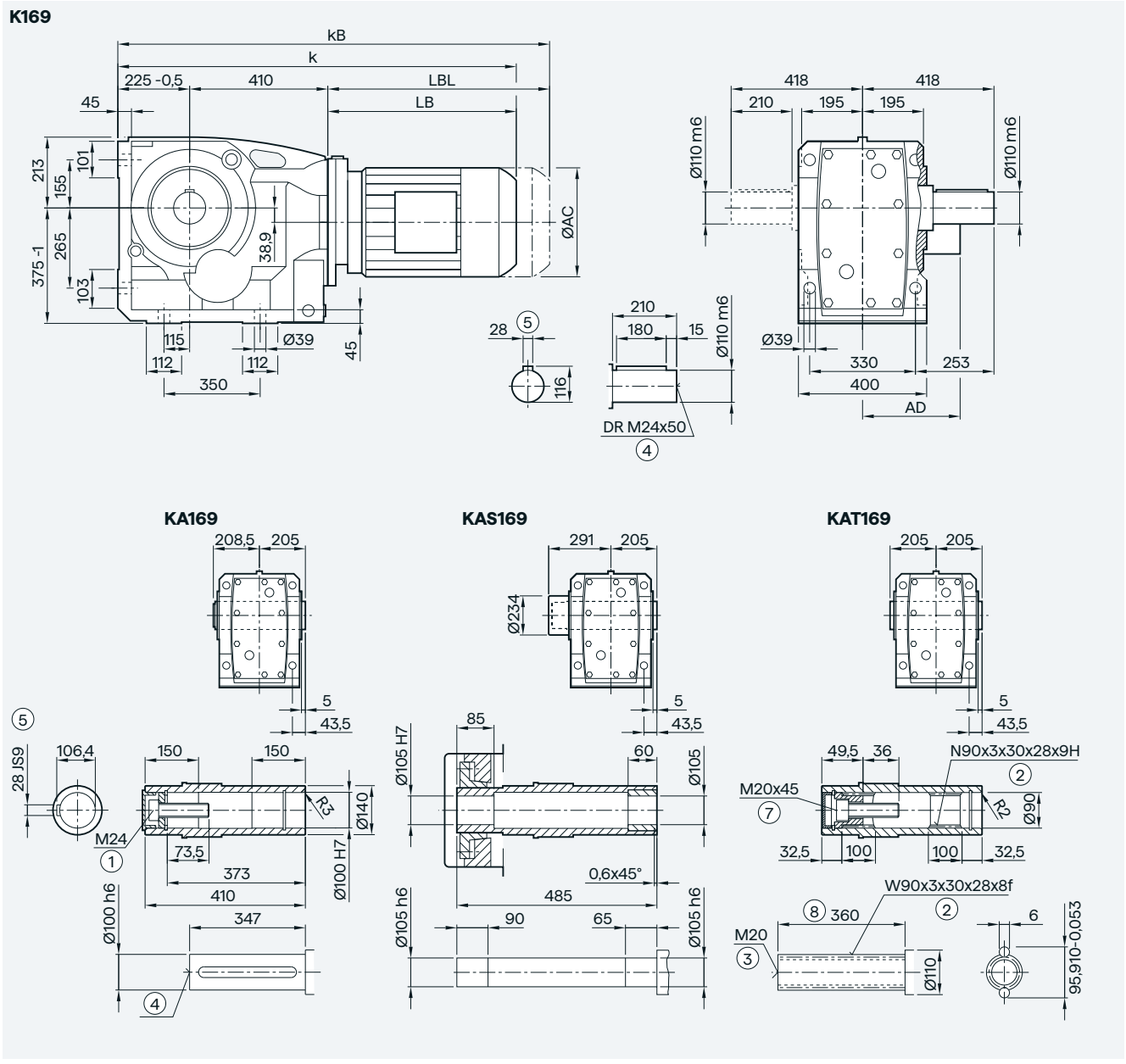
Bevel geared motors

Gearbox K..169 in a foot-mounted design



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	991.0	1026.0	1001.0	1026.0	1047.0	1097.0	1129.0	1189.0	1202.0	1232.0	1270.0	1295.0	1315.5	1375.5	1427.0
kB	1069.5	1104.5	1074.0	1099.0	1151.5	1201.5	1245.0	1305.0	1331.0	1361.0	1417.0	1442.0	1543.5	1603.5	1652.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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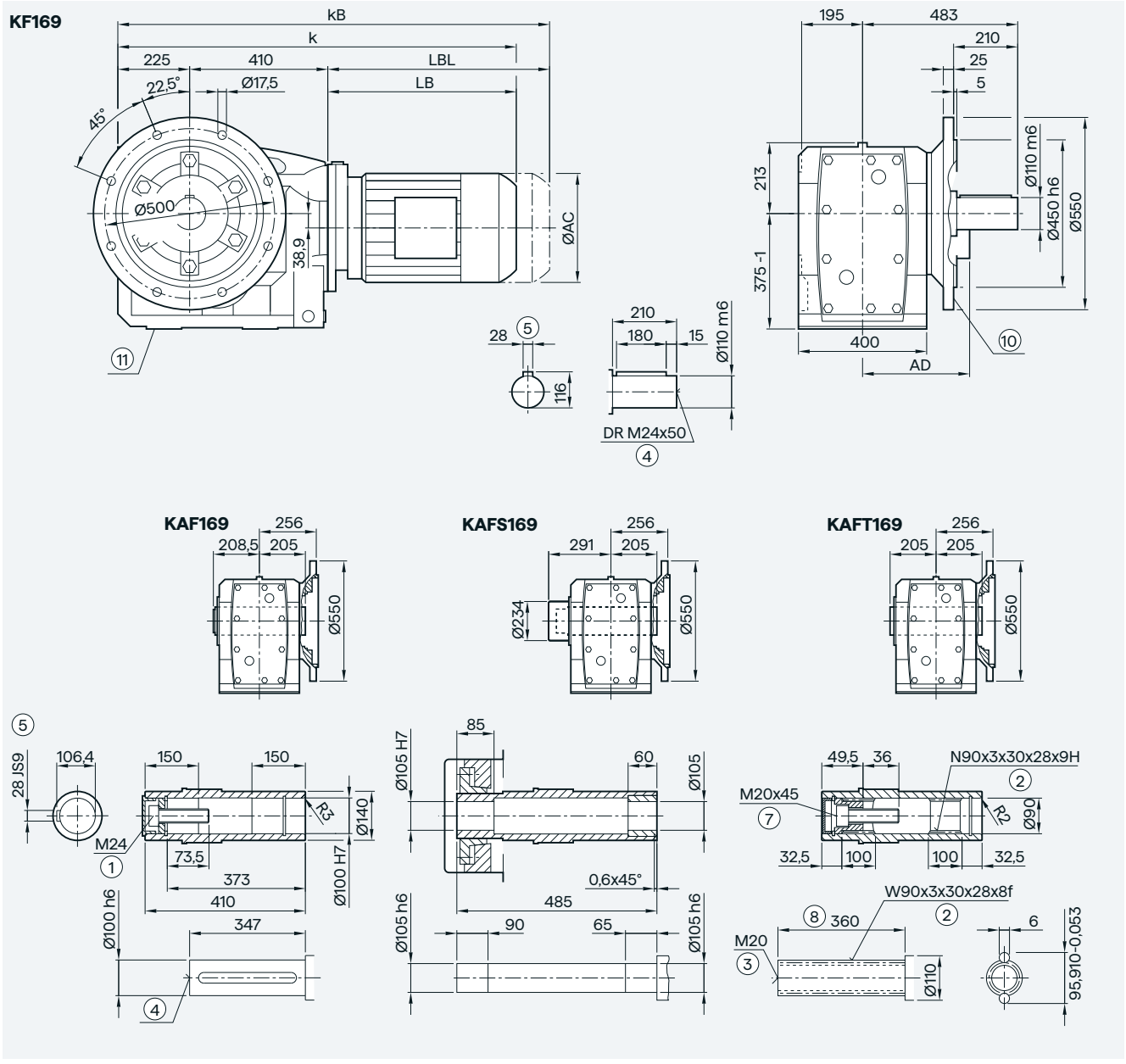
Gearbox K.F.169 in a flange-mounted design



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	991.0	1026.0	1001.0	1026.0	1047.0	1097.0	1129.0	1189.0	1202.0	1232.0	1270.0	1295.0	1315.5	1375.5	1427.0
kB	1069.5	1104.5	1074.0	1099.0	1151.5	1201.5	1245.0	1305.0	1331.0	1361.0	1417.0	1442.0	1543.5	1603.5	1652.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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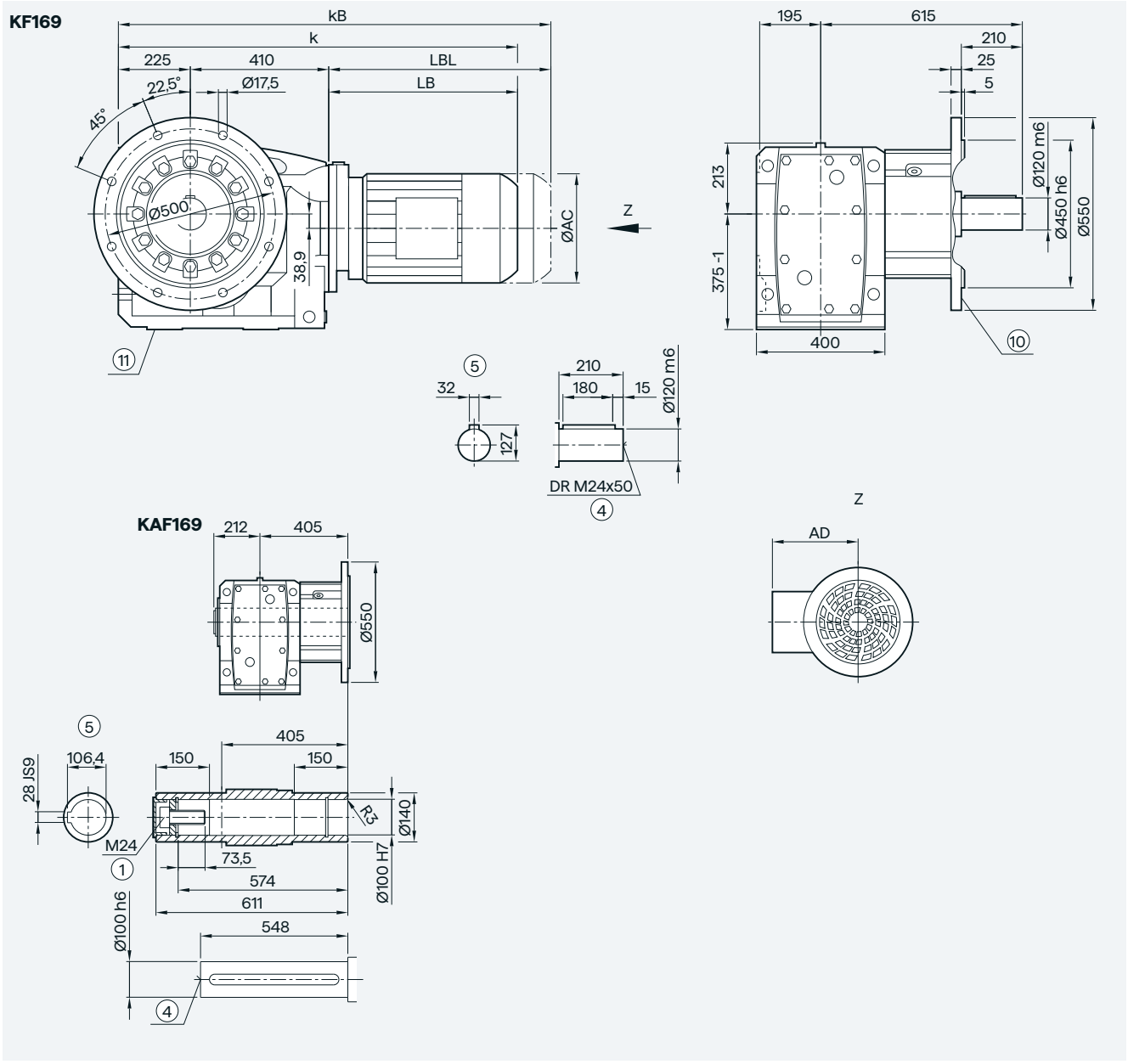
Gearbox K.F.169 in a flange-mounted design with VLplus reinforced bearing system (G30)



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	991.0	1026.0	1001.0	1026.0	1047.0	1097.0	1129.0	1189.0	1202.0	1232.0	1270.0	1295.0	1315.5	1375.5	1427.0
kB	1069.5	1104.5	1074.0	1099.0	1151.5	1201.5	1245.0	1305.0	1331.0	1361.0	1417.0	1442.0	1543.5	1603.5	1652.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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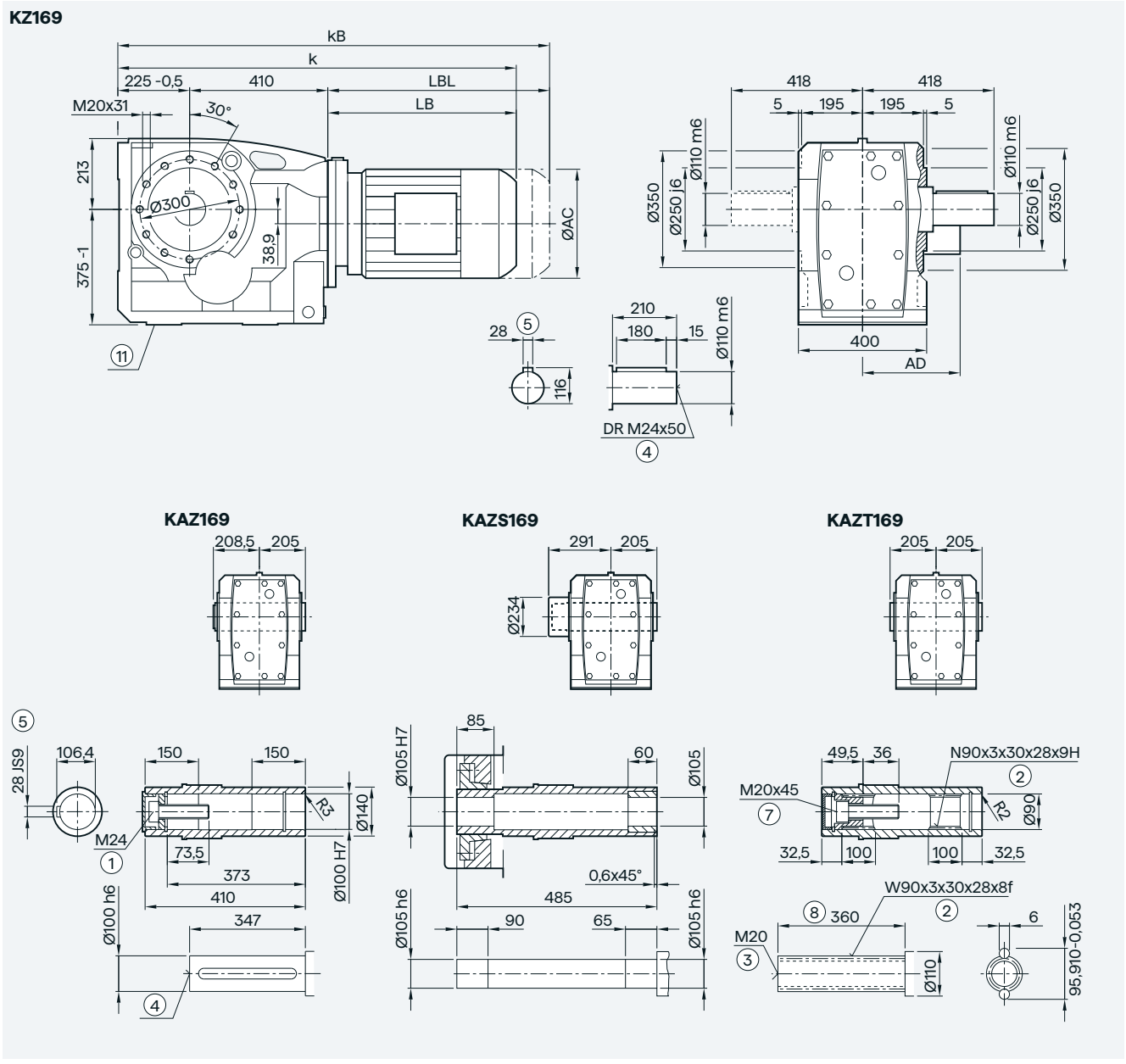
Gearbox K.Z.169 in a housing flange design



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	991.0	1026.0	1001.0	1026.0	1047.0	1097.0	1129.0	1189.0	1202.0	1232.0	1270.0	1295.0	1315.5	1375.5	1427.0
kB	1069.5	1104.5	1074.0	1099.0	1151.5	1201.5	1245.0	1305.0	1331.0	1361.0	1417.0	1442.0	1543.5	1603.5	1652.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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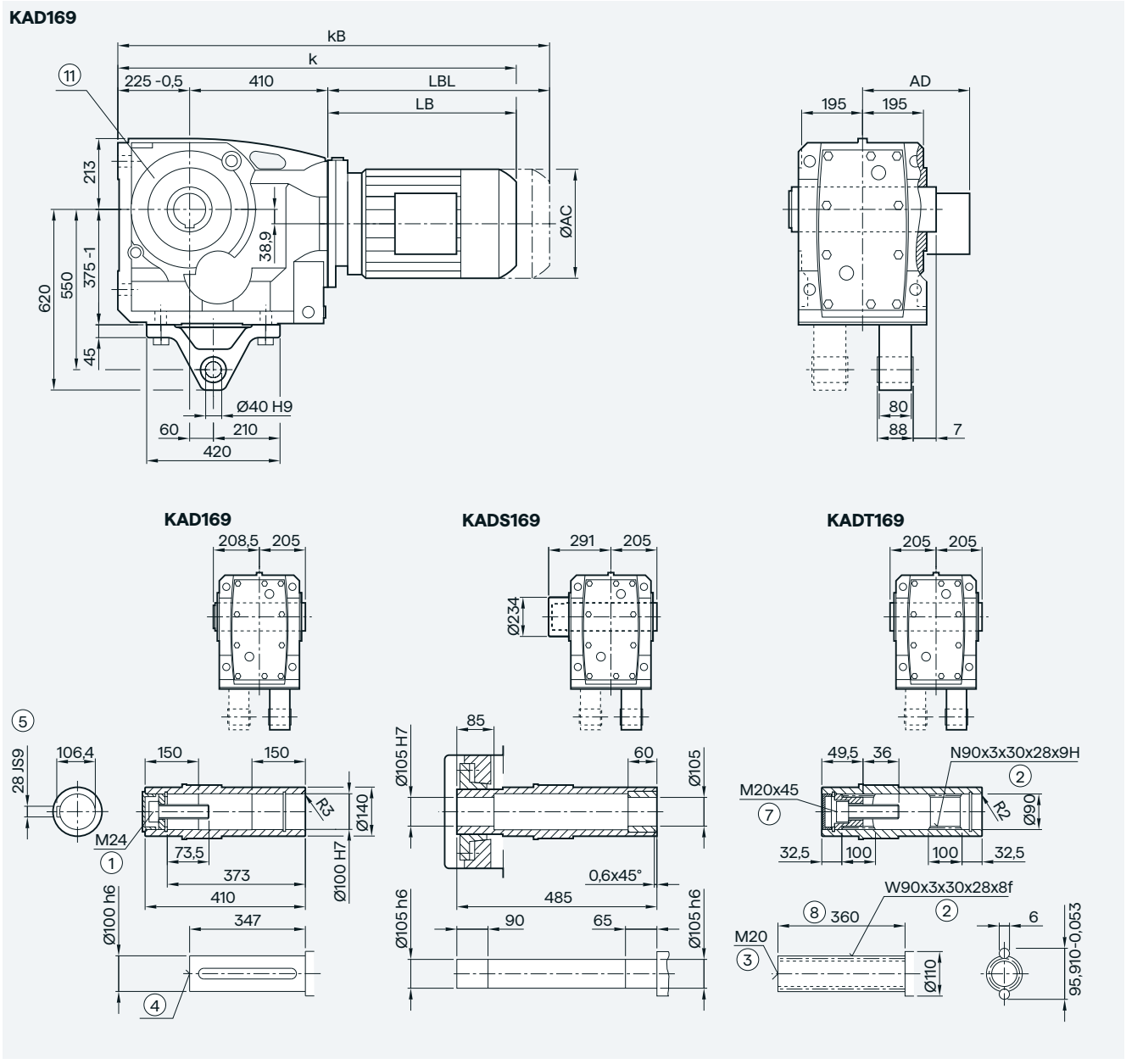
Bevel geared motors

Gearbox KAD.169 in a shaft-mounted design



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	991.0	1026.0	1001.0	1026.0	1047.0	1097.0	1129.0	1189.0	1202.0	1232.0	1270.0	1295.0	1315.5	1375.5	1427.0
kB	1069.5	1104.5	1074.0	1099.0	1151.5	1201.5	1245.0	1305.0	1331.0	1361.0	1417.0	1442.0	1543.5	1603.5	1652.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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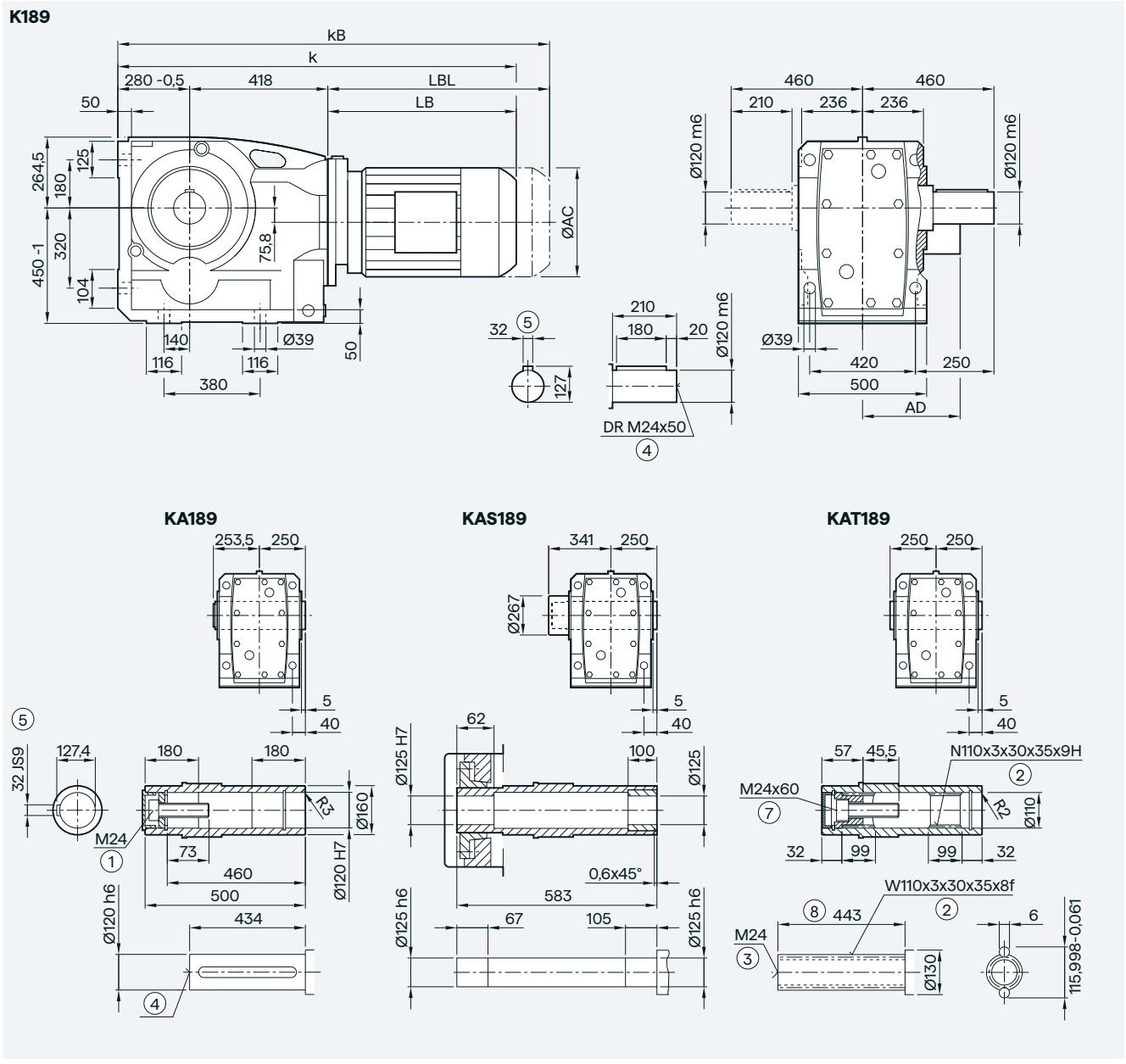
Gearbox K..189 in a foot-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	1051.5	1076.5	1097.0	1147.0	1179.0	1239.0	1251.5	1281.5	1319.5	1344.5	1364.0	1424.0	1471.5
kB	1124.5	1149.5	1201.5	1251.5	1295.0	1355.0	1380.5	1410.5	1466.5	1491.5	1592.0	1652.0	1696.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions, see page 9/46.

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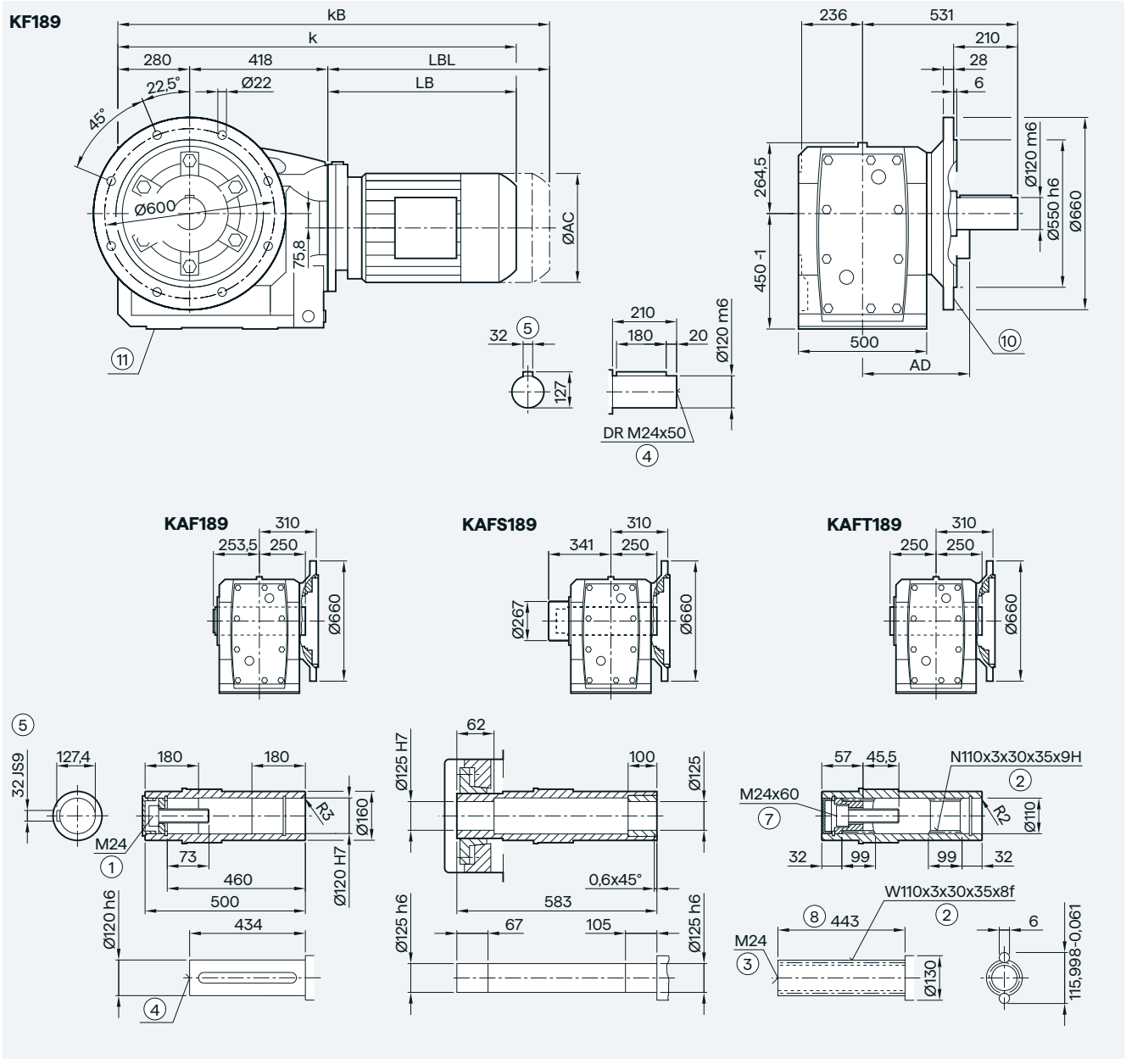
Bevel geared motors

Gearbox K.F.189 in a flange-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	1051.5	1076.5	1097.0	1147.0	1179.0	1239.0	1251.5	1281.5	1319.5	1344.5	1364.0	1424.0	1471.5
kB	1124.5	1149.5	1201.5	1251.5	1295.0	1355.0	1380.5	1410.5	1466.5	1491.5	1592.0	1652.0	1696.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour, see page 5/136 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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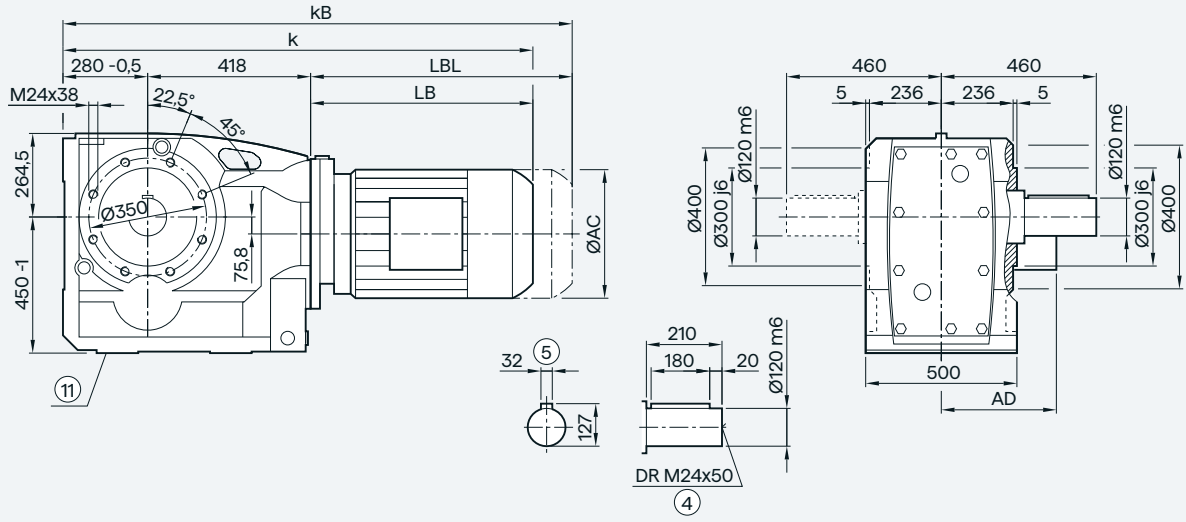
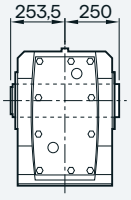
Gearbox K.Z.189 in a housing flange design

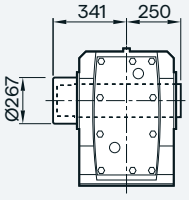
KZ189



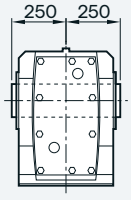
KAZ189

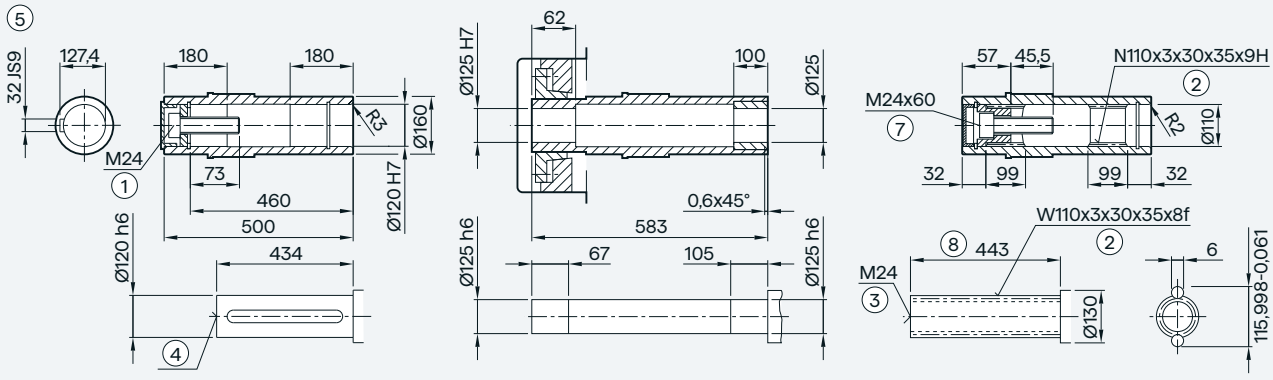


KAZS189



KAZT189





Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	1051.5	1076.5	1097.0	1147.0	1179.0	1239.0	1251.5	1281.5	1319.5	1344.5	1364.0	1424.0	1471.5
kB	1124.5	1149.5	1201.5	1251.5	1295.0	1355.0	1380.5	1410.5	1466.5	1491.5	1592.0	1652.0	1696.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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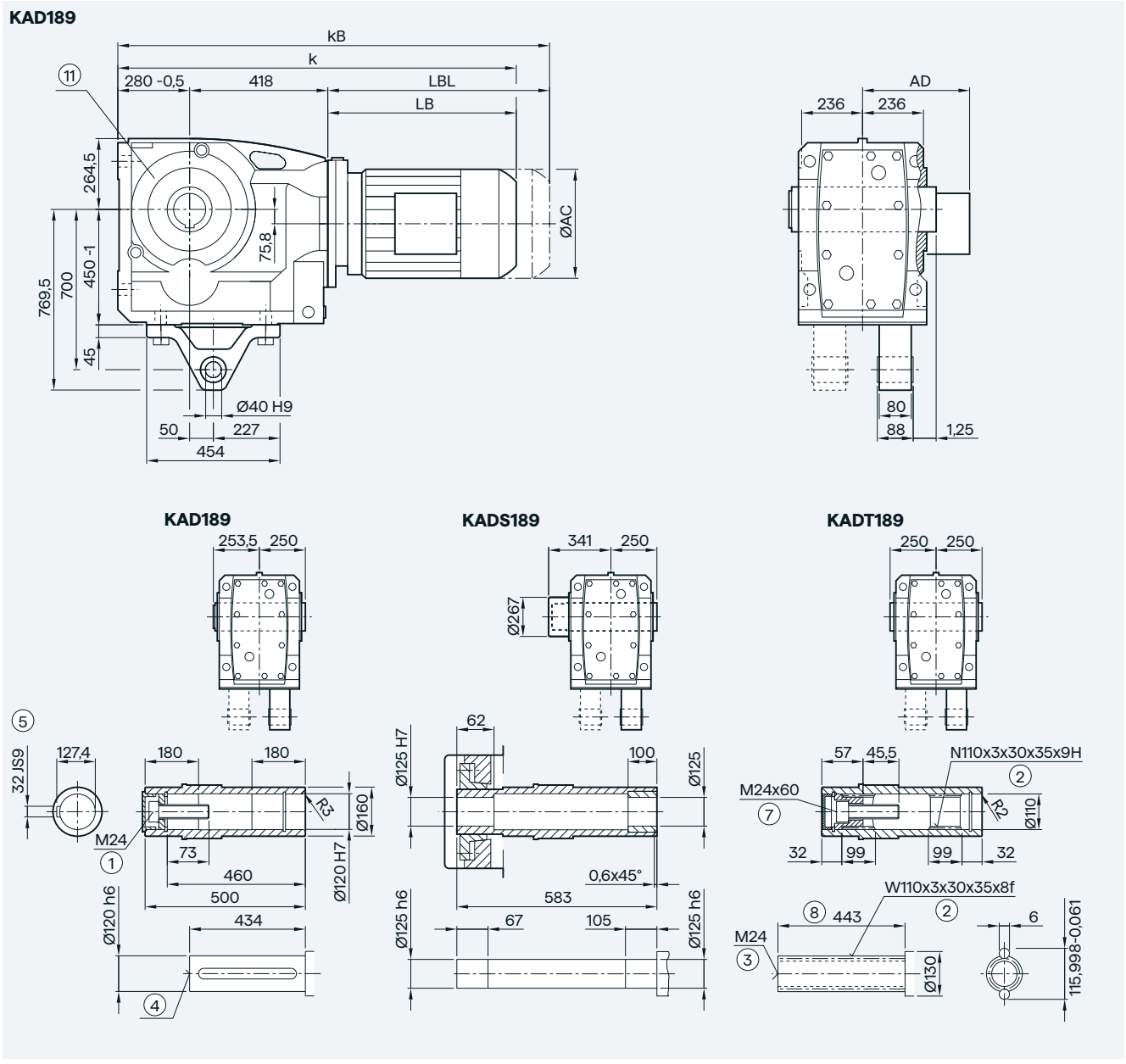
Gearbox KAD.189 in a shaft-mounted design



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	1051.5	1076.5	1097.0	1147.0	1179.0	1239.0	1251.5	1281.5	1319.5	1344.5	1364.0	1424.0	1471.5
kB	1124.5	1149.5	1201.5	1251.5	1295.0	1355.0	1380.5	1410.5	1466.5	1491.5	1592.0	1652.0	1696.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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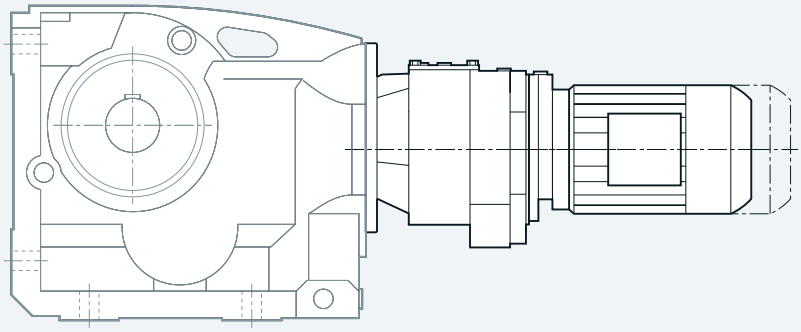
Bevel tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
K.39-Z/D19	LE63	117.8	331.0	375.5	160.5
	LE63Z	117.8	357.0	401.5	186.5
	LE71	138.8	363.0	418.0	184.5
	LE71Z	138.8	382.0	437.0	203.5
	LE71Y	138.8	422.0	477.0	243.5
K.49-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
K.69-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
K.79-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
K.89-Z/D39	LE63	117.8	373.5	418.0	194.0
	LE63Z	117.8	399.5	444.0	220.0
	LE71	138.8	405.5	460.5	226.0
	LE71Z	138.8	424.5	479.5	245.0
	LE71Y	138.8	464.5	519.5	285.0
	LE80	156.3	469.5	529.5	290.0
	LE80Z	156.3	504.5	564.5	325.0
	LE90	173.8	531.0	601.0	351.5
	LE90Z	173.8	571.0	641.0	391.5
	LE100	198.0	587.5	666.0	408.0
	LE100Z	198.0	622.5	701.0	443.0

Gearbox	Motor	AC	z5	zB5	LB
K.109-Z/D39	LE63	117.8	356.5	401.0	194.0
	LE63Z	117.8	382.5	427.0	220.0
	LE71	138.8	388.5	443.5	226.0
	LE71Z	138.8	407.5	462.5	245.0
	LE71Y	138.8	447.5	502.5	285.0
	LE80	156.3	452.5	512.5	290.0
	LE80Z	156.3	487.5	547.5	325.0
	LE90	173.8	514.0	584.0	351.5
	LE90Z	173.8	554.0	624.0	391.5
	LE100	198.0	570.5	649.0	408.0
	LE100Z	198.0	605.5	684.0	443.0
K.129-Z/D39	LE63	117.8	347.5	392.0	194.0
	LE63Z	117.8	373.5	418.0	220.0
	LE71	138.8	379.5	434.5	226.0
	LE71Z	138.8	398.5	453.5	245.0
	LE71Y	138.8	438.5	493.5	285.0
	LE80	156.3	443.5	503.5	290.0
	LE80Z	156.3	478.5	538.5	325.0
	LE90	173.8	505.0	575.0	351.5
	LE90Z	173.8	545.0	615.0	391.5
	LE100	198.0	561.5	640.0	408.0
	LE100Z	198.0	596.5	675.0	443.0
K.149-Z/D49	LE63	117.8	376.5	421.0	184.5
	LE63Z	117.8	402.5	447.0	210.5
	LE71	138.8	408.5	463.5	216.5
	LE71Z	138.8	427.5	482.5	235.5
	LE71Y	138.8	467.5	522.5	275.5
	LE80	156.3	472.5	532.5	280.5
	LE80Z	156.3	507.5	567.5	315.5
	LE90	173.8	534.0	604.0	342.0
	LE90Z	173.8	574.0	644.0	382.0
	LE100	198.0	590.5	669.0	398.5
	LE100Z	198.0	625.5	704.0	433.5
	LE112	222.0	600.5	673.5	408.5
	LE112Z	222.0	635.0	708.0	443.0
	LE132	264.0	653.5	758.0	461.5
	LE132Z	264.0	703.5	808.0	511.5

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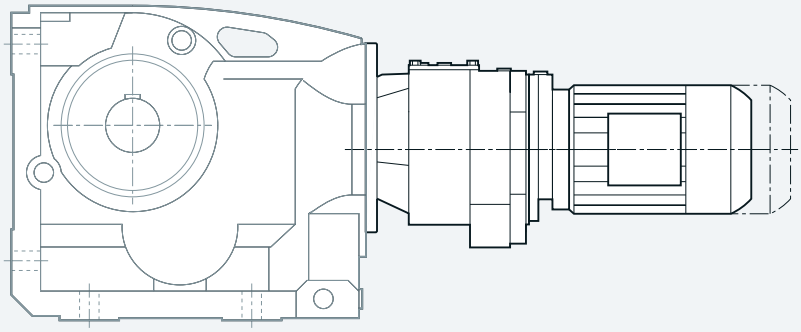
Bevel tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
K.169-Z/D49	LE63	117.8	366.0	410.5	184.5
	LE63Z	117.8	392.0	436.5	210.5
	LE71	138.8	398.0	453.0	216.5
	LE71Z	138.8	417.5	472.5	235.5
	LE71Y	138.8	457.5	512.5	275.5
	LE80	156.3	462.0	522.0	280.5
	LE80Z	156.3	497.0	557.0	315.5
	LE90	173.8	523.5	593.5	342.0
	LE90Z	173.8	563.5	633.5	382.0
	LE100	198.0	580.0	658.5	398.5
	LE100Z	198.0	615.0	693.5	433.5
	LE112	222.0	590.0	663.0	408.5
	LE112Z	222.0	624.5	697.5	443.0
	LE132	264.0	643.0	747.5	461.5
	LE132Z	264.0	693.0	797.5	511.5
K.189-Z/D69	LE63	117.8	391.5	436.0	184.5
	LE63Z	117.8	417.5	462.0	210.5
	LE71	138.8	423.5	478.5	216.5
	LE71Z	138.8	442.5	497.5	235.5
	LE71Y	138.8	482.5	537.5	275.5
	LE80	156.3	487.5	547.5	280.5
	LE80Z	156.3	522.5	582.5	315.5
	LE90	173.8	549.0	619.0	342.0
	LE90Z	173.8	589.0	659.0	382.0
	LE100	198.0	605.5	684.0	398.5
	LE100Z	198.0	640.5	719.0	433.5
	LE112	222.0	615.5	688.5	408.5
	LE112Z	222.0	650.0	723.0	443.0
	LE132	264.0	668.5	773.0	461.5
	LE132Z	264.0	718.5	823.0	511.5

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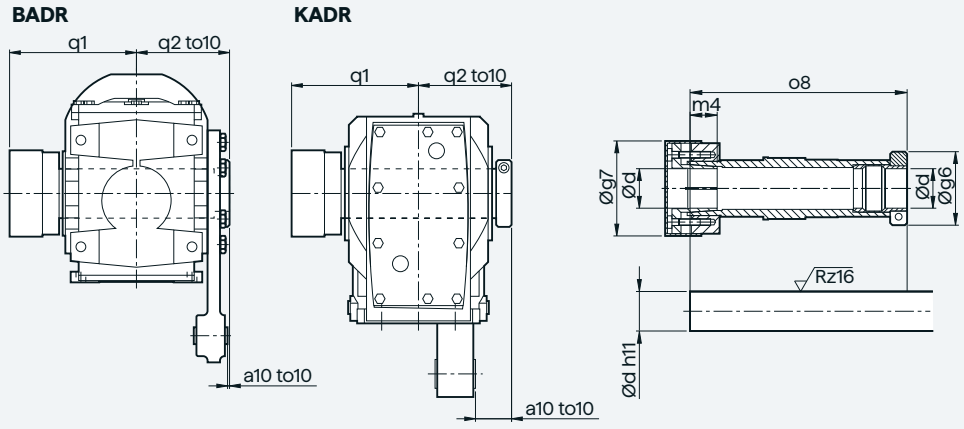
ShaftMount assembly system



Note mounting tolerance to10 when positioning the torque arm.

d	g6	g7	m4	o8	q1	q2	a10	to10
BADR29								
25	58.5	56	18.5	151	102	75	11	+2.1
20								+0.6
1“								
0.75“								
BADR39								
30	62.0	76	22	180.5	116	85	2.5	+2.2
25								+0.7
1.25“								
1.1875“								
1“								
BADR49								
35	65.0	84	24	210.0	134	100	-2.5	+2.6
30								+0.8
1.375“								
1.4375“								
1.25“								
1.1875“								
40	79.5	94	30	220	140	104	1.5	
1.625“								
KADR39								
30	62.0	76	22	160.5	106	75	39	+2.2
25								+0.7
1.25“								
1.1875“								
1“								
KADR49								
35	65.0	84	24	192.0	124	90	41	+2.6
30								+0.8
1.375“								
1.4375“								
1.25“								
1.1875“								

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ShaftMount assembly system

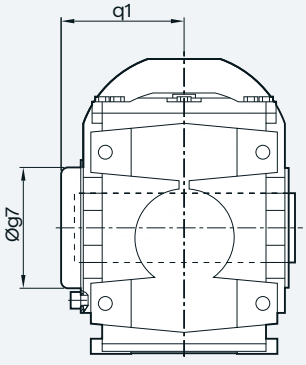
d	g6	g7	m4	o8	q1	q2	a10	to10
KADR69								
40	79.5	94	30	217.5	138	102	39	+2.5
35								+0.7
1.5“								
1.625“								
1.4375“								
1.375“								
KADR79								
40	79.5	94	30	232.0	150	109	46	+3.2
35								+1.4
1.5“								
1.625“								
1.4375“								
1.375“								
KADR89								
50	89.0	114	32	264.0	171	124	45	+3.4
40								+1.5
2“								
1.9375“								
1.75“								
1.625“								

5

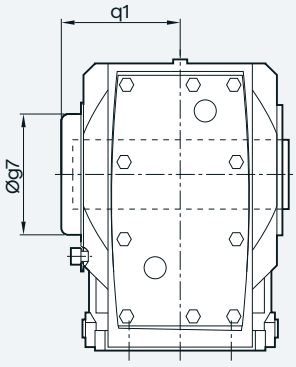
Protective covers

Protective cover for hollow shaft

BA, BAF, BAZ, BAD



KA[1], KAF, KAZ, KAD



1) KA/KAS version valid only for gearbox sizes 169 and 189

Gearbox type	BA.19	BA.29	BA.39	BA.49	KA.39	KA.49	KA.69	KA.79	KA.89	KA.109	KA.129	KA.149	KA.169	KA.189
Protective cover														
g7	82.0	67.0	80.0	80.0	82.5	80.0	99.0	99.0	137.0	187.0	187.0	218.0	257.5	309.5
q1	57.5	76.0	96.0	111.0	73.0	105.0	95.0	101.5	124.5	168.0	198.0	250.0	313.0	373.5

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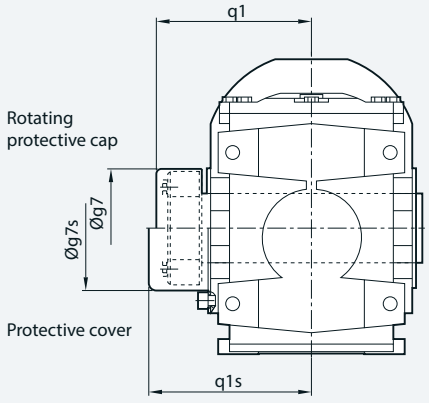
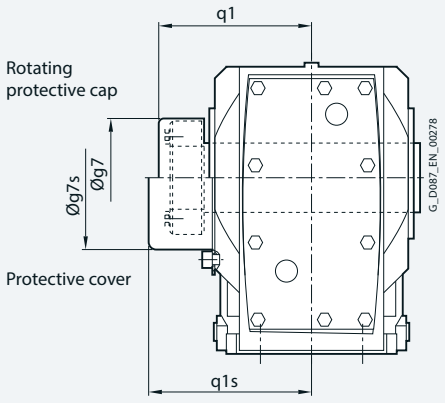
Protective covers

Protective cover for hollow shaft with shrink disk

BAS, BAFS, BAZS, BADS



KAS[1], KAFS, KAZS, KADS

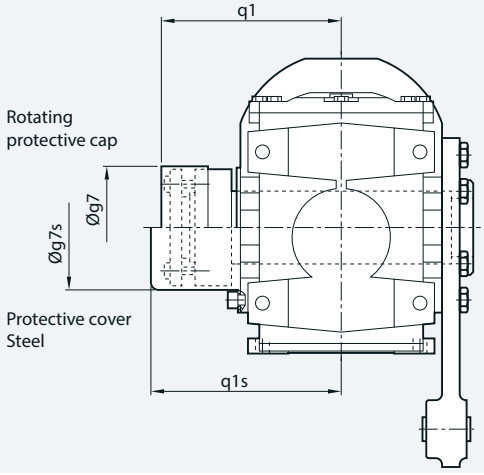


[1] KA/KAS version valid only for gearbox sizes 169 and 189

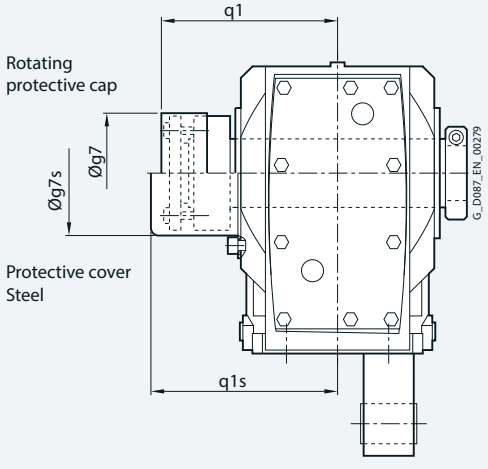
Gearbox type	BA..29	BA..39	BA..49	KA..39	KA..49	KA..69	KA..79	KA..89	KA..109	KA..129	KA..149	KA..169	KA..189
Rotating protective cap with shrink disk version													
g7	55	84	84	76.0	84	84	94.0	119.0	142.0	159.0	201.0	234.0	267.0
q1	85	102	117	89.5	107	115	125.5	142.5	162.5	198.5	233.5	291.0	343.5
Protective cover													
g7s	58	86	86	82.5	86	99	99.0	137.0	187.0	187.0	218.0	257.5	309.5
q1s	91	119	134	109.0	122	126	132.5	176.5	195.0	225.0	250.0	313.0	373.5

Protective cover for hollow shaft with ShaftMount assembly system

BADR



KADR



Gearbox type	BADR29	BADR39	BADR49	KADR39	KADR49	KADR69	KADR79	KADR89
Rotating protective cap								
g7	56	76	84 (94)	76	84	94	94	114
q1	102	116	134 (140)	106	124	138	150	171
Protective cover								
g7s	58	86.0	86	82.5	86	99	99	137
q1s	102	119.0	138	109	126	145	151.5	176.5

() Dimensions in bracket: Hollow shaft d=40 and d=1.625“ (can only be selected with rotating protective cap)

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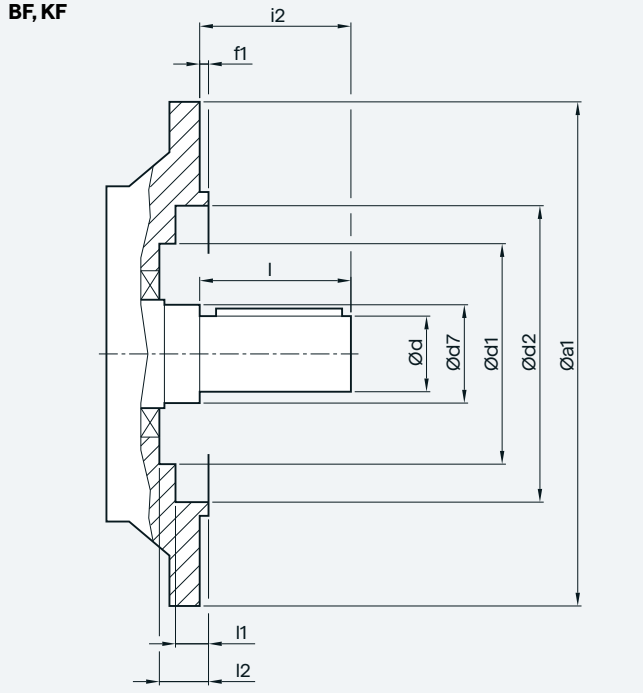
Inner contour of the flange-mounted design

Notes regarding the design of the customer's interface for the solid shaft design

BF, KF



Gearbox type	a1	d	d7	d1	d2	f1	i2	l	l1	l2
BF19	120	20	30	60	68	3.0	40	40	23.5	29.5
BF29	120	20	40	–	70	3.0	40	40	24.0	–
	160	20	40	70	101	3.5	40	40	8.5	24.5
BF39	160	30	55	93	100	3.5	60	60	11.0	31.5
	200	30	55	93	119	3.5	60	60	16.0	31.5
BF49	200	35	55	93	119	3.5	70	70	16.0	31.5
KF39	160	25	30	–	100	3.5	50	50	5.0	–
		35	45	80	102	3.5	46	70	2.0	29.5
KF49	200	30	35	–	118	3.5	60	60	5.5	–
		40	50	90	120	3.5	55	80	4.0	30.5
KF69	250	35	45	–	165	4.0	70	70	6.5	–
KF79	250	40	55	–	165	4.0	80	80	6.5	–
		50	55	104	165	4.0	77	100	2.0	29.5
KF89	300	50	55	–	165	4.0	100	100	8.0	–
KF109	350	60	65	–	235	5.0	120	120	9.0	–
		80	85	184	210	5.0	134	170	13.0	45.0
KF129	450	70	75	–	336	5.0	140	140	9.0	–
		90	95	184	336	5.0	128.5	170	16.5	48.5
KF149	450	90	100	–	336	5.0	170	170	10.0	–
		100	120	214	330	5.0	169	210	10.5	50.0
KF169	550	110	120	–	427	5.0	210	210	10.0	–
		120	140	254	426	5.0	162	210	14.5	56.0
KF189	660	120	160	–	517	6.0	210	210	11.0	–
		140	160	306	518	6.0	190	250	6.0	62.0
With VLplus reinforced bearing system (G30)										
KF89	300	60	70	143	218	4.0	120	120	1.5	8
KF109	350	70	85	190	234	5.0	140	140	2.0	4
KF129	450	90	95	–	336	5.0	170	170	16.5	–
KF149	450	100	120	225	336	5.0	210	210	10.5	11
KF169	550	120	140	–	426	5.0	210	210	19.5	–

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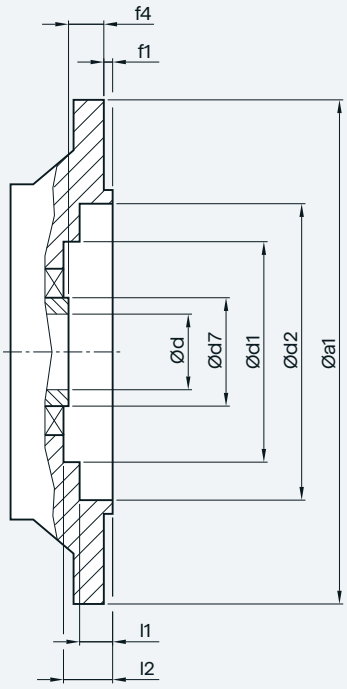
Inner contour of the flange-mounted design

Notes regarding the design of the customer's interface for the hollow shaft design

BAF., KAF.



Gearbox type	a1	d	d7	d1	d2	f1	f4	l1	l2
BAF.19	120	20	30	60	68	3.0	30.0	23.5	29.5
BAF.29	120	20	40	–	70	3.0	20.0	24.0	–
		25							
	160	20	40	70	101	3.5	20.0	8.5	24.5
		25							
BAF.39	160	30	55	93	100	3.5	27.0	11.0	31.5
		35							
		40							
BAF.39	200	30	55	93	119	3.5	27.0	16.0	31.5
		35							
		40							
BAF.49	200	35	55	93	119	3.5	27.0	16.0	31.5
		40							
KAF.39	160	25	45	80	102	3.5	24.0	2.0	29.5
		30							
KAF.49	200	30	50	90	120	3.5	25.0	4.0	30.5
		35							
KAF.69	250	40	55	104	165	4.0	23.5	2.0	29.5
KAF.79	250	40	55	104	165	4.0	23.0	2.0	29.5
KAF.89	300	50	70	135	215	4.0	37.0	2.0	44.5
KAF.109	350	60	85	184	210	5.0	36.0	13.0	45.0
		70	90						
KAF.129	450	70	95	184	336	5.0	41.5	16.5	48.5
KAF.149	450	80	120	214	330	5.0	41.0	40.0	50.0
		90							
KAF.169	550	100	140	254	426	5.0	56.0	14.5	56.0
		110							
KAF.189	660	120	160	306	518	6.0	66.0	6.0	62.0
With VLplus reinforced bearing system (G30)									
KAF.89	300	50	70	143	218	4.0	0	1.5	8
KAF.109	350	60	85	190	234	5.0	0	2.0	4
KAF.129	450	70	95	–	336	5.0	0	16.5	–
KAF.149	450	90	120	225	330	5.0	0	10.5	11
KAF.169	550	100	140	–	426	5.0	0	14.5	–

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Helical worm geared motors

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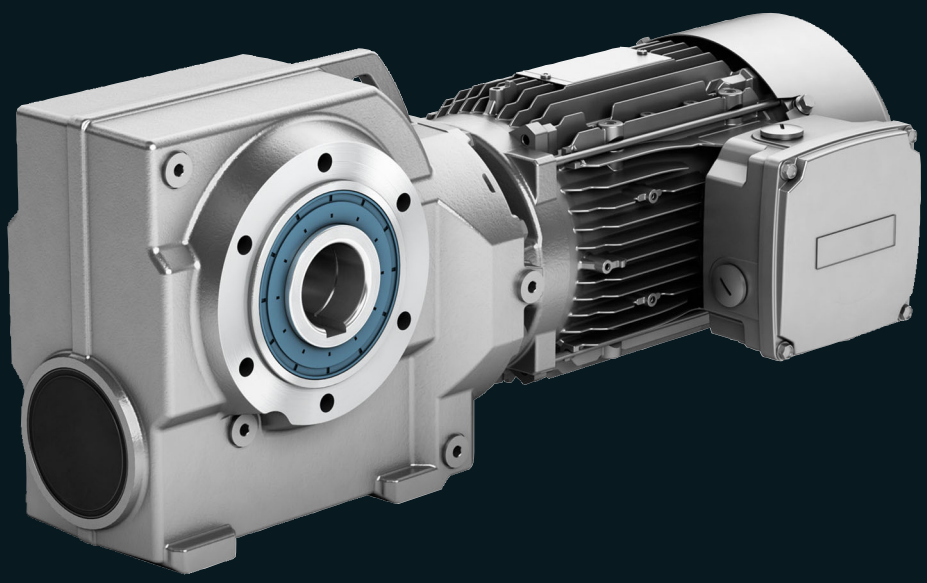

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6 Helical worm geared motors

6/2 Orientation

6/3 Geared motors up to 7.5 kW

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6/18 Selection and ordering data

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6/61 ShaftMount assembly system

Protective covers

6/62 Protective covers for hollow shaft

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6/62 Protective covers for hollow shaft with ShaftMount assembly system

6/63 Inner contour of the flange-mounted design

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Helical worm geared motors

Helical worm geared motors 2-stages
Helical worm tandem geared motors 4- or 5-stages for especially low output speeds

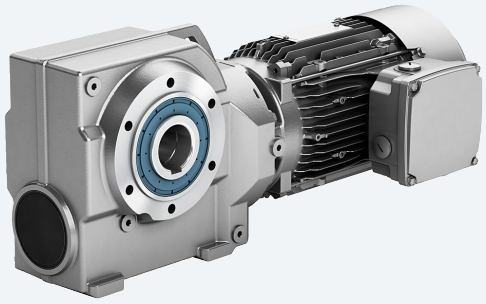

Fig. 6-1 Helical worm geared motor C

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power P_1 kW	Supported motors
_ Foot-mounted design _ Flange-mounted design _ Design with integrated housing flange _ Shaft-mounted design	_ Hollow shaft design with feather key _ Hollow shaft design with shrink disk _ Hollow shaft design with ShaftMount assembly system _ Solid shaft design with and without feather key	C29 ... C89	82 ... 1450	6.48 ... 363	7.5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors _ VSD10 line motors _ Explosion-protected motors
_ Tandem geared motor		C39A-Z19 ... C89-D39	80 ... 1310	270 ... 19000		

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.09	**C.49-LE63MEB6**							
	3	176	299	8730	2	20	**2KJ3603- ■ BD21- ■ ■ N2 -Z**	**P01**
	C.39A-LE63MEB6							
	3	167	299	6270	1.1	14	**2KJ3642- ■ BD21- ■ ■ N2 -Z**	**P01**
	3.4	152	265.2	6330	1.2	14	**2KJ3642- ■ BD21- ■ ■ M2 -Z**	**P01**
	3.9	136	230.1	6390	1.4	14	**2KJ3642- ■ BD21- ■ ■ L2 -Z**	**P01**
	4.3	126	209.18	6430	1.5	14	**2KJ3642- ■ BD21- ■ ■ K2 -Z**	**P01**
	C.39A-LE63MCA4							
	4.7	117	299	6460	1.6	14	**2KJ3642- ■ BB21- ■ ■ N2 -Z**	**–**
	5.3	106	265.2	6500	1.8	14	**2KJ3642- ■ BB21- ■ ■ M2 -Z**	**–**
	6.1	95	230.1	6540	2	14	**2KJ3642- ■ BB21- ■ ■ L2 -Z**	**–**
	C.29-LE63MEB6							
	4.3	125	209.18	4050	0.86	9	**2KJ3601- ■ BD21- ■ ■ K2 -Z**	**P01**
	5	110	179.4	4130	0.97	9	**2KJ3601- ■ BD21- ■ ■ J2 -Z**	**P01**
	C.29-LE63MCA4							
	5.3	105	265.2	4150	1	8	**2KJ3601- ■ BB21- ■ ■ M2 -Z**	**–**
	6.1	94	230.1	4210	1.2	8	**2KJ3601- ■ BB21- ■ ■ L2 -Z**	**–**
	6.7	87	209.18	4240	1.3	8	**2KJ3601- ■ BB21- ■ ■ K2 -Z**	**–**
	7.9	76	179.4	4300	1.4	8	**2KJ3601- ■ BB21- ■ ■ J2 -Z**	**–**
	8.6	71	163.09	4330	1.6	8	**2KJ3601- ■ BB21- ■ ■ H2 -Z**	**–**
	9.9	63	143	4370	1.7	8	**2KJ3601- ■ BB21- ■ ■ G2 -Z**	**–**
	11	57	127.64	4400	1.9	8	**2KJ3601- ■ BB21- ■ ■ F2 -Z**	**–**
	12	51	113.75	4430	2.1	8	**2KJ3601- ■ BB21- ■ ■ E2 -Z**	**–**
	13	48	105	4440	2.3	8	**2KJ3601- ■ BB21- ■ ■ D2 -Z**	**–**
	15	42	91.93	4470	2.6	8	**2KJ3601- ■ BB21- ■ ■ C2 -Z**	**–**
	17	37	80.6	4500	3	8	**2KJ3601- ■ BB21- ■ ■ B2 -Z**	**–**
	19	34	73.12	4500	3.3	8	**2KJ3601- ■ BB21- ■ ■ A2 -Z**	**–**
	20	32	68.82	4500	3.5	8	**2KJ3601- ■ BB21- ■ ■ X1 -Z**	**–**
	23	28	60.67	4500	3.9	8	**2KJ3601- ■ BB21- ■ ■ W1 -Z**	**–**
	27	24	52.65	4500	4.5	8	**2KJ3601- ■ BB21- ■ ■ V1 -Z**	**–**
	28	27	49.87	4500	3.8	8	**2KJ3601- ■ BB21- ■ ■ U1 -Z**	**–**
	33	23	43.27	4500	4.4	8	**2KJ3601- ■ BB21- ■ ■ T1 -Z**	**–**
	36	21	39.33	4500	4.8	8	**2KJ3601- ■ BB21- ■ ■ S1 -Z**	**–**
	43	18	32.64	4500	5	8	**2KJ3601- ■ BB21- ■ ■ Q1 -Z**	**–**
0.12	**C.39A-LE63ZMH4P**							
	4.6	158	299	6310	1.2	16	**2KJ3642- ■ BD23- ■ ■ N2 -Z**	**–**
	5.2	144	265.2	6360	1.3	16	**2KJ3642- ■ BD23- ■ ■ M2 -Z**	**–**
	6	128	230.1	6420	1.5	16	**2KJ3642- ■ BD23- ■ ■ L2 -Z**	**–**
	6.6	118	209.18	6460	1.6	16	**2KJ3642- ■ BD23- ■ ■ K2 -Z**	**–**
	7.7	103	179.4	6510	1.9	16	**2KJ3642- ■ BD23- ■ ■ J2 -Z**	**–**
	8.5	95	163.09	6450	2	16	**2KJ3642- ■ BD23- ■ ■ H2 -Z**	**–**
	C.29-LE63ZMH4P							
	6	126	230.1	4050	0.85	10	**2KJ3601- ■ BD23- ■ ■ L2 -Z**	**–**
	6.6	117	209.18	4090	0.93	10	**2KJ3601- ■ BD23- ■ ■ K2 -Z**	**–**
	7.7	103	179.4	4160	1.1	10	**2KJ3601- ■ BD23- ■ ■ J2 -Z**	**–**
	8.5	95	163.09	4200	1.2	10	**2KJ3601- ■ BD23- ■ ■ H2 -Z**	**–**
	9.7	85	143	4250	1.3	10	**2KJ3601- ■ BD23- ■ ■ G2 -Z**	**–**
	11	77	127.64	4290	1.4	10	**2KJ3601- ■ BD23- ■ ■ F2 -Z**	**–**
	12	69	113.75	4340	1.6	10	**2KJ3601- ■ BD23- ■ ■ E2 -Z**	**–**
	13	64	105	4360	1.7	10	**2KJ3601- ■ BD23- ■ ■ D2 -Z**	**–**
	15	57	91.93	4400	1.9	10	**2KJ3601- ■ BD23- ■ ■ C2 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.12	**C.29-LE63ZMH4P**							
	17	50	80.6	4430	2.2	10	**2KJ3601- ■ BD23- ■ ■ B2 -Z**	–
	19	46	73.12	4450	2.4	10	**2KJ3601- ■ BD23- ■ ■ A2 -Z**	–
	20	43	68.82	4470	2.6	10	**2KJ3601- ■ BD23- ■ ■ X1 -Z**	–
	23	38	60.67	4490	2.9	10	**2KJ3601- ■ BD23- ■ ■ W1 -Z**	–
	26	33	52.65	4500	3.4	10	**2KJ3601- ■ BD23- ■ ■ V1 -Z**	–
	28	36	49.87	4500	2.8	10	**2KJ3601- ■ BD23- ■ ■ U1 -Z**	–
	32	32	43.27	4500	3.3	10	**2KJ3601- ■ BD23- ■ ■ T1 -Z**	–
	35	29	39.33	4500	3.6	10	**2KJ3601- ■ BD23- ■ ■ S1 -Z**	–
	41	25	33.73	4500	4.2	10	**2KJ3601- ■ BD23- ■ ■ R1 -Z**	–
	43	24	32.64	4500	3.7	10	**2KJ3601- ■ BD23- ■ ■ Q1 -Z**	–
	49	21	28.32	4500	4.3	10	**2KJ3601- ■ BD23- ■ ■ P1 -Z**	–
	54	19	25.75	4500	4.7	10	**2KJ3601- ■ BD23- ■ ■ N1 -Z**	–
0.18	**C.69-LE71ZMK6P**							
	2.4	440	360	11200	1.5	30	**2KJ3604- ■ CC23- ■ ■ M2 -Z**	**P01**
	2.7	400	319.8	11300	1.7	30	**2KJ3604- ■ CC23- ■ ■ L2 -Z**	**P01**
	3.1	360	280.8	11400	1.9	30	**2KJ3604- ■ CC23- ■ ■ K2 -Z**	**P01**
	3.4	335	255.27	11400	2	30	**2KJ3604- ■ CC23- ■ ■ J2 -Z**	**P01**
	C.49-LE71ZMK6P							
	2.9	355	299	8400	0.96	22	**2KJ3603- ■ CC23- ■ ■ N2 -Z**	**P01**
	3.3	325	265.2	8480	1.1	22	**2KJ3603- ■ CC23- ■ ■ M2 -Z**	**P01**
	3.8	290	230.1	8590	1.2	22	**2KJ3603- ■ CC23- ■ ■ L2 -Z**	**P01**
	4.2	270	209.18	8640	1.3	22	**2KJ3603- ■ CC23- ■ ■ K2 -Z**	**P01**
	C.49-LE63ZMK4P							
	4.6	245	299	8720	1.4	21	**2KJ3603- ■ BE23- ■ ■ N2 -Z**	–
	5.2	225	265.2	8730	1.5	21	**2KJ3603- ■ BE23- ■ ■ M2 -Z**	–
	6	200	230.1	8730	1.8	21	**2KJ3603- ■ BE23- ■ ■ L2 -Z**	–
	6.6	184	209.18	8730	1.9	21	**2KJ3603- ■ BE23- ■ ■ K2 -Z**	–
	C.39A-LE63ZMK4P							
	4.6	235	299	6020	0.81	16	**2KJ3642- ■ BE23- ■ ■ N2 -Z**	–
	5.2	215	265.2	6100	0.89	16	**2KJ3642- ■ BE23- ■ ■ M2 -Z**	–
	6	193	230.1	6180	1	16	**2KJ3642- ■ BE23- ■ ■ L2 -Z**	–
	6.6	177	209.18	6240	1.1	16	**2KJ3642- ■ BE23- ■ ■ K2 -Z**	–
	7.7	155	179.4	6210	1.2	16	**2KJ3642- ■ BE23- ■ ■ J2 -Z**	–
	8.5	143	163.09	6070	1.4	16	**2KJ3642- ■ BE23- ■ ■ H2 -Z**	–
	9.7	126	143	5900	1.5	16	**2KJ3642- ■ BE23- ■ ■ G2 -Z**	–
	11	114	127.64	5740	1.7	16	**2KJ3642- ■ BE23- ■ ■ F2 -Z**	–
	12	102	113.75	5590	1.9	16	**2KJ3642- ■ BE23- ■ ■ E2 -Z**	–
	13	94	105	5480	2.1	16	**2KJ3642- ■ BE23- ■ ■ D2 -Z**	–
	C.29-LE63ZMK4P							
	9.7	128	143	4040	0.86	10	**2KJ3601- ■ BE23- ■ ■ G2 -Z**	–
	11	116	127.64	4100	0.95	10	**2KJ3601- ■ BE23- ■ ■ F2 -Z**	–
	12	104	113.75	4160	1.1	10	**2KJ3601- ■ BE23- ■ ■ E2 -Z**	–
	13	97	105	4190	1.1	10	**2KJ3601- ■ BE23- ■ ■ D2 -Z**	–
	15	86	91.93	4250	1.3	10	**2KJ3601- ■ BE23- ■ ■ C2 -Z**	–
	17	75	80.6	4300	1.5	10	**2KJ3601- ■ BE23- ■ ■ B2 -Z**	–
	19	68	73.12	4340	1.6	10	**2KJ3601- ■ BE23- ■ ■ A2 -Z**	–
	20	64	68.82	4360	1.7	10	**2KJ3601- ■ BE23- ■ ■ X1 -Z**	–
	23	57	60.67	4400	1.9	10	**2KJ3601- ■ BE23- ■ ■ W1 -Z**	–
	26	49	52.65	4440	2.2	10	**2KJ3601- ■ BE23- ■ ■ V1 -Z**	–
	28	54	49.87	4410	1.9	10	**2KJ3601- ■ BE23- ■ ■ U1 -Z**	–
	32	47	43.27	4450	2.2	10	**2KJ3601- ■ BE23- ■ ■ T1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.18	**C.29-LE63ZMK4P**							
	35	43	39.33	4470	2.4	10	**2KJ3601- ■ BE23- ■ ■ S1 -Z**	**–**
	41	37	33.73	4500	2.8	10	**2KJ3601- ■ BE23- ■ ■ R1 -Z**	**–**
	42	36	32.64	4500	2.5	10	**2KJ3601- ■ BE23- ■ ■ Q1 -Z**	**–**
	49	32	28.32	4500	2.8	10	**2KJ3601- ■ BE23- ■ ■ P1 -Z**	**–**
	54	29	25.75	4500	3.1	10	**2KJ3601- ■ BE23- ■ ■ N1 -Z**	**–**
	63	25	22.08	4500	3.6	10	**2KJ3601- ■ BE23- ■ ■ M1 -Z**	**–**
	69	23	20.07	4500	4	10	**2KJ3601- ■ BE23- ■ ■ L1 -Z**	**–**
	79	20	17.6	4500	4.6	10	**2KJ3601- ■ BE23- ■ ■ K1 -Z**	**–**
0.25	**C.69-LE71YMS6P**							
	2.4	620	360	10700	1.1	32	**2KJ3604- ■ CE23- ■ ■ M2 -Z**	**P01**
	2.7	560	319.8	10900	1.2	32	**2KJ3604- ■ CE23- ■ ■ L2 -Z**	**P01**
	3.1	505	280.8	11000	1.3	32	**2KJ3604- ■ CE23- ■ ■ K2 -Z**	**P01**
	3.4	470	255.27	11100	1.4	32	**2KJ3604- ■ CE23- ■ ■ J2 -Z**	**P01**
	C.69-LE71ZMK4P							
	3.9	420	360	11200	1.6	30	**2KJ3604- ■ CC23- ■ ■ M2 -Z**	**–**
	4.4	380	319.8	11300	1.8	30	**2KJ3604- ■ CC23- ■ ■ L2 -Z**	**–**
	5	340	280.8	11400	2	30	**2KJ3604- ■ CC23- ■ ■ K2 -Z**	**–**
	C.49-LE71YMS6P							
	3.8	405	230.1	8250	0.86	23	**2KJ3603- ■ CE23- ■ ■ L2 -Z**	**P01**
	4.2	375	209.18	8340	0.93	23	**2KJ3603- ■ CE23- ■ ■ K2 -Z**	**P01**
	C.49-LE71ZMK4P							
	4.7	340	299	8440	1	22	**2KJ3603- ■ CC23- ■ ■ N2 -Z**	**–**
	5.3	310	265.2	8530	1.1	22	**2KJ3603- ■ CC23- ■ ■ M2 -Z**	**–**
	6.1	275	230.1	8630	1.3	22	**2KJ3603- ■ CC23- ■ ■ L2 -Z**	**–**
	6.7	250	209.18	8700	1.4	22	**2KJ3603- ■ CC23- ■ ■ K2 -Z**	**–**
	7.8	220	179.4	8730	1.6	22	**2KJ3603- ■ CC23- ■ ■ J2 -Z**	**–**
	8.6	200	163.09	8730	1.8	22	**2KJ3603- ■ CC23- ■ ■ H2 -Z**	**–**
	9.8	179	143	8730	2	22	**2KJ3603- ■ CC23- ■ ■ G2 -Z**	**–**
	11	160	127.64	8580	2.2	22	**2KJ3603- ■ CC23- ■ ■ F2 -Z**	**–**
	C.39A-LE71ZMK4P							
	7.8	210	179.4	5740	0.9	16	**2KJ3642- ■ CC23- ■ ■ J2 -Z**	**–**
	8.6	197	163.09	5610	0.98	16	**2KJ3642- ■ CC23- ■ ■ H2 -Z**	**–**
	9.8	174	143	5490	1.1	16	**2KJ3642- ■ CC23- ■ ■ G2 -Z**	**–**
	11	157	127.64	5370	1.2	16	**2KJ3642- ■ CC23- ■ ■ F2 -Z**	**–**
	12	140	113.75	5260	1.4	16	**2KJ3642- ■ CC23- ■ ■ E2 -Z**	**–**
	13	130	105	5170	1.5	16	**2KJ3642- ■ CC23- ■ ■ D2 -Z**	**–**
	15	114	91.93	5030	1.7	16	**2KJ3642- ■ CC23- ■ ■ C2 -Z**	**–**
	17	100	80.6	4890	1.9	16	**2KJ3642- ■ CC23- ■ ■ B2 -Z**	**–**
	19	91	73.12	4780	2.1	16	**2KJ3642- ■ CC23- ■ ■ A2 -Z**	**–**
	20	86	68.82	4710	2.3	16	**2KJ3642- ■ CC23- ■ ■ X1 -Z**	**–**
	23	76	60.67	4570	2.4	16	**2KJ3642- ■ CC23- ■ ■ W1 -Z**	**–**
	C.29-LE71ZMK4P							
	13	134	105	4010	0.82	10	**2KJ3601- ■ CC23- ■ ■ D2 -Z**	**–**
	15	118	91.93	4090	0.93	10	**2KJ3601- ■ CC23- ■ ■ C2 -Z**	**–**
	17	104	80.6	4160	1.1	10	**2KJ3601- ■ CC23- ■ ■ B2 -Z**	**–**
	19	94	73.12	4210	1.2	10	**2KJ3601- ■ CC23- ■ ■ A2 -Z**	**–**
	20	89	68.82	4230	1.2	10	**2KJ3601- ■ CC23- ■ ■ X1 -Z**	**–**
	23	78	60.67	4290	1.4	10	**2KJ3601- ■ CC23- ■ ■ W1 -Z**	**–**
	26	68	52.65	4340	1.6	10	**2KJ3601- ■ CC23- ■ ■ V1 -Z**	**–**
	28	75	49.87	4300	1.4	10	**2KJ3601- ■ CC23- ■ ■ U1 -Z**	**–**
	32	65	43.27	4360	1.6	10	**2KJ3601- ■ CC23- ■ ■ T1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.25	**C.29-LE71ZMK4P**							
	35	60	39.33	4380	1.7	10	**2KJ3601- ■ CC23- ■ ■ S1 -Z**	–
	41	52	33.73	4420	2	10	**2KJ3601- ■ CC23- ■ ■ R1 -Z**	–
	43	50	32.64	4430	1.8	10	**2KJ3601- ■ CC23- ■ ■ Q1 -Z**	–
	49	44	28.32	4460	2.1	10	**2KJ3601- ■ CC23- ■ ■ P1 -Z**	–
	54	40	25.75	4480	2.3	10	**2KJ3601- ■ CC23- ■ ■ N1 -Z**	–
	63	34	22.08	4500	2.6	10	**2KJ3601- ■ CC23- ■ ■ M1 -Z**	–
	70	31	20.07	4500	2.9	10	**2KJ3601- ■ CC23- ■ ■ L1 -Z**	–
	79	28	17.6	4500	3.3	10	**2KJ3601- ■ CC23- ■ ■ K1 -Z**	–
	89	25	15.71	4500	3.7	10	**2KJ3601- ■ CC23- ■ ■ J1 -Z**	–
	100	22	14	4500	4.2	10	**2KJ3601- ■ CC23- ■ ■ H1 -Z**	–
	108	20	12.92	4500	4.6	10	**2KJ3601- ■ CC23- ■ ■ G1 -Z**	–
0.37	**C.89-LE80MK6P**							
	2.5	945	363	16300	1.5	55	**2KJ3605- ■ DE23- ■ ■ N2 -Z**	**P01**
	2.8	870	329.73	16300	1.7	55	**2KJ3605- ■ DE23- ■ ■ M2 -Z**	**P01**
	3.1	790	295.75	16300	1.8	55	**2KJ3605- ■ DE23- ■ ■ L2 -Z**	**P01**
	3.5	720	265.91	16300	2	55	**2KJ3605- ■ DE23- ■ ■ K2 -Z**	**P01**
	C.69-LE80MK6P							
	2.9	790	319.8	10300	0.85	36	**2KJ3604- ■ DE23- ■ ■ L2 -Z**	**P01**
	3.3	710	280.8	10500	0.94	36	**2KJ3604- ■ DE23- ■ ■ K2 -Z**	**P01**
	3.6	660	255.27	10600	1	36	**2KJ3604- ■ DE23- ■ ■ J2 -Z**	**P01**
	C.69-LE71YMS4P							
	3.8	630	360	10700	1.1	32	**2KJ3604- ■ CE23- ■ ■ M2 -Z**	–
	4.3	570	319.8	10900	1.2	32	**2KJ3604- ■ CE23- ■ ■ L2 -Z**	–
	4.9	510	280.8	11000	1.3	32	**2KJ3604- ■ CE23- ■ ■ K2 -Z**	–
	5.4	465	255.27	11100	1.4	32	**2KJ3604- ■ CE23- ■ ■ J2 -Z**	–
	6.3	405	218.4	11200	1.7	32	**2KJ3604- ■ CE23- ■ ■ H2 -Z**	–
	7	370	198.55	11300	1.8	32	**2KJ3604- ■ CE23- ■ ■ G2 -Z**	–
	7.9	330	175.5	11400	2	32	**2KJ3604- ■ CE23- ■ ■ F2 -Z**	–
	C.49-LE71YMS4P							
	6	410	230.1	8240	0.85	23	**2KJ3603- ■ CE23- ■ ■ L2 -Z**	–
	6.6	380	209.18	8330	0.94	23	**2KJ3603- ■ CE23- ■ ■ K2 -Z**	–
	7.7	330	179.4	8470	1.1	23	**2KJ3603- ■ CE23- ■ ■ J2 -Z**	–
	8.5	300	163.09	8490	1.2	23	**2KJ3603- ■ CE23- ■ ■ H2 -Z**	–
	9.7	265	143	8280	1.3	23	**2KJ3603- ■ CE23- ■ ■ G2 -Z**	–
	11	235	127.64	8100	1.5	23	**2KJ3603- ■ CE23- ■ ■ F2 -Z**	–
	12	210	113.75	7910	1.7	23	**2KJ3603- ■ CE23- ■ ■ E2 -Z**	–
	13	198	105	7740	1.8	23	**2KJ3603- ■ CE23- ■ ■ D2 -Z**	–
	15	174	91.93	7510	2	23	**2KJ3603- ■ CE23- ■ ■ C2 -Z**	–
	17	153	80.6	7280	2.2	23	**2KJ3603- ■ CE23- ■ ■ B2 -Z**	–
	19	138	73.12	7120	2.3	23	**2KJ3603- ■ CE23- ■ ■ A2 -Z**	–
	C.39A-LE71YMS4P							
	11	235	127.64	4760	0.83	17	**2KJ3642- ■ CE23- ■ ■ F2 -Z**	–
	12	210	113.75	4710	0.92	17	**2KJ3642- ■ CE23- ■ ■ E2 -Z**	–
	13	194	105	4670	1	17	**2KJ3642- ■ CE23- ■ ■ D2 -Z**	–
	15	171	91.93	4590	1.1	17	**2KJ3642- ■ CE23- ■ ■ C2 -Z**	–
	17	150	80.6	4500	1.3	17	**2KJ3642- ■ CE23- ■ ■ B2 -Z**	–
	19	136	73.12	4430	1.4	17	**2KJ3642- ■ CE23- ■ ■ A2 -Z**	–
	20	128	68.82	4390	1.5	17	**2KJ3642- ■ CE23- ■ ■ X1 -Z**	–
	23	113	60.67	4290	1.6	17	**2KJ3642- ■ CE23- ■ ■ W1 -Z**	–
	26	98	52.65	4170	1.8	17	**2KJ3642- ■ CE23- ■ ■ V1 -Z**	–
	28	113	49.87	3740	1.7	17	**2KJ3642- ■ CE23- ■ ■ U1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.37	**C.39A-LE71YMS4P**							
	32	98	43.27	3670	2	17	**2KJ3642- ■ CE23- ■ ■ T1 -Z**	–
	35	89	39.33	3610	2.2	17	**2KJ3642- ■ CE23- ■ ■ S1 -Z**	–
	41	77	33.73	3510	2.6	17	**2KJ3642- ■ CE23- ■ ■ R1 -Z**	–
	C.29-LE71YMS4P							
	20	133	68.82	4010	0.83	12	**2KJ3601- ■ CE23- ■ ■ X1 -Z**	–
	23	117	60.67	4090	0.94	12	**2KJ3601- ■ CE23- ■ ■ W1 -Z**	–
	26	102	52.65	4170	1.1	12	**2KJ3601- ■ CE23- ■ ■ V1 -Z**	–
	28	112	49.87	4120	0.91	12	**2KJ3601- ■ CE23- ■ ■ U1 -Z**	–
	32	98	43.27	4190	1.1	12	**2KJ3601- ■ CE23- ■ ■ T1 -Z**	–
	35	89	39.33	4230	1.2	12	**2KJ3601- ■ CE23- ■ ■ S1 -Z**	–
	41	77	33.73	4290	1.4	12	**2KJ3601- ■ CE23- ■ ■ R1 -Z**	–
	42	75	32.64	4300	1.2	12	**2KJ3601- ■ CE23- ■ ■ Q1 -Z**	–
	49	66	28.32	4350	1.4	12	**2KJ3601- ■ CE23- ■ ■ P1 -Z**	–
	54	60	25.75	4380	1.5	12	**2KJ3601- ■ CE23- ■ ■ N1 -Z**	–
	63	51	22.08	4430	1.8	12	**2KJ3601- ■ CE23- ■ ■ M1 -Z**	–
	69	47	20.07	4450	1.9	12	**2KJ3601- ■ CE23- ■ ■ L1 -Z**	–
	78	41	17.6	4480	2.2	12	**2KJ3601- ■ CE23- ■ ■ K1 -Z**	–
	88	37	15.71	4500	2.5	12	**2KJ3601- ■ CE23- ■ ■ J1 -Z**	–
	99	33	14	4500	2.8	12	**2KJ3601- ■ CE23- ■ ■ H1 -Z**	–
	107	30	12.92	4440	3.1	12	**2KJ3601- ■ CE23- ■ ■ G1 -Z**	–
	122	27	11.31	4270	3.5	12	**2KJ3601- ■ CE23- ■ ■ F1 -Z**	–
	139	23	9.92	4130	4	12	**2KJ3601- ■ CE23- ■ ■ E1 -Z**	–
	153	21	9	4010	4.4	12	**2KJ3601- ■ CE23- ■ ■ D1 -Z**	–
	163	20	8.47	3940	4.6	12	**2KJ3601- ■ CE23- ■ ■ C1 -Z**	–
	185	18	7.47	3800	5	12	**2KJ3601- ■ CE23- ■ ■ B1 -Z**	–
0.55	**C.89-LE80ZMQ6P**							
	2.6	1390	363	16300	1	55	**2KJ3605- ■ DF23- ■ ■ N2 -Z**	P01
	2.8	1280	329.73	16300	1.1	55	**2KJ3605- ■ DF23- ■ ■ M2 -Z**	P01
	3.2	1160	295.75	16300	1.2	55	**2KJ3605- ■ DF23- ■ ■ L2 -Z**	P01
	3.5	1060	265.91	16300	1.4	55	**2KJ3605- ■ DF23- ■ ■ K2 -Z**	P01
	C.89-LE80MH4P							
	4	950	363	16300	1.5	56	**2KJ3605- ■ DC23- ■ ■ N2 -Z**	–
	4.4	870	329.73	16300	1.7	56	**2KJ3605- ■ DC23- ■ ■ M2 -Z**	–
	4.9	780	295.75	16300	1.8	56	**2KJ3605- ■ DC23- ■ ■ L2 -Z**	–
	5.4	705	265.91	16300	2	56	**2KJ3605- ■ DC23- ■ ■ K2 -Z**	–
	C.69-LE80MH4P							
	4.5	815	319.8	10300	0.82	37	**2KJ3604- ■ DC23- ■ ■ L2 -Z**	–
	5.1	725	280.8	10500	0.93	37	**2KJ3604- ■ DC23- ■ ■ K2 -Z**	–
	5.6	665	255.27	10600	1	37	**2KJ3604- ■ DC23- ■ ■ J2 -Z**	–
	6.6	580	218.4	10800	1.2	37	**2KJ3604- ■ DC23- ■ ■ H2 -Z**	–
	7.3	530	198.55	11000	1.3	37	**2KJ3604- ■ DC23- ■ ■ G2 -Z**	–
	8.2	470	175.5	11100	1.4	37	**2KJ3604- ■ DC23- ■ ■ F2 -Z**	–
	9	430	159.55	11200	1.5	37	**2KJ3604- ■ DC23- ■ ■ E2 -Z**	–
	10	375	139.75	11300	1.6	37	**2KJ3604- ■ DC23- ■ ■ D2 -Z**	–
	11	345	129	11400	1.6	37	**2KJ3604- ■ DC23- ■ ■ C2 -Z**	–
	13	305	114.21	11200	1.7	37	**2KJ3604- ■ DC23- ■ ■ B2 -Z**	–
	14	320	102.5	10500	2.1	37	**2KJ3604- ■ DC23- ■ ■ A2 -Z**	–
	C.49-LE80MH4P							
	8.8	430	163.09	7460	0.82	28	**2KJ3603- ■ DC23- ■ ■ H2 -Z**	–
	10	380	143	7360	0.93	28	**2KJ3603- ■ DC23- ■ ■ G2 -Z**	–
	11	340	127.64	7260	1	28	**2KJ3603- ■ DC23- ■ ■ F2 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.55	**C.49-LE80MH4P**							
	13	305	113.75	7130	1.2	28	**2KJ3603- ■ DC23- ■ ■ E2 -Z**	–
	14	280	105	7060	1.3	28	**2KJ3603- ■ DC23- ■ ■ D2 -Z**	–
	16	245	91.93	6910	1.4	28	**2KJ3603- ■ DC23- ■ ■ C2 -Z**	–
	18	215	80.6	6740	1.5	28	**2KJ3603- ■ DC23- ■ ■ B2 -Z**	–
	20	197	73.12	6600	1.6	28	**2KJ3603- ■ DC23- ■ ■ A2 -Z**	–
	21	185	68.82	6530	1.6	28	**2KJ3603- ■ DC23- ■ ■ X1 -Z**	–
	24	163	60.67	6350	1.7	28	**2KJ3603- ■ DC23- ■ ■ W1 -Z**	–
	27	142	52.65	6150	1.9	28	**2KJ3603- ■ DC23- ■ ■ V1 -Z**	–
	29	162	49.87	5620	2	28	**2KJ3603- ■ DC23- ■ ■ U1 -Z**	–
	33	141	43.27	5470	2.5	28	**2KJ3603- ■ DC23- ■ ■ T1 -Z**	–
	C.39A-LE80MH4P							
	16	240	91.93	3940	0.8	22	**2KJ3642- ■ DC23- ■ ■ C2 -Z**	–
	18	210	80.6	3930	0.91	22	**2KJ3642- ■ DC23- ■ ■ B2 -Z**	–
	20	194	73.12	3880	1	22	**2KJ3642- ■ DC23- ■ ■ A2 -Z**	–
	21	183	68.82	3860	1.1	22	**2KJ3642- ■ DC23- ■ ■ X1 -Z**	–
	24	161	60.67	3820	1.1	22	**2KJ3642- ■ DC23- ■ ■ W1 -Z**	–
	27	140	52.65	3750	1.2	22	**2KJ3642- ■ DC23- ■ ■ V1 -Z**	–
	29	162	49.87	3180	1.2	22	**2KJ3642- ■ DC23- ■ ■ U1 -Z**	–
	33	140	43.27	3170	1.4	22	**2KJ3642- ■ DC23- ■ ■ T1 -Z**	–
	37	127	39.33	3160	1.6	22	**2KJ3642- ■ DC23- ■ ■ S1 -Z**	–
	43	109	33.73	3120	1.8	22	**2KJ3642- ■ DC23- ■ ■ R1 -Z**	–
	44	108	32.64	2970	2	22	**2KJ3642- ■ DC23- ■ ■ Q1 -Z**	–
	51	94	28.32	2930	2.5	22	**2KJ3642- ■ DC23- ■ ■ P1 -Z**	–
	56	86	25.75	2900	2.7	22	**2KJ3642- ■ DC23- ■ ■ N1 -Z**	–
	C.29-LE80MH4P							
	37	127	39.33	4040	0.81	16	**2KJ3601- ■ DC23- ■ ■ S1 -Z**	–
	43	110	33.73	4130	0.95	16	**2KJ3601- ■ DC23- ■ ■ R1 -Z**	–
	44	107	32.64	4140	0.84	16	**2KJ3601- ■ DC23- ■ ■ Q1 -Z**	–
	51	93	28.32	4210	0.96	16	**2KJ3601- ■ DC23- ■ ■ P1 -Z**	–
	56	85	25.75	4250	1.1	16	**2KJ3601- ■ DC23- ■ ■ N1 -Z**	–
	65	73	22.08	4310	1.2	16	**2KJ3601- ■ DC23- ■ ■ M1 -Z**	–
	72	67	20.07	4350	1.4	16	**2KJ3601- ■ DC23- ■ ■ L1 -Z**	–
	82	59	17.6	4390	1.6	16	**2KJ3601- ■ DC23- ■ ■ K1 -Z**	–
	92	52	15.71	4370	1.8	16	**2KJ3601- ■ DC23- ■ ■ J1 -Z**	–
	103	47	14	4250	2	16	**2KJ3601- ■ DC23- ■ ■ H1 -Z**	–
	111	43	12.92	4180	2.2	16	**2KJ3601- ■ DC23- ■ ■ G1 -Z**	–
	127	38	11.31	4040	2.5	16	**2KJ3601- ■ DC23- ■ ■ F1 -Z**	–
	145	33	9.92	3920	2.8	16	**2KJ3601- ■ DC23- ■ ■ E1 -Z**	–
	160	30	9	3820	3	16	**2KJ3601- ■ DC23- ■ ■ D1 -Z**	–
	170	28	8.47	3770	3.2	16	**2KJ3601- ■ DC23- ■ ■ C1 -Z**	–
	193	25	7.47	3640	3.4	16	**2KJ3601- ■ DC23- ■ ■ B1 -Z**	–
	222	22	6.48	3490	3.8	16	**2KJ3601- ■ DC23- ■ ■ A1 -Z**	–
0.75	**C.89-LE90SQ6P**							
	2.9	1730	329.73	15800	0.84	58	**2KJ3605- ■ EC23- ■ ■ M2 -Z**	P01
	3.2	1570	295.75	16000	0.92	58	**2KJ3605- ■ EC23- ■ ■ L2 -Z**	P01
	3.6	1430	265.91	16300	1	58	**2KJ3605- ■ EC23- ■ ■ K2 -Z**	P01
	C.89-LE80ZMQ4P							
	4	1290	363	16300	1.1	55	**2KJ3605- ■ DF23- ■ ■ N2 -Z**	–
	4.4	1170	329.73	16300	1.2	55	**2KJ3605- ■ DF23- ■ ■ M2 -Z**	–
	4.9	1060	295.75	16300	1.4	55	**2KJ3605- ■ DF23- ■ ■ L2 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**C.89-LE80ZMQ4P**							
	5.5	960	265.91	16300	1.5	55	**2KJ3605- ■ DF23- ■ ■ K2 -Z**	–
	6	870	240.5	16300	1.7	55	**2KJ3605- ■ DF23- ■ ■ J2 -Z**	–
	6.5	805	222	16300	1.8	55	**2KJ3605- ■ DF23- ■ ■ H2 -Z**	–
	7.1	735	203.36	16300	2	55	**2KJ3605- ■ DF23- ■ ■ G2 -Z**	–
	C.69-LE80ZMQ4P							
	6.6	785	218.4	10400	0.86	36	**2KJ3604- ■ DF23- ■ ■ H2 -Z**	–
	7.3	720	198.55	10500	0.94	36	**2KJ3604- ■ DF23- ■ ■ G2 -Z**	–
	8.3	640	175.5	10700	1	36	**2KJ3604- ■ DF23- ■ ■ F2 -Z**	–
	9.1	580	159.55	10800	1.1	36	**2KJ3604- ■ DF23- ■ ■ E2 -Z**	–
	10	510	139.75	11000	1.2	36	**2KJ3604- ■ DF23- ■ ■ D2 -Z**	–
	11	470	129	10800	1.2	36	**2KJ3604- ■ DF23- ■ ■ C2 -Z**	–
	13	415	114.21	10600	1.3	36	**2KJ3604- ■ DF23- ■ ■ B2 -Z**	–
	14	435	102.5	9790	1.5	36	**2KJ3604- ■ DF23- ■ ■ A2 -Z**	–
	16	385	90	9560	1.8	36	**2KJ3604- ■ DF23- ■ ■ X1 -Z**	–
	18	350	81.82	9400	1.9	36	**2KJ3604- ■ DF23- ■ ■ W1 -Z**	–
	21	300	70	9120	2.2	36	**2KJ3604- ■ DF23- ■ ■ V1 -Z**	–
	23	270	63.64	8960	2.3	36	**2KJ3604- ■ DF23- ■ ■ U1 -Z**	–
	C.49-LE80ZMQ4P							
	13	410	113.75	6400	0.86	27	**2KJ3603- ■ DF23- ■ ■ E2 -Z**	–
	14	380	105	6360	0.93	27	**2KJ3603- ■ DF23- ■ ■ D2 -Z**	–
	16	335	91.93	6280	1	27	**2KJ3603- ■ DF23- ■ ■ C2 -Z**	–
	18	290	80.6	6220	1.1	27	**2KJ3603- ■ DF23- ■ ■ B2 -Z**	–
	20	265	73.12	6130	1.2	27	**2KJ3603- ■ DF23- ■ ■ A2 -Z**	–
	21	250	68.82	6070	1.2	27	**2KJ3603- ■ DF23- ■ ■ X1 -Z**	–
	24	220	60.67	5950	1.3	27	**2KJ3603- ■ DF23- ■ ■ W1 -Z**	–
	28	192	52.65	5800	1.4	27	**2KJ3603- ■ DF23- ■ ■ V1 -Z**	–
	29	220	49.87	5110	1.5	27	**2KJ3603- ■ DF23- ■ ■ U1 -Z**	–
	34	191	43.27	5040	1.8	27	**2KJ3603- ■ DF23- ■ ■ T1 -Z**	–
	37	174	39.33	4970	2.3	27	**2KJ3603- ■ DF23- ■ ■ S1 -Z**	–
	43	149	33.73	4860	2.5	27	**2KJ3603- ■ DF23- ■ ■ R1 -Z**	–
	47	136	30.67	4780	2.8	27	**2KJ3603- ■ DF23- ■ ■ Q1 -Z**	–
	C.39A-LE80ZMQ4P							
	24	215	60.67	3370	0.84	21	**2KJ3642- ■ DF23- ■ ■ W1 -Z**	–
	28	189	52.65	3340	0.9	21	**2KJ3642- ■ DF23- ■ ■ V1 -Z**	–
	29	215	49.87	2630	0.91	21	**2KJ3642- ■ DF23- ■ ■ U1 -Z**	–
	34	190	43.27	2660	1	21	**2KJ3642- ■ DF23- ■ ■ T1 -Z**	–
	37	172	39.33	2700	1.2	21	**2KJ3642- ■ DF23- ■ ■ S1 -Z**	–
	43	148	33.73	2720	1.4	21	**2KJ3642- ■ DF23- ■ ■ R1 -Z**	–
	44	147	32.64	2520	1.5	21	**2KJ3642- ■ DF23- ■ ■ Q1 -Z**	–
	51	128	28.32	2540	1.8	21	**2KJ3642- ■ DF23- ■ ■ P1 -Z**	–
	56	116	25.75	2550	2	21	**2KJ3642- ■ DF23- ■ ■ N1 -Z**	–
	66	100	22.08	2540	2.4	21	**2KJ3642- ■ DF23- ■ ■ M1 -Z**	–
	72	91	20.07	2530	2.6	21	**2KJ3642- ■ DF23- ■ ■ L1 -Z**	–
	82	80	17.6	2500	2.8	21	**2KJ3642- ■ DF23- ■ ■ K1 -Z**	–
	92	71	15.71	2470	3	21	**2KJ3642- ■ DF23- ■ ■ J1 -Z**	–
	104	63	14	2440	3.2	21	**2KJ3642- ■ DF23- ■ ■ H1 -Z**	–
	112	58	12.92	2410	3.4	21	**2KJ3642- ■ DF23- ■ ■ G1 -Z**	–
	128	51	11.31	2360	3.7	21	**2KJ3642- ■ DF23- ■ ■ F1 -Z**	–
	146	45	9.92	2300	4	21	**2KJ3642- ■ DF23- ■ ■ E1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.75	**C.29-LE80ZMQ4P**							
	66	99	22.08	4180	0.92	15	**2KJ3601- ■ DF23- ■ ■ M1 -Z**	–
	72	91	20.07	4220	1	15	**2KJ3601- ■ DF23- ■ ■ L1 -Z**	–
	82	80	17.6	4150	1.2	15	**2KJ3601- ■ DF23- ■ ■ K1 -Z**	–
	92	71	15.71	4080	1.3	15	**2KJ3601- ■ DF23- ■ ■ J1 -Z**	–
	104	63	14	4010	1.5	15	**2KJ3601- ■ DF23- ■ ■ H1 -Z**	–
	112	58	12.92	3950	1.6	15	**2KJ3601- ■ DF23- ■ ■ G1 -Z**	–
	128	51	11.31	3840	1.8	15	**2KJ3601- ■ DF23- ■ ■ F1 -Z**	–
	146	45	9.92	3730	2.1	15	**2KJ3601- ■ DF23- ■ ■ E1 -Z**	–
	161	41	9	3650	2.2	15	**2KJ3601- ■ DF23- ■ ■ D1 -Z**	–
	171	38	8.47	3610	2.3	15	**2KJ3601- ■ DF23- ■ ■ C1 -Z**	–
	194	34	7.47	3500	2.5	15	**2KJ3601- ■ DF23- ■ ■ B1 -Z**	–
	224	29	6.48	3380	2.8	15	**2KJ3601- ■ DF23- ■ ■ A1 -Z**	–
1.1	**C.89-LE90SM4P**							
	4.4	1740	329.73	15800	0.83	58	**2KJ3605- ■ EK23- ■ ■ M2 -Z**	–
	4.9	1560	295.75	16100	0.92	58	**2KJ3605- ■ EK23- ■ ■ L2 -Z**	–
	5.4	1410	265.91	16300	1	58	**2KJ3605- ■ EK23- ■ ■ K2 -Z**	–
	6	1280	240.5	16300	1.1	58	**2KJ3605- ■ EK23- ■ ■ J2 -Z**	–
	6.5	1180	222	16300	1.2	58	**2KJ3605- ■ EK23- ■ ■ H2 -Z**	–
	7.1	1090	203.36	16300	1.3	58	**2KJ3605- ■ EK23- ■ ■ G2 -Z**	–
	8.4	915	170.62	16300	1.5	58	**2KJ3605- ■ EK23- ■ ■ F2 -Z**	–
	9	860	160.59	16300	1.5	58	**2KJ3605- ■ EK23- ■ ■ E2 -Z**	–
	9.8	790	147.33	16300	1.6	58	**2KJ3605- ■ EK23- ■ ■ D2 -Z**	–
	11	690	128.7	16300	1.7	58	**2KJ3605- ■ EK23- ■ ■ C2 -Z**	–
	12	615	115.23	16300	1.8	58	**2KJ3605- ■ EK23- ■ ■ B2 -Z**	–
	14	540	100.75	16300	2	58	**2KJ3605- ■ EK23- ■ ■ A2 -Z**	–
	17	460	86.48	16300	2.1	58	**2KJ3605- ■ EK23- ■ ■ X1 -Z**	–
	19	410	76.44	16300	2.3	58	**2KJ3605- ■ EK23- ■ ■ W1 -Z**	–
	C.69-LE90SM4P							
	11	695	129	9720	0.82	36	**2KJ3604- ■ EK23- ■ ■ C2 -Z**	–
	13	615	114.21	9620	0.87	36	**2KJ3604- ■ EK23- ■ ■ B2 -Z**	–
	14	645	102.5	8550	1	36	**2KJ3604- ■ EK23- ■ ■ A2 -Z**	–
	16	565	90	8500	1.2	36	**2KJ3604- ■ EK23- ■ ■ X1 -Z**	–
	18	515	81.82	8430	1.3	36	**2KJ3604- ■ EK23- ■ ■ W1 -Z**	–
	21	440	70	8300	1.5	36	**2KJ3604- ■ EK23- ■ ■ V1 -Z**	–
	23	405	63.64	8170	1.6	36	**2KJ3604- ■ EK23- ■ ■ U1 -Z**	–
	26	355	56.25	8040	1.7	36	**2KJ3604- ■ EK23- ■ ■ T1 -Z**	–
	28	325	51.14	7910	1.8	36	**2KJ3604- ■ EK23- ■ ■ S1 -Z**	–
	32	285	44.79	7720	1.9	36	**2KJ3604- ■ EK23- ■ ■ R1 -Z**	–
	35	260	41.35	7620	2	36	**2KJ3604- ■ EK23- ■ ■ Q1 -Z**	–
	39	230	36.61	7440	2.1	36	**2KJ3604- ■ EK23- ■ ■ P1 -Z**	–
	48	198	30	6930	2.8	36	**2KJ3604- ■ EK23- ■ ■ N1 -Z**	–
	91	106	15.88	5890	3.4	36	**2KJ3604- ■ EK23- ■ ■ H1 -Z**	–
	C.49-LE90SM4P							
	20	390	73.12	5300	0.8	27	**2KJ3603- ■ EK23- ■ ■ A2 -Z**	–
	21	370	68.82	5280	0.82	27	**2KJ3603- ■ EK23- ■ ■ X1 -Z**	–
	24	325	60.67	5260	0.87	27	**2KJ3603- ■ EK23- ■ ■ W1 -Z**	–
	27	280	52.65	5220	0.95	27	**2KJ3603- ■ EK23- ■ ■ V1 -Z**	–
	29	320	49.87	4280	0.99	27	**2KJ3603- ■ EK23- ■ ■ U1 -Z**	–
	33	280	43.27	4300	1.2	27	**2KJ3603- ■ EK23- ■ ■ T1 -Z**	–
	37	255	39.33	4300	1.6	27	**2KJ3603- ■ EK23- ■ ■ S1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.1	**C.49-LE90SM4P**							
	43	220	33.73	4270	1.7	27	**2KJ3603- ■ EK23- ■ ■ R1 -Z**	–
	47	200	30.67	4250	1.9	27	**2KJ3603- ■ EK23- ■ ■ Q1 -Z**	–
	54	176	26.89	4200	2.1	27	**2KJ3603- ■ EK23- ■ ■ P1 -Z**	–
	60	157	24	4150	2.2	27	**2KJ3603- ■ EK23- ■ ■ N1 -Z**	–
	67	140	21.39	4090	2.4	27	**2KJ3603- ■ EK23- ■ ■ M1 -Z**	–
	73	129	19.74	4040	2.5	27	**2KJ3603- ■ EK23- ■ ■ L1 -Z**	–
	83	113	17.29	3950	2.7	27	**2KJ3603- ■ EK23- ■ ■ K1 -Z**	–
	95	99	15.16	3860	2.9	27	**2KJ3603- ■ EK23- ■ ■ J1 -Z**	–
	105	90	13.75	3790	3.1	27	**2KJ3603- ■ EK23- ■ ■ H1 -Z**	–
	111	84	12.94	3750	3.2	27	**2KJ3603- ■ EK23- ■ ■ G1 -Z**	–
	126	74	11.41	3650	3.4	27	**2KJ3603- ■ EK23- ■ ■ F1 -Z**	–
	145	65	9.9	3520	3.8	27	**2KJ3603- ■ EK23- ■ ■ E1 -Z**	–
	C.39A-LE90SM4P							
	43	215	33.73	2050	0.92	23	**2KJ3642- ■ EK23- ■ ■ R1 -Z**	–
	44	215	32.64	1260	0.99	23	**2KJ3642- ■ EK23- ■ ■ Q1 -Z**	–
	51	189	28.32	1560	1.2	23	**2KJ3642- ■ EK23- ■ ■ P1 -Z**	–
	56	171	25.75	1800	1.4	23	**2KJ3642- ■ EK23- ■ ■ N1 -Z**	–
	65	147	22.08	2020	1.6	23	**2KJ3642- ■ EK23- ■ ■ M1 -Z**	–
	72	134	20.07	2050	1.8	23	**2KJ3642- ■ EK23- ■ ■ L1 -Z**	–
	82	118	17.6	2080	1.9	23	**2KJ3642- ■ EK23- ■ ■ K1 -Z**	–
	92	105	15.71	2100	2.1	23	**2KJ3642- ■ EK23- ■ ■ J1 -Z**	–
	103	93	14	2110	2.2	23	**2KJ3642- ■ EK23- ■ ■ H1 -Z**	–
	111	86	12.92	2100	2.3	23	**2KJ3642- ■ EK23- ■ ■ G1 -Z**	–
	127	76	11.31	2080	2.5	23	**2KJ3642- ■ EK23- ■ ■ F1 -Z**	–
	145	66	9.92	2070	2.7	23	**2KJ3642- ■ EK23- ■ ■ E1 -Z**	–
	160	60	9	2050	2.9	23	**2KJ3642- ■ EK23- ■ ■ D1 -Z**	–
	170	56	8.47	2040	3	23	**2KJ3642- ■ EK23- ■ ■ C1 -Z**	–
	193	50	7.47	1990	3.3	23	**2KJ3642- ■ EK23- ■ ■ B1 -Z**	–
	222	43	6.48	1950	3.6	23	**2KJ3642- ■ EK23- ■ ■ A1 -Z**	–
	C.29-LE90SM4P							
	92	105	15.71	3600	0.88	17	**2KJ3601- ■ EK23- ■ ■ J1 -Z**	–
	103	94	14	3570	0.99	17	**2KJ3601- ■ EK23- ■ ■ H1 -Z**	–
	111	86	12.92	3560	1.1	17	**2KJ3601- ■ EK23- ■ ■ G1 -Z**	–
	127	76	11.31	3490	1.2	17	**2KJ3601- ■ EK23- ■ ■ F1 -Z**	–
	145	66	9.92	3440	1.4	17	**2KJ3601- ■ EK23- ■ ■ E1 -Z**	–
	160	60	9	3390	1.5	17	**2KJ3601- ■ EK23- ■ ■ D1 -Z**	–
	170	57	8.47	3340	1.6	17	**2KJ3601- ■ EK23- ■ ■ C1 -Z**	–
	193	50	7.47	3270	1.7	17	**2KJ3601- ■ EK23- ■ ■ B1 -Z**	–
	222	43	6.48	3190	1.9	17	**2KJ3601- ■ EK23- ■ ■ A1 -Z**	–
1.5	**C.89-LE90ZLR4P**							
	6	1740	240.5	15800	0.83	61	**2KJ3605- ■ EM23- ■ ■ J2 -Z**	–
	6.5	1610	222	16000	0.9	61	**2KJ3605- ■ EM23- ■ ■ H2 -Z**	–
	7.1	1480	203.36	16200	0.98	61	**2KJ3605- ■ EM23- ■ ■ G2 -Z**	–
	8.5	1240	170.62	16300	1.1	61	**2KJ3605- ■ EM23- ■ ■ F2 -Z**	–
	9	1170	160.59	16300	1.1	61	**2KJ3605- ■ EM23- ■ ■ E2 -Z**	–
	9.8	1070	147.33	16300	1.2	61	**2KJ3605- ■ EM23- ■ ■ D2 -Z**	–
	11	935	128.7	16300	1.3	61	**2KJ3605- ■ EM23- ■ ■ C2 -Z**	–
	13	840	115.23	16300	1.3	61	**2KJ3605- ■ EM23- ■ ■ B2 -Z**	–
	14	735	100.75	16300	1.4	61	**2KJ3605- ■ EM23- ■ ■ A2 -Z**	–
	17	630	86.48	16200	1.6	61	**2KJ3605- ■ EM23- ■ ■ X1 -Z**	–
	19	555	76.44	15800	1.7	61	**2KJ3605- ■ EM23- ■ ■ W1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**C.69-LE90ZLR4P**							
	16	770	90	7250	0.87	39	**2KJ3604- ■ EM23- ■ ■ X1 -Z**	–
	18	700	81.82	7300	0.96	39	**2KJ3604- ■ EM23- ■ ■ W1 -Z**	–
	21	600	70	7320	1.1	39	**2KJ3604- ■ EM23- ■ ■ V1 -Z**	–
	23	550	63.64	7280	1.2	39	**2KJ3604- ■ EM23- ■ ■ U1 -Z**	–
	26	485	56.25	7250	1.3	39	**2KJ3604- ■ EM23- ■ ■ T1 -Z**	–
	28	440	51.14	7200	1.3	39	**2KJ3604- ■ EM23- ■ ■ S1 -Z**	–
	32	385	44.79	7110	1.4	39	**2KJ3604- ■ EM23- ■ ■ R1 -Z**	–
	35	355	41.35	7040	1.5	39	**2KJ3604- ■ EM23- ■ ■ Q1 -Z**	–
	39	315	36.61	6920	1.6	39	**2KJ3604- ■ EM23- ■ ■ P1 -Z**	–
	48	265	30	6470	2	39	**2KJ3604- ■ EM23- ■ ■ N1 -Z**	–
	55	235	26.28	6320	2.2	39	**2KJ3604- ■ EM23- ■ ■ M1 -Z**	–
	60	215	24.26	6240	2.3	39	**2KJ3604- ■ EM23- ■ ■ L1 -Z**	–
	67	193	21.48	6080	2.5	39	**2KJ3604- ■ EM23- ■ ■ K1 -Z**	–
	81	160	17.88	5870	2.7	39	**2KJ3604- ■ EM23- ■ ■ J1 -Z**	–
	91	144	15.88	5600	2.5	39	**2KJ3604- ■ EM23- ■ ■ H1 -Z**	–
	103	128	14.06	5450	2.8	39	**2KJ3604- ■ EM23- ■ ■ G1 -Z**	–
	124	106	11.7	5230	3.4	39	**2KJ3604- ■ EM23- ■ ■ F1 -Z**	–
	131	100	11.01	5160	3.6	39	**2KJ3604- ■ EM23- ■ ■ E1 -Z**	–
	146	90	9.87	5020	4	39	**2KJ3604- ■ EM23- ■ ■ D1 -Z**	–
	C.49-LE90ZLR4P							
	33	380	43.27	3450	0.91	30	**2KJ3603- ■ EM23- ■ ■ T1 -Z**	–
	37	345	39.33	3530	1.1	30	**2KJ3603- ■ EM23- ■ ■ S1 -Z**	–
	43	295	33.73	3640	1.3	30	**2KJ3603- ■ EM23- ■ ■ R1 -Z**	–
	47	270	30.67	3650	1.4	30	**2KJ3603- ■ EM23- ■ ■ Q1 -Z**	–
	54	235	26.89	3700	1.5	30	**2KJ3603- ■ EM23- ■ ■ P1 -Z**	–
	60	210	24	3690	1.6	30	**2KJ3603- ■ EM23- ■ ■ N1 -Z**	–
	68	190	21.39	3660	1.7	30	**2KJ3603- ■ EM23- ■ ■ M1 -Z**	–
	73	175	19.74	3650	1.8	30	**2KJ3603- ■ EM23- ■ ■ L1 -Z**	–
	84	153	17.29	3610	2	30	**2KJ3603- ■ EM23- ■ ■ K1 -Z**	–
	95	135	15.16	3550	2.1	30	**2KJ3603- ■ EM23- ■ ■ J1 -Z**	–
	105	122	13.75	3510	2.3	30	**2KJ3603- ■ EM23- ■ ■ H1 -Z**	–
	112	115	12.94	3480	2.4	30	**2KJ3603- ■ EM23- ■ ■ G1 -Z**	–
	127	101	11.41	3410	2.5	30	**2KJ3603- ■ EM23- ■ ■ F1 -Z**	–
	146	88	9.9	3330	2.8	30	**2KJ3603- ■ EM23- ■ ■ E1 -Z**	–
	161	82	9	3180	3.1	30	**2KJ3603- ■ EM23- ■ ■ D1 -Z**	–
	171	77	8.47	3150	3.3	30	**2KJ3603- ■ EM23- ■ ■ C1 -Z**	–
	193	68	7.47	3070	3.6	30	**2KJ3603- ■ EM23- ■ ■ B1 -Z**	–
	223	59	6.48	2980	3.9	30	**2KJ3603- ■ EM23- ■ ■ A1 -Z**	–
	C.39A-LE90ZLR4P							
	51	255	28.32	0	0.92	26	**2KJ3642- ■ EM23- ■ ■ P1 -Z**	–
	56	230	25.75	315	1	26	**2KJ3642- ■ EM23- ■ ■ N1 -Z**	–
	65	200	22.08	715	1.2	26	**2KJ3642- ■ EM23- ■ ■ M1 -Z**	–
	72	182	20.07	960	1.3	26	**2KJ3642- ■ EM23- ■ ■ L1 -Z**	–
	82	160	17.6	1250	1.4	26	**2KJ3642- ■ EM23- ■ ■ K1 -Z**	–
	92	142	15.71	1490	1.5	26	**2KJ3642- ■ EM23- ■ ■ J1 -Z**	–
	103	127	14	1670	1.6	26	**2KJ3642- ■ EM23- ■ ■ H1 -Z**	–
	112	117	12.92	1750	1.7	26	**2KJ3642- ■ EM23- ■ ■ G1 -Z**	–
	128	103	11.31	1780	1.9	26	**2KJ3642- ■ EM23- ■ ■ F1 -Z**	–
	146	90	9.92	1800	2	26	**2KJ3642- ■ EM23- ■ ■ E1 -Z**	–
	161	82	9	1800	2.1	26	**2KJ3642- ■ EM23- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
1.5	**C.39A-LE90ZLR4P**							
	171	77	8.47	1800	2.2	26	**2KJ3642- ■ EM23- ■ ■ C1 -Z**	–
	193	68	7.47	1790	2.4	26	**2KJ3642- ■ EM23- ■ ■ B1 -Z**	–
	223	59	6.48	1770	2.6	26	**2KJ3642- ■ EM23- ■ ■ A1 -Z**	–
	C.29-LE90ZLR4P							
	128	103	11.31	3100	0.91	20	**2KJ3601- ■ EM23- ■ ■ F1 -Z**	–
	146	90	9.92	3090	1	20	**2KJ3601- ■ EM23- ■ ■ E1 -Z**	–
	161	82	9	3060	1.1	20	**2KJ3601- ■ EM23- ■ ■ D1 -Z**	–
	171	77	8.47	3050	1.2	20	**2KJ3601- ■ EM23- ■ ■ C1 -Z**	–
	193	68	7.47	3010	1.3	20	**2KJ3601- ■ EM23- ■ ■ B1 -Z**	–
	223	59	6.48	2950	1.4	20	**2KJ3601- ■ EM23- ■ ■ A1 -Z**	–
2.2	**C.89-LE100ZLSA4P**							
	9.9	1550	147.33	15800	0.82	77	**2KJ3605- ■ FN23- ■ ■ D2 -Z**	–
	11	1350	128.7	15700	0.87	77	**2KJ3605- ■ FN23- ■ ■ C2 -Z**	–
	13	1210	115.23	15500	0.92	77	**2KJ3605- ■ FN23- ■ ■ B2 -Z**	–
	15	1060	100.75	15200	0.99	77	**2KJ3605- ■ FN23- ■ ■ A2 -Z**	–
	17	910	86.48	14900	1.1	77	**2KJ3605- ■ FN23- ■ ■ X1 -Z**	–
	19	805	76.44	14600	1.1	77	**2KJ3605- ■ FN23- ■ ■ W1 -Z**	–
	23	680	65	14200	1.3	77	**2KJ3605- ■ FN23- ■ ■ V1 -Z**	–
	26	720	55.61	12500	2	77	**2KJ3605- ■ FN23- ■ ■ U1 -Z**	–
	29	645	50	12300	2.2	77	**2KJ3605- ■ FN23- ■ ■ T1 -Z**	–
	32	585	45.22	12100	2.4	77	**2KJ3605- ■ FN23- ■ ■ S1 -Z**	–
	35	540	41.74	11900	2.5	77	**2KJ3605- ■ FN23- ■ ■ R1 -Z**	–
	38	495	38.24	11700	2.6	77	**2KJ3605- ■ FN23- ■ ■ Q1 -Z**	–
	C.69-LE100ZLSA4P							
	26	700	56.25	5900	0.87	57	**2KJ3604- ■ FN23- ■ ■ T1 -Z**	–
	29	640	51.14	5940	0.9	57	**2KJ3604- ■ FN23- ■ ■ S1 -Z**	–
	33	560	44.79	6000	0.97	57	**2KJ3604- ■ FN23- ■ ■ R1 -Z**	–
	35	515	41.35	6030	1	57	**2KJ3604- ■ FN23- ■ ■ Q1 -Z**	–
	40	455	36.61	6030	1.1	57	**2KJ3604- ■ FN23- ■ ■ P1 -Z**	–
	49	385	30	5630	1.4	57	**2KJ3604- ■ FN23- ■ ■ N1 -Z**	–
	56	340	26.28	5570	1.5	57	**2KJ3604- ■ FN23- ■ ■ M1 -Z**	–
	60	315	24.26	5540	1.6	57	**2KJ3604- ■ FN23- ■ ■ L1 -Z**	–
	68	275	21.48	5500	1.7	57	**2KJ3604- ■ FN23- ■ ■ K1 -Z**	–
	82	230	17.88	5370	1.9	57	**2KJ3604- ■ FN23- ■ ■ J1 -Z**	–
	92	205	15.88	5110	1.7	57	**2KJ3604- ■ FN23- ■ ■ H1 -Z**	–
	104	185	14.06	4990	1.9	57	**2KJ3604- ■ FN23- ■ ■ G1 -Z**	–
	125	154	11.7	4850	2.3	57	**2KJ3604- ■ FN23- ■ ■ F1 -Z**	–
	133	145	11.01	4790	2.5	57	**2KJ3604- ■ FN23- ■ ■ E1 -Z**	–
	148	130	9.87	4700	2.8	57	**2KJ3604- ■ FN23- ■ ■ D1 -Z**	–
	174	110	8.4	4550	3.3	57	**2KJ3604- ■ FN23- ■ ■ C1 -Z**	–
	203	95	7.2	4390	3.8	57	**2KJ3604- ■ FN23- ■ ■ B1 -Z**	–
	236	82	6.2	4240	4.3	57	**2KJ3604- ■ FN23- ■ ■ A1 -Z**	–
	C.49-LE100ZLSA4P							
	54	345	26.89	2740	1	48	**2KJ3603- ■ FN23- ■ ■ P1 -Z**	–
	61	305	24	2870	1.1	48	**2KJ3603- ■ FN23- ■ ■ N1 -Z**	–
	68	275	21.39	2920	1.2	48	**2KJ3603- ■ FN23- ■ ■ M1 -Z**	–
	74	250	19.74	2990	1.2	48	**2KJ3603- ■ FN23- ■ ■ L1 -Z**	–
	85	220	17.29	3020	1.4	48	**2KJ3603- ■ FN23- ■ ■ K1 -Z**	–
	97	195	15.16	3020	1.5	48	**2KJ3603- ■ FN23- ■ ■ J1 -Z**	–
	107	177	13.75	3030	1.6	48	**2KJ3603- ■ FN23- ■ ■ H1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
2.2	**C.49-LE100ZLSA4P**							
	113	166	12.94	3030	1.6	48	**2KJ3603- ■ FN23- ■ ■ G1 -Z**	–
	128	146	11.41	3010	1.7	48	**2KJ3603- ■ FN23- ■ ■ F1 -Z**	–
	148	127	9.9	2980	1.9	48	**2KJ3603- ■ FN23- ■ ■ E1 -Z**	–
	163	118	9	2830	2.2	48	**2KJ3603- ■ FN23- ■ ■ D1 -Z**	–
	173	111	8.47	2810	2.3	48	**2KJ3603- ■ FN23- ■ ■ C1 -Z**	–
	196	98	7.47	2770	2.4	48	**2KJ3603- ■ FN23- ■ ■ B1 -Z**	–
	226	85	6.48	2730	2.7	48	**2KJ3603- ■ FN23- ■ ■ A1 -Z**	–
	C.39A-LE100ZLSA4P							
	83	230	17.6	0	0.97	40	**2KJ3642- ■ FN23- ■ ■ K1 -Z**	–
	93	205	15.71	0	1	40	**2KJ3642- ■ FN23- ■ ■ J1 -Z**	–
	105	184	14	170	1.1	40	**2KJ3642- ■ FN23- ■ ■ H1 -Z**	–
	113	170	12.92	375	1.2	40	**2KJ3642- ■ FN23- ■ ■ G1 -Z**	–
	130	148	11.31	705	1.3	40	**2KJ3642- ■ FN23- ■ ■ F1 -Z**	–
	148	130	9.92	955	1.4	40	**2KJ3642- ■ FN23- ■ ■ E1 -Z**	–
	163	118	9	1110	1.5	40	**2KJ3642- ■ FN23- ■ ■ D1 -Z**	–
	173	111	8.47	1210	1.5	40	**2KJ3642- ■ FN23- ■ ■ C1 -Z**	–
	196	98	7.47	1370	1.7	40	**2KJ3642- ■ FN23- ■ ■ B1 -Z**	–
	226	85	6.48	1470	1.8	40	**2KJ3642- ■ FN23- ■ ■ A1 -Z**	–
3	**C.89-LE100ZLSB4P**							
	19	1100	76.44	13300	0.84	77	**2KJ3605- ■ FP23- ■ ■ W1 -Z**	–
	22	935	65	13100	0.92	77	**2KJ3605- ■ FP23- ■ ■ V1 -Z**	–
	26	985	55.61	11100	1.5	77	**2KJ3605- ■ FP23- ■ ■ U1 -Z**	–
	29	885	50	11000	1.6	77	**2KJ3605- ■ FP23- ■ ■ T1 -Z**	–
	32	800	45.22	11000	1.7	77	**2KJ3605- ■ FP23- ■ ■ S1 -Z**	–
	35	740	41.74	10900	1.8	77	**2KJ3605- ■ FP23- ■ ■ R1 -Z**	–
	38	675	38.24	10800	1.9	77	**2KJ3605- ■ FP23- ■ ■ Q1 -Z**	–
	46	570	32.08	10500	2.1	77	**2KJ3605- ■ FP23- ■ ■ P1 -Z**	–
	48	535	30.2	10400	2.2	77	**2KJ3605- ■ FP23- ■ ■ N1 -Z**	–
	53	490	27.7	10300	2.3	77	**2KJ3605- ■ FP23- ■ ■ M1 -Z**	–
	58	455	25.03	9830	2.4	77	**2KJ3605- ■ FP23- ■ ■ L1 -Z**	–
	70	380	21	9560	2.8	77	**2KJ3605- ■ FP23- ■ ■ K1 -Z**	–
	74	360	19.76	9450	3.1	77	**2KJ3605- ■ FP23- ■ ■ J1 -Z**	–
	C.69-LE100ZLSB4P							
	40	625	36.61	5010	0.8	57	**2KJ3604- ■ FP23- ■ ■ P1 -Z**	–
	49	530	30	4660	1	57	**2KJ3604- ■ FP23- ■ ■ N1 -Z**	–
	56	465	26.28	4740	1.1	57	**2KJ3604- ■ FP23- ■ ■ M1 -Z**	–
	60	430	24.26	4770	1.1	57	**2KJ3604- ■ FP23- ■ ■ L1 -Z**	–
	68	380	21.48	4800	1.2	57	**2KJ3604- ■ FP23- ■ ■ K1 -Z**	–
	82	315	17.88	4800	1.4	57	**2KJ3604- ■ FP23- ■ ■ J1 -Z**	–
	92	285	15.88	4520	1.3	57	**2KJ3604- ■ FP23- ■ ■ H1 -Z**	–
	104	250	14.06	4510	1.4	57	**2KJ3604- ■ FP23- ■ ■ G1 -Z**	–
	125	210	11.7	4430	1.7	57	**2KJ3604- ■ FP23- ■ ■ F1 -Z**	–
	133	198	11.01	4400	1.8	57	**2KJ3604- ■ FP23- ■ ■ E1 -Z**	–
	148	178	9.87	4340	2	57	**2KJ3604- ■ FP23- ■ ■ D1 -Z**	–
	174	151	8.4	4250	2.4	57	**2KJ3604- ■ FP23- ■ ■ C1 -Z**	–
	203	130	7.2	4140	2.8	57	**2KJ3604- ■ FP23- ■ ■ B1 -Z**	–
	235	112	6.2	4020	3.1	57	**2KJ3604- ■ FP23- ■ ■ A1 -Z**	–
	C.49-LE100ZLSB4P							
	61	420	24	1920	0.82	48	**2KJ3603- ■ FP23- ■ ■ N1 -Z**	–
	68	375	21.39	2080	0.88	48	**2KJ3603- ■ FP23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
3	**C.49-LE100ZLSB4P**							
	74	345	19.74	2190	0.91	48	**2KJ3603- ■ FP23- ■ ■ L1 -Z**	–
	84	300	17.29	2350	0.99	48	**2KJ3603- ■ FP23- ■ ■ K1 -Z**	–
	96	265	15.16	2440	1.1	48	**2KJ3603- ■ FP23- ■ ■ J1 -Z**	–
	106	240	13.75	2500	1.1	48	**2KJ3603- ■ FP23- ■ ■ H1 -Z**	–
	113	225	12.94	2530	1.2	48	**2KJ3603- ■ FP23- ■ ■ G1 -Z**	–
	128	200	11.41	2560	1.3	48	**2KJ3603- ■ FP23- ■ ■ F1 -Z**	–
	147	174	9.9	2590	1.4	48	**2KJ3603- ■ FP23- ■ ■ E1 -Z**	–
	162	162	9	2420	1.6	48	**2KJ3603- ■ FP23- ■ ■ D1 -Z**	–
	172	152	8.47	2440	1.7	48	**2KJ3603- ■ FP23- ■ ■ C1 -Z**	–
	195	134	7.47	2440	1.8	48	**2KJ3603- ■ FP23- ■ ■ B1 -Z**	–
	225	116	6.48	2440	2	48	**2KJ3603- ■ FP23- ■ ■ A1 -Z**	–
	C.39A-LE100ZLSB4P							
	104	250	14	0	0.82	40	**2KJ3642- ■ FP23- ■ ■ H1 -Z**	–
	113	230	12.92	0	0.86	40	**2KJ3642- ■ FP23- ■ ■ G1 -Z**	–
	129	200	11.31	0	0.93	40	**2KJ3642- ■ FP23- ■ ■ F1 -Z**	–
	147	178	9.92	0	1	40	**2KJ3642- ■ FP23- ■ ■ E1 -Z**	–
	162	162	9	1	1.1	40	**2KJ3642- ■ FP23- ■ ■ D1 -Z**	–
	172	152	8.47	131	1.1	40	**2KJ3642- ■ FP23- ■ ■ C1 -Z**	–
	195	134	7.47	405	1.2	40	**2KJ3642- ■ FP23- ■ ■ B1 -Z**	–
	225	116	6.48	675	1.3	40	**2KJ3642- ■ FP23- ■ ■ A1 -Z**	–
4	**C.89-LE112ZMKB4P**							
	26	1310	55.61	9370	1.1	77	**2KJ3605- ■ GJ23- ■ ■ U1 -Z**	–
	29	1180	50	9500	1.2	77	**2KJ3605- ■ GJ23- ■ ■ T1 -Z**	–
	32	1070	45.22	9560	1.3	77	**2KJ3605- ■ GJ23- ■ ■ S1 -Z**	–
	35	990	41.74	9590	1.4	77	**2KJ3605- ■ GJ23- ■ ■ R1 -Z**	–
	38	905	38.24	9610	1.4	77	**2KJ3605- ■ GJ23- ■ ■ Q1 -Z**	–
	46	760	32.08	9560	1.6	77	**2KJ3605- ■ GJ23- ■ ■ P1 -Z**	–
	48	715	30.2	9530	1.7	77	**2KJ3605- ■ GJ23- ■ ■ N1 -Z**	–
	53	655	27.7	9470	1.7	77	**2KJ3605- ■ GJ23- ■ ■ M1 -Z**	–
	58	605	25.03	8940	1.8	77	**2KJ3605- ■ GJ23- ■ ■ L1 -Z**	–
	70	510	21	8790	2.1	77	**2KJ3605- ■ GJ23- ■ ■ K1 -Z**	–
	74	480	19.76	8730	2.3	77	**2KJ3605- ■ GJ23- ■ ■ J1 -Z**	–
	81	440	18.13	8640	2.5	77	**2KJ3605- ■ GJ23- ■ ■ H1 -Z**	–
	92	385	15.84	8470	2.9	77	**2KJ3605- ■ GJ23- ■ ■ G1 -Z**	–
	103	340	14.18	8350	3.1	77	**2KJ3605- ■ GJ23- ■ ■ F1 -Z**	–
	118	300	12.4	8130	3.4	77	**2KJ3605- ■ GJ23- ■ ■ E1 -Z**	–
	137	255	10.64	7910	3.7	77	**2KJ3605- ■ GJ23- ■ ■ D1 -Z**	–
	155	225	9.41	7710	4	77	**2KJ3605- ■ GJ23- ■ ■ C1 -Z**	–
	182	194	8	7420	4.3	77	**2KJ3605- ■ GJ23- ■ ■ B1 -Z**	–
	213	167	6.86	7150	4.3	77	**2KJ3605- ■ GJ23- ■ ■ A1 -Z**	–
	C.69-LE112ZMKB4P							
	56	620	26.28	3700	0.83	58	**2KJ3604- ■ GJ23- ■ ■ M1 -Z**	–
	60	570	24.26	3830	0.86	58	**2KJ3604- ■ GJ23- ■ ■ L1 -Z**	–
	68	505	21.48	3960	0.93	58	**2KJ3604- ■ GJ23- ■ ■ K1 -Z**	–
	82	420	17.88	4100	1	58	**2KJ3604- ■ GJ23- ■ ■ J1 -Z**	–
	92	380	15.88	3800	0.94	58	**2KJ3604- ■ GJ23- ■ ■ H1 -Z**	–
	104	335	14.06	3880	1.1	58	**2KJ3604- ■ GJ23- ■ ■ G1 -Z**	–
	125	280	11.7	3910	1.3	58	**2KJ3604- ■ GJ23- ■ ■ F1 -Z**	–
	133	260	11.01	3940	1.4	58	**2KJ3604- ■ GJ23- ■ ■ E1 -Z**	–
	148	235	9.87	3910	1.5	58	**2KJ3604- ■ GJ23- ■ ■ D1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
4	**C.69-LE112ZMKB4P**							
	174	200	8.4	3880	1.8	58	**2KJ3604- ■ GJ23- ■ ■ C1 -Z**	–
	203	173	7.2	3810	2.1	58	**2KJ3604- ■ GJ23- ■ ■ B1 -Z**	–
	235	149	6.2	3740	2.3	58	**2KJ3604- ■ GJ23- ■ ■ A1 -Z**	–
	C.49-LE112ZMKB4P							
	96	355	15.16	1600	0.8	49	**2KJ3603- ■ GJ23- ■ ■ J1 -Z**	–
	106	320	13.75	1820	0.85	49	**2KJ3603- ■ GJ23- ■ ■ H1 -Z**	–
	113	300	12.94	1900	0.89	49	**2KJ3603- ■ GJ23- ■ ■ G1 -Z**	–
	128	265	11.41	2010	0.95	49	**2KJ3603- ■ GJ23- ■ ■ F1 -Z**	–
	147	230	9.9	2110	1	49	**2KJ3603- ■ GJ23- ■ ■ E1 -Z**	–
	162	215	9	1580	1.2	49	**2KJ3603- ■ GJ23- ■ ■ D1 -Z**	–
	172	200	8.47	1760	1.3	49	**2KJ3603- ■ GJ23- ■ ■ C1 -Z**	–
	195	179	7.47	1940	1.3	49	**2KJ3603- ■ GJ23- ■ ■ B1 -Z**	–
	225	155	6.48	2080	1.5	49	**2KJ3603- ■ GJ23- ■ ■ A1 -Z**	–
5.5	**C.89-LE132ZST4P**							
	38	1230	38.24	7840	1	108	**2KJ3605- ■ HJ23- ■ ■ Q1 -Z**	–
	46	1030	32.08	8090	1.2	108	**2KJ3605- ■ HJ23- ■ ■ P1 -Z**	–
	49	975	30.2	8110	1.2	108	**2KJ3605- ■ HJ23- ■ ■ N1 -Z**	–
	53	895	27.7	8160	1.3	108	**2KJ3605- ■ HJ23- ■ ■ M1 -Z**	–
	59	830	25.03	7570	1.3	108	**2KJ3605- ■ HJ23- ■ ■ L1 -Z**	–
	70	695	21	7660	1.5	108	**2KJ3605- ■ HJ23- ■ ■ K1 -Z**	–
	74	655	19.76	7670	1.7	108	**2KJ3605- ■ HJ23- ■ ■ J1 -Z**	–
	81	600	18.13	7670	1.8	108	**2KJ3605- ■ HJ23- ■ ■ H1 -Z**	–
	93	525	15.84	7620	2.1	108	**2KJ3605- ■ HJ23- ■ ■ G1 -Z**	–
	104	470	14.18	7560	2.3	108	**2KJ3605- ■ HJ23- ■ ■ F1 -Z**	–
	119	410	12.4	7460	2.5	108	**2KJ3605- ■ HJ23- ■ ■ E1 -Z**	–
	138	350	10.64	7320	2.7	108	**2KJ3605- ■ HJ23- ■ ■ D1 -Z**	–
	156	310	9.41	7180	2.9	108	**2KJ3605- ■ HJ23- ■ ■ C1 -Z**	–
	184	265	8	6970	3.1	108	**2KJ3605- ■ HJ23- ■ ■ B1 -Z**	–
	214	225	6.86	6780	3.1	108	**2KJ3605- ■ HJ23- ■ ■ A1 -Z**	–
	C.69-LE132ZST4P							
	126	380	11.7	3020	0.94	88	**2KJ3604- ■ HJ23- ■ ■ F1 -Z**	–
	134	360	11.01	3160	1	88	**2KJ3604- ■ HJ23- ■ ■ E1 -Z**	–
	149	320	9.87	3260	1.1	88	**2KJ3604- ■ HJ23- ■ ■ D1 -Z**	–
	175	275	8.4	3310	1.3	88	**2KJ3604- ■ HJ23- ■ ■ C1 -Z**	–
	204	235	7.2	3340	1.5	88	**2KJ3604- ■ HJ23- ■ ■ B1 -Z**	–
	237	200	6.2	3350	1.7	88	**2KJ3604- ■ HJ23- ■ ■ A1 -Z**	–
7.5	**C.89-LE132ZMS4P**							
	46	1420	32.08	6030	0.86	108	**2KJ3605- ■ HL23- ■ ■ P1 -Z**	–
	49	1330	30.2	6240	0.89	108	**2KJ3605- ■ HL23- ■ ■ N1 -Z**	–
	53	1220	27.7	6440	0.93	108	**2KJ3605- ■ HL23- ■ ■ M1 -Z**	–
	59	1130	25.03	4930	0.96	108	**2KJ3605- ■ HL23- ■ ■ L1 -Z**	–
	70	950	21	6070	1.1	108	**2KJ3605- ■ HL23- ■ ■ K1 -Z**	–
	74	895	19.76	6250	1.2	108	**2KJ3605- ■ HL23- ■ ■ J1 -Z**	–
	81	820	18.13	6370	1.3	108	**2KJ3605- ■ HL23- ■ ■ H1 -Z**	–
	92	715	15.84	6500	1.5	108	**2KJ3605- ■ HL23- ■ ■ G1 -Z**	–
	103	640	14.18	6560	1.6	108	**2KJ3605- ■ HL23- ■ ■ F1 -Z**	–
	118	560	12.4	6580	1.8	108	**2KJ3605- ■ HL23- ■ ■ E1 -Z**	–
	138	480	10.64	6560	2	108	**2KJ3605- ■ HL23- ■ ■ D1 -Z**	–
	156	425	9.41	6510	2.1	108	**2KJ3605- ■ HL23- ■ ■ C1 -Z**	–
	183	360	8	6420	2.3	108	**2KJ3605- ■ HL23- ■ ■ B1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
7.5	**C.89-LE132ZMS4P**							
	214	310	6.86	6290	2.3	108	**2KJ3605- ■ HL23- ■ ■ A1 -Z**	**–**
	C.69-LE132ZMS4P							
	148	440	9.87	1410	0.81	88	**2KJ3604- ■ HL23- ■ ■ D1 -Z**	**–**
	174	375	8.4	2000	0.96	88	**2KJ3604- ■ HL23- ■ ■ C1 -Z**	**–**
	203	320	7.2	2480	1.1	88	**2KJ3604- ■ HL23- ■ ■ B1 -Z**	**–**
	236	275	6.2	2790	1.3	88	**2KJ3604- ■ HL23- ■ ■ A1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.29													
265.20	5.5	108	4140	0.05	1326/5	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ M2**
230.10	6.3	108	4140	0.05	2301/10	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ L2**
209.18	6.9	109	4130	0.07	2301/11	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ K2**
179.40	8.1	110	4130	0.08	897/5	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ J2**
163.09	8.9	110	4130	0.10	1794/11	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ H2**
143.00	10	110	4130	0.11	143/1	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ G2**
127.64	11	110	4130	0.14	1404/11	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ F2**
113.75	13	110	4130	0.16	455/4	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ E2**
105.00	14	110	4130	0.20	105/1	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ D2**
91.93	16	110	4130	0.22	1287/14	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ C2**
80.60	18	110	4130	0.22	403/5	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ B2**
73.12	20	110	4130	0.28	585/8	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ A2**
68.82	21	110	4130	0.33	1170/17	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ X1**
60.67	24	110	4130	0.36	182/3	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ W1**
52.65	28	110	4130	0.48	1053/20	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ V1**
49.87	29	102	4170	0.05	748/15	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ U1**
43.27	34	103	4160	0.06	649/15	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ T1**
39.33	37	103	4160	0.07	118/3	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ S1**
33.73	43	104	4160	0.09	506/15	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ R1**
32.64	44	90	4230	0.05	816/25	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ Q1**
28.32	51	90	4230	0.06	708/25	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ P1**
25.75	56	91	4220	0.07	1416/55	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ N1**
22.08	66	91	4220	0.09	552/25	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ M1**
20.07	72	92	4200	0.11	1104/55	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ L1**
17.60	82	92	3970	0.13	88/5	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ K1**
15.71	92	92	3770	0.15	864/55	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ J1**
14.00	104	93	3560	0.18	14/1	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ H1**
12.92	112	93	3430	0.22	168/13	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ G1**
11.31	128	94	3210	0.25	396/35	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ F1**
9.92	146	94	3020	0.26	248/25	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ E1**
9.00	161	91	2960	0.33	9/1	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ D1**
8.47	171	90	2950	0.38	144/17	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ C1**
7.47	194	86	2920	0.43	112/15	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ B1**
6.48	224	82	2880	0.57	162/25	✓	✓	✓	✓				**2KJ3601 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.39A													
299.00	4.8	192	6180	0.04	299/1	✓	✓						**2KJ3642 - ■ ■■■■ - ■ ■ N2**
265.20	5.5	192	6180	0.05	1326/5	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ M2**
230.10	6.3	193	6180	0.06	2301/10	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ L2**
209.18	6.9	193	6180	0.07	2301/11	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ K2**
179.40	8.1	193	6180	0.09	897/5	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ J2**
163.09	8.9	193	6180	0.11	1794/11	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ H2**
143.00	10	194	6170	0.13	143/1	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ G2**
127.64	11	194	6170	0.16	1404/11	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ F2**
113.75	13	194	6170	0.19	455/4	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ E2**
105.00	14	194	6170	0.23	105/1	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ D2**
91.93	16	194	6170	0.27	1287/14	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ C2**
80.60	18	194	6170	0.26	403/5	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ B2**
73.12	20	194	6170	0.36	585/8	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ A2**
68.82	21	194	6170	0.43	1170/17	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ X1**
60.67	24	183	6210	0.47	182/3	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ W1**
52.65	28	170	6260	0.64	1053/20	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ V1**
49.87	29	198	6160	0.06	748/15	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ U1**
43.27	34	199	6150	0.07	649/15	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ T1**
39.33	37	200	6140	0.08	118/3	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ S1**
33.73	43	200	5730	0.11	506/15	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ R1**
32.64	44	215	5260	0.07	816/25	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ Q1**
28.32	51	235	4680	0.08	708/25	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ P1**
25.75	56	235	4450	0.10	1416/55	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ N1**
22.08	66	235	4100	0.13	552/25	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ M1**
20.07	72	235	3890	0.16	1104/55	✓	✓	✓	✓				**2KJ3642 - ■ ■■■■ - ■ ■ L1**
17.60	82	225	3720	0.19	88/5	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ K1**
15.71	92	215	3600	0.23	864/55	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ J1**
14.00	104	205	3490	0.28	14/1	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ H1**
12.92	112	199	3400	0.34	168/13	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ G1**
11.31	128	189	3270	0.41	396/35	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ F1**
9.92	146	181	3130	0.44	248/25	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ E1**
9.00	161	174	3040	0.59	9/1	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ D1**
8.47	171	170	3030	0.68	144/17	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ C1**
7.47	194	163	3050	0.81	112/15	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ B1**
6.48	224	154	3050	1.08	162/25	✓	✓	✓	✓	✓			**2KJ3642 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.49													
299.00	4.8	350	8410	0.04	299/1	✓	✓						**2KJ3603 - ■ ■■■■ - ■ ■ N2**
265.20	5.5	350	8410	0.05	1326/5	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ M2**
230.10	6.3	355	8400	0.07	2301/10	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ L2**
209.18	6.9	355	8400	0.08	2301/11	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ K2**
179.40	8.1	355	8260	0.10	897/5	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ J2**
163.09	8.9	355	7920	0.13	1794/11	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ H2**
143.00	10	355	7480	0.15	143/1	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ G2**
127.64	11	355	7110	0.18	1404/11	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ F2**
113.75	13	355	6760	0.22	455/4	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ E2**
105.00	14	355	6510	0.26	105/1	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ D2**
91.93	16	350	6160	0.32	1287/14	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ C2**
80.60	18	330	5930	0.32	403/5	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ B2**
73.12	20	315	5770	0.44	585/8	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ A2**
68.82	21	305	5680	0.51	1170/17	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ X1**
60.67	24	285	5500	0.58	182/3	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ W1**
52.65	28	265	5290	0.78	1053/20	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ V1**
49.87	29	320	4250	0.08	748/15	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ U1**
43.27	34	350	3680	0.10	649/15	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ T1**
39.33	37	400	3050	0.12	118/3	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ S1**
33.73	43	375	2940	0.15	506/15	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ R1**
30.67	47	385	2660	0.19	92/3	✓	✓	✓	✓				**2KJ3603 - ■ ■■■■ - ■ ■ Q1**
26.89	54	360	2620	0.23	242/9	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ P1**
24.00	60	345	2540	0.28	24/1	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ N1**
21.39	68	330	2460	0.34	385/18	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ M1**
19.74	73	315	2450	0.41	770/39	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ L1**
17.29	84	300	2350	0.51	121/7	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ K1**
15.16	96	285	2270	0.56	682/45	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ J1**
13.75	105	275	2200	0.73	55/4	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ H1**
12.94	112	270	2160	0.85	220/17	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ G1**
11.41	127	255	2100	1.02	308/27	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ F1**
9.90	146	245	1990	1.36	99/10	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ E1**
9.00	161	255	1140	1.03	9/1	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ D1**
8.47	171	255	1290	1.18	144/17	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ C1**
7.47	194	240	1580	1.45	112/15	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ B1**
6.48	224	230	1850	1.93	162/25	✓	✓	✓	✓	✓	✓		**2KJ3603 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.69													
360.00	4.0	675	10600	0.07	1079/3	✓	✓						**2KJ3604 - ■ ■■■■ - ■ ■ M2**
319.80	4.5	675	10600	0.09	1599/5	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ L2**
280.80	5.2	675	10600	0.11	1404/5	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ K2**
255.27	5.7	675	10600	0.13	2808/11	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ J2**
218.40	6.6	675	10600	0.16	1092/5	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ H2**
198.55	7.3	675	10600	0.19	2184/11	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ G2**
175.50	8.3	665	10600	0.23	351/2	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ F2**
159.55	9.1	640	10700	0.30	1755/11	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ E2**
139.75	10	590	10500	0.35	559/4	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ D2**
129.00	11	565	10300	0.42	129/1	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ C2**
114.21	13	535	9990	0.52	1599/14	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ B2**
102.50	14	675	8310	0.10	205/2	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ A2**
90.00	16	675	7790	0.12	90/1	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ X1**
81.82	18	675	7410	0.15	900/11	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ W1**
70.00	21	660	6920	0.18	70/1	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ V1**
63.64	23	640	6700	0.22	700/11	✓	✓	✓	✓				**2KJ3604 - ■ ■■■■ - ■ ■ U1**
56.25	26	610	6460	0.27	225/4	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ T1**
51.14	28	580	6320	0.34	1125/22	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ S1**
44.79	32	545	6110	0.41	1075/24	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ R1**
41.35	35	525	5980	0.49	1075/26	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ Q1**
36.61	40	500	5770	0.61	1025/28	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ P1**
30.00	48	545	4560	0.46	30/1	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ N1**
26.28	55	515	4410	0.56	473/18	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ M1**
24.26	60	500	4300	0.67	946/39	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ L1**
21.48	68	475	4160	0.83	451/21	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ K1**
17.88	81	440	3960	1.17	143/8	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ J1**
15.88	91	360	3950	0.88	1032/65	✓	✓	✓	✓	✓	✓		**2KJ3604 - ■ ■■■■ - ■ ■ H1**
14.06	103	355	3730	1.11	492/35	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ G1**
11.70	124	360	3310	1.56	117/10	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ F1**
11.01	132	360	3180	1.79	936/85	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ E1**
9.87	147	360	2890	2.10	148/15	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ D1**
8.40	173	360	3110	2.90	42/5	✓	✓	✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ C1**
7.20	201	360	3170	3.90	36/5			✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ B1**
6.20	234	355	3190	5.20	31/5			✓	✓	✓	✓	✓	**2KJ3604 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.89													
363.00	4	1450	16200	0.47	3627/10		✓	✓	✓				**2KJ3605 - ■ ■■■■ - ■ ■ N2**
329.73	4.4	1450	16200	0.57	3627/11		✓	✓	✓				**2KJ3605 - ■ ■■■■ - ■ ■ M2**
295.75	4.9	1450	16200	0.78	1183/4		✓	✓	✓	✓	✓		**2KJ3605 - ■ ■■■■ - ■ ■ L2**
265.91	5.5	1450	16200	0.89	2925/11		✓	✓	✓	✓	✓		**2KJ3605 - ■ ■■■■ - ■ ■ K2**
240.50	6	1450	16200	1.00	481/2		✓	✓	✓	✓	✓		**2KJ3605 - ■ ■■■■ - ■ ■ J2**
222.00	6.5	1450	16200	1.18	222/1		✓	✓	✓	✓	✓		**2KJ3605 - ■ ■■■■ - ■ ■ H2**
203.36	7.1	1450	16200	1.52	2847/14		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ G2**
170.62	8.5	1360	16300	1.67	1365/8		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ F2**
160.59	9	1330	16300	1.91	2730/17		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ E2**
147.33	9.8	1280	16300	2.10	442/3		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ D2**
128.70	11	1190	16300	3.00	1287/10		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ C2**
115.23	13	1120	15900	3.70	2535/22			✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ B2**
100.75	14	1050	15300	4.40	403/4			✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ A2**
86.48	17	985	14600	4.90	1989/23			✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ X1**
76.44	19	930	14100	6.30	1911/25			✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ W1**
65.00	22	865	13400	8.10	65/1					✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ V1**
55.61	26	1450	8630	0.89	1001/18		✓	✓	✓	✓	✓		**2KJ3605 - ■ ■■■■ - ■ ■ U1**
50.00	29	1430	8160	1.02	50/1		✓	✓	✓	✓	✓		**2KJ3605 - ■ ■■■■ - ■ ■ T1**
45.22	32	1380	7910	1.15	407/9		✓	✓	✓	✓	✓		**2KJ3605 - ■ ■■■■ - ■ ■ S1**
41.74	35	1340	7720	1.35	1628/39		✓	✓	✓	✓	✓		**2KJ3605 - ■ ■■■■ - ■ ■ R1**
38.24	38	1300	7510	1.73	803/21		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ Q1**
32.08	45	1220	7110	1.97	385/12		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ P1**
30.20	48	1200	6950	2.20	1540/51		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ N1**
27.70	52	1140	6890	2.50	748/27		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ M1**
25.03	58	1090	5490	2.10	876/35		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ L1**
21.00	69	1070	4480	2.50	21/1		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ K1**
19.76	73	1120	3400	2.80	336/17		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ J1**
18.13	80	1110	3180	3.20	272/15		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ H1**
15.84	92	1110	4150	4.40	396/25		✓	✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ G1**
14.18	102	1070	4810	5.40	156/11			✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ F1**
12.40	117	1010	5490	6.60	62/5			✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ E1**
10.64	136	960	5620	8.00	1224/115			✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ D1**
9.41	154	915	5680	10.00	1176/125			✓	✓	✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ C1**
8.00	181	840	5710	14.00	8/1					✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ B1**
6.86	211	720	5690	18.00	48/7					✓	✓	✓	**2KJ3605 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.29-Z19													
1744	0.83	87	4240	0.02	1020272/585	✓	✓						**2KJ3620 - ■ ■■■■ - ■ ■ S1**
1544	0.94	87	4240	0.03	501908/325	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ R1**
1342	1.1	88	4240	0.04	436084/325	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ Q1**
1220	1.2	88	4240	0.05	79288/65	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ P1**
1038	1.4	89	4230	0.07	337348/325	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ N1**
944	1.5	90	4230	0.08	61336/65	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ M1**
823	1.8	90	4230	0.09	4114/5	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ L1**
736	2.0	91	4220	0.12	47872/65	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ K1**
654	2.2	91	4220	0.15	127534/195	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ J1**
604	2.4	91	4220	0.18	510136/845	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ H1**
524	2.8	92	4220	0.20	238612/455	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ G1**
456	3.2	93	4210	0.21	148104/325	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ F1**
411	3.5	93	4210	0.27	2057/5	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ E1**
387	3.7	93	4210	0.32	1936/5	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ D1**
337.56	4.3	94	4210	0.36	65824/195	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ C1**
311.44	4.7	94	4210	0.19	255068/819	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ B1**
270.54	5.4	95	4200	0.22	119306/441	✓	✓	✓					**2KJ3620 - ■ ■■■■ - ■ ■ A1**
C.29-D19													
9219	0.16	80	4280	0.02	37750064/4095	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ Q1**
8163	0.18	80	4280	0.03	18570596/2275	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ P1**
7092	0.20	81	4270	0.04	16135108/2275	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ N1**
6448	0.22	81	4270	0.04	2933656/455	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ M1**
5487	0.26	82	4270	0.06	12481876/2275	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ L1**
4988	0.29	82	4270	0.07	2269432/455	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ K1**
4349	0.33	83	4260	0.08	152218/35	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ J1**
3893	0.37	84	4260	0.11	1771264/455	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ H1**
3457	0.42	84	4260	0.13	4718758/1365	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ G1**
3191	0.45	84	4260	0.16	18875032/5915	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ F1**
2772	0.52	85	4250	0.17	8828644/3185	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ E1**
2409	0.60	86	4250	0.18	5479848/2275	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ D1**
2175	0.67	86	4250	0.22	76109/35	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ C1**
2047	0.71	86	4250	0.26	71632/35	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ B1**
1784	0.81	87	4240	0.29	2435488/1365	✓	✓						**2KJ3621 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.39A-Z19													
1744	0.83	169	6270	0.02	1020272/585	✓	✓						**2KJ3652 - ■ ■■■■ - ■ ■ S1**
1544	0.94	171	6260	0.03	501908/325	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ R1**
1342	1.1	173	6250	0.04	436084/325	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ Q1**
1220	1.2	173	6250	0.05	79288/65	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ P1**
1038	1.4	175	6240	0.07	337348/325	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ N1**
944	1.5	175	6240	0.08	61336/65	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ M1**
823	1.8	176	6240	0.09	4114/5	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ L1**
736	2.0	177	6240	0.12	47872/65	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ K1**
654	2.2	178	6230	0.15	127534/195	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ J1**
604	2.4	179	6230	0.18	510136/845	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ H1**
524	2.8	180	6230	0.20	238612/455	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ G1**
456	3.2	181	6220	0.21	148104/325	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ F1**
411	3.5	182	6220	0.27	2057/5	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ E1**
387	3.7	182	6220	0.32	1936/5	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ D1**
337.56	4.3	183	6210	0.36	65824/195	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ C1**
311.44	4.7	184	6210	0.19	255068/819	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ B1**
270.54	5.4	185	6210	0.22	119306/441	✓	✓	✓					**2KJ3652 - ■ ■■■■ - ■ ■ A1**
C.39A-D19													
11553	0.13	160	6300	0.06	150183/13	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ S1**
10502	0.14	160	6300	0.07	136530/13	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ R1**
9219	0.16	156	6320	0.02	37750064/4095	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ Q1**
8163	0.18	157	6310	0.03	18570596/2275	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ P1**
7092	0.20	157	6310	0.04	16135108/2275	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ N1**
6448	0.22	158	6310	0.04	2933656/455	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ M1**
5487	0.26	159	6300	0.06	12481876/2275	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ L1**
4988	0.29	159	6300	0.07	2269432/455	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ K1**
4349	0.33	160	6300	0.08	152218/35	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ J1**
3893	0.37	161	6300	0.11	1771264/455	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ H1**
3457	0.42	161	6300	0.13	4718758/1365	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ G1**
3191	0.45	162	6290	0.16	18875032/5915	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ F1**
2772	0.52	163	6290	0.17	8828644/3185	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ E1**
2409	0.60	165	6280	0.18	5479848/2275	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ D1**
2175	0.67	166	6280	0.22	76109/35	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ C1**
2047	0.71	167	6270	0.26	71632/35	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ B1**
1784	0.81	169	6270	0.29	2435488/1365	✓	✓						**2KJ3653 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.49-Z19													
2819	0.51	285	8600	0.02	42284/15	✓	✓						**2KJ3624 - ■ ■■■■ - ■ ■ V1**
2496	0.58	290	8590	0.03	62403/25	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ U1**
2169	0.67	295	8570	0.04	54219/25	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ T1**
1972	0.74	295	8570	0.05	9858/5	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ S1**
1678	0.86	305	8540	0.07	41943/25	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ R1**
1525	0.95	305	8540	0.08	7626/5	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ Q1**
1330	1.1	315	8510	0.10	13299/10	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ P1**
1190	1.2	320	8500	0.13	5952/5	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ N1**
1057	1.4	325	8480	0.15	10571/10	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ M1**
976	1.5	330	8470	0.18	63426/65	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ L1**
848	1.7	340	8440	0.21	29667/35	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ K1**
737	2.0	340	8440	0.21	18414/25	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ J1**
665	2.2	340	8440	0.27	13299/20	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ H1**
626	2.3	345	8430	0.32	53196/85	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ G1**
546	2.7	345	8430	0.37	2728/5	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ F1**
503	2.9	345	8430	0.20	10571/21	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ E1**
437	3.3	345	8430	0.23	128557/294	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ D1**
380	3.8	350	8410	0.24	13299/35	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ C1**
343.03	4.2	350	8410	0.31	57629/168	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ B1**
322.85	4.5	350	8410	0.36	115258/357	✓	✓	✓					**2KJ3624 - ■ ■■■■ - ■ ■ A1**
C.49-D19													
11463	0.13	270	8640	0.04	2006103/175	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ N1**
10421	0.14	270	8640	0.04	364746/35	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ M1**
8868	0.16	270	8640	0.06	1551891/175	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ L1**
8062	0.18	270	8640	0.07	282162/35	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ K1**
7029	0.21	275	8630	0.08	492063/70	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ J1**
6292	0.23	275	8630	0.11	220224/35	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ H1**
5588	0.26	275	8630	0.13	391127/70	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ G1**
5158	0.28	275	8630	0.16	2346762/455	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ F1**
4480	0.32	280	8610	0.17	1097679/245	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ E1**
3893	0.37	280	8730	0.18	681318/175	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ D1**
3515	0.41	280	8610	0.22	492063/140	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ C1**
3308	0.44	285	8600	0.26	1968252/595	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ B1**
2884	0.50	285	8600	0.29	100936/35	✓	✓						**2KJ3625 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.69-Z19													
3585	0.40	505	11000	0.02	139810/39	✓	✓						**2KJ3626 - ■ ■■■■ - ■ ■ V1**
3174	0.46	510	11000	0.03	82533/26	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ U1**
2758	0.53	510	11000	0.04	71709/26	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ T1**
2507	0.58	515	11000	0.05	32595/13	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ S1**
2134	0.68	515	11000	0.07	55473/26	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ R1**
1940	0.75	520	11000	0.08	25215/13	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ Q1**
1691	0.86	520	11000	0.09	6765/4	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ P1**
1514	0.96	525	11000	0.12	19680/13	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ N1**
1344	1.1	530	11000	0.15	69905/52	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ M1**
1241	1.2	530	11000	0.18	209715/169	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ L1**
1078	1.3	535	10900	0.20	196185/182	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ K1**
937	1.5	540	10900	0.21	12177/13	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ J1**
846	1.7	545	10900	0.27	6765/8	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ H1**
796	1.8	550	10900	0.32	13530/17	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ G1**
694	2.1	555	10900	0.36	9020/13	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ F1**
640	2.3	560	10900	0.19	349525/546	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ E1**
556	2.6	570	10900	0.22	326975/588	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ D1**
483	3.0	580	10800	0.23	6765/14	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ C1**
436	3.3	585	10800	0.29	146575/336	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ B1**
411	3.5	590	10800	0.35	146575/357	✓	✓	✓					**2KJ3626 - ■ ■■■■ - ■ ■ A1**
C.69-D19													
18949	0.08	495	11000	0.02	5172970/273	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ Q1**
16779	0.09	495	11000	0.03	3053721/182	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ P1**
14578	0.10	495	11000	0.04	2653233/182	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ N1**
13253	0.11	495	11000	0.04	1206015/91	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ M1**
11277	0.13	500	11000	0.06	2052501/182	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ L1**
10252	0.14	500	11000	0.07	932955/91	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ K1**
8939	0.16	500	11000	0.08	250305/28	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ J1**
8002	0.18	500	12200	0.11	728160/91	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ H1**
7106	0.20	500	11000	0.13	2586485/364	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ G1**
6559	0.22	500	11000	0.16	7759455/1183	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ F1**
5698	0.25	500	11000	0.17	7258845/1274	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ E1**
4951	0.29	505	11000	0.18	450549/91	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ D1**
4470	0.32	505	11000	0.22	250305/56	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ C1**
4207	0.34	505	11000	0.26	500610/119	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ B1**
3667	0.40	505	11000	0.29	333740/91	✓	✓						**2KJ3627 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No. (Article No. supplement, see below)
C.89-Z39													
3111	0.47	1120	16300	0.06	7560553/2430	✓	✓						**2KJ3628 - ■ ■■■■ - ■ ■ T1**
2766	0.52	1120	16300	0.07	3734731/1350	✓	✓	✓	✓				**2KJ3628 - ■ ■■■■ - ■ ■ S1**
2429	0.60	1130	16300	0.08	182182/75	✓	✓	✓	✓				**2KJ3628 - ■ ■■■■ - ■ ■ R1**
2208	0.66	1130	16300	0.10	33124/15	✓	✓	✓	✓				**2KJ3628 - ■ ■■■■ - ■ ■ Q1**
1889	0.77	1140	16300	0.12	1275274/675	✓	✓	✓	✓				**2KJ3628 - ■ ■■■■ - ■ ■ P1**
1718	0.84	1150	16300	0.14	231868/135	✓	✓	✓	✓				**2KJ3628 - ■ ■■■■ - ■ ■ N1**
1518	0.96	1150	16300	0.17	91091/60	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ M1**
1380	1.1	1160	16300	0.22	8281/6	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ L1**
1209	1.2	1170	16300	0.26	3916913/3240	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ K1**
1116	1.3	1170	16300	0.31	303301/270	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ J1**
988	1.5	1180	16300	0.36	533533/540	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ H1**
822	1.8	1200	16300	0.48	1184183/1440	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ G1**
774	1.9	1210	16300	0.56	1184183/1530	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ F1**
693	2.1	1220	16300	0.61	3370367/4860	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ E1**
590	2.5	1230	16300	0.79	637637/1080	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ D1**
506	2.9	1260	16300	1.03	91091/180			✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ C1**
436	3.3	1280	16300	1.31	2823821/6480			✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ B1**
360	4.0	1310	16300	0.59	793793/2208	✓	✓	✓	✓	✓			**2KJ3628 - ■ ■■■■ - ■ ■ A1**
C.89-D39													
18243	0.08	850	16300	0.05	93039401/5100	✓	✓	✓	✓				**2KJ3630 - ■ ■■■■ - ■ ■ R1**
16585	0.09	855	16300	0.07	93039401/5610	✓	✓	✓	✓				**2KJ3630 - ■ ■■■■ - ■ ■ Q1**
14223	0.10	860	16300	0.08	36269597/2550	✓	✓	✓	✓				**2KJ3630 - ■ ■■■■ - ■ ■ P1**
13085	0.11	1100	16300	0.03	90088999/6885	✓	✓						**2KJ3630 - ■ ■■■■ - ■ ■ N1**
11606	0.12	1100	16300	0.05	7833826/675	✓	✓	✓	✓				**2KJ3630 - ■ ■■■■ - ■ ■ M1**
10070	0.14	1100	16300	0.05	231097867/22950	✓	✓	✓	✓				**2KJ3630 - ■ ■■■■ - ■ ■ L1**
9154	0.16	1100	16300	0.07	21008897/2295	✓	✓	✓	✓				**2KJ3630 - ■ ■■■■ - ■ ■ K1**
7851	0.18	1100	16300	0.08	90088999/11475	✓	✓	✓	✓				**2KJ3630 - ■ ■■■■ - ■ ■ J1**
7137	0.20	1100	16300	0.10	16379818/2295	✓	✓	✓	✓				**2KJ3630 - ■ ■■■■ - ■ ■ H1**
6258	0.23	1110	16300	0.12	43086043/6885	✓	✓	✓	✓	✓			**2KJ3630 - ■ ■■■■ - ■ ■ G1**
5586	0.26	1110	16300	0.15	1424332/255	✓	✓	✓	✓	✓			**2KJ3630 - ■ ■■■■ - ■ ■ F1**
4978	0.29	1110	16300	0.17	27418391/5508	✓	✓	✓	✓	✓			**2KJ3630 - ■ ■■■■ - ■ ■ E1**
4595	0.32	1110	16300	0.21	2109107/459	✓	✓	✓	✓	✓			**2KJ3630 - ■ ■■■■ - ■ ■ D1**
4023	0.36	1110	16300	0.25	6155149/1530	✓	✓	✓	✓	✓			**2KJ3630 - ■ ■■■■ - ■ ■ C1**
3527	0.41	1120	16300	0.23	121424303/34425	✓	✓	✓	✓	✓			**2KJ3630 - ■ ■■■■ - ■ ■ B1**
3200	0.45	1120	16300	0.33	3916913/1224	✓	✓	✓	✓	✓			**2KJ3630 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

	n_{mot} = 2800 rpm				n_{mot} =1400 rpm				n_{mot} = 900 rpm				
i –	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	**Article No.** (Article No. supplement, see below)
C.29													
265.20	10.6	110	0.17	73	5.3	108	0.09	65	3.4	106	0.06	59	**2KJ3601 - ■ ■■■■ - ■ ■ M2**
230.10	12.2	110	0.19	74	6.1	108	0.10	67	3.9	106	0.07	61	**2KJ3601 - ■ ■■■■ - ■ ■ L2**
209.18	13.4	110	0.21	75	6.7	109	0.11	68	4.3	107	0.08	62	**2KJ3601 - ■ ■■■■ - ■ ■ K2**
179.40	15.6	110	0.24	76	7.8	109	0.13	70	5.0	107	0.09	64	**2KJ3601 - ■ ■■■■ - ■ ■ J2**
163.09	17.2	110	0.26	76	8.6	110	0.14	71	5.5	108	0.10	65	**2KJ3601 - ■ ■■■■ - ■ ■ H2**
143.00	19.6	110	0.30	76	9.8	110	0.16	72	6.3	108	0.11	67	**2KJ3601 - ■ ■■■■ - ■ ■ G2**
127.64	22	110	0.33	76	11.0	110	0.17	73	7.1	109	0.12	68	**2KJ3601 - ■ ■■■■ - ■ ■ F2**
113.75	25	110	0.38	76	12.3	110	0.19	74	7.9	109	0.13	70	**2KJ3601 - ■ ■■■■ - ■ ■ E2**
105.00	27	110	0.41	76	13.3	110	0.21	74	8.6	110	0.14	70	**2KJ3601 - ■ ■■■■ - ■ ■ D2**
91.93	30	110	0.46	76	15.2	110	0.23	75	9.8	110	0.16	72	**2KJ3601 - ■ ■■■■ - ■ ■ C2**
80.60	35	105	0.51	76	17.4	110	0.27	75	11.2	110	0.18	73	**2KJ3601 - ■ ■■■■ - ■ ■ B2**
73.12	38	101	0.53	76	19.1	110	0.29	75	12.3	110	0.19	74	**2KJ3601 - ■ ■■■■ - ■ ■ A2**
68.82	41	99	0.56	76	20	110	0.31	75	13.1	110	0.21	74	**2KJ3601 - ■ ■■■■ - ■ ■ X1**
60.67	46	95	0.61	75	23	110	0.35	76	14.8	110	0.23	74	**2KJ3601 - ■ ■■■■ - ■ ■ W1**
52.65	53	90	0.67	75	27	110	0.41	76	17.1	110	0.26	75	**2KJ3601 - ■ ■■■■ - ■ ■ V1**
49.87	56	105	0.69	90	28	102	0.34	87	18	100	0.22	84	**2KJ3601 - ■ ■■■■ - ■ ■ U1**
43.27	65	106	0.80	90	32	103	0.39	88	21	101	0.26	86	**2KJ3601 - ■ ■■■■ - ■ ■ T1**
39.33	71	106	0.88	90	36	103	0.44	89	23	101	0.28	86	**2KJ3601 - ■ ■■■■ - ■ ■ S1**
33.73	83	107	1.00	90	42	104	0.51	89	27	102	0.33	87	**2KJ3601 - ■ ■■■■ - ■ ■ R1**
32.64	86	92	0.91	92	43	90	0.45	90	28	88	0.30	87	**2KJ3601 - ■ ■■■■ - ■ ■ Q1**
28.32	99	93	1.10	92	49	90	0.51	90	32	89	0.34	88	**2KJ3601 - ■ ■■■■ - ■ ■ P1**
25.75	109	93	1.20	92	54	90	0.57	91	35	89	0.37	89	**2KJ3601 - ■ ■■■■ - ■ ■ N1**
22.08	127	94	1.40	92	63	91	0.66	91	41	89	0.43	89	**2KJ3601 - ■ ■■■■ - ■ ■ M1**
20.07	140	94	1.50	92	70	91	0.74	91	45	90	0.47	90	**2KJ3601 - ■ ■■■■ - ■ ■ L1**
17.60	159	93	1.7*	92	80	92	0.85	92	51	90	0.54	90	**2KJ3601 - ■ ■■■■ - ■ ■ K1**
15.71	178	89	1.8*	92	89	92	0.95	92	57	91	0.60	91	**2KJ3601 - ■ ■■■■ - ■ ■ J1**
14.00	200	86	2.0*	92	100	93	1.10	92	64	91	0.67	91	**2KJ3601 - ■ ■■■■ - ■ ■ H1**
12.92	217	83	2.1*	92	108	93	1.20	92	70	91	0.74	91	**2KJ3601 - ■ ■■■■ - ■ ■ G1**
11.31	248	79	2.3*	92	124	94	1.30	92	80	92	0.85	91	**2KJ3601 - ■ ■■■■ - ■ ■ F1**
9.92	282	74	2.4*	91	141	94	1.50	92	91	92	0.97	91	**2KJ3601 - ■ ■■■■ - ■ ■ E1**
9.00	311	71	2.6*	92	156	90	1.6*	92	100	93	1.10	92	**2KJ3601 - ■ ■■■■ - ■ ■ D1**
8.47	331	70	2.7*	91	165	88	1.7*	92	106	93	1.10	92	**2KJ3601 - ■ ■■■■ - ■ ■ C1**
7.47	375	66	2.8*	91	187	83	1.8*	92	120	93	1.30	92	**2KJ3601 - ■ ■■■■ - ■ ■ B1**
6.48	432	62	3.1*	91	216	78	1.9*	92	139	91	1.40	92	**2KJ3601 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 1.5 kW

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Selection and ordering data

	n_{mot} = 700 rpm				n_{mot} = 500 rpm				n_{mot} = 100 rpm				
i –	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	**Article No.** (Article No. supplement, see below)
C.29													
265.20	2.6	104	<0.06	57	1.9	103	<0.06	54	0.38	95	<0.06	47	**2KJ3601 - ■ ■■■■ - ■ ■ M2**
230.10	3	105	0.06	58	2.2	104	<0.06	55	0.43	96	<0.06	48	**2KJ3601 - ■ ■■■■ - ■ ■ L2**
209.18	3.3	105	0.06	59	2.4	104	<0.06	56	0.48	97	<0.06	48	**2KJ3601 - ■ ■■■■ - ■ ■ K2**
179.40	3.9	106	0.07	61	2.8	105	<0.06	57	0.56	97	<0.06	48	**2KJ3601 - ■ ■■■■ - ■ ■ J2**
163.09	4.3	107	0.08	62	3.1	105	0.06	58	0.61	98	<0.06	48	**2KJ3601 - ■ ■■■■ - ■ ■ H2**
143.00	4.9	107	0.09	64	3.5	106	0.07	59	0.70	98	<0.06	48	**2KJ3601 - ■ ■■■■ - ■ ■ G2**
127.64	5.5	108	0.10	65	3.9	106	0.07	61	0.78	99	<0.06	49	**2KJ3601 - ■ ■■■■ - ■ ■ F2**
113.75	6.2	108	0.11	66	4.4	107	0.08	62	0.88	99	<0.06	49	**2KJ3601 - ■ ■■■■ - ■ ■ E2**
105.00	6.7	109	0.11	67	4.8	107	0.09	63	0.95	100	<0.06	49	**2KJ3601 - ■ ■■■■ - ■ ■ D2**
91.93	7.6	109	0.13	69	5.4	108	0.09	65	1.1	100	<0.06	50	**2KJ3601 - ■ ■■■■ - ■ ■ C2**
80.60	8.7	110	0.14	70	6.2	108	0.11	66	1.2	101	<0.06	50	**2KJ3601 - ■ ■■■■ - ■ ■ B2**
73.12	9.6	110	0.16	71	6.8	109	0.12	67	1.4	101	<0.06	51	**2KJ3601 - ■ ■■■■ - ■ ■ A2**
68.82	10.2	110	0.16	72	7.3	109	0.12	68	1.5	102	<0.06	51	**2KJ3601 - ■ ■■■■ - ■ ■ X1**
60.67	11.5	110	0.18	73	8.2	110	0.14	70	1.6	102	<0.06	52	**2KJ3601 - ■ ■■■■ - ■ ■ W1**
52.65	13.3	110	0.21	74	9.5	110	0.15	71	1.9	103	<0.06	53	**2KJ3601 - ■ ■■■■ - ■ ■ V1**
49.87	14.0	99	0.18	83	10.0	98	0.13	80	2.0	91	<0.06	73	**2KJ3601 - ■ ■■■■ - ■ ■ U1**
43.27	16.2	100	0.20	84	11.6	98	0.15	81	2.3	91	<0.06	74	**2KJ3601 - ■ ■■■■ - ■ ■ T1**
39.33	17.8	100	0.22	84	12.7	99	0.16	82	2.5	92	<0.06	74	**2KJ3601 - ■ ■■■■ - ■ ■ S1**
33.73	21	101	0.26	85	14.8	99	0.19	83	3.0	92	<0.06	74	**2KJ3601 - ■ ■■■■ - ■ ■ R1**
32.64	21	87	0.22	86	15.3	86	0.17	84	3.1	80	<0.06	77	**2KJ3601 - ■ ■■■■ - ■ ■ Q1**
28.32	25	88	0.27	87	17.7	86	0.19	84	3.5	80	<0.06	78	**2KJ3601 - ■ ■■■■ - ■ ■ P1**
25.75	27	88	0.29	87	19.4	87	0.21	85	3.9	81	<0.06	78	**2KJ3601 - ■ ■■■■ - ■ ■ N1**
22.08	32	89	0.34	88	23	87	0.25	86	4.5	81	<0.06	78	**2KJ3601 - ■ ■■■■ - ■ ■ M1**
20.07	35	89	0.37	89	25	88	0.27	87	5.0	82	<0.06	79	**2KJ3601 - ■ ■■■■ - ■ ■ L1**
17.60	40	89	0.42	89	28	88	0.30	87	5.7	82	0.06	79	**2KJ3601 - ■ ■■■■ - ■ ■ K1**
15.71	45	90	0.47	90	32	89	0.34	88	6.4	83	0.07	79	**2KJ3601 - ■ ■■■■ - ■ ■ J1**
14.00	50	90	0.53	90	36	89	0.38	89	7.1	83	0.08	80	**2KJ3601 - ■ ■■■■ - ■ ■ H1**
12.92	54	90	0.57	90	39	89	0.41	89	7.7	83	0.08	80	**2KJ3601 - ■ ■■■■ - ■ ■ G1**
11.31	62	91	0.65	91	44	90	0.46	90	8.8	84	0.10	81	**2KJ3601 - ■ ■■■■ - ■ ■ F1**
9.92	71	91	0.75	91	50	90	0.53	90	10.1	84	0.11	81	**2KJ3601 - ■ ■■■■ - ■ ■ E1**
9.00	78	92	0.82	91	56	91	0.59	91	11.1	85	0.12	82	**2KJ3601 - ■ ■■■■ - ■ ■ D1**
8.47	83	92	0.88	91	59	91	0.62	91	11.8	85	0.13	82	**2KJ3601 - ■ ■■■■ - ■ ■ C1**
7.47	94	93	1.00	92	67	91	0.71	91	13.4	85	0.15	83	**2KJ3601 - ■ ■■■■ - ■ ■ B1**
6.48	108	93	1.20	92	77	92	0.81	91	15.4	86	0.17	84	**2KJ3601 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 1.5 kW

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Helical worm geared motors

Selection and ordering data

	n_{mot} = 2800 rpm				n_{mot} = 1400 rpm				n_{mot} = 900 rpm				
i	***n_2***	***T_{2N}***	***P_{mot}***	***η***	***n_2***	***T_{2N}***	***P_{mot}***	***η***	***n_2***	***T_{2N}***	***P_{mot}***	***η***	**Article No.**
–	rpm	Nm	kW	%	rpm	Nm	kW	%	rpm	Nm	kW	%	(Article No. supplement, see below)
C.39A													
299.00	9.4	194	0.27	71	4.7	192	0.15	64	3.0	189	0.10	58	**2KJ3642 - ■ ■■■■ - ■ ■ N2**
265.20	10.6	194	0.30	72	5.3	192	0.16	66	3.4	190	0.11	60	**2KJ3642 - ■ ■■■■ - ■ ■ M2**
230.10	12.2	194	0.34	73	6.1	193	0.18	68	3.9	191	0.13	62	**2KJ3642 - ■ ■■■■ - ■ ■ L2**
209.18	13.4	194	0.38	73	6.7	193	0.20	68	4.3	191	0.14	63	**2KJ3642 - ■ ■■■■ - ■ ■ K2**
179.40	15.6	194	0.44	73	7.8	193	0.23	70	5.0	192	0.16	65	**2KJ3642 - ■ ■■■■ - ■ ■ J2**
163.09	17.2	194	0.48	73	8.6	193	0.25	71	5.5	192	0.17	66	**2KJ3642 - ■ ■■■■ - ■ ■ H2**
143.00	19.6	194	0.55	73	9.8	194	0.28	71	6.3	193	0.19	68	**2KJ3642 - ■ ■■■■ - ■ ■ G2**
127.64	22	194	0.61	73	11	194	0.31	72	7.1	193	0.21	69	**2KJ3642 - ■ ■■■■ - ■ ■ F2**
113.75	25	181	0.66	73	12.3	194	0.35	72	7.9	193	0.23	70	**2KJ3642 - ■ ■■■■ - ■ ■ E2**
105.00	27	175	0.68	73	13.3	194	0.37	72	8.6	193	0.25	70	**2KJ3642 - ■ ■■■■ - ■ ■ D2**
91.93	30	165	0.72	72	15.2	194	0.43	72	9.8	194	0.28	71	**2KJ3642 - ■ ■■■■ - ■ ■ C2**
80.60	35	157	0.80	72	17.4	194	0.49	73	11.2	194	0.32	72	**2KJ3642 - ■ ■■■■ - ■ ■ B2**
73.12	38	150	0.84	72	19.1	189	0.52	73	12.3	194	0.35	72	**2KJ3642 - ■ ■■■■ - ■ ■ A2**
68.82	41	147	0.88	72	20	185	0.53	73	13.1	194	0.37	72	**2KJ3642 - ■ ■■■■ - ■ ■ X1**
60.67	46	139	0.94	72	23	175	0.58	73	14.8	194	0.41	73	**2KJ3642 - ■ ■■■■ - ■ ■ W1**
52.65	53	131	1.00	72	27	166	0.65	73	17.1	192	0.47	73	**2KJ3642 - ■ ■■■■ - ■ ■ V1**
49.87	56	195	1.30	89	28	198	0.66	89	18	194	0.41	89	**2KJ3642 - ■ ■■■■ - ■ ■ U1**
43.27	65	196	1.50	89	32	199	0.75	89	21	196	0.49	89	**2KJ3642 - ■ ■■■■ - ■ ■ T1**
39.33	71	196	1.60	89	36	200	0.85	89	23	196	0.53	89	**2KJ3642 - ■ ■■■■ - ■ ■ S1**
33.73	83	196	1.90	89	42	200	1.00	89	27	197	0.63	89	**2KJ3642 - ■ ■■■■ - ■ ■ R1**
32.64	86	200	2.00	91	43	210	1.00	91	28	205	0.68	90	**2KJ3642 - ■ ■■■■ - ■ ■ Q1**
28.32	99	200	2.30	91	49	225	1.30	91	32	225	0.84	90	**2KJ3642 - ■ ■■■■ - ■ ■ P1**
25.75	109	200	2.50	91	54	235	1.50	91	35	230	0.95	90	**2KJ3642 - ■ ■■■■ - ■ ■ N1**
22.08	127	198	2.90	91	63	235	1.70	91	41	230	1.10	91	**2KJ3642 - ■ ■■■■ - ■ ■ M1**
20.07	140	188	3.00	91	70	235	1.90	91	45	235	1.20	91	**2KJ3642 - ■ ■■■■ - ■ ■ L1**
17.60	159	180	3.3*	91	80	225	2.10	92	51	235	1.40	91	**2KJ3642 - ■ ■■■■ - ■ ■ K1**
15.71	178	172	3.5*	91	89	215	2.20	91	57	235	1.60	91	**2KJ3642 - ■ ■■■■ - ■ ■ J1**
14.00	200	164	3.8*	91	100	205	2.40	91	64	235	1.70	92	**2KJ3642 - ■ ■■■■ - ■ ■ H1**
12.92	217	159	4.0*	91	108	200	2.50	92	70	230	1.90	92	**2KJ3642 - ■ ■■■■ - ■ ■ G1**
11.31	248	152	4.3*	91	124	192	2.70	91	80	220	2.00	92	**2KJ3642 - ■ ■■■■ - ■ ■ F1**
9.92	282	145	4.7*	91	141	183	3.00	91	91	210	2.20	92	**2KJ3642 - ■ ■■■■ - ■ ■ E1**
9.00	311	137	4.9*	91	156	177	3.2*	91	100	205	2.30	92	**2KJ3642 - ■ ■■■■ - ■ ■ D1**
8.47	331	129	4.9*	91	165	173	3.3*	91	106	200	2.40	92	**2KJ3642 - ■ ■■■■ - ■ ■ C1**
7.47	375	114	4.9*	91	187	166	3.6*	91	120	192	2.60	92	**2KJ3642 - ■ ■■■■ - ■ ■ B1**
6.48	432	99	4.9*	91	216	157	3.9*	91	139	182	2.90	92	**2KJ3642 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 1.5 kW

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Selection and ordering data

	n_{mot} = 700 rpm				n_{mot} = 500 rpm				n_{mot} = 100 rpm				
i	n_2	T_{2N}	P_{mot}	η	n_2	T_{2N}	P_{mot}	η	n_2	T_{2N}	P_{mot}	η	**Article No.** (Article No. supplement, see below)
–	rpm	Nm	kW	%	rpm	Nm	kW	%	rpm	Nm	kW	%	
C.39A													
299.00	2.3	187	0.08	55	1.7	184	0.06	52	0.33	170	<0.06	44	**2KJ3642 - ■ ■■■■ - ■ ■ N2**
265.20	2.6	188	0.09	57	1.9	185	0.07	53	0.38	167	<0.06	44	**2KJ3642 - ■ ■■■■ - ■ ■ M2**
230.10	3.0	189	0.10	58	2.2	186	0.08	54	0.43	164	<0.06	44	**2KJ3642 - ■ ■■■■ - ■ ■ L2**
209.18	3.3	190	0.11	59	2.4	187	0.09	55	0.48	162	<0.06	44	**2KJ3642 - ■ ■■■■ - ■ ■ K2**
179.40	3.9	191	0.13	62	2.8	188	0.10	57	0.56	160	<0.06	45	**2KJ3642 - ■ ■■■■ - ■ ■ J2**
163.09	4.3	191	0.14	63	3.1	189	0.11	58	0.61	160	<0.06	45	**2KJ3642 - ■ ■■■■ - ■ ■ H2**
143.00	4.9	192	0.15	64	3.5	190	0.12	60	0.70	160	<0.06	46	**2KJ3642 - ■ ■■■■ - ■ ■ G2**
127.64	5.5	192	0.17	66	3.9	191	0.13	61	0.78	161	<0.06	46	**2KJ3642 - ■ ■■■■ - ■ ■ F2**
113.75	6.2	193	0.19	67	4.4	191	0.14	63	0.88	162	<0.06	47	**2KJ3642 - ■ ■■■■ - ■ ■ E2**
105.00	6.7	193	0.20	68	4.8	192	0.15	64	0.95	163	<0.06	47	**2KJ3642 - ■ ■■■■ - ■ ■ D2**
91.93	7.6	193	0.22	69	5.4	192	0.17	66	1.1	166	<0.06	48	**2KJ3642 - ■ ■■■■ - ■ ■ C2**
80.60	8.7	193	0.25	70	6.2	193	0.19	67	1.2	168	<0.06	49	**2KJ3642 - ■ ■■■■ - ■ ■ B2**
73.12	9.6	194	0.28	71	6.8	193	0.20	68	1.4	170	<0.06	49	**2KJ3642 - ■ ■■■■ - ■ ■ A2**
68.82	10.2	194	0.29	71	7.3	193	0.21	69	1.5	172	<0.06	50	**2KJ3642 - ■ ■■■■ - ■ ■ X1**
60.67	11.5	194	0.32	72	8.2	193	0.24	70	1.6	176	0.06	51	**2KJ3642 - ■ ■■■■ - ■ ■ W1**
52.65	13.3	194	0.37	73	9.5	194	0.27	71	1.9	180	0.07	53	**2KJ3642 - ■ ■■■■ - ■ ■ V1**
49.87	14.0	192	0.32	88	10.0	190	0.23	86	2.0	177	0.06	66	**2KJ3642 - ■ ■■■■ - ■ ■ U1**
43.27	16.2	194	0.37	88	11.6	191	0.27	87	2.3	178	0.06	67	**2KJ3642 - ■ ■■■■ - ■ ■ T1**
39.33	17.8	194	0.41	88	12.7	192	0.29	88	2.5	179	0.07	68	**2KJ3642 - ■ ■■■■ - ■ ■ S1**
33.73	21	196	0.49	89	14.8	193	0.34	88	3.0	180	0.08	71	**2KJ3642 - ■ ■■■■ - ■ ■ R1**
32.64	21	200	0.51	88	15.3	197	0.37	86	3.1	174	0.08	76	**2KJ3642 - ■ ■■■■ - ■ ■ Q1**
28.32	25	220	0.66	89	17.7	215	0.47	87	3.5	192	0.09	76	**2KJ3642 - ■ ■■■■ - ■ ■ P1**
25.75	27	230	0.73	89	19.4	225	0.53	87	3.9	210	0.11	77	**2KJ3642 - ■ ■■■■ - ■ ■ N1**
22.08	32	230	0.86	90	23	225	0.62	88	4.5	210	0.13	77	**2KJ3642 - ■ ■■■■ - ■ ■ M1**
20.07	35	230	0.94	90	25	230	0.68	89	5.0	215	0.15	78	**2KJ3642 - ■ ■■■■ - ■ ■ L1**
17.60	40	230	1.10	91	28	230	0.76	90	5.7	215	0.16	79	**2KJ3642 - ■ ■■■■ - ■ ■ K1**
15.71	45	235	1.20	91	32	230	0.86	90	6.4	215	0.18	79	**2KJ3642 - ■ ■■■■ - ■ ■ J1**
14.00	50	235	1.40	91	36	230	0.97	91	7.1	215	0.20	80	**2KJ3642 - ■ ■■■■ - ■ ■ H1**
12.92	54	235	1.50	92	39	230	1.10	91	7.7	215	0.22	81	**2KJ3642 - ■ ■■■■ - ■ ■ G1**
11.31	62	235	1.70	92	44	235	1.20	91	8.8	220	0.25	82	**2KJ3642 - ■ ■■■■ - ■ ■ F1**
9.92	71	230	1.90	92	50	235	1.40	91	10.1	220	0.28	83	**2KJ3642 - ■ ■■■■ - ■ ■ E1**
9.00	78	220	2.00	92	56	235	1.50	92	11.1	220	0.31	83	**2KJ3642 - ■ ■■■■ - ■ ■ D1**
8.47	83	215	2.10	92	59	235	1.60	92	11.8	220	0.33	84	**2KJ3642 - ■ ■■■■ - ■ ■ C1**
7.47	94	205	2.30	92	67	230	1.80	92	13.4	220	0.37	85	**2KJ3642 - ■ ■■■■ - ■ ■ B1**
6.48	108	198	2.50	92	77	220	2.00	92	15.4	225	0.42	86	**2KJ3642 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 1.5 kW

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Helical worm geared motors

Selection and ordering data

	n_{mot} = 2800 rpm				n_{mot} = 1400 rpm				n_{mot} = 900 rpm				
i –	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	**Article No.** (Article No. supplement, see below)
C.49													
299.00	9.4	355	0.48	73	4.7	350	0.26	67	3.0	345	0.18	61	**2KJ3603 - ■ ■■■■ - ■ ■ N2**
265.20	10.6	355	0.54	74	5.3	350	0.29	69	3.4	350	0.20	63	**2KJ3603 - ■ ■■■■ - ■ ■ M2**
230.10	12.2	355	0.62	74	6.1	350	0.32	70	3.9	350	0.22	65	**2KJ3603 - ■ ■■■■ - ■ ■ L2**
209.18	13.4	355	0.68	74	6.7	355	0.35	71	4.3	350	0.24	66	**2KJ3603 - ■ ■■■■ - ■ ■ K2**
179.40	15.6	355	0.79	74	7.8	355	0.40	72	5.0	350	0.27	68	**2KJ3603 - ■ ■■■■ - ■ ■ J2**
163.09	17.2	340	0.84	74	8.6	355	0.44	73	5.5	350	0.30	69	**2KJ3603 - ■ ■■■■ - ■ ■ H2**
143.00	19.6	315	0.89	74	9.8	355	0.50	73	6.3	355	0.33	70	**2KJ3603 - ■ ■■■■ - ■ ■ G2**
127.64	22	300	0.95	73	11.0	355	0.56	73	7.1	355	0.37	71	**2KJ3603 - ■ ■■■■ - ■ ■ F2**
113.75	25	285	1.00	73	12.3	355	0.62	74	7.9	355	0.41	72	**2KJ3603 - ■ ■■■■ - ■ ■ E2**
105.00	27	275	1.10	73	13.3	350	0.66	74	8.6	355	0.44	72	**2KJ3603 - ■ ■■■■ - ■ ■ D2**
91.93	30	260	1.10	73	15.2	330	0.72	74	9.8	355	0.50	73	**2KJ3603 - ■ ■■■■ - ■ ■ C2**
80.60	35	250	1.30	73	17.4	315	0.78	74	11.2	355	0.57	74	**2KJ3603 - ■ ■■■■ - ■ ■ B2**
73.12	38	240	1.30	73	19.1	300	0.82	74	12.3	345	0.61	74	**2KJ3603 - ■ ■■■■ - ■ ■ A2**
68.82	41	230	1.40	73	20	295	0.84	74	13.1	340	0.63	74	**2KJ3603 - ■ ■■■■ - ■ ■ X1**
60.67	46	220	1.50	73	23	280	0.92	74	14.8	320	0.68	74	**2KJ3603 - ■ ■■■■ - ■ ■ W1**
52.65	53	210	1.60	73	27	265	1.00	74	17.1	305	0.74	74	**2KJ3603 - ■ ■■■■ - ■ ■ V1**
49.87	56	310	2.10	90	28	310	1.00	89	18	305	0.66	87	**2KJ3603 - ■ ■■■■ - ■ ■ U1**
43.27	65	340	2.60	90	32	340	1.30	89	21	335	0.85	88	**2KJ3603 - ■ ■■■■ - ■ ■ T1**
39.33	71	335	2.80	89	36	395	1.70	89	23	395	1.10	88	**2KJ3603 - ■ ■■■■ - ■ ■ S1**
33.73	83	315	3.10	89	42	365	1.80	90	27	365	1.20	89	**2KJ3603 - ■ ■■■■ - ■ ■ R1**
30.67	91	300	3.20	89	46	380	2.10	89	29	400	1.40	89	**2KJ3603 - ■ ■■■■ - ■ ■ Q1**
26.89	104	285	3.50	89	52	360	2.20	90	33	400	1.50	89	**2KJ3603 - ■ ■■■■ - ■ ■ P1**
24.00	117	275	3.80	89	58	345	2.40	90	38	400	1.80	90	**2KJ3603 - ■ ■■■■ - ■ ■ N1**
21.39	131	260	4.1*	89	65	330	2.50	90	42	385	1.90	90	**2KJ3603 - ■ ■■■■ - ■ ■ M1**
19.74	142	255	4.3*	89	71	320	2.70	90	46	370	2.00	90	**2KJ3603 - ■ ■■■■ - ■ ■ L1**
17.29	162	240	4.6*	89	81	305	2.90	90	52	355	2.20	90	**2KJ3603 - ■ ■■■■ - ■ ■ K1**
15.16	185	230	5.1*	89	92	290	3.20	90	59	335	2.30	90	**2KJ3603 - ■ ■■■■ - ■ ■ J1**
13.75	204	220	5.4*	89	102	280	3.40	90	65	325	2.50	90	**2KJ3603 - ■ ■■■■ - ■ ■ H1**
12.94	216	210	5.3*	89	108	275	3.50	90	70	315	2.60	90	**2KJ3603 - ■ ■■■■ - ■ ■ G1**
11.41	245	185	5.4*	89	123	260	3.80	90	79	305	2.80	90	**2KJ3603 - ■ ■■■■ - ■ ■ F1**
9.90	283	161	5.4*	89	141	250	4.1*	89	91	290	3.10	90	**2KJ3603 - ■ ■■■■ - ■ ■ E1**
9.00	311	185	6.6*	91	156	260	4.6*	92	100	260	3.00	92	**2KJ3603 - ■ ■■■■ - ■ ■ D1**
8.47	331	174	6.6*	91	165	260	4.9*	92	106	260	3.20	92	**2KJ3603 - ■ ■■■■ - ■ ■ C1**
7.47	375	153	6.6*	91	187	250	5.3*	92	120	260	3.60	92	**2KJ3603 - ■ ■■■■ - ■ ■ B1**
6.48	432	133	6.6*	91	216	235	5.8*	92	139	260	4.1*	92	**2KJ3603 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 1.5 kW

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Selection and ordering data

	n_{mot} = 700 rpm				n_{mot} = 500 rpm				n_{mot} = 100 rpm				
i	n_2	T_{2N}	P_{mot}	η	n_2	T_{2N}	P_{mot}	η	n_2	T_{2N}	P_{mot}	η	**Article No.** (Article No. supplement, see below)
–	rpm	Nm	kW	%	rpm	Nm	kW	%	rpm	Nm	kW	%	
C.49													
299.00	2.3	340	0.14	58	1.7	315	0.10	54	0.33	260	<0.06	45	**2KJ3603 - ■ ■■■■ - ■ ■ N2**
265.20	2.6	340	0.16	60	1.9	315	0.11	55	0.38	255	<0.06	45	**2KJ3603 - ■ ■■■■ - ■ ■ M2**
230.10	3.0	345	0.18	61	2.2	320	0.13	57	0.43	255	<0.06	45	**2KJ3603 - ■ ■■■■ - ■ ■ L2**
209.18	3.3	345	0.19	63	2.4	320	0.14	58	0.48	255	<0.06	45	**2KJ3603 - ■ ■■■■ - ■ ■ K2**
179.40	3.9	350	0.22	65	2.8	330	0.16	60	0.56	255	<0.06	46	**2KJ3603 - ■ ■■■■ - ■ ■ J2**
163.09	4.3	350	0.24	66	3.1	330	0.18	61	0.61	255	<0.06	46	**2KJ3603 - ■ ■■■■ - ■ ■ H2**
143.00	4.9	350	0.27	68	3.5	340	0.20	63	0.70	255	<0.06	47	**2KJ3603 - ■ ■■■■ - ■ ■ G2**
127.64	5.5	350	0.30	69	3.9	350	0.22	65	0.78	260	<0.06	47	**2KJ3603 - ■ ■■■■ - ■ ■ F2**
113.75	6.2	355	0.33	70	4.4	350	0.25	66	0.88	260	<0.06	48	**2KJ3603 - ■ ■■■■ - ■ ■ E2**
105.00	6.7	355	0.35	71	4.8	350	0.26	67	0.95	265	<0.06	49	**2KJ3603 - ■ ■■■■ - ■ ■ D2**
91.93	7.6	355	0.39	72	5.4	350	0.29	69	1.1	270	0.06	50	**2KJ3603 - ■ ■■■■ - ■ ■ C2**
80.60	8.7	355	0.45	73	6.2	355	0.33	70	1.2	275	0.07	51	**2KJ3603 - ■ ■■■■ - ■ ■ B2**
73.12	9.6	355	0.49	73	6.8	355	0.36	71	1.4	280	0.08	52	**2KJ3603 - ■ ■■■■ - ■ ■ A2**
68.82	10.2	355	0.52	73	7.3	355	0.38	72	1.5	280	0.08	52	**2KJ3603 - ■ ■■■■ - ■ ■ X1**
60.67	11.5	350	0.57	74	8.2	355	0.42	73	1.6	285	0.09	54	**2KJ3603 - ■ ■■■■ - ■ ■ W1**
52.65	13.3	330	0.63	74	9.5	355	0.48	73	1.9	295	0.11	55	**2KJ3603 - ■ ■■■■ - ■ ■ V1**
49.87	14.0	295	0.51	86	10.0	285	0.37	83	2.0	245	0.07	71	**2KJ3603 - ■ ■■■■ - ■ ■ U1**
43.27	16.2	330	0.65	87	11.6	320	0.47	84	2.3	275	0.09	71	**2KJ3603 - ■ ■■■■ - ■ ■ T1**
39.33	17.8	390	0.83	87	12.7	375	0.60	85	2.5	320	0.12	72	**2KJ3603 - ■ ■■■■ - ■ ■ S1**
33.73	21	360	0.91	88	14.8	355	0.64	86	3.0	300	0.13	73	**2KJ3603 - ■ ■■■■ - ■ ■ R1**
30.67	23	395	1.10	88	16.3	385	0.77	87	3.3	330	0.16	73	**2KJ3603 - ■ ■■■■ - ■ ■ Q1**
26.89	26	395	1.20	89	18.6	390	0.87	88	3.7	330	0.17	74	**2KJ3603 - ■ ■■■■ - ■ ■ P1**
24.00	29	395	1.40	89	21	390	0.99	88	4.2	335	0.20	75	**2KJ3603 - ■ ■■■■ - ■ ■ N1**
21.39	33	395	1.50	89	23	395	1.10	89	4.7	340	0.22	76	**2KJ3603 - ■ ■■■■ - ■ ■ M1**
19.74	35	400	1.60	90	25	395	1.20	89	5.1	340	0.24	77	**2KJ3603 - ■ ■■■■ - ■ ■ L1**
17.29	40	385	1.80	90	29	395	1.30	89	5.8	345	0.27	78	**2KJ3603 - ■ ■■■■ - ■ ■ K1**
15.16	46	365	2.00	90	33	390	1.50	90	6.6	345	0.30	79	**2KJ3603 - ■ ■■■■ - ■ ■ J1**
13.75	51	355	2.10	90	36	390	1.60	90	7.3	345	0.33	80	**2KJ3603 - ■ ■■■■ - ■ ■ H1**
12.94	54	345	2.20	90	39	385	1.80	90	7.7	350	0.35	80	**2KJ3603 - ■ ■■■■ - ■ ■ G1**
11.41	61	330	2.40	90	44	370	1.90	90	8.8	355	0.40	82	**2KJ3603 - ■ ■■■■ - ■ ■ F1**
9.90	71	315	2.60	90	51	350	2.10	90	10.1	360	0.46	83	**2KJ3603 - ■ ■■■■ - ■ ■ E1**
9.00	78	260	2.30	92	56	255	1.70	91	11.1	235	0.33	84	**2KJ3603 - ■ ■■■■ - ■ ■ D1**
8.47	83	260	2.50	92	59	260	1.80	91	11.8	240	0.35	84	**2KJ3603 - ■ ■■■■ - ■ ■ C1**
7.47	94	260	2.80	92	67	260	2.00	92	13.4	240	0.40	85	**2KJ3603 - ■ ■■■■ - ■ ■ B1**
6.48	108	260	3.20	92	77	260	2.30	92	15.4	245	0.46	87	**2KJ3603 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 1.5 kW

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Helical worm geared motors

Selection and ordering data

	n_{mot} = 2800 rpm				n_{mot} = 1400 rpm				n_{mot} = 900 rpm				
i –	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	**Article No.** (Article No. supplement, see below)
C.69													
360.00	7.8	575	0.65	73	3.9	680	0.40	69	2.5	645	0.27	63	**2KJ3604 - ■ ■■■■ - ■ ■ M2**
319.80	8.8	570	0.72	73	4.4	680	0.45	70	2.8	655	0.30	65	**2KJ3604 - ■ ■■■■ - ■ ■ L2**
280.80	10.0	560	0.81	73	5.0	680	0.50	71	3.2	660	0.33	66	**2KJ3604 - ■ ■■■■ - ■ ■ K2**
255.27	11.0	555	0.88	73	5.5	680	0.55	72	3.5	665	0.36	67	**2KJ3604 - ■ ■■■■ - ■ ■ J2**
218.40	12.8	530	0.97	74	6.4	655	0.60	73	4.1	675	0.42	70	**2KJ3604 - ■ ■■■■ - ■ ■ H2**
198.55	14.1	510	1.00	73	7.1	635	0.65	73	4.5	680	0.46	70	**2KJ3604 - ■ ■■■■ - ■ ■ G2**
175.50	16.0	485	1.10	73	8.0	610	0.70	74	5.1	685	0.51	72	**2KJ3604 - ■ ■■■■ - ■ ■ F2**
159.55	17.5	470	1.20	73	8.8	590	0.74	74	5.6	670	0.54	72	**2KJ3604 - ■ ■■■■ - ■ ■ E2**
139.75	20	440	1.30	73	10.0	550	0.79	74	6.4	630	0.58	73	**2KJ3604 - ■ ■■■■ - ■ ■ D2**
129.00	22	425	1.30	74	10.9	535	0.83	74	7.0	610	0.61	73	**2KJ3604 - ■ ■■■■ - ■ ■ C2**
114.21	25	405	1.40	73	12.3	510	0.89	74	7.9	585	0.66	74	**2KJ3604 - ■ ■■■■ - ■ ■ B2**
102.50	27	555	1.80	87	13.7	645	1.10	86	8.8	625	0.69	84	**2KJ3604 - ■ ■■■■ - ■ ■ A2**
90.00	31	555	2.10	87	15.6	665	1.30	86	10.0	650	0.81	84	**2KJ3604 - ■ ■■■■ - ■ ■ X1**
81.82	34	545	2.20	87	17.1	680	1.40	87	11.0	775	1.10	85	**2KJ3604 - ■ ■■■■ - ■ ■ W1**
70.00	40	515	2.50	87	20	650	1.60	87	12.9	680	1.10	86	**2KJ3604 - ■ ■■■■ - ■ ■ V1**
63.64	44	500	2.70	87	22	630	1.70	87	14.1	720	1.20	86	**2KJ3604 - ■ ■■■■ - ■ ■ U1**
56.25	50	480	2.90	87	25	605	1.80	87	16.0	695	1.30	87	**2KJ3604 - ■ ■■■■ - ■ ■ T1**
51.14	55	455	3.00	87	27	575	1.90	87	17.6	660	1.40	87	**2KJ3604 - ■ ■■■■ - ■ ■ S1**
44.79	63	430	3.30	87	31	545	2.00	87	20	630	1.50	87	**2KJ3604 - ■ ■■■■ - ■ ■ R1**
41.35	68	420	3.40	87	34	525	2.20	87	22	610	1.60	87	**2KJ3604 - ■ ■■■■ - ■ ■ Q1**
36.61	76	400	3.70	87	38	505	2.30	87	25	580	1.80	87	**2KJ3604 - ■ ■■■■ - ■ ■ P1**
30.00	93	435	4.70	90	47	545	3.00	90	30	560	2.00	90	**2KJ3604 - ■ ■■■■ - ■ ■ N1**
26.28	107	410	5.10	90	53	520	3.20	90	34	550	2.20	90	**2KJ3604 - ■ ■■■■ - ■ ■ M1**
24.26	115	400	5.30	90	58	500	3.40	90	37	545	2.30	91	**2KJ3604 - ■ ■■■■ - ■ ■ L1**
21.48	130	380	5.8*	90	65	480	3.60	90	42	540	2.60	91	**2KJ3604 - ■ ■■■■ - ■ ■ K1**
17.88	157	355	6.5*	90	78	450	4.10	90	50	520	3.00	91	**2KJ3604 - ■ ■■■■ - ■ ■ J1**
15.88	176	365	7.3*	92	88	365	3.70	92	57	365	2.40	92	**2KJ3604 - ■ ■■■■ - ■ ■ H1**
14.06	199	360	8.2*	92	100	360	4.10	92	64	360	2.60	92	**2KJ3604 - ■ ■■■■ - ■ ■ G1**
11.70	239	345	9.5*	92	120	365	5.00	92	77	365	3.20	92	**2KJ3604 - ■ ■■■■ - ■ ■ F1**
11.01	254	325	9.5*	92	127	365	5.40	92	82	365	3.50	92	**2KJ3604 - ■ ■■■■ - ■ ■ E1**
9.87	284	290	9.5*	92	142	365	6.0*	92	91	365	3.80	92	**2KJ3604 - ■ ■■■■ - ■ ■ D1**
8.40	333	250	9.6*	91	167	370	7.1*	92	107	370	4.50	92	**2KJ3604 - ■ ■■■■ - ■ ■ C1**
7.20	389	210	9.6*	91	194	365	8.2*	92	125	365	5.30	92	**2KJ3604 - ■ ■■■■ - ■ ■ B1**
6.20	452	184	9.6*	91	226	365	9.4*	92	145	365	6.1*	92	**2KJ3604 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 1.5 kW

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Selection and ordering data

	n_{mot} = 700 rpm				n_{mot} = 500 rpm				n_{mot} = 100 rpm				
i	n_2	T_{2N}	P_{mot}	η	n_2	T_{2N}	P_{mot}	η	n_2	T_{2N}	P_{mot}	η	**Article No.** (Article No. supplement, see below)
–	rpm	Nm	kW	%	rpm	Nm	kW	%	rpm	Nm	kW	%	
C.69													
360.00	1.9	610	0.20	60	1.4	570	0.15	55	0.28	460	<0.06	45	**2KJ3604 - ■ ■■■■ - ■ ■ M2**
319.80	2.2	620	0.23	61	1.6	575	0.17	57	0.31	460	<0.06	45	**2KJ3604 - ■ ■■■■ - ■ ■ L2**
280.80	2.5	625	0.26	63	1.8	580	0.19	58	0.36	455	<0.06	45	**2KJ3604 - ■ ■■■■ - ■ ■ K2**
255.27	2.7	635	0.28	64	2.0	590	0.21	59	0.39	455	<0.06	45	**2KJ3604 - ■ ■■■■ - ■ ■ J2**
218.40	3.2	645	0.33	66	2.3	605	0.24	62	0.46	460	<0.06	46	**2KJ3604 - ■ ■■■■ - ■ ■ H2**
198.55	3.5	650	0.35	68	2.5	610	0.25	63	0.50	455	<0.06	47	**2KJ3604 - ■ ■■■■ - ■ ■ G2**
175.50	4.0	665	0.40	69	2.8	625	0.28	65	0.57	460	0.06	48	**2KJ3604 - ■ ■■■■ - ■ ■ F2**
159.55	4.4	670	0.44	70	3.1	635	0.31	66	0.63	465	0.06	48	**2KJ3604 - ■ ■■■■ - ■ ■ E2**
139.75	5.0	670	0.49	72	3.6	650	0.36	68	0.72	475	0.07	49	**2KJ3604 - ■ ■■■■ - ■ ■ D2**
129.00	5.4	655	0.51	72	3.9	660	0.39	69	0.78	480	0.08	50	**2KJ3604 - ■ ■■■■ - ■ ■ C2**
114.21	6.1	630	0.55	73	4.4	670	0.44	71	0.88	490	0.09	51	**2KJ3604 - ■ ■■■■ - ■ ■ B2**
102.50	6.8	610	0.54	81	4.9	585	0.39	78	0.98	500	0.08	67	**2KJ3604 - ■ ■■■■ - ■ ■ A2**
90.00	7.8	635	0.63	82	5.6	610	0.45	79	1.1	515	0.09	67	**2KJ3604 - ■ ■■■■ - ■ ■ X1**
81.82	8.6	800	0.87	84	6.1	775	0.62	80	1.2	650	0.12	68	**2KJ3604 - ■ ■■■■ - ■ ■ W1**
70.00	10.0	665	0.83	84	7.1	645	0.59	82	1.4	540	0.12	68	**2KJ3604 - ■ ■■■■ - ■ ■ V1**
63.64	11.0	775	1.00	85	7.9	830	0.83	83	1.6	695	0.17	69	**2KJ3604 - ■ ■■■■ - ■ ■ U1**
56.25	12.4	750	1.10	86	8.9	810	0.90	84	1.8	675	0.18	70	**2KJ3604 - ■ ■■■■ - ■ ■ T1**
51.14	13.7	715	1.20	86	9.8	785	0.95	85	2.0	750	0.22	71	**2KJ3604 - ■ ■■■■ - ■ ■ S1**
44.79	15.6	680	1.30	87	11.2	750	1.00	86	2.2	760	0.24	72	**2KJ3604 - ■ ■■■■ - ■ ■ R1**
41.35	16.9	660	1.30	87	12.1	730	1.10	86	2.4	765	0.27	72	**2KJ3604 - ■ ■■■■ - ■ ■ Q1**
36.61	19.1	630	1.50	87	13.7	700	1.20	87	2.7	770	0.30	73	**2KJ3604 - ■ ■■■■ - ■ ■ P1**
30.00	23	560	1.50	90	16.7	555	1.10	89	3.3	480	0.22	77	**2KJ3604 - ■ ■■■■ - ■ ■ N1**
26.28	27	550	1.70	90	19	545	1.20	90	3.8	480	0.24	78	**2KJ3604 - ■ ■■■■ - ■ ■ M1**
24.26	29	545	1.80	90	21	540	1.30	90	4.1	475	0.26	79	**2KJ3604 - ■ ■■■■ - ■ ■ L1**
21.48	33	540	2.10	91	23	540	1.40	90	4.7	475	0.30	80	**2KJ3604 - ■ ■■■■ - ■ ■ K1**
17.88	39	545	2.50	91	28	545	1.80	91	5.6	490	0.35	82	**2KJ3604 - ■ ■■■■ - ■ ■ J1**
15.88	44	365	1.80	92	31	360	1.30	91	6.3	330	0.26	83	**2KJ3604 - ■ ■■■■ - ■ ■ H1**
14.06	50	360	2.10	92	36	355	1.50	92	7.1	330	0.29	84	**2KJ3604 - ■ ■■■■ - ■ ■ G1**
11.70	60	365	2.50	92	43	365	1.80	92	8.5	340	0.36	85	**2KJ3604 - ■ ■■■■ - ■ ■ F1**
11.01	64	365	2.70	92	45	365	1.90	92	9.1	340	0.38	86	**2KJ3604 - ■ ■■■■ - ■ ■ E1**
9.87	71	365	3.00	92	51	365	2.10	92	10.1	345	0.43	86	**2KJ3604 - ■ ■■■■ - ■ ■ D1**
8.40	83	370	3.50	92	60	370	2.50	92	11.9	350	0.50	87	**2KJ3604 - ■ ■■■■ - ■ ■ C1**
7.20	97	365	4.10	92	69	365	2.90	92	13.9	350	0.59	88	**2KJ3604 - ■ ■■■■ - ■ ■ B1**
6.20	113	365	4.70	92	81	365	3.40	92	16.1	355	0.67	89	**2KJ3604 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Helical worm geared motors

Selection and ordering data

	n_{mot} = 2800 rpm				n_{mot} = 1400 rpm				n_{mot} = 900 rpm				
i –	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	**Article No.** (Article No. supplement, see below)
C.89													
363.00	7.7	1180	1.30	73	3.9	1460	0.83	72	2.5	1430	0.55	68	**2KJ3605 - ■ ■■■■ - ■ ■ N2**
329.73	8.5	1180	1.40	73	4.2	1460	0.89	72	2.7	1440	0.59	69	**2KJ3605 - ■ ■■■■ - ■ ■ M2**
295.75	9.5	1170	1.60	73	4.7	1460	0.99	73	3.0	1460	0.66	70	**2KJ3605 - ■ ■■■■ - ■ ■ L2**
265.91	10.5	1170	1.80	73	5.3	1460	1.10	73	3.4	1470	0.74	71	**2KJ3605 - ■ ■■■■ - ■ ■ K2**
240.50	11.6	1160	1.90	73	5.8	1450	1.20	73	3.7	1480	0.80	72	**2KJ3605 - ■ ■■■■ - ■ ■ J2**
222.00	12.6	1120	2.00	73	6.3	1410	1.30	73	4.1	1490	0.89	72	**2KJ3605 - ■ ■■■■ - ■ ■ H2**
203.36	13.8	1090	2.20	73	6.9	1370	1.40	73	4.4	1500	0.95	73	**2KJ3605 - ■ ■■■■ - ■ ■ G2**
170.62	16.4	1030	2.40	73	8.2	1300	1.50	73	5.3	1490	1.10	73	**2KJ3605 - ■ ■■■■ - ■ ■ F2**
160.59	17.4	1010	2.50	73	8.7	1270	1.60	73	5.6	1460	1.20	74	**2KJ3605 - ■ ■■■■ - ■ ■ E2**
147.33	19	980	2.70	73	9.5	1230	1.70	74	6.1	1430	1.20	74	**2KJ3605 - ■ ■■■■ - ■ ■ D2**
128.70	22	915	2.90	73	10.9	1150	1.80	73	7.0	1340	1.30	74	**2KJ3605 - ■ ■■■■ - ■ ■ C2**
115.23	24	875	3.00	73	12.1	1100	1.90	74	7.8	1280	1.40	74	**2KJ3605 - ■ ■■■■ - ■ ■ B2**
100.75	28	830	3.30	73	13.9	1040	2.10	74	8.9	1210	1.50	74	**2KJ3605 - ■ ■■■■ - ■ ■ A2**
86.48	32	780	3.60	73	16.2	980	2.30	73	10.4	1140	1.70	74	**2KJ3605 - ■ ■■■■ - ■ ■ X1**
76.44	37	740	4.00	73	18.3	935	2.40	73	11.8	1080	1.80	74	**2KJ3605 - ■ ■■■■ - ■ ■ W1**
65.00	43	695	4.30	73	22	875	2.80	73	13.8	1010	2.00	74	**2KJ3605 - ■ ■■■■ - ■ ■ V1**
55.61	50	1150	6.70	90	25	1450	4.20	91	16.2	1550	2.90	90	**2KJ3605 - ■ ■■■■ - ■ ■ U1**
50.00	56	1130	7.40	90	28	1430	4.60	90	18.0	1560	3.30	90	**2KJ3605 - ■ ■■■■ - ■ ■ T1**
45.22	62	1100	7.90	90	31	1380	5.00	91	19.9	1560	3.60	90	**2KJ3605 - ■ ■■■■ - ■ ■ S1**
41.74	67	1070	8.30	90	34	1350	5.30	91	22	1560	4.00	91	**2KJ3605 - ■ ■■■■ - ■ ■ R1**
38.24	73	1040	8.80	90	37	1310	5.60	91	24	1520	4.20	91	**2KJ3605 - ■ ■■■■ - ■ ■ Q1**
32.08	87	985	10.0*	90	44	1240	6.30	91	28	1440	4.70	91	**2KJ3605 - ■ ■■■■ - ■ ■ P1**
30.20	93	950	10.3*	90	46	1200	6.40	91	30	1390	4.80	91	**2KJ3605 - ■ ■■■■ - ■ ■ N1**
27.70	101	920	10.8*	90	51	1160	6.90	91	32	1340	5.00	91	**2KJ3605 - ■ ■■■■ - ■ ■ M1**
25.03	112	1080	13.7*	93	56	1090	6.90	93	36	1090	4.50	93	**2KJ3605 - ■ ■■■■ - ■ ■ L1**
21.00	133	1000	15.1*	93	67	1080	8.20	93	43	1070	5.20	93	**2KJ3605 - ■ ■■■■ - ■ ■ K1**
19.76	142	980	15.8*	93	71	1120	9.00	93	46	1120	5.80	93	**2KJ3605 - ■ ■■■■ - ■ ■ J1**
18.13	154	950	16.6*	93	77	1120	9.7*	93	50	1120	6.30	93	**2KJ3605 - ■ ■■■■ - ■ ■ H1**
15.84	177	865	17.3*	93	88	1140	11.3*	93	57	1140	7.30	93	**2KJ3605 - ■ ■■■■ - ■ ■ G1**
14.18	197	770	17.3*	92	99	1090	12.2*	93	63	1150	8.20	93	**2KJ3605 - ■ ■■■■ - ■ ■ F1**
12.40	226	675	17.3*	93	113	1040	13.3*	93	73	1140	9.5*	93	**2KJ3605 - ■ ■■■■ - ■ ■ E1**
10.64	263	580	17.3*	92	132	985	14.7*	93	85	1140	10.9*	93	**2KJ3605 - ■ ■■■■ - ■ ■ D1**
9.41	298	510	17.4*	92	149	940	15.9*	93	96	1090	11.8*	93	**2KJ3605 - ■ ■■■■ - ■ ■ C1**
8.00	350	435	17.4*	92	175	870	17.3*	93	112	1030	13.1*	93	**2KJ3605 - ■ ■■■■ - ■ ■ B1**
6.86	408	370	17.4*	92	204	745	17.3*	93	131	980	14.5*	93	**2KJ3605 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 9.2 kW

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Selection and ordering data

	n_{mot} = 700 rpm				n_{mot} = 500 rpm				n_{mot} = 100 rpm				
i –	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	n_2 rpm	T_{2N} Nm	P_{mot} kW	η %	**Article No.** (Article No. supplement, see below)
C.89													
363.00	1.9	1360	0.42	64	1.4	1260	0.31	60	0.28	955	0.06	45	**2KJ3605 - ■ ■■■■ - ■ ■ N2**
329.73	2.1	1380	0.46	66	1.5	1280	0.33	61	0.30	960	0.07	45	**2KJ3605 - ■ ■■■■ - ■ ■ M2**
295.75	2.4	1400	0.53	67	1.7	1310	0.37	62	0.34	965	0.08	45	**2KJ3605 - ■ ■■■■ - ■ ■ L2**
265.91	2.6	1420	0.57	68	1.9	1330	0.42	64	0.38	975	0.08	46	**2KJ3605 - ■ ■■■■ - ■ ■ K2**
240.50	2.9	1440	0.63	70	2.1	1360	0.46	66	0.42	985	0.09	47	**2KJ3605 - ■ ■■■■ - ■ ■ J2**
222.00	3.2	1450	0.69	70	2.3	1380	0.50	67	0.45	995	0.10	47	**2KJ3605 - ■ ■■■■ - ■ ■ H2**
203.36	3.4	1470	0.74	71	2.5	1400	0.54	68	0.49	1000	0.11	48	**2KJ3605 - ■ ■■■■ - ■ ■ G2**
170.62	4.1	1490	0.89	72	2.9	1440	0.63	70	0.59	1030	0.13	50	**2KJ3605 - ■ ■■■■ - ■ ■ F2**
160.59	4.4	1490	0.95	73	3.1	1450	0.67	71	0.62	1040	0.14	50	**2KJ3605 - ■ ■■■■ - ■ ■ E2**
147.33	4.8	1500	1.00	73	3.4	1460	0.73	71	0.68	1060	0.15	51	**2KJ3605 - ■ ■■■■ - ■ ■ D2**
128.70	5.4	1450	1.10	74	3.9	1480	0.84	72	0.78	1090	0.17	53	**2KJ3605 - ■ ■■■■ - ■ ■ C2**
115.23	6.1	1390	1.20	74	4.3	1490	0.92	73	0.87	1110	0.19	54	**2KJ3605 - ■ ■■■■ - ■ ■ B2**
100.75	6.9	1310	1.30	74	5.0	1460	1.00	74	0.99	1150	0.21	56	**2KJ3605 - ■ ■■■■ - ■ ■ A2**
86.48	8.1	1230	1.40	74	5.8	1380	1.10	74	1.2	1190	0.26	58	**2KJ3605 - ■ ■■■■ - ■ ■ X1**
76.44	9.2	1170	1.50	74	6.5	1310	1.20	74	1.3	1220	0.28	60	**2KJ3605 - ■ ■■■■ - ■ ■ W1**
65.00	10.8	1100	1.70	74	7.7	1230	1.30	74	1.5	1270	0.32	62	**2KJ3605 - ■ ■■■■ - ■ ■ V1**
55.61	12.6	1540	2.30	90	9.0	1510	1.60	88	1.8	1290	0.33	75	**2KJ3605 - ■ ■■■■ - ■ ■ U1**
50.00	14.0	1540	2.50	90	10.0	1530	1.80	88	2.0	1430	0.40	75	**2KJ3605 - ■ ■■■■ - ■ ■ T1**
45.22	15.5	1550	2.80	90	11.1	1530	2.00	89	2.2	1430	0.43	76	**2KJ3605 - ■ ■■■■ - ■ ■ S1**
41.74	16.8	1550	3.00	90	12.0	1540	2.20	89	2.4	1450	0.48	77	**2KJ3605 - ■ ■■■■ - ■ ■ R1**
38.24	18.3	1560	3.30	90	13.1	1540	2.40	90	2.6	1450	0.51	77	**2KJ3605 - ■ ■■■■ - ■ ■ Q1**
32.08	22	1560	4.00	91	15.6	1550	2.80	90	3.1	1390	0.57	79	**2KJ3605 - ■ ■■■■ - ■ ■ P1**
30.20	23	1510	4.00	91	16.6	1550	3.00	90	3.3	1460	0.64	79	**2KJ3605 - ■ ■■■■ - ■ ■ N1**
27.70	25	1460	4.20	91	18.1	1560	3.30	91	3.6	1470	0.69	80	**2KJ3605 - ■ ■■■■ - ■ ■ M1**
25.03	28	1090	3.50	93	20	1080	2.50	92	4.0	990	0.50	84	**2KJ3605 - ■ ■■■■ - ■ ■ L1**
21.00	33	1070	4.00	93	24	1070	2.90	92	4.8	985	0.59	85	**2KJ3605 - ■ ■■■■ - ■ ■ K1**
19.76	35	1120	4.50	93	25	1120	3.20	92	5.1	1030	0.65	85	**2KJ3605 - ■ ■■■■ - ■ ■ J1**
18.13	39	1110	4.90	93	28	1110	3.50	92	5.5	1030	0.70	85	**2KJ3605 - ■ ■■■■ - ■ ■ H1**
15.84	44	1140	5.70	93	32	1130	4.10	93	6.3	1050	0.81	86	**2KJ3605 - ■ ■■■■ - ■ ■ G1**
14.18	49	1150	6.40	93	35	1140	4.50	93	7.1	1070	0.92	87	**2KJ3605 - ■ ■■■■ - ■ ■ F1**
12.40	56	1140	7.30	93	40	1140	5.20	93	8.1	1080	1.00	88	**2KJ3605 - ■ ■■■■ - ■ ■ E1**
10.64	66	1150	8.50	93	47	1140	6.10	93	9.4	1090	1.20	88	**2KJ3605 - ■ ■■■■ - ■ ■ D1**
9.41	74	1120	9.4*	93	53	1120	6.70	93	10.6	1070	1.30	89	**2KJ3605 - ■ ■■■■ - ■ ■ C1**
8.00	88	1120	11.2*	93	62	1130	7.90	93	12.5	1090	1.60	90	**2KJ3605 - ■ ■■■■ - ■ ■ B1**
6.86	102	1060	12.3*	93	73	1110	9.20	93	14.6	1090	1.80	91	**2KJ3605 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

* $P_{mot\ max}$ = 9.2 kW

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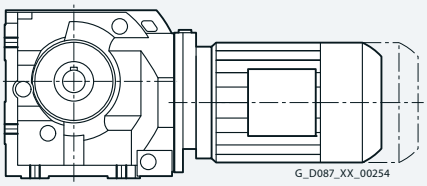
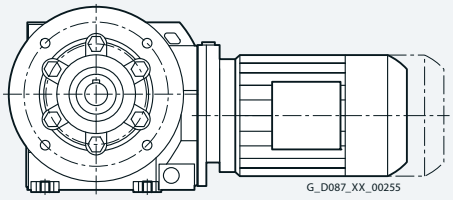
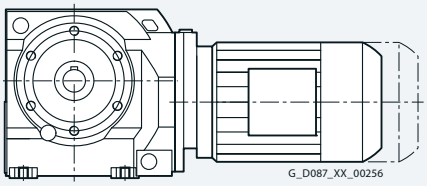
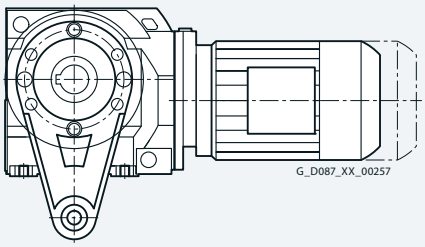
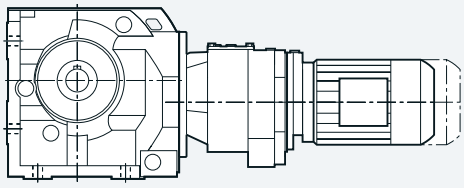
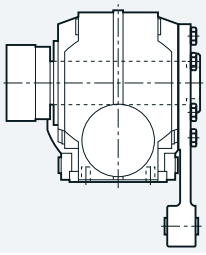
Helical worm geared motors

Overview

Notes on the dimensional drawings are provided in chapter Introduction on page 1/22.

Design	Frame size	Dimensional drawing, see page
Helical worm geared motor C		
Foot-mounted design		
 G_D087_XX_00254	C..29	6/40
	C..39A	6/44
	C..49	6/48
	C..69	6/52
	C..89	6/56
Flange-mounted design		
 G_D087_XX_00255	C.F.29	6/41
	C.F.39A	6/45
	C.F.49	6/49
	C.F.69	6/53
	C.F.89	6/57
Housing flange design		
 G_D087_XX_00256	C.Z.29	6/42
	C.Z.39A	6/46
	C.Z.49	6/50
	C.Z.69	6/54
	C.Z.89	6/58
Shaft-mounted design		
 G_D087_XX_00257	CAD.29	6/43
	CAD.39A	6/47
	CAD.49	6/51
	CAD.69	6/55
	CAD.89	6/59
Helical worm tandem geared motors		
	C.29-Z/D19 ... C.89-Z/D39	6/60
Additional versions and options		
ShaftMount assembly system		
	CADR.29 ... CADR.89	6/61

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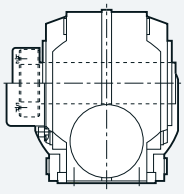
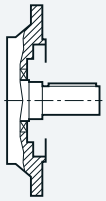
Overview

Design	Frame size	Dimensional drawing, see page
Additional versions and options		
Protective covers		
	CA.29 ... CA.89 CA.S29 ... CA.S89 CADR29 ... CADR89	6/62
Inner contour of the flange-mounted design		
	CF29 ... CF89 CAF.29 ... CAF.89	6/63

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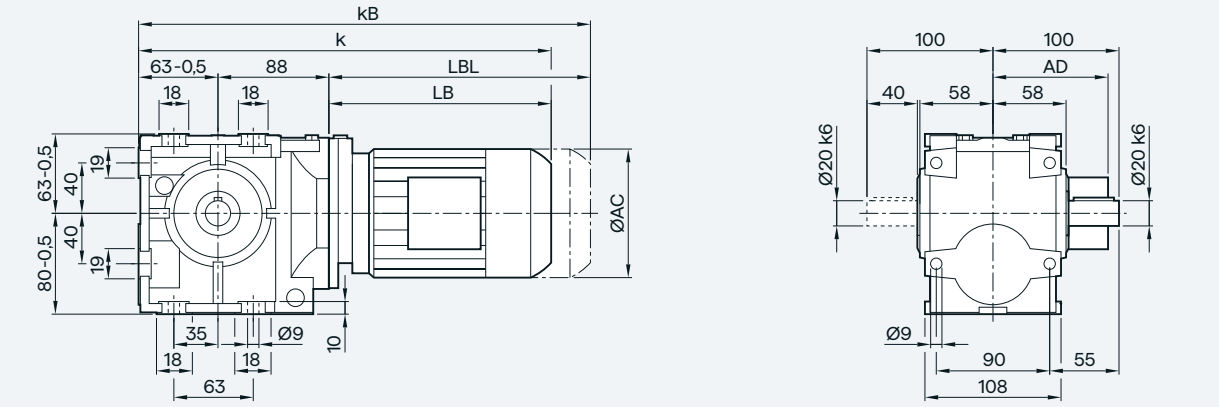
Helical worm geared motors

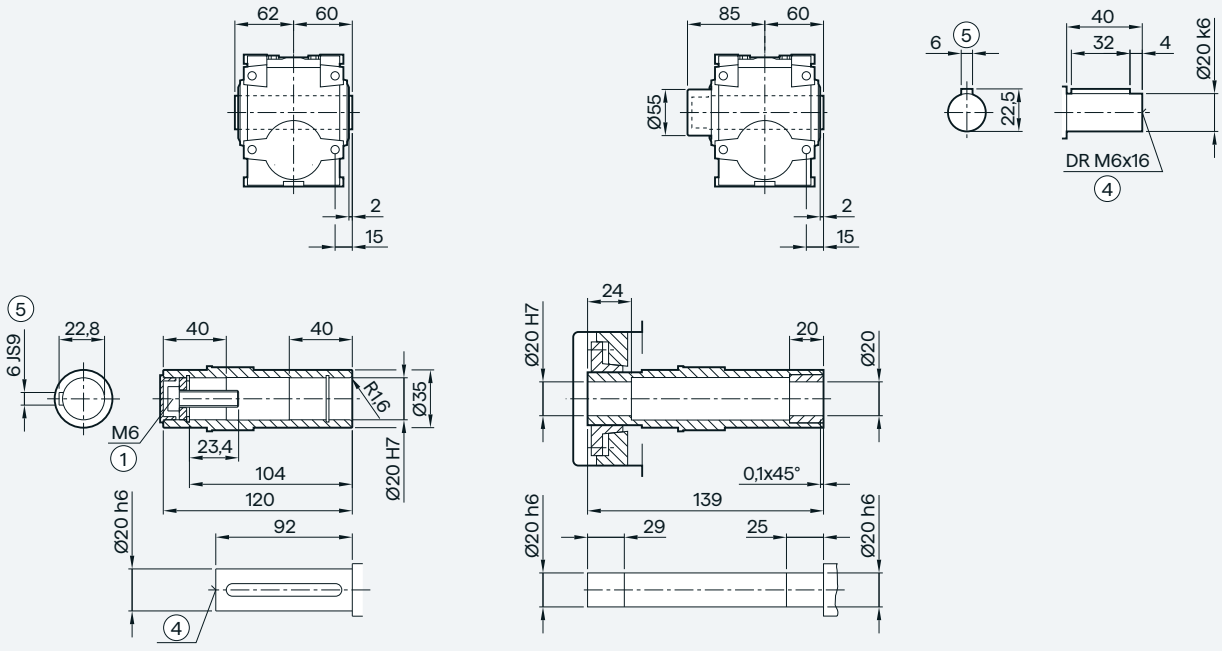
Gearbox C..29 in a foot-mounted design

C29



CA29

CAS29



Motor	LE								
	63	63Z	71	71Z	71Y	80	80Z	90	90Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2
k	345.0	371.0	377.0	396.0	436.0	441.0	476.0	502.5	542.5
kB	389.5	415.5	432.0	451.0	491.0	501.0	536.0	572.5	612.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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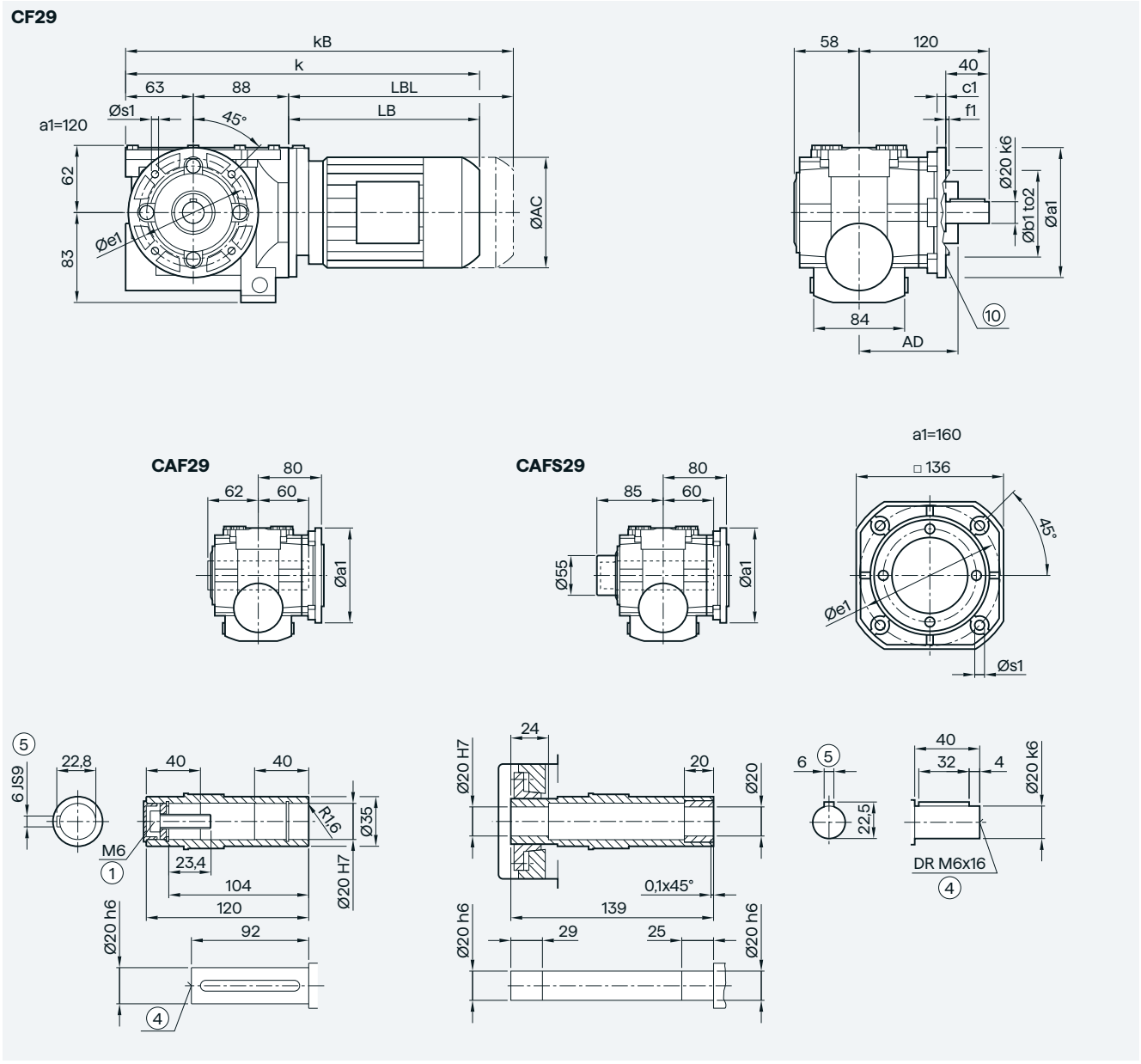
Gearbox C.F.29 in a flange-mounted design



Flange	a1	b1	c1	f1	e1	s1	to2
	120	80	8	3.0	100	6.6	j6
	160	110	9	3.5	130	9.0	j6

Motor	LE								
	63	63Z	71	71Z	71Y	80	80Z	90	90Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2
k	345.0	371.0	377.0	396.0	436.0	441.0	476.0	502.5	542.5
kB	389.5	415.5	432.0	451.0	491.0	501.0	536.0	572.5	612.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 6/63.

1) AD depends on the motor options, for other dimensions, see page 9/46.

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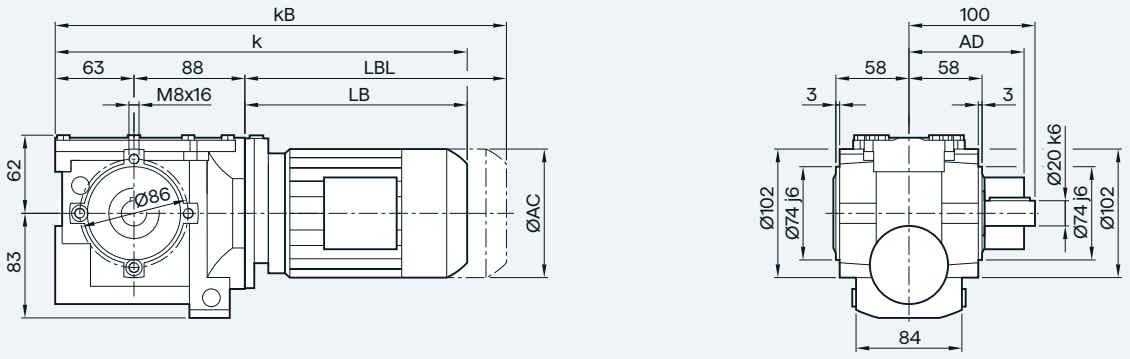
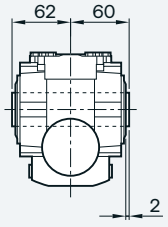
Helical worm geared motors

Gearbox C.Z.29 in a housing flange design

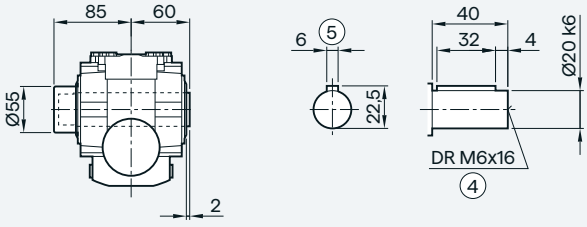
CZ29

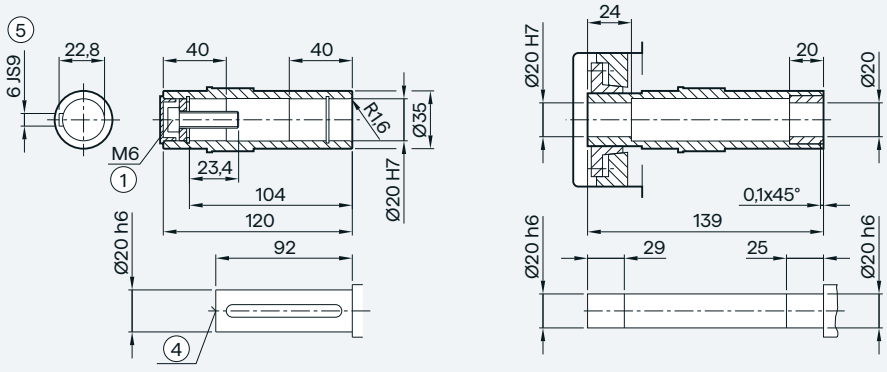


CAZ29



CAZS29





Motor	LE								
	63	63Z	71	71Z	71Y	80	80Z	90	90Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2
k	345.0	371.0	377.0	396.0	436.0	441.0	476.0	502.5	542.5
kB	389.5	415.5	432.0	451.0	491.0	501.0	536.0	572.5	612.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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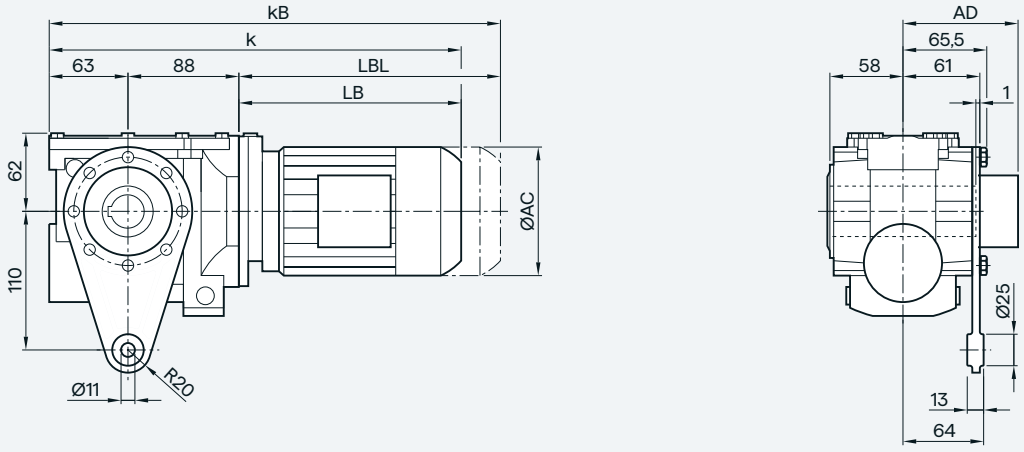
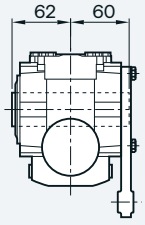
Gearbox CAD.29 in a shaft-mounted design

CAD29



CAD29



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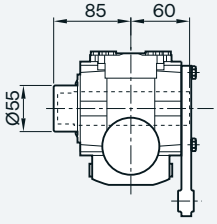

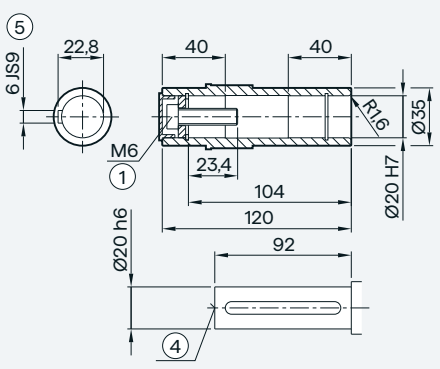

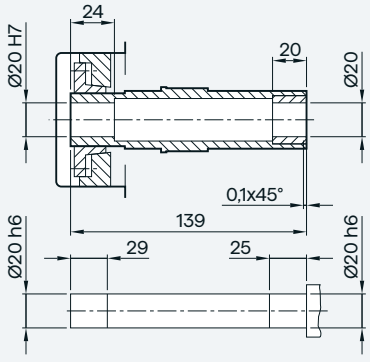

Motor	LE								
	63	63Z	71	71Z	71Y	80	80Z	90	90Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2
k	345.0	371.0	377.0	396.0	436.0	441.0	476.0	502.5	542.5
kB	389.5	415.5	432.0	451.0	491.0	501.0	536.0	572.5	612.5
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① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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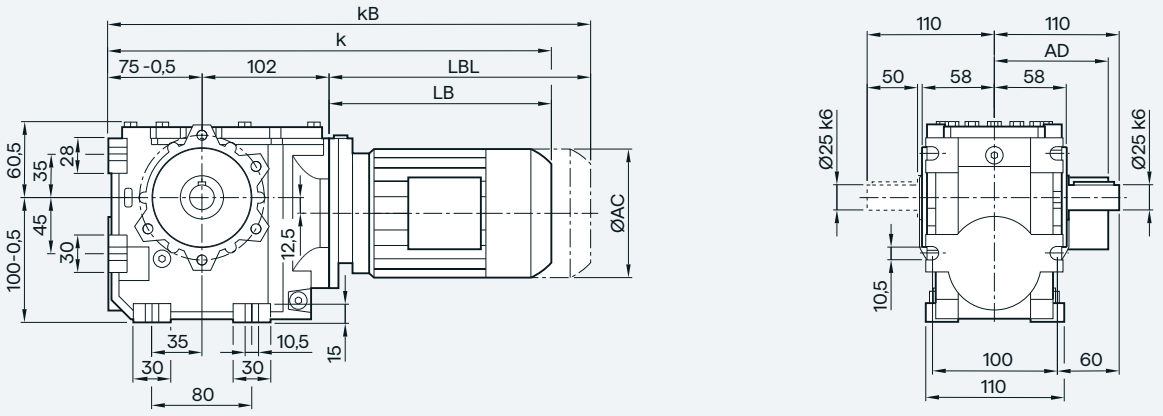
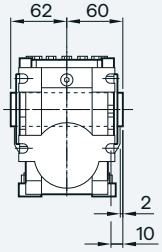
Helical worm geared motors

Gearbox C..39A in a foot-mounted design

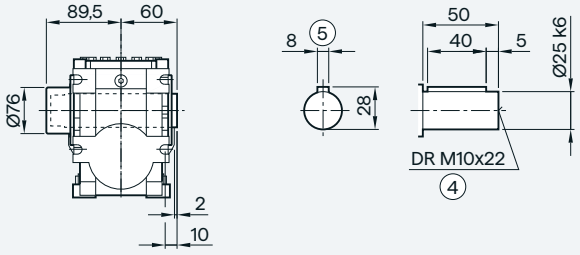
C39A

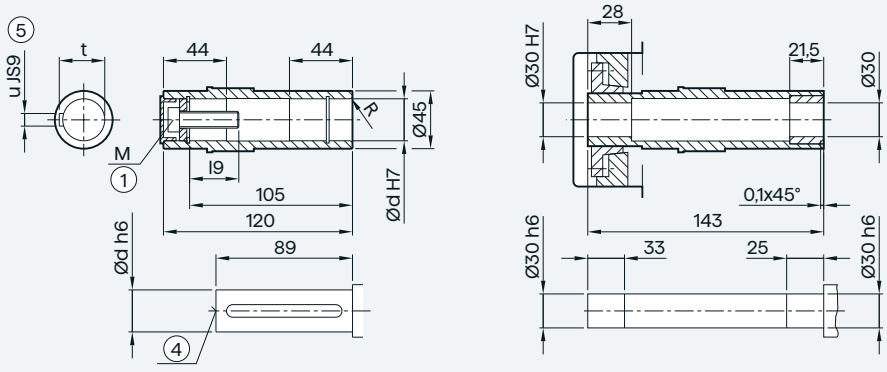


CA39A



CAS39A





Shaft	d	l9	M	R	t	u
	25	32.6	M10	1.6	28.3	8
	30	32.6	M10	3.0	33.3	8

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	371.0	397.0	403.0	422.0	462.0	467.0	502.0	528.5	568.5	585.0	620.0
kB	415.5	441.5	458.0	477.0	517.0	527.0	562.0	598.5	638.5	663.5	698.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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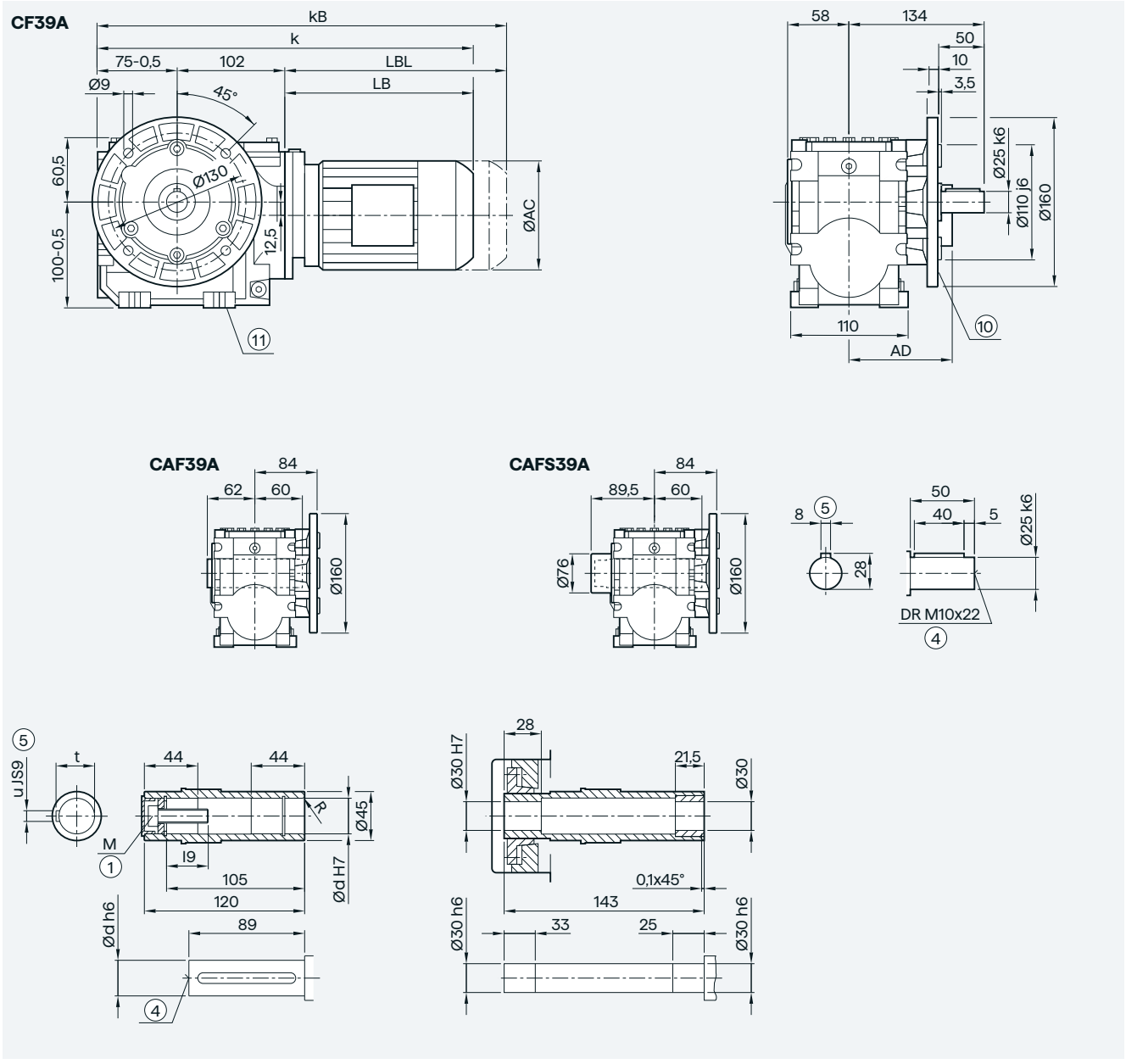
Gearbox C.F.39A in a flange-mounted design



Shaft	d	l9	M	R	t	u
	25	32.6	M10	1.6	28.3	8
	30	32.6	M10	3.0	33.3	8

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	371.0	397.0	403.0	422.0	462.0	467.0	502.0	528.5	568.5	585.0	620.0
kB	415.5	441.5	458.0	477.0	517.0	527.0	562.0	598.5	638.5	663.5	698.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 6/63
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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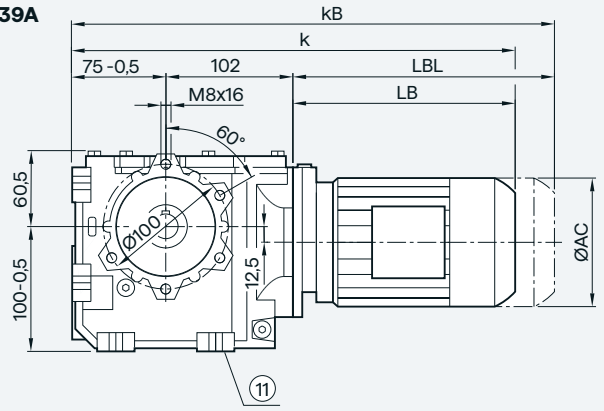
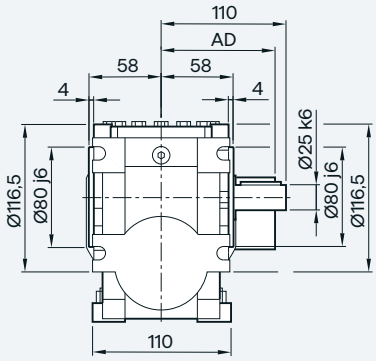
Helical worm geared motors

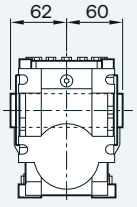
Gearbox C.Z.39A in a housing flange design

CZ39A





CAZ39A



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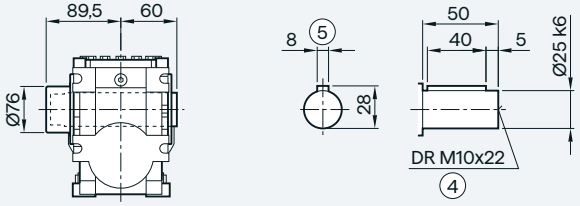

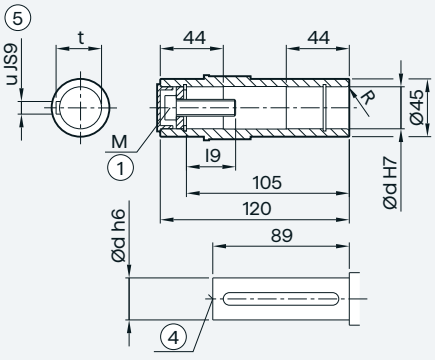

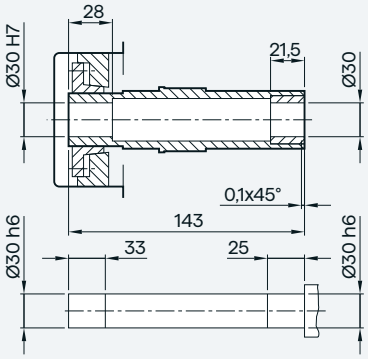

Shaft	d	l9	M	R	t	u
	25	32.6	M10	1.6	28.3	8
	30	32.6	M10	3.0	33.3	8

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	371.0	397.0	403.0	422.0	462.0	467.0	502.0	528.5	568.5	585.0	620.0
kB	415.5	441.5	458.0	477.0	517.0	527.0	562.0	598.5	638.5	663.5	698.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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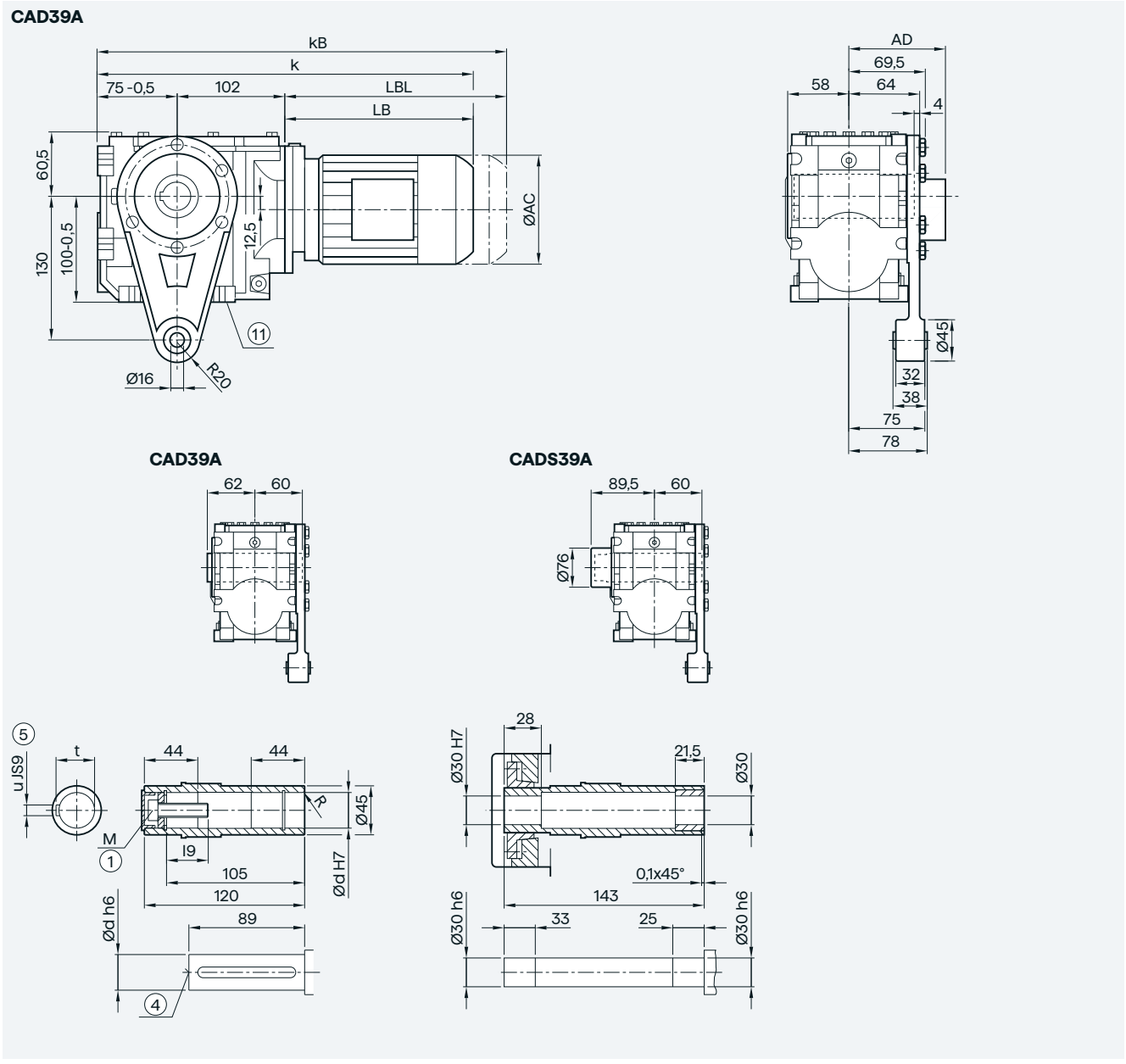
Gearbox CAD.39A in a shaft-mounted design



Shaft	d	l9	M	R	t	u
	25	32.6	M10	1.6	28.3	8
	30	32.6	M10	3.0	33.3	8

Motor	LE										
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	371.0	397.0	403.0	422.0	462.0	467.0	502.0	528.5	568.5	585.0	620.0
kB	415.5	441.5	458.0	477.0	517.0	527.0	562.0	598.5	638.5	663.5	698.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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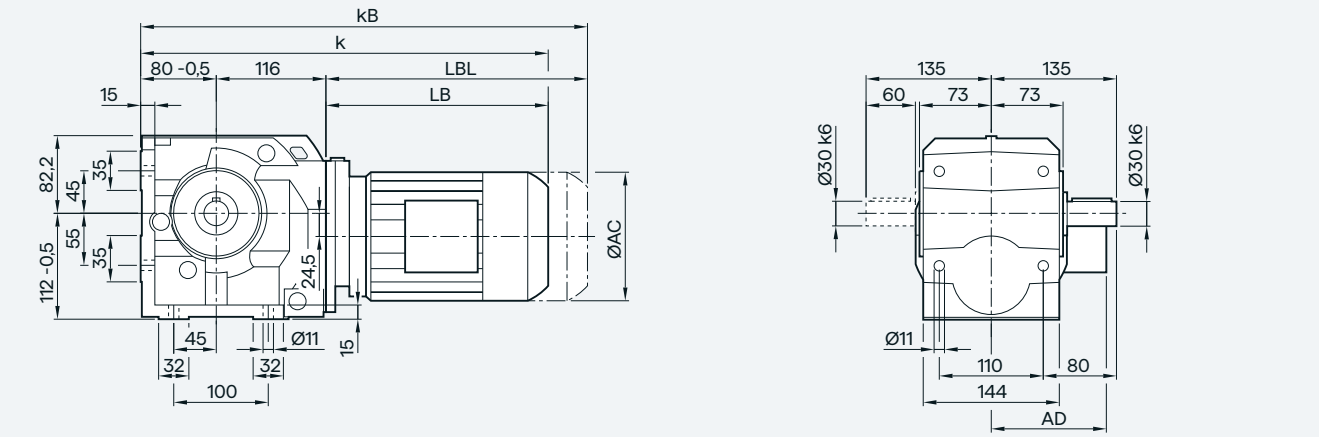
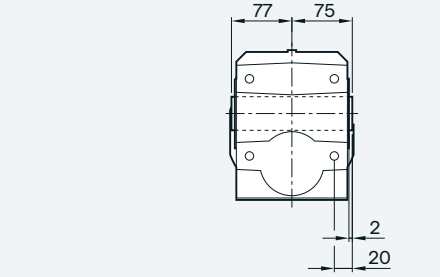
Helical worm geared motors

Gearbox C..49 in a foot-mounted design

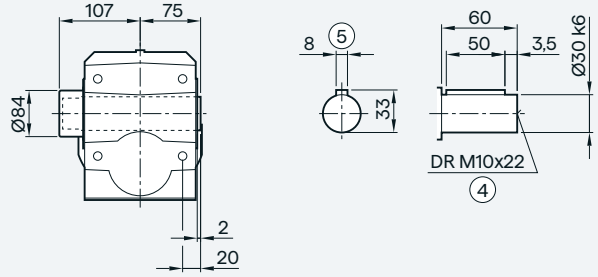
C49

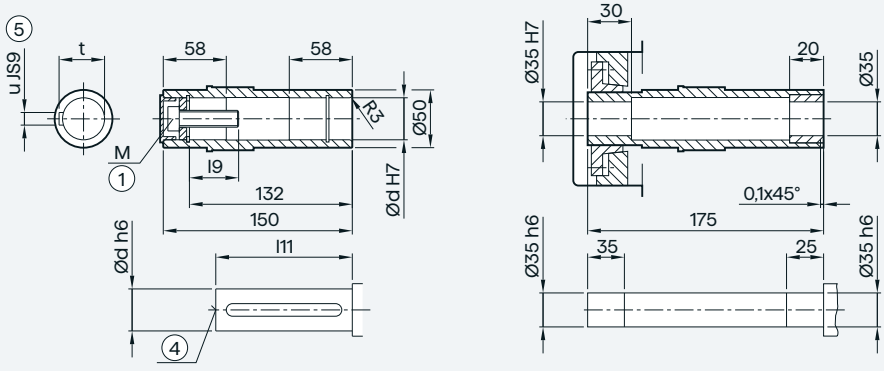


CA49



CAS49





Shaft	d	l9	l11	M	t	u
	30	32.6	114	M10	33.3	8
	35	42	116	M12	38.3	10

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	380.5	406.5	412.5	431.5	471.5	476.5	511.5	538.0	578.0	594.5	629.5	604.5	639.0
kB	425.0	451.0	467.5	486.5	526.5	536.5	571.5	608.0	648.0	673.0	708.0	677.5	712.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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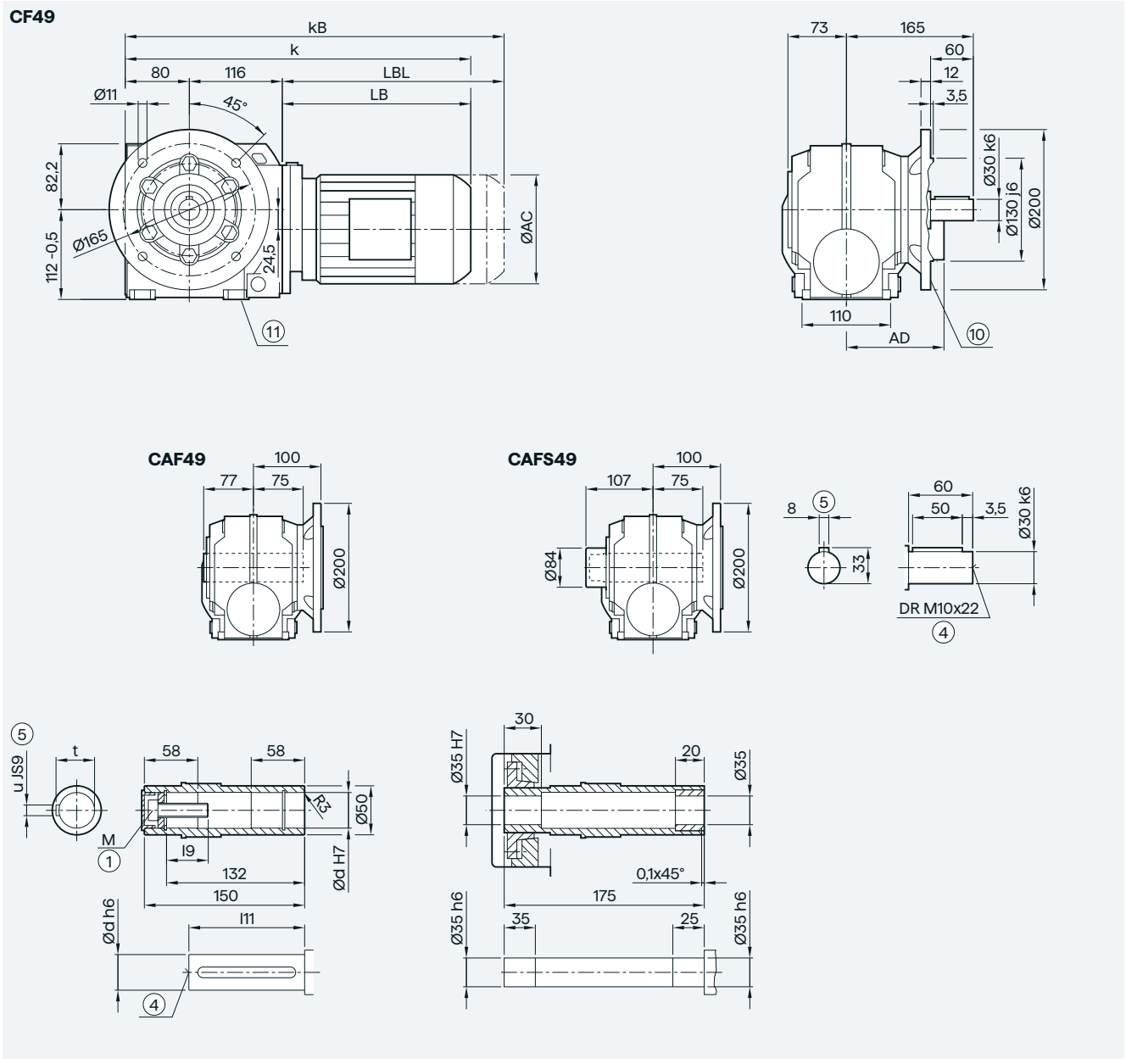
Gearbox C.F.49 in a flange-mounted design



Shaft	d	l9	l11	M	t	u
	30	32.6	114	M10	33.3	8
	35	42	116	M12	38.3	10

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	380.5	406.5	412.5	431.5	471.5	476.5	511.5	538.0	578.0	594.5	629.5	604.5	639.0
kB	425.0	451.0	467.5	486.5	526.5	536.5	571.5	608.0	648.0	673.0	708.0	677.5	712.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 6/63
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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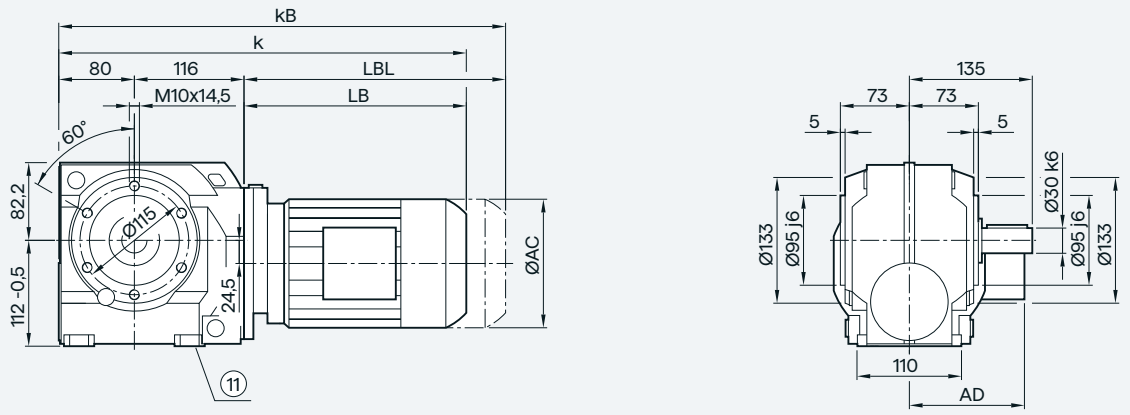
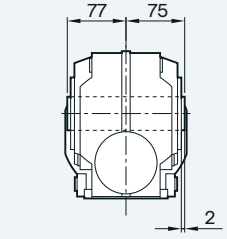
Helical worm geared motors

Gearbox C.Z.49 in a housing flange design

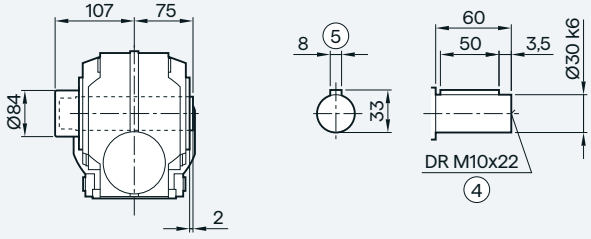
CZ49

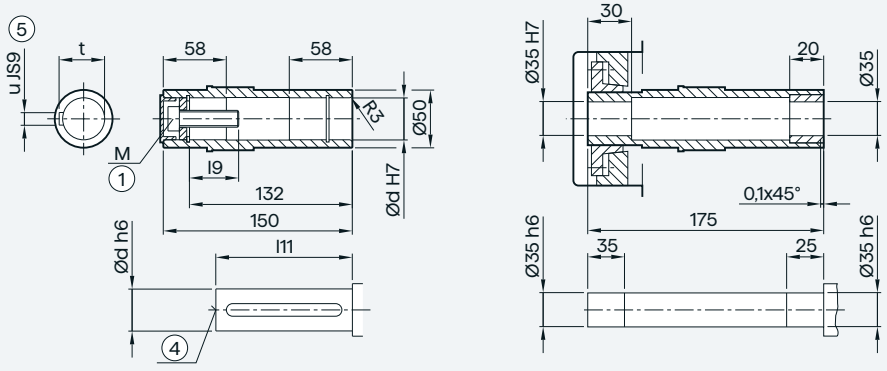


CAZ49



CAZS49





Shaft	d	l9	l11	M	t	u
	30	32.6	114	M10	33.3	8
	35	42	116	M12	38.3	10

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	380.5	406.5	412.5	431.5	471.5	476.5	511.5	538.0	578.0	594.5	629.5	604.5	639.0
kB	425.0	451.0	467.5	486.5	526.5	536.5	571.5	608.0	648.0	673.0	708.0	677.5	712.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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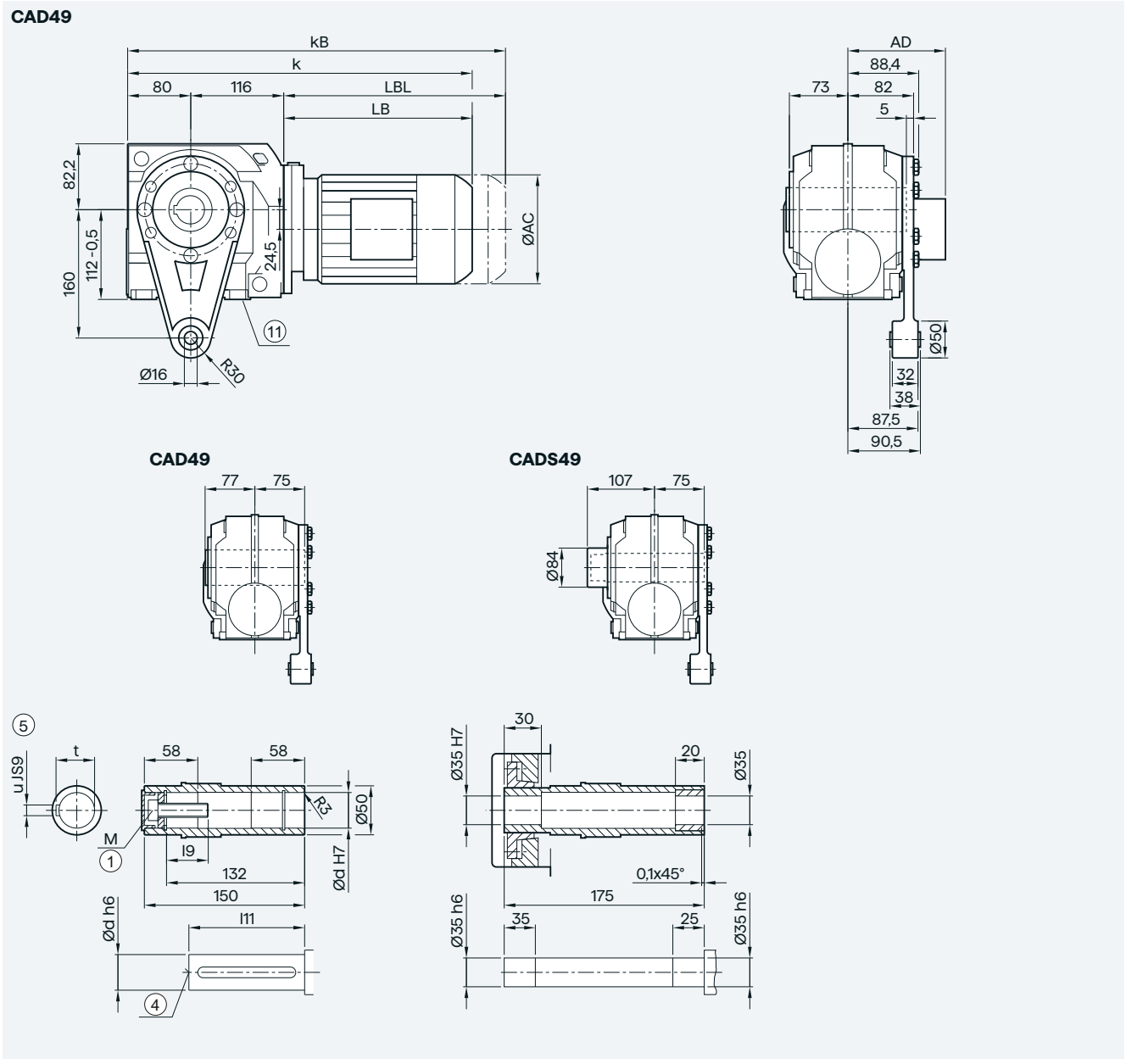
Gearbox CAD.49 in a shaft-mounted design



Shaft	d	l9	l11	M	t	u
	30	32.6	114	M10	33.3	8
	35	42	116	M12	38.3	10

Motor	LE												
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	380.5	406.5	412.5	431.5	471.5	476.5	511.5	538.0	578.0	594.5	629.5	604.5	639.0
kB	425.0	451.0	467.5	486.5	526.5	536.5	571.5	608.0	648.0	673.0	708.0	677.5	712.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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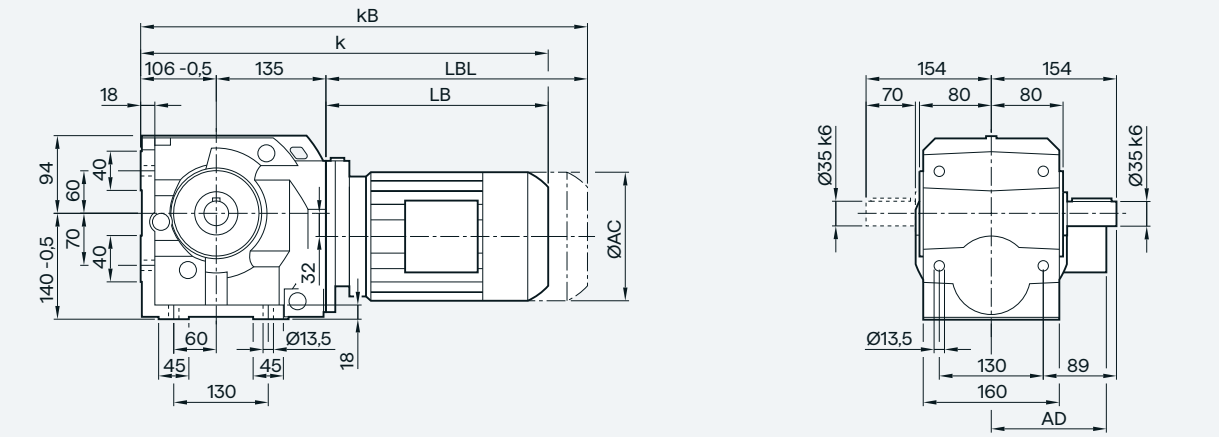
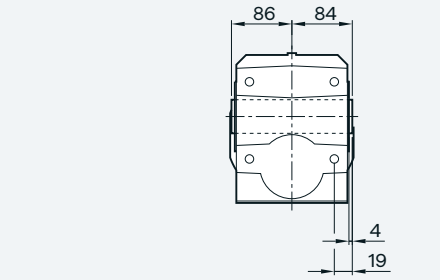
Helical worm geared motors

Gearbox C..69 in a foot-mounted design

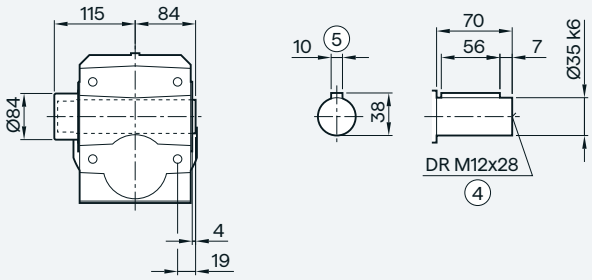
C69

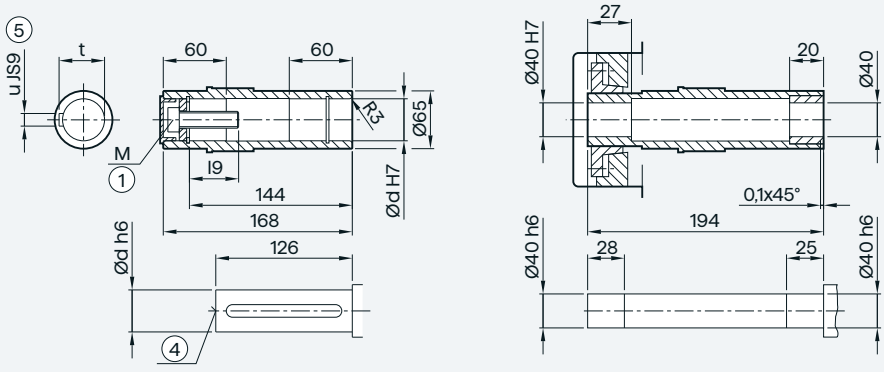


CA69



CAS69





Shaft	d	l9	M	t	u
	40	47.75	M16	43.3	12
	45	48.75	M16	48.8	14

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	425.5	451.5	457.5	476.5	516.5	521.5	556.5	583.0	623.0	639.5	674.5	649.5	684.0	702.5	752.5
kB	470.0	496.0	512.5	531.5	571.5	581.5	616.5	653.0	693.0	718.0	753.0	722.5	757.0	807.0	857.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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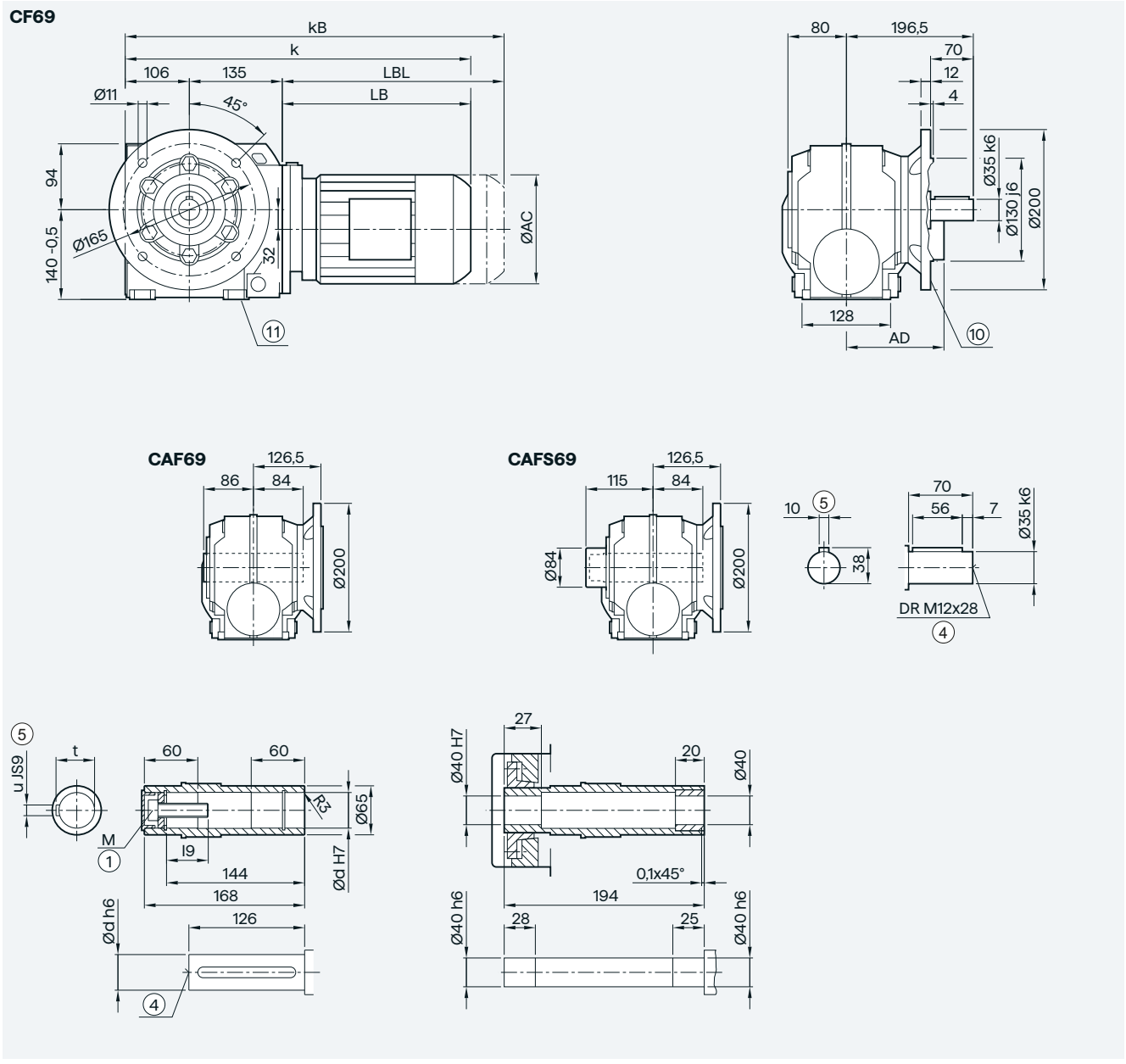
Gearbox C.F.69 in a flange-mounted design



Shaft	d	l9	M	t	u
	40	47.75	M16	43.3	12
	45	48.75	M16	48.8	14

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	425.5	451.5	457.5	476.5	516.5	521.5	556.5	583.0	623.0	639.5	674.5	649.5	684.0	702.5	752.5
kB	470.0	496.0	512.5	531.5	571.5	581.5	616.5	653.0	693.0	718.0	753.0	722.5	757.0	807.0	857.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 6/63
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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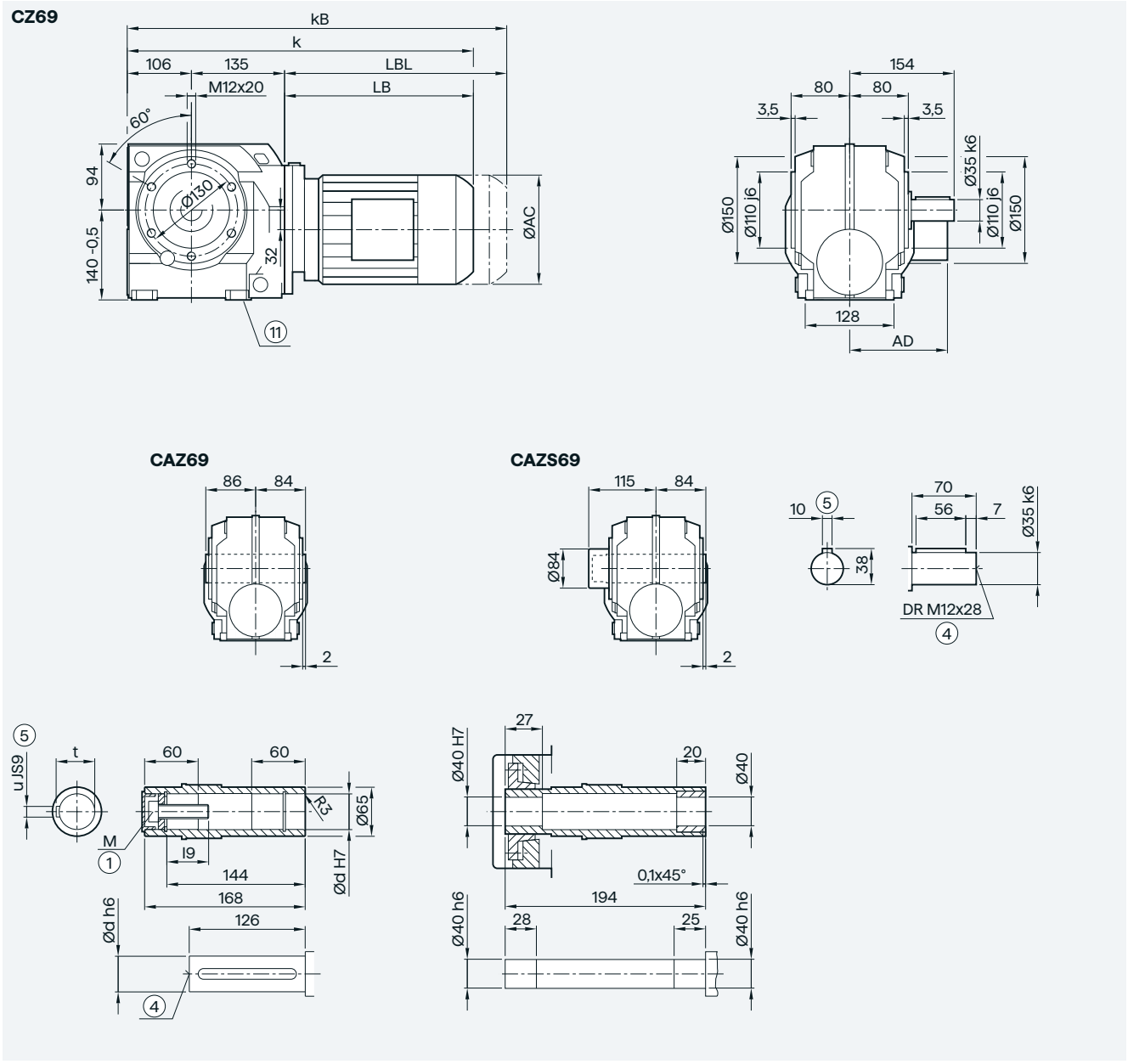
Helical worm geared motors

Gearbox C.Z.69 in a housing flange design



Shaft	d	l9	M	t	u
	40	47.75	M16	43.3	12
	45	48.75	M16	48.8	14

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	425.5	451.5	457.5	476.5	516.5	521.5	556.5	583.0	623.0	639.5	674.5	649.5	684.0	702.5	752.5
kB	470.0	496.0	512.5	531.5	571.5	581.5	616.5	653.0	693.0	718.0	753.0	722.5	757.0	807.0	857.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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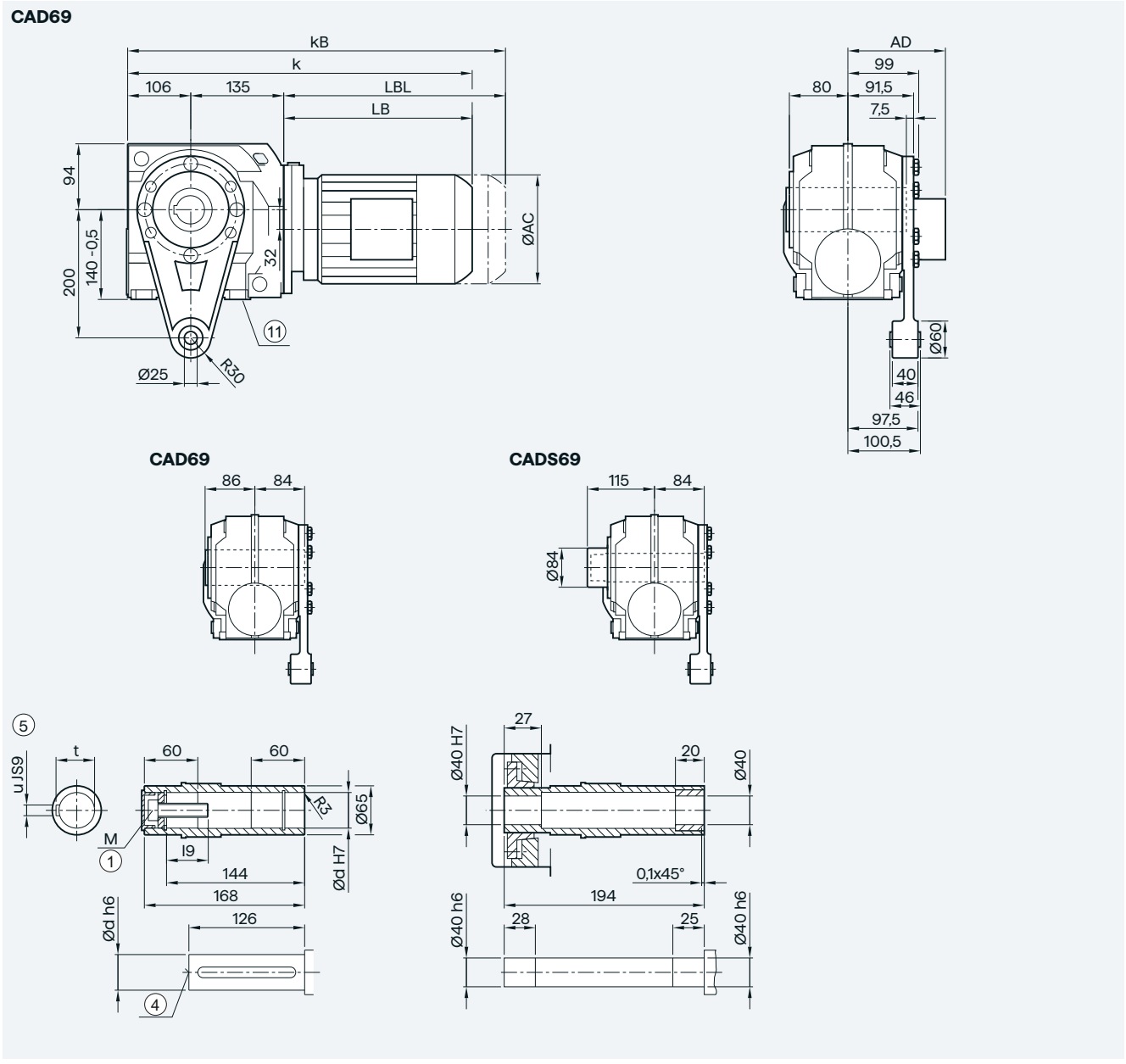
Gearbox CAD.69 in a shaft-mounted design



Shaft	d	l9	M	t	u
	40	47.75	M16	43.3	12
	45	48.75	M16	48.8	14

Motor	LE														
	63	63Z	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	425.5	451.5	457.5	476.5	516.5	521.5	556.5	583.0	623.0	639.5	674.5	649.5	684	702.5	752.5
kB	470.0	496.0	512.5	531.5	571.5	581.5	616.5	653.0	693.0	718.0	753.0	722.5	757	807.0	857.0
LB	184.5	210.5	216.5	235.5	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443	461.5	511.5
LBL	229.0	255.0	271.5	290.5	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516	566.0	616.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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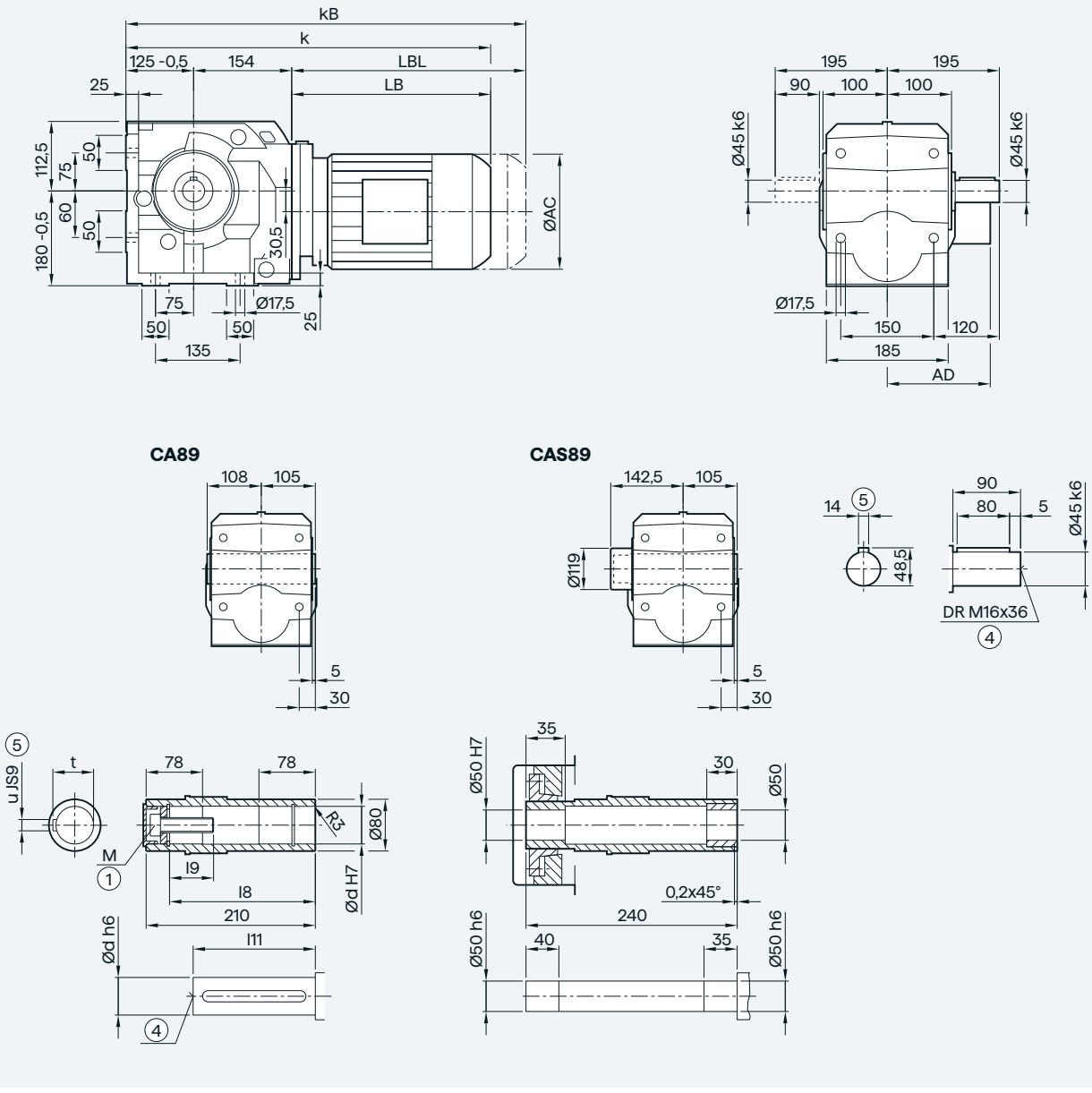
Helical worm geared motors

Gearbox C..89 in a foot-mounted design

C89



CA89

CAS89

Shaft	d	l8	l9	l11	M	t	u
	50	183	44.5	165	M16	53.8	14
	60	180	57	158	M20	64.4	18

Motor	LE												
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	493.5	512.5	552.5	553.5	588.5	615.0	655.0	671.5	706.5	681.5	706.5	734.5	784.5
kB	548.5	567.5	607.5	613.5	648.5	685.0	725.0	750.0	785.0	754.5	779.5	839.0	889.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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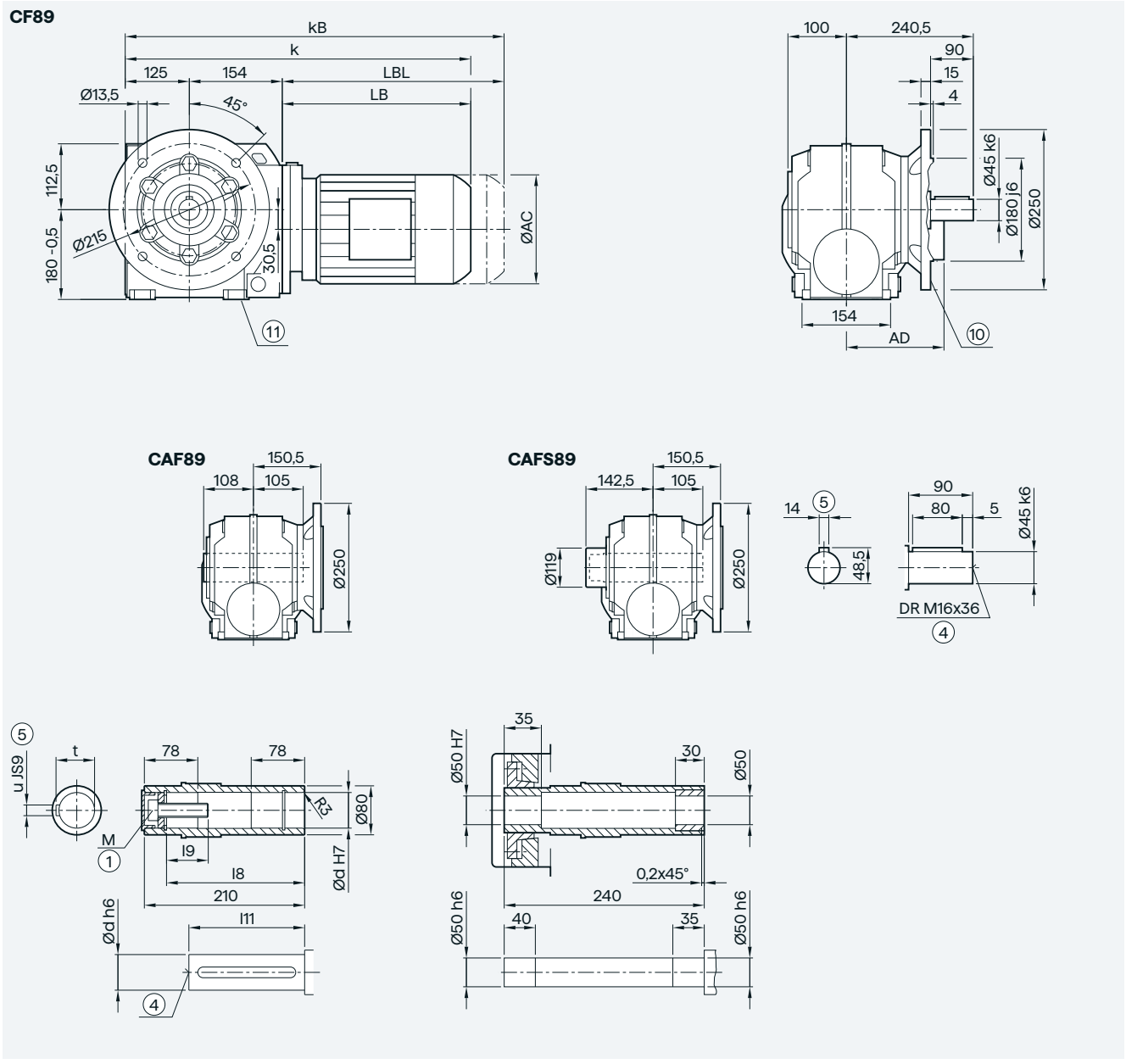
Gearbox C.F.89 in a flange-mounted design



Shaft	d	l8	l9	l11	M	t	u
	50	183	44.5	165	M16	53.8	14
	60	180	57	158	M20	64.4	18

Motor	LE												
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	493.5	512.5	552.5	553.5	588.5	615.0	655.0	671.5	706.5	681.5	706.5	734.5	784.5
kB	548.5	567.5	607.5	613.5	648.5	685.0	725.0	750.0	785.0	754.5	779.5	839.0	889.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour, see page 6/63
⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions, see page 9/46.

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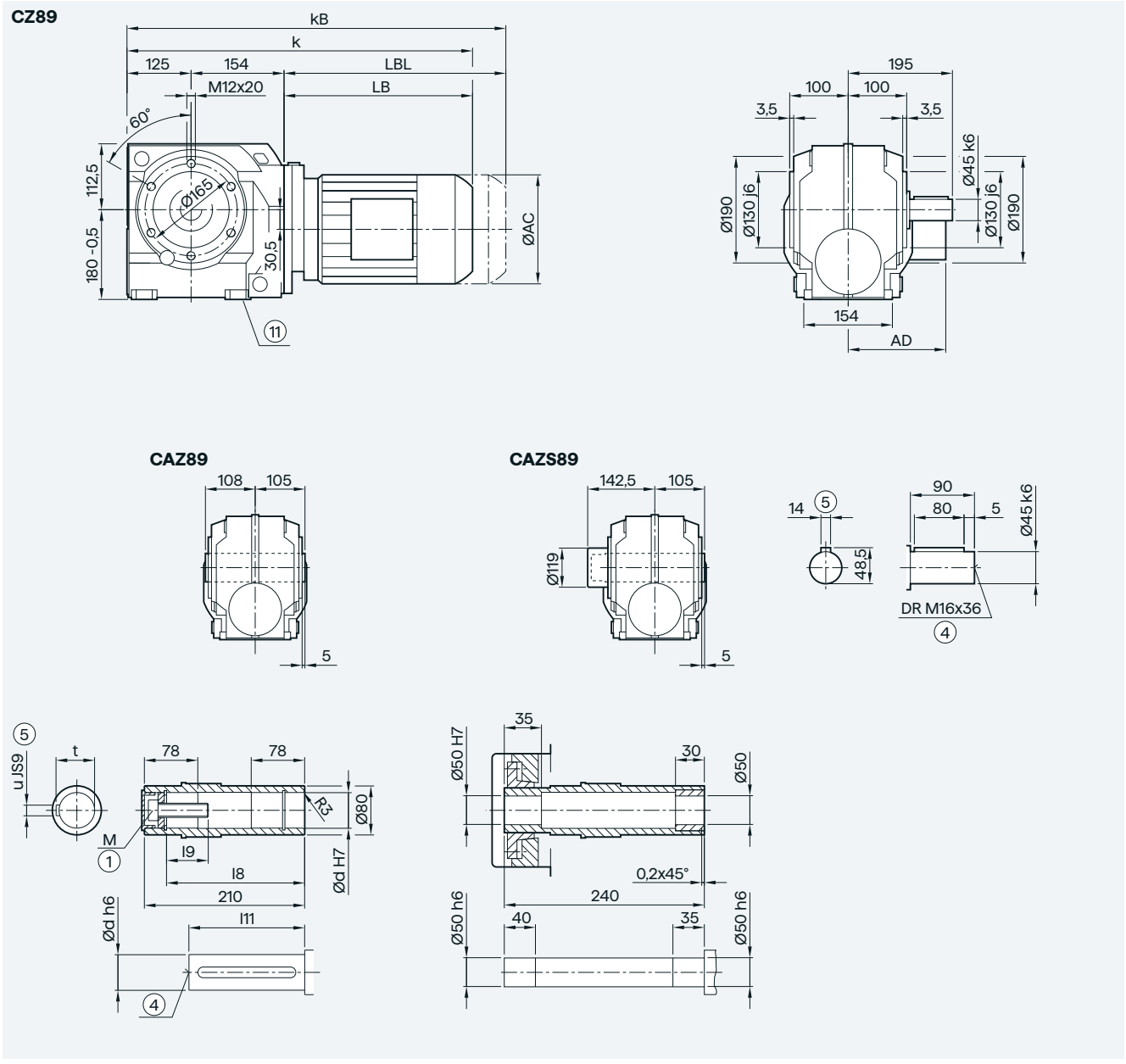
Helical worm geared motors

Gearbox C.Z.89 in a housing flange design



Shaft	d	l8	l9	l11	M	t	u
	50	183	44.5	165	M16	53.8	14
	60	180	57	158	M20	64.4	18

Motor	LE												
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	493.5	512.5	552.5	553.5	588.5	615.0	655.0	671.5	706.5	681.5	706.5	734.5	784.5
kB	548.5	567.5	607.5	613.5	648.5	685.0	725.0	750.0	785.0	754.5	779.5	839.0	889.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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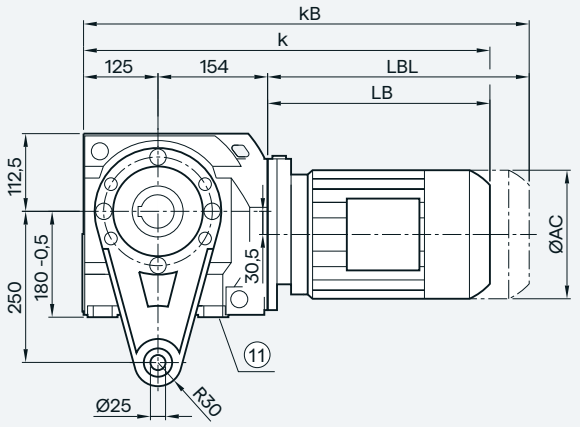
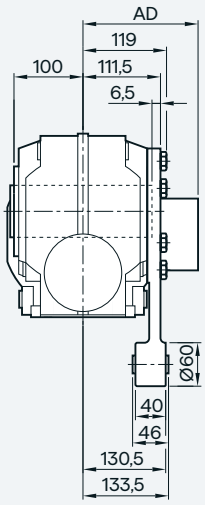
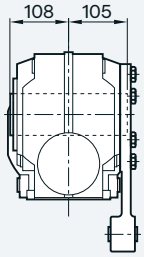
Gearbox CAD.89 in a shaft-mounted design

CAD89

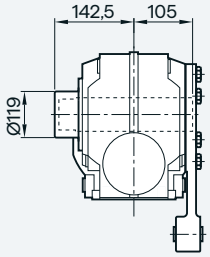


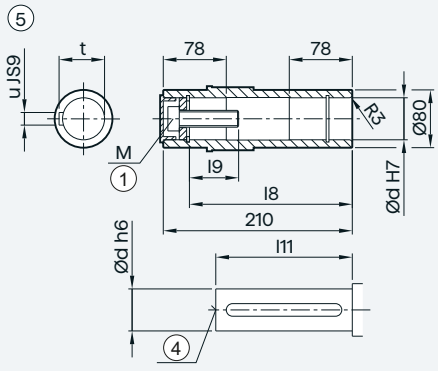


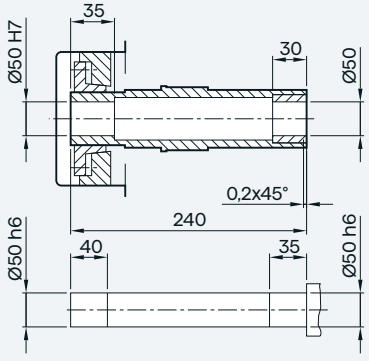
CAD89



CADS89







Shaft	d	l8	l9	l11	M	t	u
	50	183	44.5	165	M16	53.8	14
	60	180	57	158	M20	64.4	18

Motor	LE												
	71	71Z	71Y	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z
AC	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	493.5	512.5	552.5	553.5	588.5	615.0	655.0	671.5	706.5	681.5	706.5	734.5	784.5
kB	548.5	567.5	607.5	613.5	648.5	685.0	725.0	750.0	785.0	754.5	779.5	839.0	889.0
LB	214.5	233.5	273.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5
LBL	269.5	288.5	328.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions, see page 9/46.

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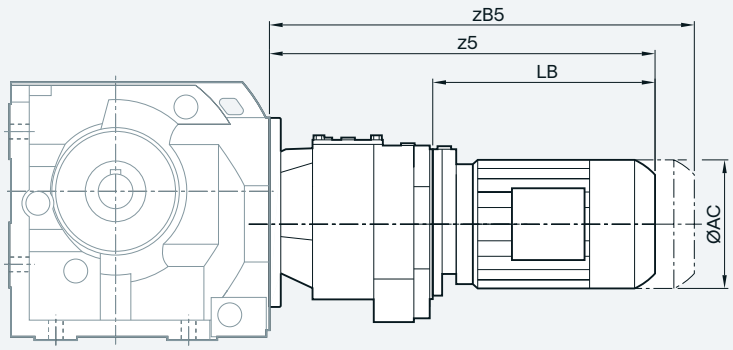
Helical worm tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
C.29-Z/D19	LE63	117.8	331.0	375.5	160.5
	LE63Z	117.8	357.0	401.5	186.5
C.39A-Z/D19	LE63	117.8	331.0	375.5	160.5
	LE63Z	117.8	357.0	401.5	186.5
	LE71	138.8	363.0	418.0	184.5
	LE71Z	138.8	382.0	437.0	203.5
	LE71Y	138.8	422.0	477.0	243.5
C.49-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.0	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
C.69-Z/D19	LE63	117.8	322.0	366.5	160.5
	LE63Z	117.8	348.0	392.5	186.5
	LE71	138.8	354.0	409.0	184.5
	LE71Z	138.8	373.0	428.0	203.5
	LE71Y	138.8	413.5	468.0	243.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
C.89-Z/D39	LE63	117.8	373.5	418.0	194.0
	LE63Z	117.8	399.5	444.0	220.0
	LE71	138.8	405.5	460.5	226.0
	LE71Z	138.8	424.5	479.5	245.0
	LE71Y	138.8	464.5	519.5	285.0
	LE80	156.3	469.5	529.5	290.0
	LE80Z	156.3	504.5	564.5	325.0
	LE90	173.8	531.0	601.0	351.5
	LE90Z	173.8	571.0	641.0	391.5

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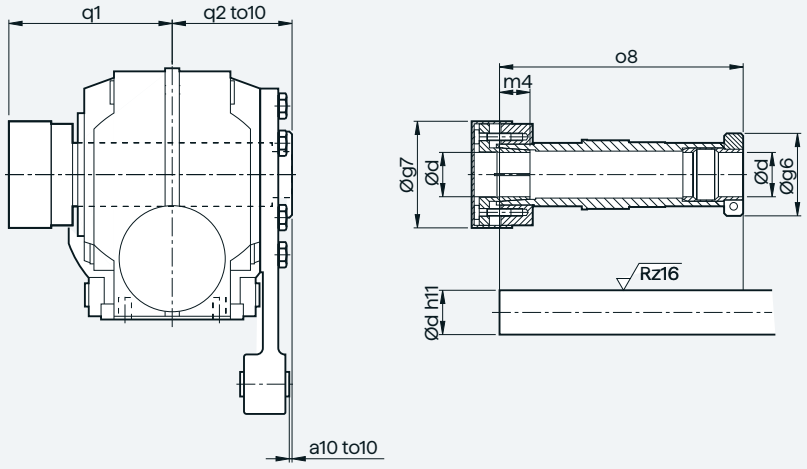
ShaftMount assembly system

CADR



Note mounting tolerance to10 when positioning the torque arm.

d	g6	g7	m4	o8	q1	q2	a10	to10
CADR.29								
20	58.5	56	18.5	151.0	102	75	11	+2.1
1“								+0.6
0.75“								
CADR39A								
30	62.0	76	22	160.5	106	75	39	+2.2
25								+0.7
1.25“								
1.1875“								
1“								
CADR49								
35	65.0	84	24	192.0	124	90	35	+2.6
30								+0.8
1.4375“								
1.375“								
1.25“								
1.1875“								
CADR69								
40	79.5	94	30	217.5	138	102	39	+2.5
35								+0.7
1.5“								
1.4375“								
1.375“								
1.625“								
CADR89								
50	89.0	114	32	264.0	171	124	45	+3.4
40								+1.5
2“								
1.9375“								
1.75“								
1.625“								

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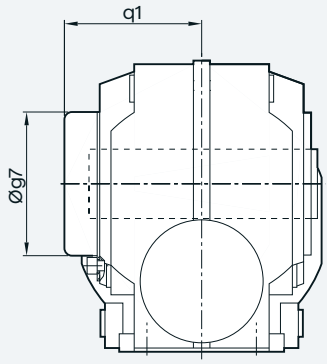
Protective covers

Protective covers for hollow shaft

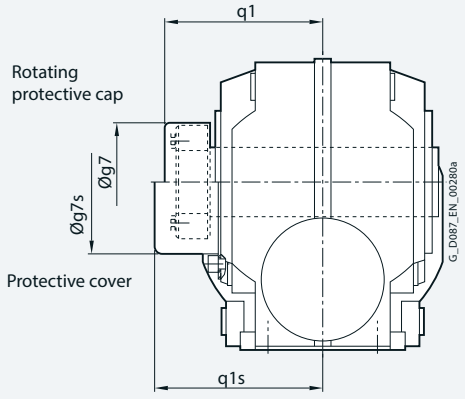
CAF, CAZ, CAD



Gearbox type	CA.29	CA.39A	CA.49	CA.69	CA.89
Protective cover					
g7	67.0	82.5	80.0	99.0	137.0
q1	76.0	73.0	99.0	95.5	124.5

Protective covers for hollow shaft with shrink disk

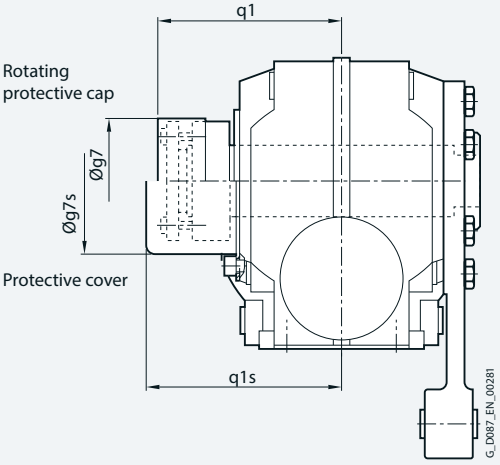
CAFS, CAZS, CADS



Gearbox type	CA.S29	CA.S39A	CA.S49	CA.S69	CA.S89
Rotating protective cap for the shrink disk version					
g7	55.0	76.0	84.0	84.0	94.0
q1	85.0	89.5	107.0	115.0	125.5
Protective cover					
g7s	58.0	82.5	86.0	99.0	137.0
q1s	91.0	109.0	122.0	126.5	176.5

Protective covers for hollow shaft with ShaftMount assembly system

CADR



Gearbox type	CADR29	CADR39A	CADR49	CADR69	CADR89
Rotating protective cap					
g7	56.0	76.0	84.0	94.0	114.0
q1	101.5	106.0	124.0	144.0	171.0
Protective cover					
g7s	58.0	82.5	86.0	99	137.0
q1s	102.0	109.0	126.0	145.5	176.5

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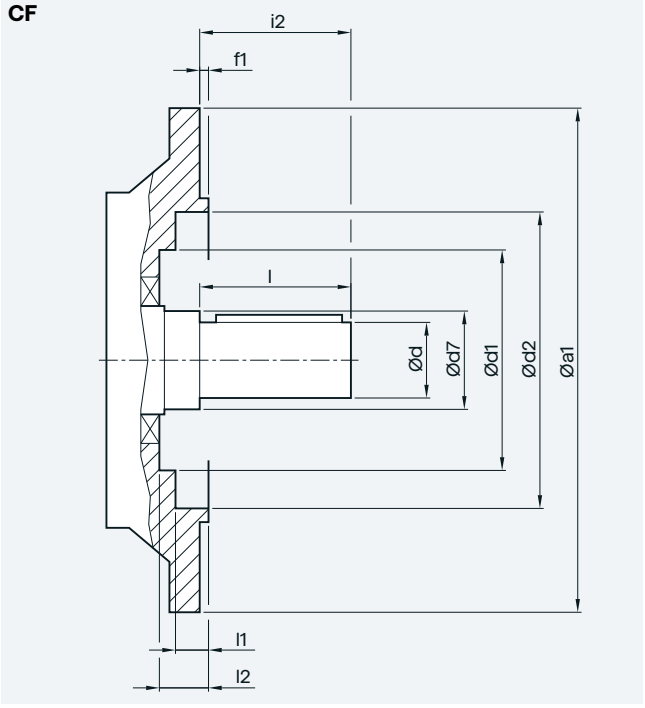
Inner contour of the flange-mounted design

Notes regarding the design of the customer's interface for the solid shaft design

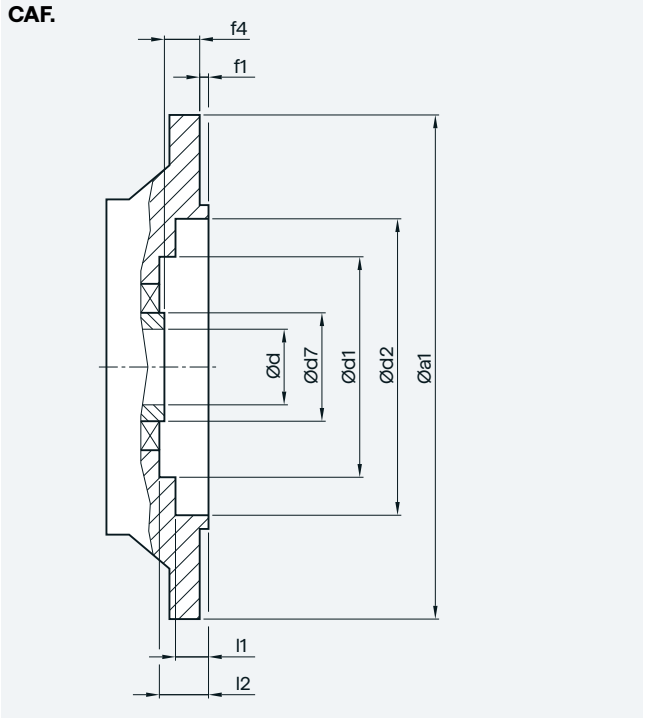
CF



Gearbox type	a1	d	d7	d1	d2	f1	i2	l	l1	l2
CF29	120	20	40	–	70	3.0	40	40	24.0	–
	160			70	101	3.5			8.5	24.5
CF39A	160	25	30	–	100	3.5	50	50	4.0	–
CF49	200	30	35	–	118	3.5	60	60	5.5	–
CF69	200	35	45	105	120	4.0	70	70	4.5	48.0
CF89	250	45	70	134	165	4.0	90	90	6.5	53.0

Notes regarding the design of the customer's interface for the hollow shaft design

CAF.



Gearbox type	a1	d	d7	d1	d2	f1	f4	l1	l2
CAF.29	120	20	35	–	70	3.0	23.0	24.0	–
	160			70	101	3.5		8.5	24.5
CAF.39A	160	25	45	75	100	3.5	24.0	5.0	29.5
		30							
CAF.49	200	30	50	90	120	3.5	25.0	4.0	30.5
		35							
CAF.69	200	40	65	105	120	4.0	42.0	4.5	48.0
		45							
CAF.89	250	50	80	134	147	4.0	45.5	14.0	53.0
		60							

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Worm geared motors

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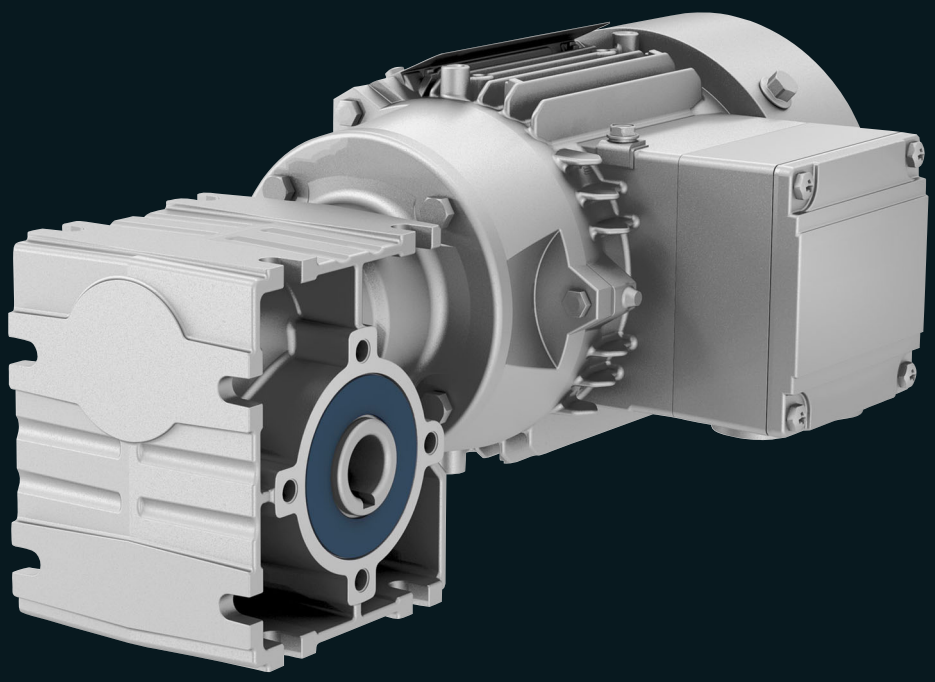

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7 Worm geared motors

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7/3 Geared motors up to 0.37 kW

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7/21 Protective cover for hollow shaft

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Worm geared motors

Worm geared motors 1-stage Orientation

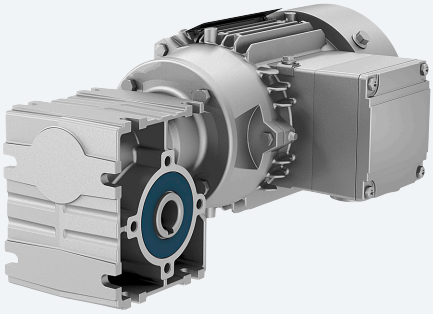

Fig. 7-1 Worm geared motor S

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power P_1 kW	Supported motors
_ Foot-mounted design _ Flange-mounted design _ Design with integrated housing flange _ Shaft-mounted design	_ Hollow shaft design with feather key _ Hollow shaft design with plug-in shaft SE _ Solid shaft design with feather key (at one end or both ends)	S09 ... S29	33 ... 116	5.0 ... 100	0.55	_ Induction motors with B14 flange

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.09	**S.29-LEI63MEB6**							
	8.9	44	100	3530	1.6	9	**2KJ3732- ■ BD21- ■ ■ A1 -Z**	**P01**
	11	39	80	3550	2.2	9	**2KJ3732- ■ BD21- ■ ■ B1 -Z**	**P01**
	S.19-LEI63MEB6							
	11	38	80	3550	0.94	6	**2KJ3731- ■ BD21- ■ ■ B1 -Z**	**P01**
	15	32	60	3580	1.5	6	**2KJ3731- ■ BD21- ■ ■ C1 -Z**	**P01**
	S.09-LEI63MEB6							
	15	29	60	1700	0.84	6	**2KJ3730- ■ BD21- ■ ■ C1 -Z**	**P01**
	18	26	50	1720	1.1	6	**2KJ3730- ■ BD21- ■ ■ D1 -Z**	**P01**
	22	22	40	1730	1.3	6	**2KJ3730- ■ BD21- ■ ■ E1 -Z**	**P01**
0.12	**S.29-LEI63ZMH4P**							
	14	39	100	3550	1.8	10	**2KJ3732- ■ BD23- ■ ■ A1 -Z**	**–**
	17	35	80	3560	2.3	10	**2KJ3732- ■ BD23- ■ ■ B1 -Z**	**–**
	23	29	60	3590	2.8	10	**2KJ3732- ■ BD23- ■ ■ C1 -Z**	**–**
	28	26	50	3600	3	10	**2KJ3732- ■ BD23- ■ ■ D1 -Z**	**–**
	35	22	40	3620	3.5	10	**2KJ3732- ■ BD23- ■ ■ E1 -Z**	**–**
	46	18	30	3640	4.2	10	**2KJ3732- ■ BD23- ■ ■ F1 -Z**	**–**
	56	16	25	3640	4.8	10	**2KJ3732- ■ BD23- ■ ■ G1 -Z**	**–**
	S.19-LEI63ZMH4P							
	17	34	80	3570	1	8	**2KJ3731- ■ BD23- ■ ■ B1 -Z**	**–**
	23	29	60	3590	1.5	8	**2KJ3731- ■ BD23- ■ ■ C1 -Z**	**–**
	28	26	50	3600	1.7	8	**2KJ3731- ■ BD23- ■ ■ D1 -Z**	**–**
	35	22	40	3620	2	8	**2KJ3731- ■ BD23- ■ ■ E1 -Z**	**–**
	46	18	30	3630	2.4	8	**2KJ3731- ■ BD23- ■ ■ F1 -Z**	**–**
	56	16	25	3640	2.5	8	**2KJ3731- ■ BD23- ■ ■ G1 -Z**	**–**
	70	13	20	3650	3.3	8	**2KJ3731- ■ BD23- ■ ■ H1 -Z**	**–**
	93	10	15	3670	4.2	8	**2KJ3731- ■ BD23- ■ ■ J1 -Z**	**–**
	S.09-LEI63ZMH4P							
	23	26	60	1720	0.91	7	**2KJ3730- ■ BD23- ■ ■ C1 -Z**	**–**
	28	23	50	1730	1.1	7	**2KJ3730- ■ BD23- ■ ■ D1 -Z**	**–**
	35	20	40	1740	1.4	7	**2KJ3730- ■ BD23- ■ ■ E1 -Z**	**–**
	46	16	30	1760	1.7	7	**2KJ3730- ■ BD23- ■ ■ F1 -Z**	**–**
	56	14	25	1760	1.9	7	**2KJ3730- ■ BD23- ■ ■ G1 -Z**	**–**
	70	12	20	1770	2.2	7	**2KJ3730- ■ BD23- ■ ■ H1 -Z**	**–**
	93	9.8	15	1780	2.7	7	**2KJ3730- ■ BD23- ■ ■ J1 -Z**	**–**
	139	7	10	1790	3.9	7	**2KJ3730- ■ BD23- ■ ■ K1 -Z**	**–**
0.18	**S.29-LEI71ZMK6P**							
	11	80	80	3380	1.1	10	**2KJ3732- ■ CC23- ■ ■ B1 -Z**	**P01**
	S.29-LEI63ZMK4P							
	14	59	100	3460	1.2	10	**2KJ3732- ■ BE23- ■ ■ A1 -Z**	**–**
	17	52	80	3490	1.5	10	**2KJ3732- ■ BE23- ■ ■ B1 -Z**	**–**
	23	44	60	3530	1.8	10	**2KJ3732- ■ BE23- ■ ■ C1 -Z**	**–**
	28	39	50	3550	2	10	**2KJ3732- ■ BE23- ■ ■ D1 -Z**	**–**
	35	33	40	3570	2.3	10	**2KJ3732- ■ BE23- ■ ■ E1 -Z**	**–**
	46	27	30	3600	2.8	10	**2KJ3732- ■ BE23- ■ ■ F1 -Z**	**–**
	55	23	25	3610	3.2	10	**2KJ3732- ■ BE23- ■ ■ G1 -Z**	**–**
	69	20	20	3630	3.8	10	**2KJ3732- ■ BE23- ■ ■ H1 -Z**	**–**
	92	16	15	3640	4.8	10	**2KJ3732- ■ BE23- ■ ■ J1 -Z**	**–**
	S.19-LEI63ZMK4P							
	23	43	60	3530	1	8	**2KJ3731- ■ BE23- ■ ■ C1 -Z**	**–**
	28	38	50	3550	1.2	8	**2KJ3731- ■ BE23- ■ ■ D1 -Z**	**–**
	35	33	40	3570	1.3	8	**2KJ3731- ■ BE23- ■ ■ E1 -Z**	**–**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Worm geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	–	kg	(Article No. supplement, see below)	No. of poles
0.18	**S.19-LEI63ZMK4P**							
	46	27	30	3600	1.6	8	**2KJ3731- ■ BE23- ■ ■ F1 -Z**	–
	55	23	25	3610	1.7	8	**2KJ3731- ■ BE23- ■ ■ G1 -Z**	–
	69	20	20	3630	2.2	8	**2KJ3731- ■ BE23- ■ ■ H1 -Z**	–
	92	16	15	3640	2.8	8	**2KJ3731- ■ BE23- ■ ■ J1 -Z**	–
	138	11	10	3660	3.9	8	**2KJ3731- ■ BE23- ■ ■ K1 -Z**	–
	S.09-LEI63ZMK4P							
	35	30	40	1700	0.93	7	**2KJ3730- ■ BE23- ■ ■ E1 -Z**	–
	46	25	30	1720	1.1	7	**2KJ3730- ■ BE23- ■ ■ F1 -Z**	–
	55	22	25	1730	1.3	7	**2KJ3730- ■ BE23- ■ ■ G1 -Z**	–
	69	19	20	1740	1.5	7	**2KJ3730- ■ BE23- ■ ■ H1 -Z**	–
	92	15	15	1760	1.8	7	**2KJ3730- ■ BE23- ■ ■ J1 -Z**	–
	138	10	10	1780	2.6	7	**2KJ3730- ■ BE23- ■ ■ K1 -Z**	–
	198	7.7	7	1790	3.6	7	**2KJ3730- ■ BE23- ■ ■ L1 -Z**	–
	277	5.6	5	1800	4.6	7	**2KJ3730- ■ BE23- ■ ■ M1 -Z**	–
0.25	**S.29-LEI71ZMK4P**							
	17	72	80	3410	1.1	10	**2KJ3732- ■ CC23- ■ ■ B1 -Z**	–
	23	60	60	3460	1.3	10	**2KJ3732- ■ CC23- ■ ■ C1 -Z**	–
	28	54	50	3480	1.5	10	**2KJ3732- ■ CC23- ■ ■ D1 -Z**	–
	35	46	40	3520	1.7	10	**2KJ3732- ■ CC23- ■ ■ E1 -Z**	–
	46	37	30	3560	2	10	**2KJ3732- ■ CC23- ■ ■ F1 -Z**	–
	56	32	25	3580	2.3	10	**2KJ3732- ■ CC23- ■ ■ G1 -Z**	–
	70	27	20	3600	2.7	10	**2KJ3732- ■ CC23- ■ ■ H1 -Z**	–
	93	22	15	3620	3.5	10	**2KJ3732- ■ CC23- ■ ■ J1 -Z**	–
	140	15	10	3650	5	10	**2KJ3732- ■ CC23- ■ ■ K1 -Z**	–
	S.19-LEI71ZMK4P							
	28	53	50	3490	0.84	8	**2KJ3731- ■ CC23- ■ ■ D1 -Z**	–
	35	46	40	3520	0.96	8	**2KJ3731- ■ CC23- ■ ■ E1 -Z**	–
	46	37	30	3550	1.2	8	**2KJ3731- ■ CC23- ■ ■ F1 -Z**	–
	56	32	25	3580	1.2	8	**2KJ3731- ■ CC23- ■ ■ G1 -Z**	–
	70	27	20	3600	1.6	8	**2KJ3731- ■ CC23- ■ ■ H1 -Z**	–
	93	21	15	3620	2	8	**2KJ3731- ■ CC23- ■ ■ J1 -Z**	–
	140	15	10	3650	2.8	8	**2KJ3731- ■ CC23- ■ ■ K1 -Z**	–
	199	11	7	3660	3.7	8	**2KJ3731- ■ CC23- ■ ■ L1 -Z**	–
	279	7.9	5	3680	4.9	8	**2KJ3731- ■ CC23- ■ ■ M1 -Z**	–
0.37	**S.29-LEI71YMS4P**							
	23	90	60	3330	0.89	12	**2KJ3732- ■ CE23- ■ ■ C1 -Z**	–
	28	80	50	3380	0.98	12	**2KJ3732- ■ CE23- ■ ■ D1 -Z**	–
	34	69	40	3420	1.1	12	**2KJ3732- ■ CE23- ■ ■ E1 -Z**	–
	46	56	30	3480	1.4	12	**2KJ3732- ■ CE23- ■ ■ F1 -Z**	–
	55	48	25	3510	1.5	12	**2KJ3732- ■ CE23- ■ ■ G1 -Z**	–
	69	41	20	3540	1.8	12	**2KJ3732- ■ CE23- ■ ■ H1 -Z**	–
	92	32	15	3580	2.3	12	**2KJ3732- ■ CE23- ■ ■ J1 -Z**	–
	138	22	10	3620	3.3	12	**2KJ3732- ■ CE23- ■ ■ K1 -Z**	–
	197	16	7	3640	4.5	12	**2KJ3732- ■ CE23- ■ ■ L1 -Z**	–
	S.19-LEI71YMS4P							
	55	48	25	3510	0.81	10	**2KJ3731- ■ CE23- ■ ■ G1 -Z**	–
	69	41	20	3540	1.1	10	**2KJ3731- ■ CE23- ■ ■ H1 -Z**	–
	92	32	15	3580	1.3	10	**2KJ3731- ■ CE23- ■ ■ J1 -Z**	–
	138	22	10	3620	1.9	10	**2KJ3731- ■ CE23- ■ ■ K1 -Z**	–
	197	16	7	3640	2.5	10	**2KJ3731- ■ CE23- ■ ■ L1 -Z**	–
	276	12	5	3660	3.3	10	**2KJ3731- ■ CE23- ■ ■ M1 -Z**	–

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Selection and ordering data

i	Lead angle of the worm	n_{mot} = 2 800 rpm				n_{mot} = 1 400 rpm				Motor frame size		Article No. (Article No. supplement, see below)
		n_2	T_{2N}	P_{mot}	η	n_2	T_{2N}	P_{mot}	η			
–	γm	rpm	Nm	kW	%	rpm	Nm	kW	%	63	71	
S.09												
80	2.1	35.0	18	0.14	48	17.5	19	0.07	47	✓		**2KJ3730 - ■ ■■■■ - ■ ■ B1**
60	2.7	46.7	22	0.20	55	23.3	24	0.11	52	✓		**2KJ3730 - ■ ■■■■ - ■ ■ C1**
50	3.2	56.0	21	0.21	58	28.0	27	0.14	56	✓		**2KJ3730 - ■ ■■■■ - ■ ■ D1**
40	3.8	70.0	21	0.24	63	35.0	28	0.17	61	✓		**2KJ3730 - ■ ■■■■ - ■ ■ E1**
30	4.6	93.3	20	0.29	68	46.7	28	0.20	67	✓		**2KJ3730 - ■ ■■■■ - ■ ■ F1**
25	5.2	112.0	20	0.33	72	56.0	27	0.23	70	✓		**2KJ3730 - ■ ■■■■ - ■ ■ G1**
20	7.4	140.0	21	0.40	77	70.0	27	0.26	75	✓		**2KJ3730 - ■ ■■■■ - ■ ■ H1**
15	9.2	186.7	20	0.48	81	93.3	27	0.33	80	✓		**2KJ3730 - ■ ■■■■ - ■ ■ J1**
10	14.0	280.0	20	0.68	86	140.0	27	0.47	85	✓		**2KJ3730 - ■ ■■■■ - ■ ■ K1**
7	19.0	400.0	19	0.89	89	200.0	26	0.62	88	✓		**2KJ3730 - ■ ■■■■ - ■ ■ L1**
5	25.0	560.0	19	1.22	91	280.0	25	0.81	91	✓		**2KJ3730 - ■ ■■■■ - ■ ■ M1**
S.19												
80	3.5	35.0	33	0.22	55	17.5	35	0.12	54	✓		**2KJ3731 - ■ ■■■■ - ■ ■ B1**
60	3.5	46.7	33	0.26	61	23.3	44	0.18	59	✓		**2KJ3731 - ■ ■■■■ - ■ ■ C1**
50	4.0	56.0	33	0.30	64	28.0	44	0.20	63	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ D1**
40	4.5	70.0	31	0.33	68	35.0	43	0.24	67	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ E1**
30	5.5	93.3	31	0.42	73	46.7	41	0.28	72	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ F1**
25	6.5	112.0	31	0.48	76	56.0	41	0.32	75	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ G1**
20	9.5	140.0	31	0.56	81	70.0	41	0.38	80	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ H1**
15	11.0	186.7	30	0.70	84	93.3	41	0.48	84	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ J1**
10	17.0	280.0	30	1.00	88	140.0	40	0.67	88	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ K1**
7	17.0	400.0	29	1.33	91	200.0	39	0.91	90	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ L1**
5	23.0	560.0	28	1.78	92	280.0	37	1.18	92	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ M1**
S.29												
100	2.0	28.0	57	0.33	50	14.0	72	0.22	49	✓		**2KJ3732 - ■ ■■■■ - ■ ■ A1**
80	2.5	35.0	57	0.39	54	17.5	80	0.27	54	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ B1**
60	3.0	46.7	57	0.46	60	23.3	78	0.32	59	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ C1**
50	3.5	56.0	55	0.50	64	28.0	75	0.35	63	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ D1**
40	4.5	70.0	55	0.59	68	35.0	74	0.40	68	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ E1**
30	5.0	93.3	53	0.71	73	46.7	73	0.49	73	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ F1**
25	6.0	112.0	53	0.82	76	56.0	73	0.56	76	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ G1**
20	8.5	140.0	53	0.96	81	70.0	73	0.67	80	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ H1**
15	10.0	186.7	53	1.23	84	93.3	72	0.84	84	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ J1**
10	15.0	280.0	53	1.77	88	140.0	72	1.20	88	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ K1**
7	15.0	400.0	53	2.44	91	200.0	71	1.63	91	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ L1**
5	21.0	560.0	51	3.22	93	280.0	69	2.18	93	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ M1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Worm geared motors

Selection and ordering data

i	Lead angle of the worm	n_{mot} = 900 rpm				n_{mot} = 500 rpm				Motor frame size		Article No. (Article No. supplement, see below)
		n_2	T_{2N}	P_{mot}	η	n_2	T_{2N}	P_{mot}	η			
–	γm	rpm	Nm	kW	%	rpm	Nm	kW	%	63	71	
S.09												
80	2.1	11.3	19	0.05	44	6.3	20	0.03	40	✓		**2KJ3730 - ■ ■■■■ - ■ ■ B1**
60	2.7	15.0	24	0.08	50	8.3	24	0.05	45	✓		**2KJ3730 - ■ ■■■■ - ■ ■ C1**
50	3.2	18.0	27	0.10	53	10.0	28	0.06	49	✓		**2KJ3730 - ■ ■■■■ - ■ ■ D1**
40	3.8	22.5	31	0.13	58	12.5	31	0.08	54	✓		**2KJ3730 - ■ ■■■■ - ■ ■ E1**
30	4.6	30.0	32	0.16	64	16.7	33	0.10	60	✓		**2KJ3730 - ■ ■■■■ - ■ ■ F1**
25	5.2	36.0	32	0.18	68	20.0	32	0.10	64	✓		**2KJ3730 - ■ ■■■■ - ■ ■ G1**
20	7.4	45.0	31	0.20	73	25.0	31	0.12	70	✓		**2KJ3730 - ■ ■■■■ - ■ ■ H1**
15	9.2	60.0	33	0.27	78	33.3	33	0.15	75	✓		**2KJ3730 - ■ ■■■■ - ■ ■ J1**
10	14.0	90.0	32	0.36	84	50.0	33	0.21	81	✓		**2KJ3730 - ■ ■■■■ - ■ ■ K1**
7	19.0	128.6	31	0.48	87	71.4	33	0.29	85	✓		**2KJ3730 - ■ ■■■■ - ■ ■ L1**
5	25.0	180.0	30	0.63	90	100.0	33	0.39	88	✓		**2KJ3730 - ■ ■■■■ - ■ ■ M1**
S.19												
80	3.5	11.3	35	0.08	51	6.3	36	0.05	47	✓		**2KJ3731 - ■ ■■■■ - ■ ■ B1**
60	3.5	15.0	49	0.14	57	8.3	51	0.09	52	✓		**2KJ3731 - ■ ■■■■ - ■ ■ C1**
50	4.0	18.0	51	0.16	61	10.0	59	0.11	56	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ D1**
40	4.5	22.5	51	0.18	65	12.5	64	0.14	61	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ E1**
30	5.5	30.0	50	0.22	70	16.7	63	0.17	66	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ F1**
25	6.5	36.0	49	0.25	74	20.0	62	0.19	70	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ G1**
20	9.5	45.0	50	0.30	78	25.0	62	0.22	75	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ H1**
15	11.0	60.0	50	0.38	82	33.3	62	0.27	79	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ J1**
10	17.0	90.0	49	0.53	87	50.0	61	0.38	85	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ K1**
7	17.0	128.6	47	0.70	90	71.4	58	0.49	88	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ L1**
5	23.0	180.0	44	0.91	91	100.0	56	0.65	90	✓	✓	**2KJ3731 - ■ ■■■■ - ■ ■ M1**
S.29												
100	2.0	9.0	72	0.14	47	5.0	72	0.09	43	✓		**2KJ3732 - ■ ■■■■ - ■ ■ A1**
80	2.5	11.3	92	0.21	52	6.3	93	0.13	48	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ B1**
60	3.0	15.0	93	0.26	57	8.3	116	0.19	53	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ C1**
50	3.5	18.0	90	0.28	61	10.0	115	0.21	57	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ D1**
40	4.5	22.5	90	0.32	66	12.5	113	0.24	62	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ E1**
30	5.0	30.0	86	0.38	72	16.7	110	0.28	68	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ F1**
25	6.0	36.0	85	0.43	75	20.0	109	0.32	71	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ G1**
20	8.5	45.0	85	0.51	79	25.0	109	0.38	76	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ H1**
15	10.0	60.0	85	0.64	83	33.3	109	0.47	81	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ J1**
10	15.0	90.0	85	0.92	87	50.0	109	0.66	86	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ K1**
7	15.0	128.6	84	1.26	90	71.4	107	0.90	89	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ L1**
5	21.0	180.0	82	1.68	92	100.0	105	1.21	91	✓	✓	**2KJ3732 - ■ ■■■■ - ■ ■ M1**

Article No. supplement		
Shaft design	**1 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F, H or D**	see page 10/42

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Permissible radial force F_{Rperm}

Radial force conversion for out-of-center force application point

If the force is not applied at the center of the shaft extension, the permissible radial force must be calculated using the following formula.

The lower value of F_{xperm1} (bearing service life) and F_{xperm2} (strength) is the permissible radial force. The calculation is applicable without axial force.

Permissible radial force according to the bearing service life

$$F_{xperm1} = F_{R2} \cdot \frac{y}{(z + x)}$$

Permissible radial force according to the shaft strength

$$F_{xperm2} = \frac{a}{(b + x)}$$

						F_{Rperm} in N with x = l/2 for output speeds n_2 in rpm							
Gearbox type	**d** mm	**l** mm	**y** mm	**z** mm	**a** kNmm	≤ 16	≤ 25	≤ 40	≤ 63	≤ 100	≤ 160	≤ 250	≤ 400
S09	16	40	83.5	63.5	36	1800	1800	1800	1800	1800	1690	1400	1120
SF09			106.0	86.0		1800	1800	1800	1800	1620	1330	1100	880
S19	20	40	98.0	78.0	76	3800	3800	3800	3200	2650	2180	1780	1420
SF19			128.0	108.0		3200	3120	2920	2450	2030	1670	1360	1090
S29	20	40	120.5	100.5	72	3600	3600	3600	3600	3600	3290	2680	2120
SF29			153.5	133.5		3600	3600	3600	3600	3150	2580	2110	1660

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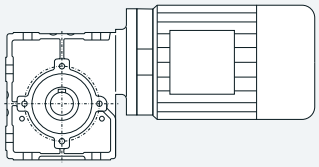
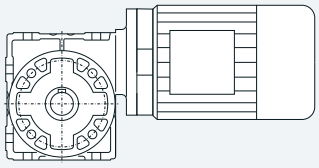
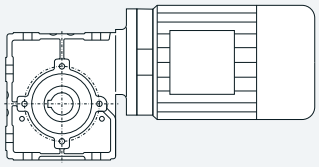
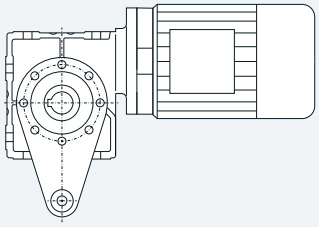
Worm geared motors

Overview

Notes on the dimensional drawings are provided in chapter Introduction on page 1/22.

Design	Frame size	Dimensional drawing, see page
Worm geared motor S		
Foot-mounted design		
	S.09	7/9
	S.19	7/13
	S.29	7/17
Flange-mounted design		
	S.F09	7/10
	S.F19	7/14
	S.F29	7/18
Housing flange design		
	S.Z09	7/11
	S.Z19	7/15
	S.Z29	7/19
Shaft-mounted design		
	SAD09	7/12
	SAD19	7/16
	SAD29	7/20
Additional versions and options		
	Protective cover for hollow shafts	7/21

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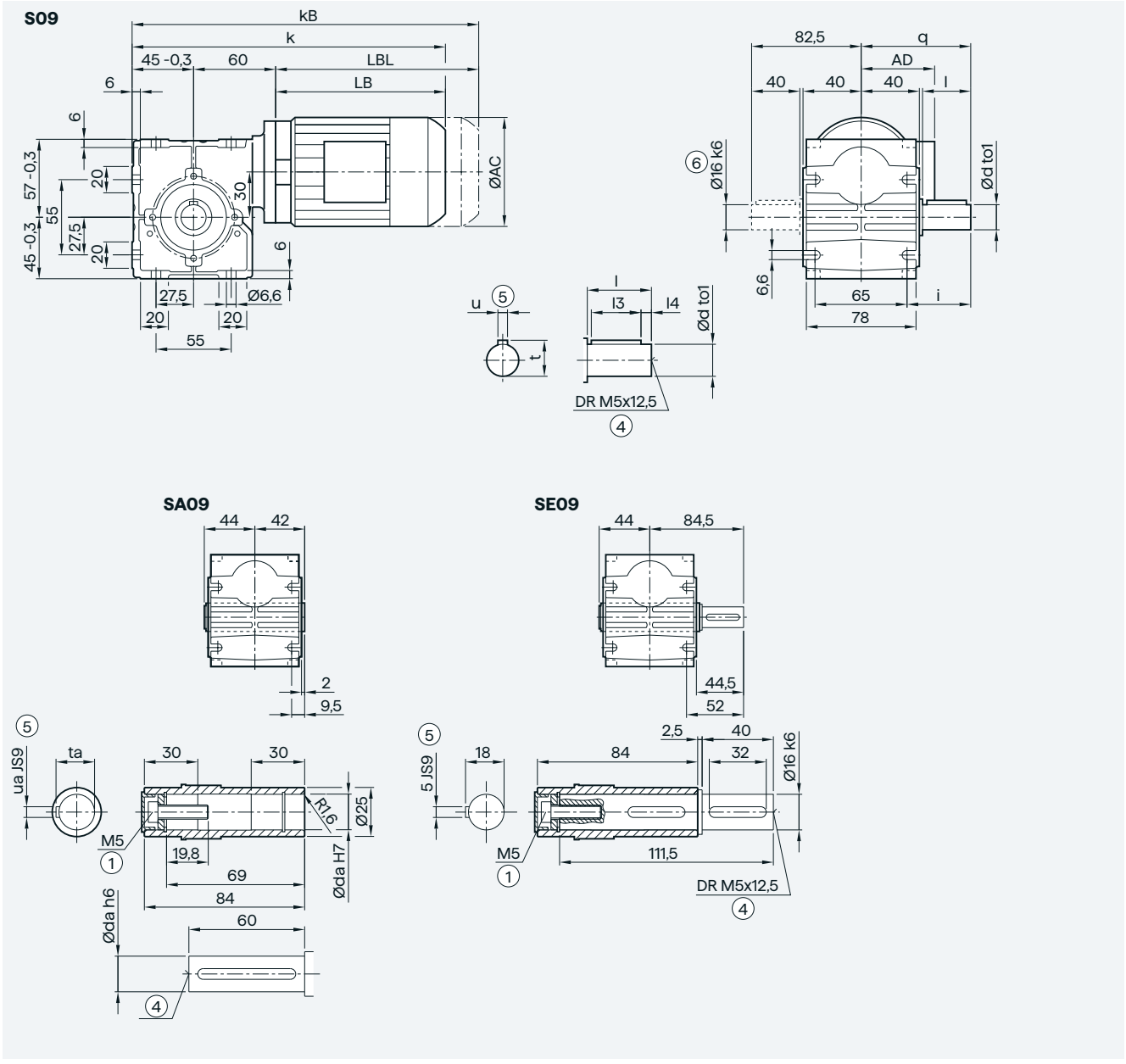
Gearbox S.09 in a foot-mounted design



Solid shaft	d	to1	l	l3	l4	u	t	q	i	Hollow shaft	da	ua	ta
	14	k6	30	22	4	5	16	72.5	40		14	5	16.3
	16	k6	40	32	4	5	18	82.5	50		16	5	18.3

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	284.5	335.5	179.5	230.5
LEI63Z	117.8	101	310.5	361.5	205.5	256.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑥ Solid shaft with 2nd shaft extension only d16

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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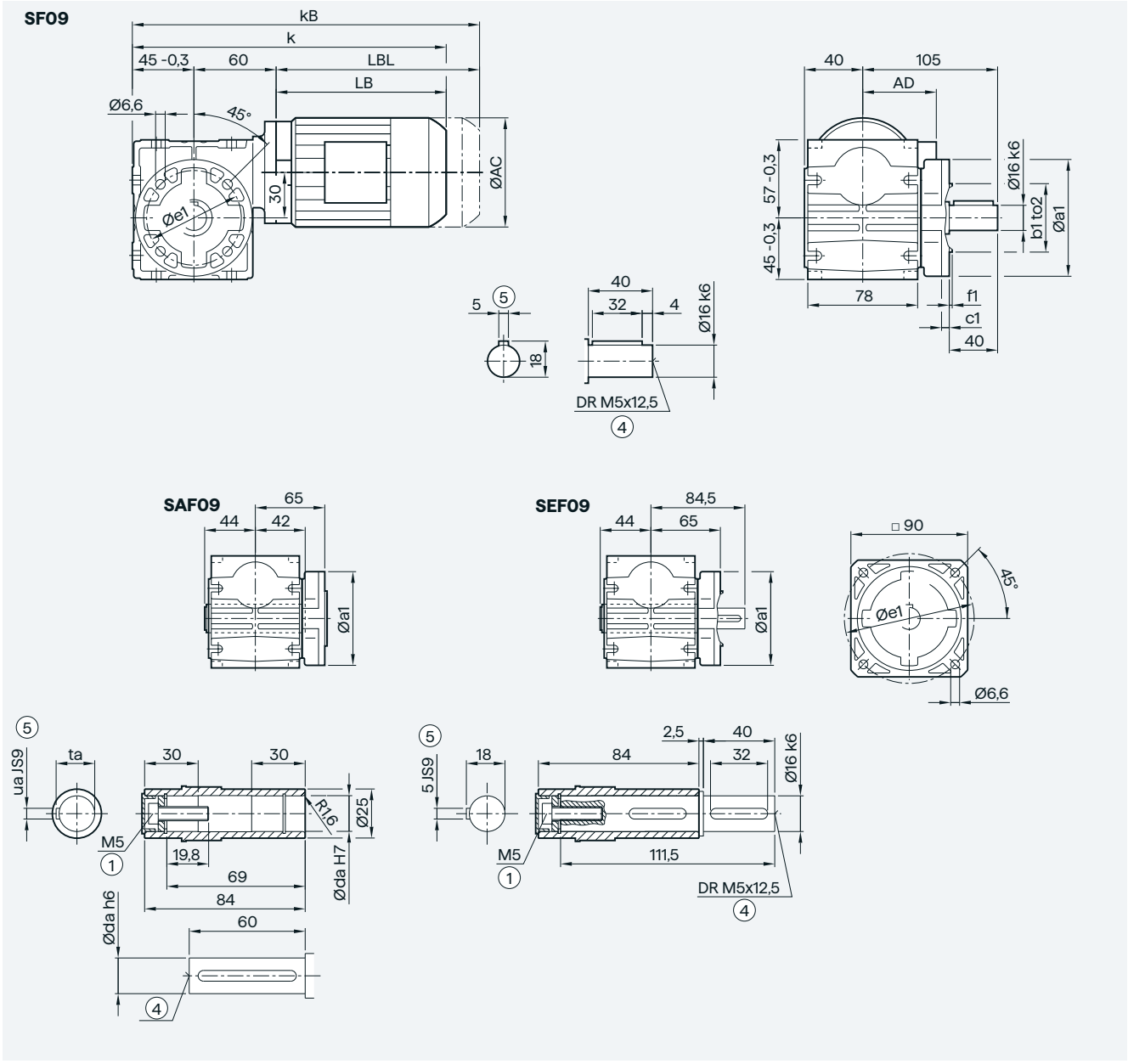
Worm geared motors

Gearbox S.F09 in a flange-mounted design



Hollow shaft	da		ua		ta	
	14		5		16.3	
	16		5		18.3	
Flange	**a1**	**e1**	**b1**	**to2**	**c1**	**f1**
	80	65	50	j6	7	2.5
	120	100	80	j6	7	3.0
Motor	**AC**	**AD** [1]	**k**	**kB**	**LB**	**LBL**
LEI63	117.8	101	284.5	335.5	179.5	230.5
LEI63Z	117.8	101	310.5	361.5	205.5	256.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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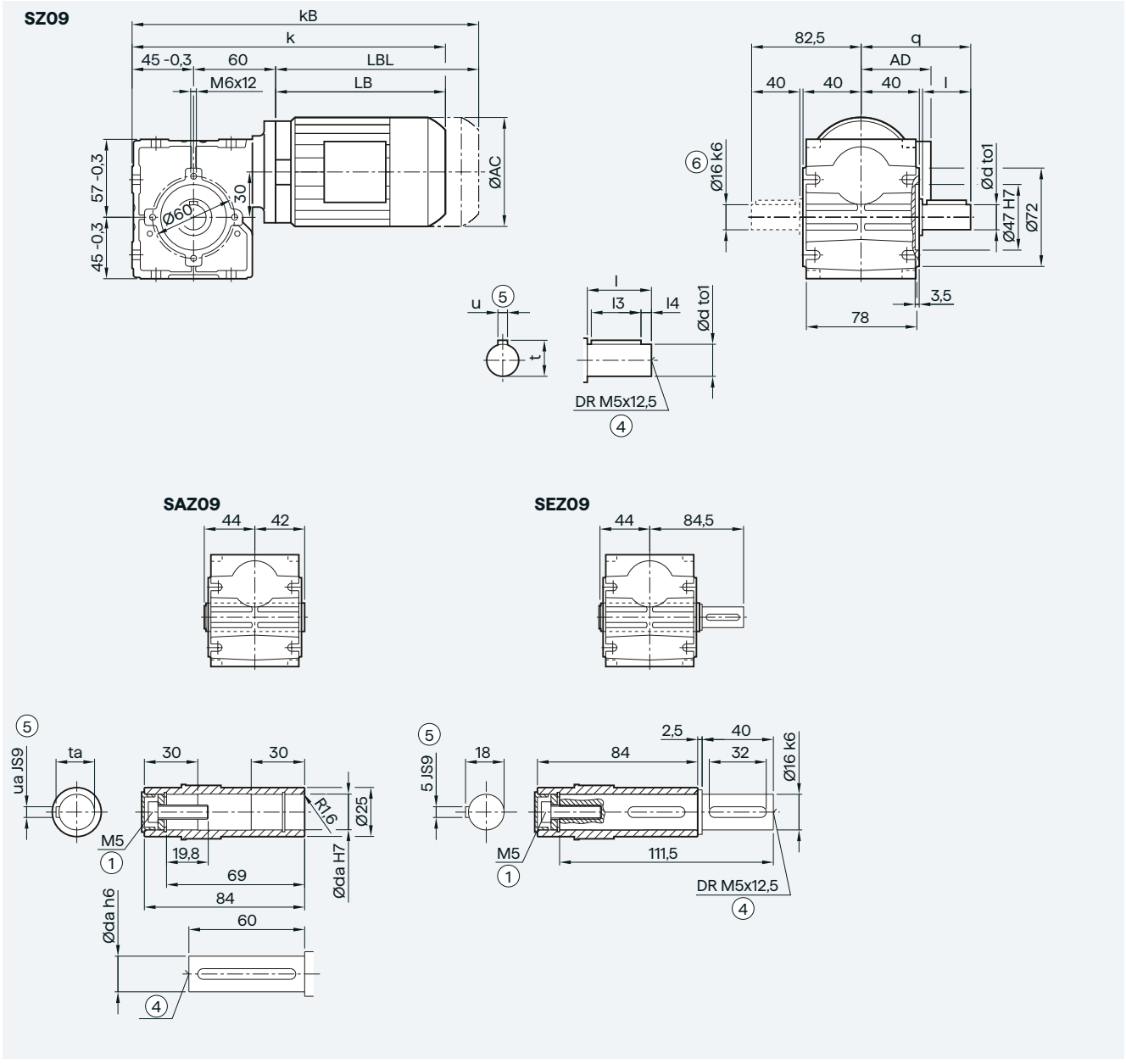
Gearbox S.Z09 in a housing flange design



Solid shaft	d	to1	l	l3	l4	u	t	q	Hollow shaft	da	ua	ta
	14	k6	30	22	4	5	16	72.5		14	5	16.3
	16	k6	40	32	4	5	18	82.5		16	5	18.3

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	284.5	335.5	179.5	230.5
LEI63Z	117.8	101	310.5	361.5	205.5	256.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑥ Solid shaft with 2nd shaft extension only d16

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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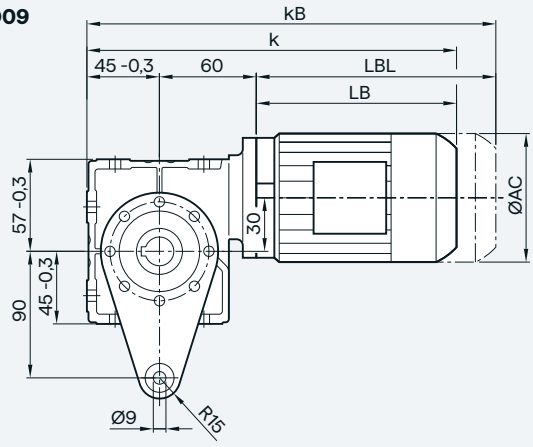
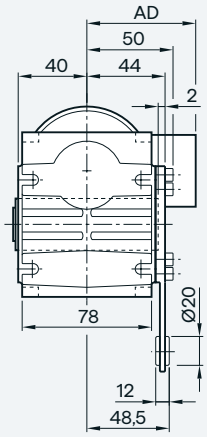
Worm geared motors

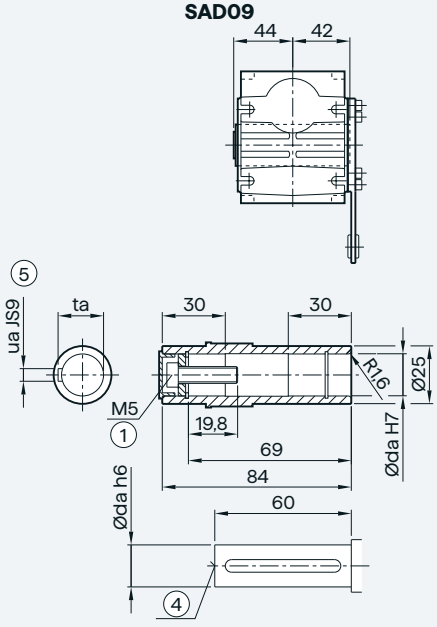
Gearbox SAD09 in a shaft-mounted design

SAD09





SAD09



7

Hollow shaft	da	ua	ta
	14	5	16.3
	16	5	18.3

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	284.5	335.5	179.5	230.5
LEI63Z	117.8	101	310.5	361.5	205.5	256.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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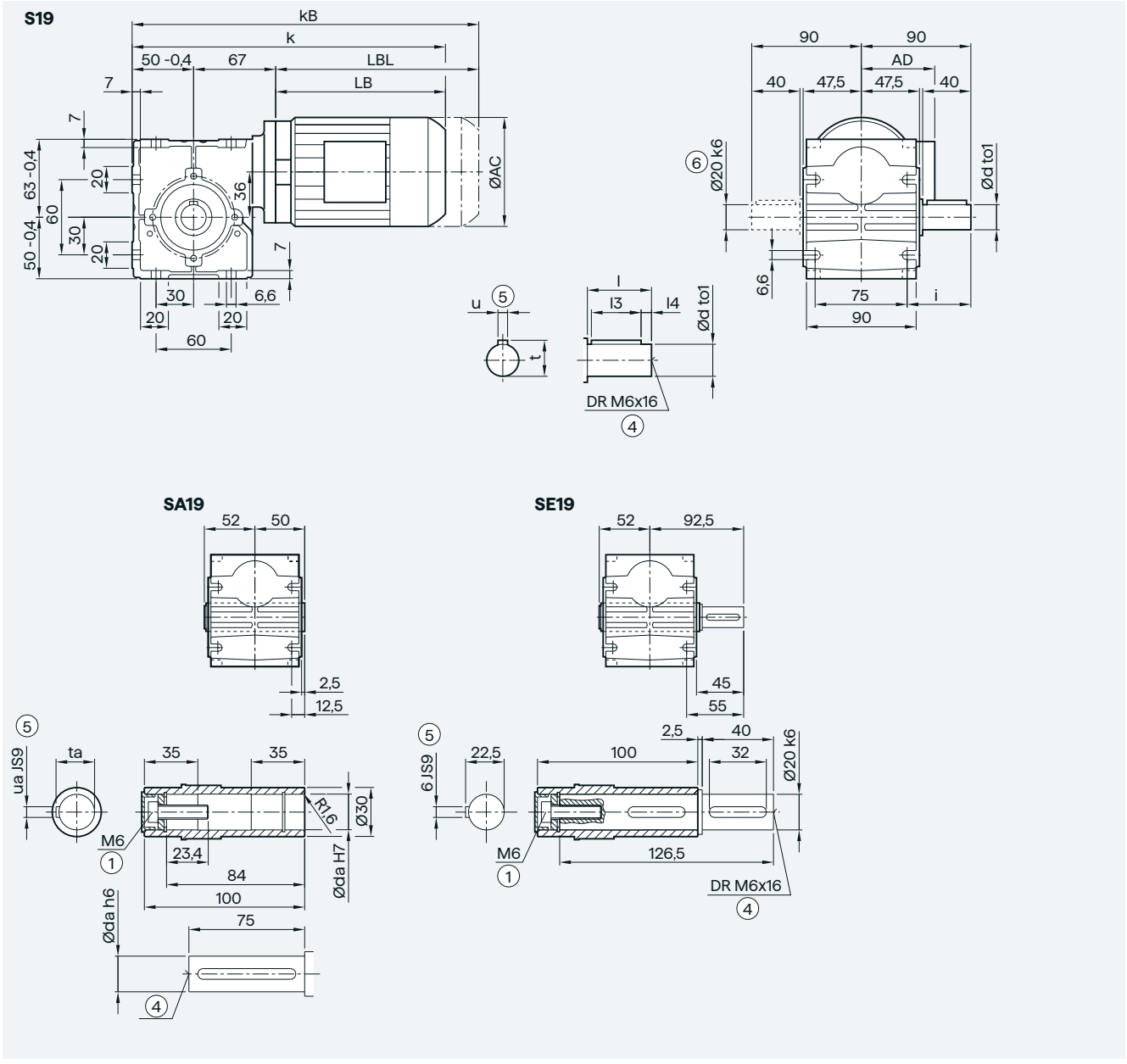
Gearbox S.19 in a foot-mounted design



Solid shaft	d	to1	l	l3	l4	i	u	t	Hollow shaft	da	ua	ta
	18	k6	40	32	4	52.5	6	20.5		18	6	20.8
	20	k6	40	32	4	52.5	6	22.5		20	6	22.8

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	296.5	347.5	179.5	230.5
LEI63Z	117.8	101	322.5	373.5	205.5	256.5
LEI71	138.8	111	327.0	378.5	210.0	261.5
LEI71Z	138.8	111	343.5	398.5	226.5	281.5
LEI71Y	138.8	111	383.5	438.5	266.5	321.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑥ Solid shaft with 2nd shaft extension only d20

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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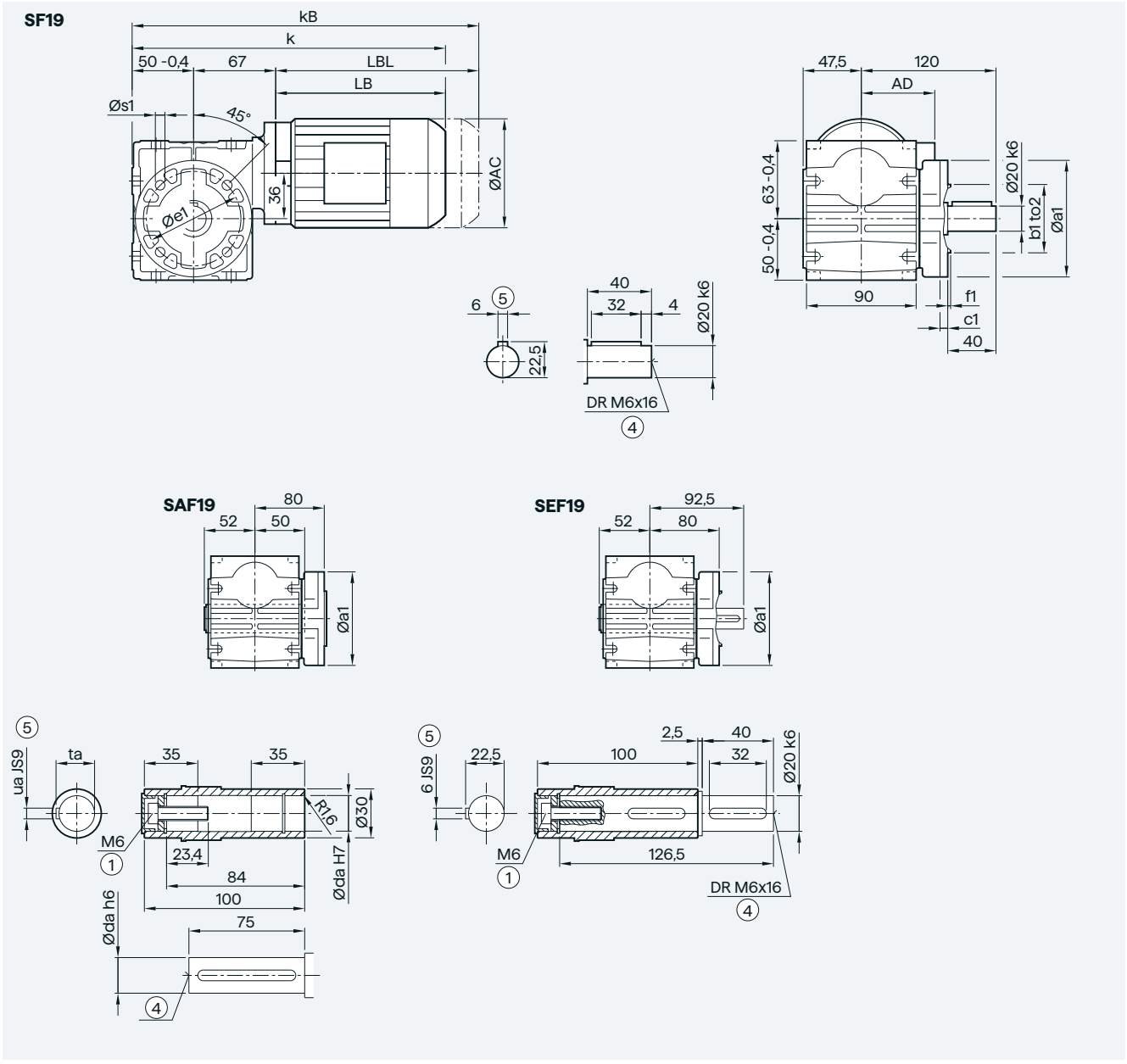
Worm geared motors

Gearbox S.F19 in a flange-mounted design



Hollow shaft	da	ua	ta
	18	6	20.8
	20	6	22.8

Flange	a1	e1	b1	to2	c1	f1	s1
	110	87	60	H8	8	4.0	9
	120	100	80	j6	8	3.0	6.6

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	296.5	347.5	179.5	230.5
LEI63Z	117.8	101	322.5	373.5	205.5	256.5
LEI71	138.8	111	327.0	378.5	210	261.5
LEI71Z	138.8	111	343.5	398.5	226.5	281.5
LEI71Y	138.8	111	383.5	438.5	266.5	321.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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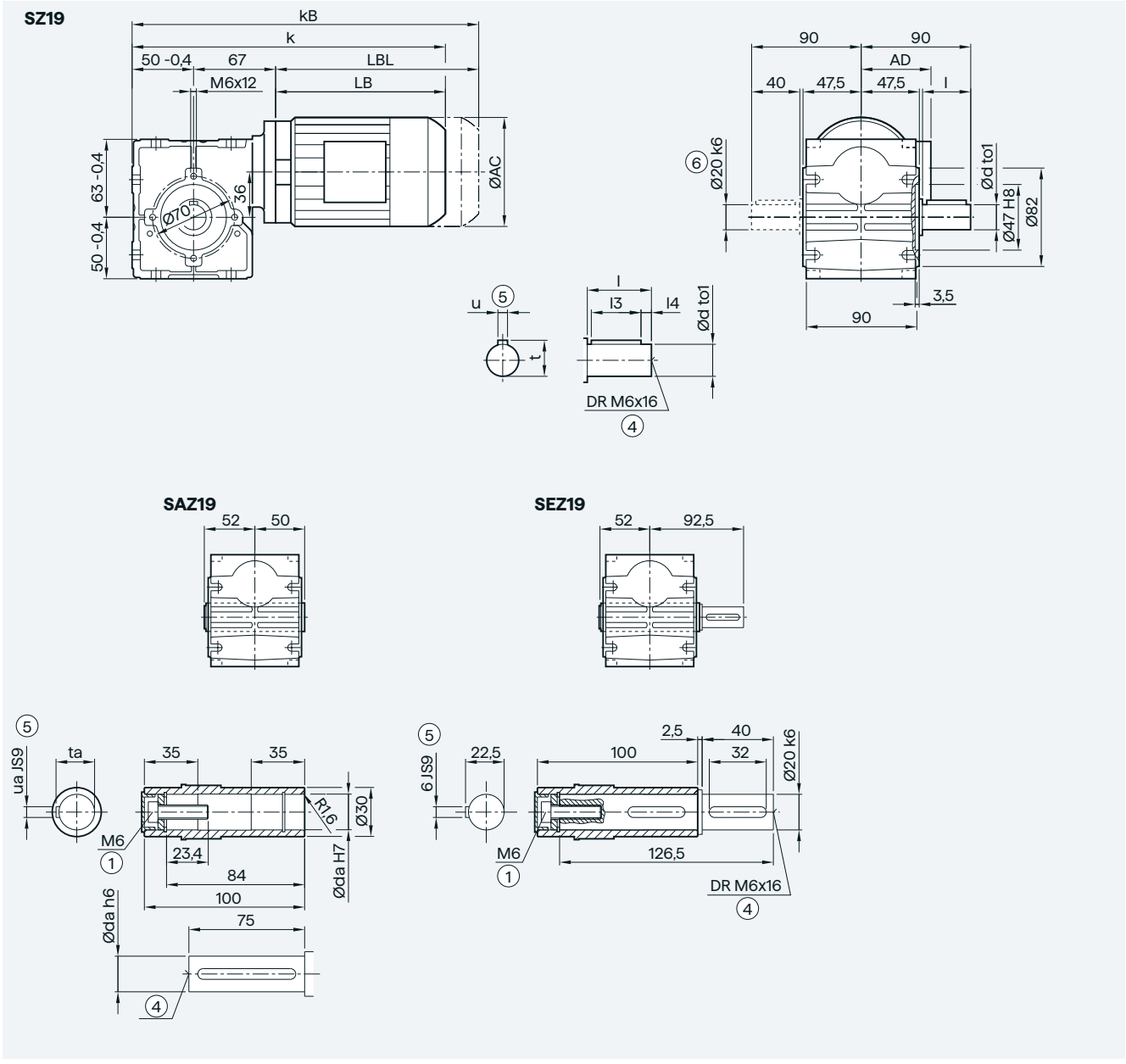
Gearbox S.Z19 in a housing flange design



Solid shaft	d	to1	l	l3	l4	u	t	Hollow shaft	da	ua	ta
	18	k6	40	31	4	6	20.5		18	6	20.8
	20	k6	40	32	4	6	22.5		20	6	22.8

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	296.5	347.5	179.5	230.5
LEI63Z	117.8	101	322.5	373.5	205.5	256.5
LEI71	138.8	111	327.0	378.5	210	261.5
LEI71Z	138.8	111	343.5	398.5	226.5	281.5
LEI71Y	138.8	111	383.5	438.5	266.5	321.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑥ Solid shaft with 2nd shaft extension only d20

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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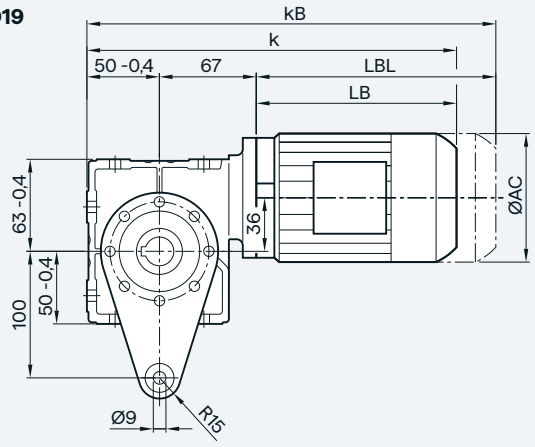
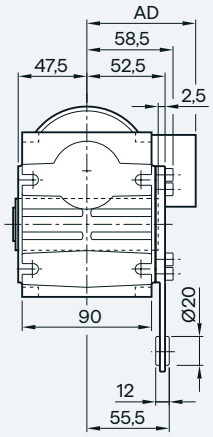
Worm geared motors

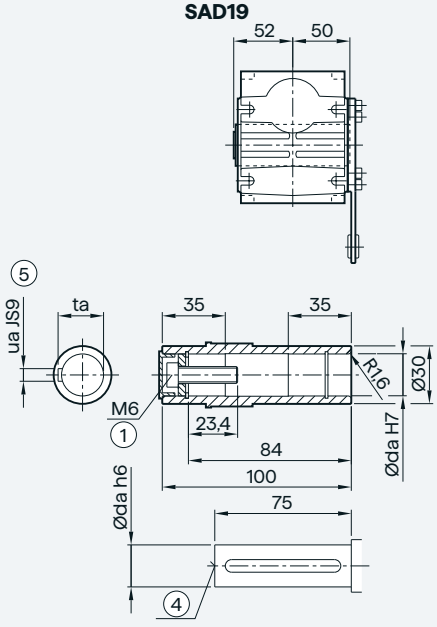
Gearbox SAD19 in a shaft-mounted design

SAD19





SAD19



7

Hollow shaft	da	ua	ta
	18	6	20.8
	20	6	22.8

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	296.5	347.5	179.5	230.5
LEI63Z	117.8	101	322.5	373.5	205.5	256.5
LEI71	138.8	111	327.0	378.5	210.0	261.5
LEI71Z	138.8	111	343.5	398.5	226.5	281.5
LEI71Y	138.8	111	383.5	438.5	266.5	321.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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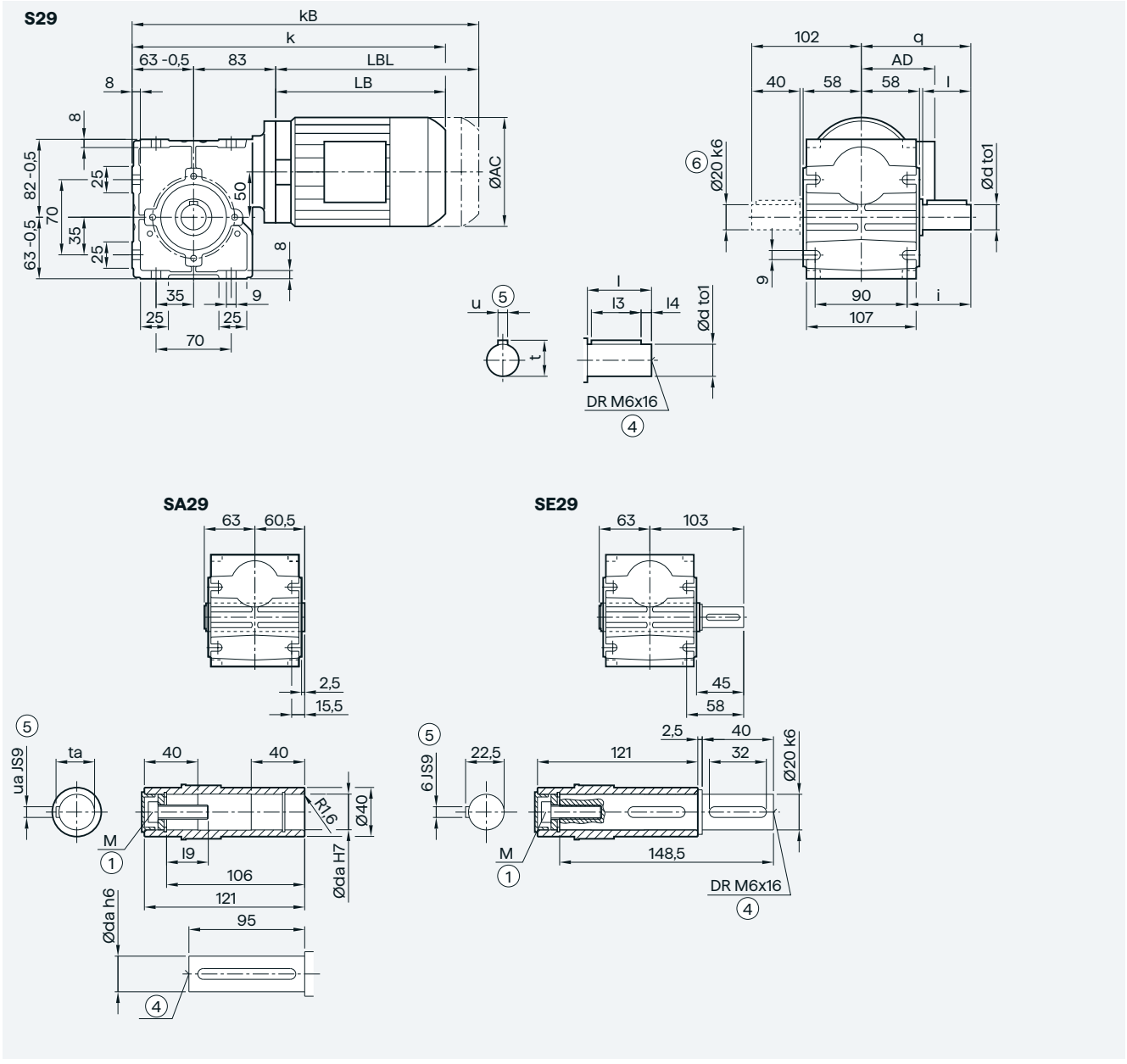
Gearbox S.29 in a foot-mounted design



Solid shaft	d	to1	l	l3	l4	u	t	q	i	Hollow shaft	da	ua	ta	l9	M
	20	k6	40	32	4	6	22.5	102	57		20	6	22.8	23.4	M6
	25	k6	50	40	5	8	28.0	112	67		25	8	28.3	32.6	M10

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	325.5	376.5	179.5	230.5
LEI63Z	117.8	101	351.5	402.5	205.5	256.5
LEI71	138.8	111	356.5	407.5	210.5	261.5
LEI71Z	138.8	111	372.5	427.5	226.5	281.5
LEI71Y	138.8	111	412.5	467.5	266.5	321.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑥ Solid shaft with 2nd shaft extension only d20

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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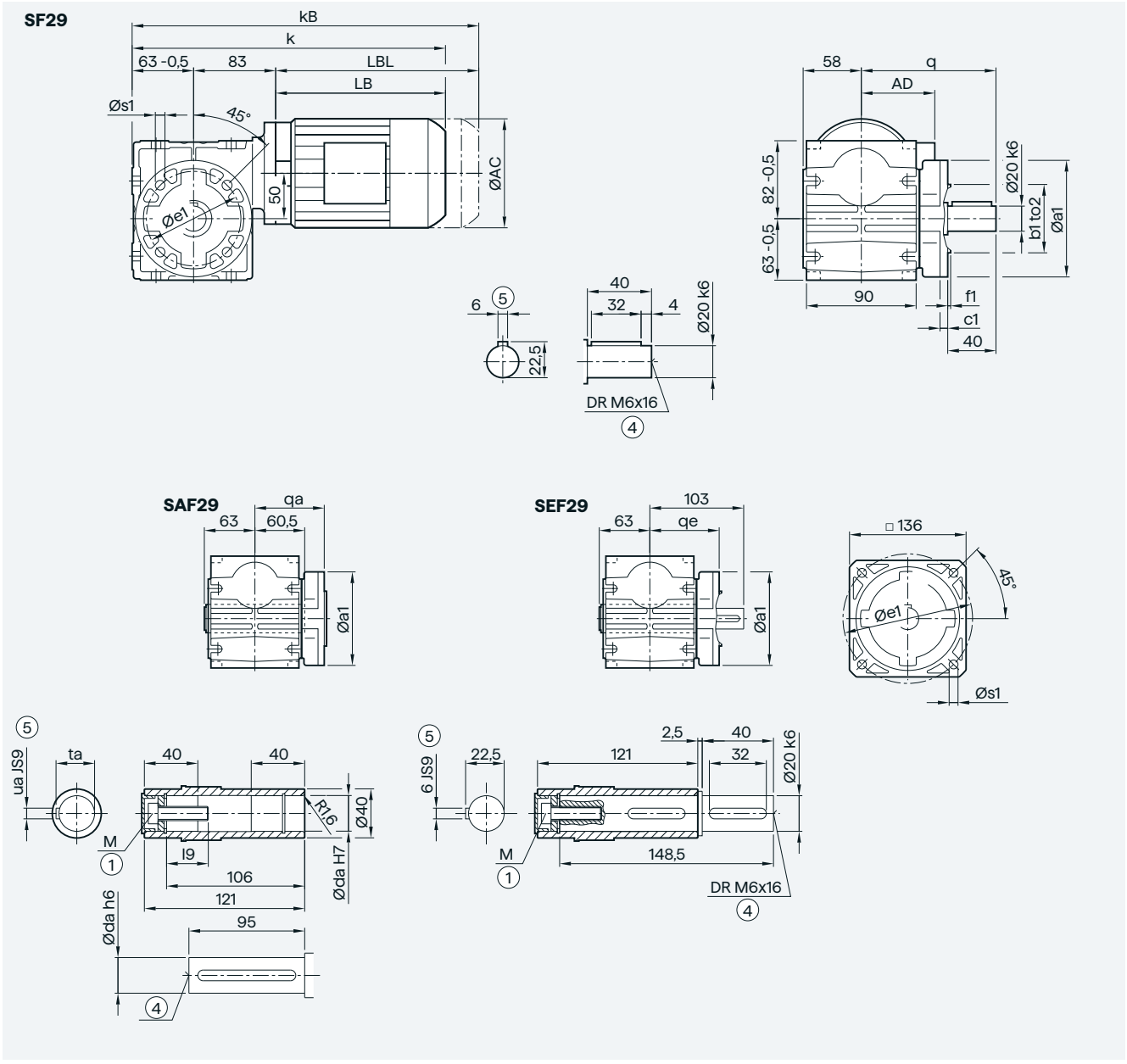
Worm geared motors

Gearbox S.F29 in a flange-mounted design



Hollow shaft	da	ua	ta	l9	M
	20	6	22.8	23.4	M6
	25	8	28.3	32.6	M10

Flange	a1	e1	b1	to2	c1	f1	s1	q	qa / qe
	120	100	80	j6	8	3.0	6.6	120	80
	160	130	110	j6	8	3.5	9.0	135	85

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	325.5	376.5	179.5	230.5
LEI63Z	117.8	101	351.5	402.5	205.5	256.5
LEI71	138.8	111	356.5	407.5	210.5	261.5
LEI71Z	138.8	111	372.5	427.5	226.5	281.5
LEI71Y	138.8	111	412.5	467.5	266.5	321.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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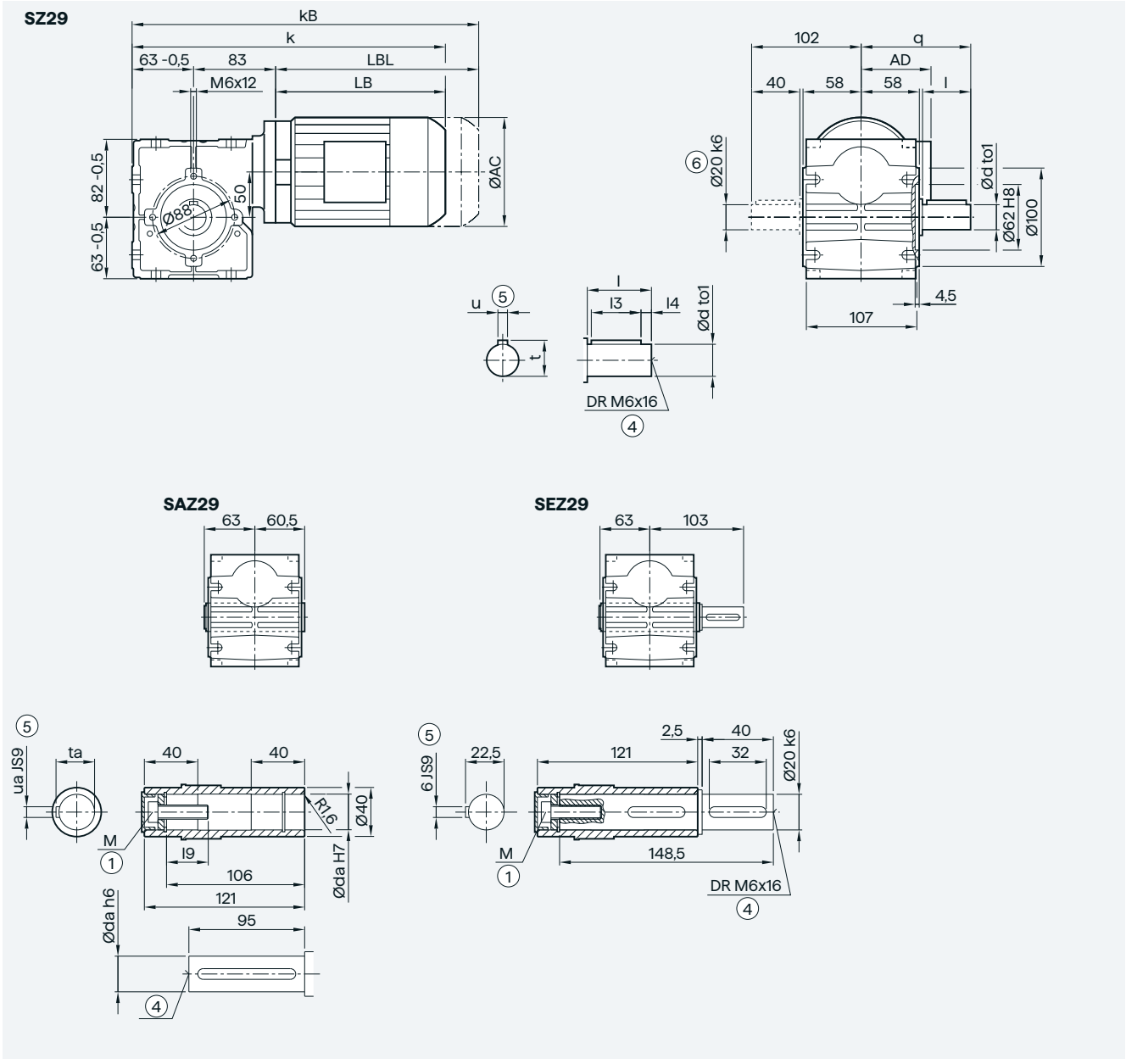
Gearbox S.Z29 in a housing flange design



Solid shaft	d	to1	l	l3	l4	u	t	q	Hollow shaft	da	ua	ta	l9	M
	20	k6	40	32	4	6	22.5	102		20	6	22.8	23.4	M6
	25	k6	50	40	5	8	28.0	112		25	8	28.3	32.6	M10

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	325.5	376.5	179.5	230.5
LEI63Z	117.8	101	351.5	402.5	205.5	256.5
LEI71	138.8	111	356.5	407.5	210.5	261.5
LEI71Z	138.8	111	372.5	427.5	226.5	281.5
LEI71Y	138.8	111	412.5	467.5	266.5	321.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑥ Solid shaft with 2nd shaft extension only d20

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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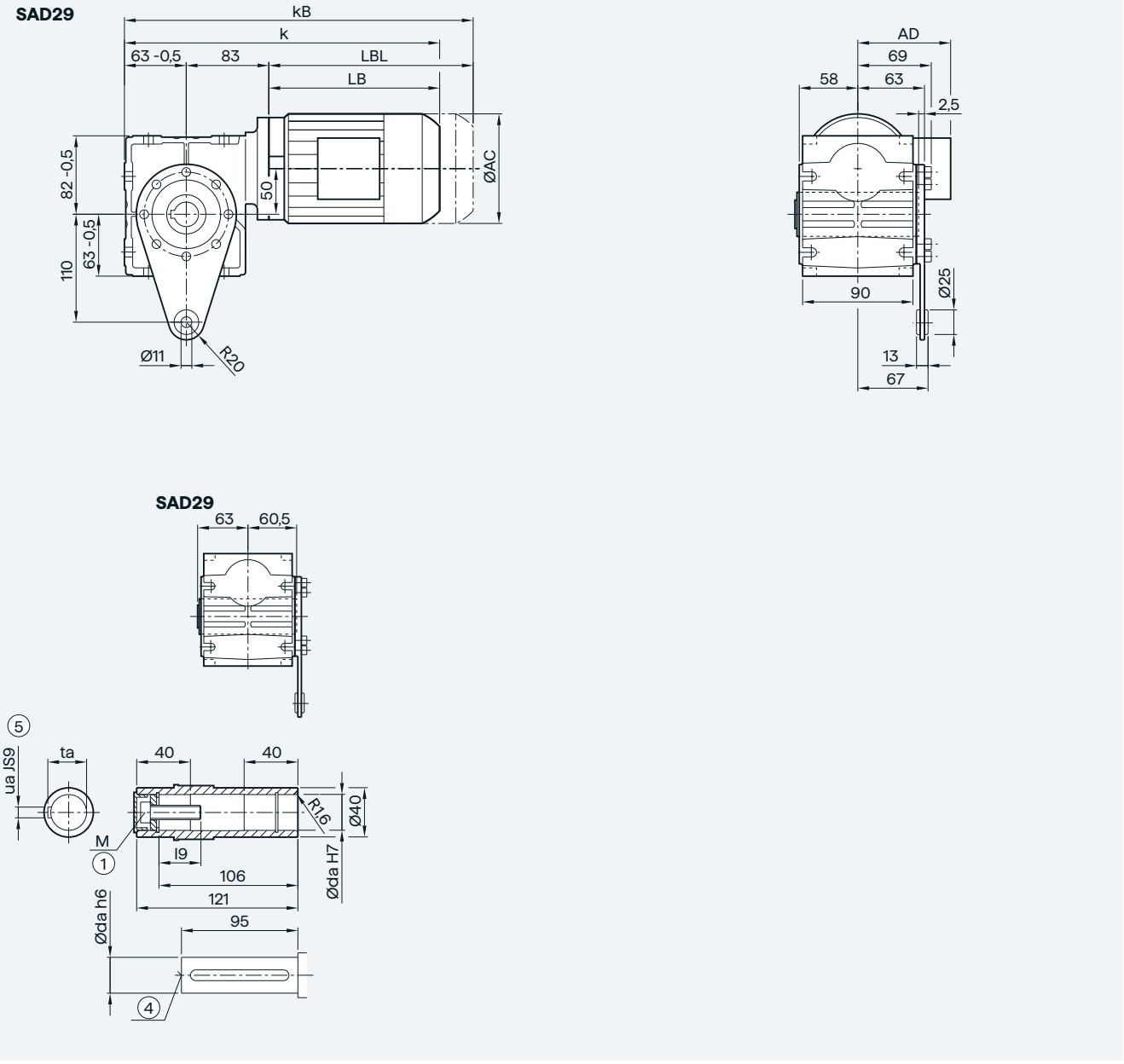
Worm geared motors

Gearbox SAD29 in a shaft-mounted design



Hollow shaft	da	ua	ta	l9	M
	20	6	22.8	23.4	M6
	25	8	28.3	32.6	M10

Motor	AC	AD [1]	k	kB	LB	LBL
LEI63	117.8	101	325.5	376.5	179.5	230.5
LEI63Z	117.8	101	351.5	402.5	205.5	256.5
LEI71	138.8	111	356.5	407.5	210.5	261.5
LEI71Z	138.8	111	372.5	427.5	226.5	281.5
LEI71Y	138.8	111	412.5	467.5	266.5	321.5

① ISO 4014 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1

[1] AD depends on the motor options, for other dimensions, see page 9/53.

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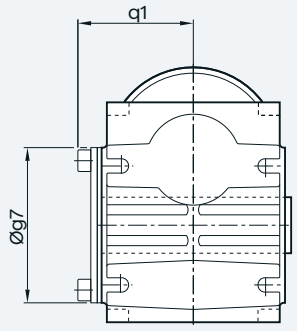
Protective cover for hollow shaft

SA, SAZ, SAF, SE, SEZ



Gearbox type	S.09	S.19	S.29
Protective cover			
g7	72	82	100
q1	51	59.5	70

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Electric-monorail geared motors

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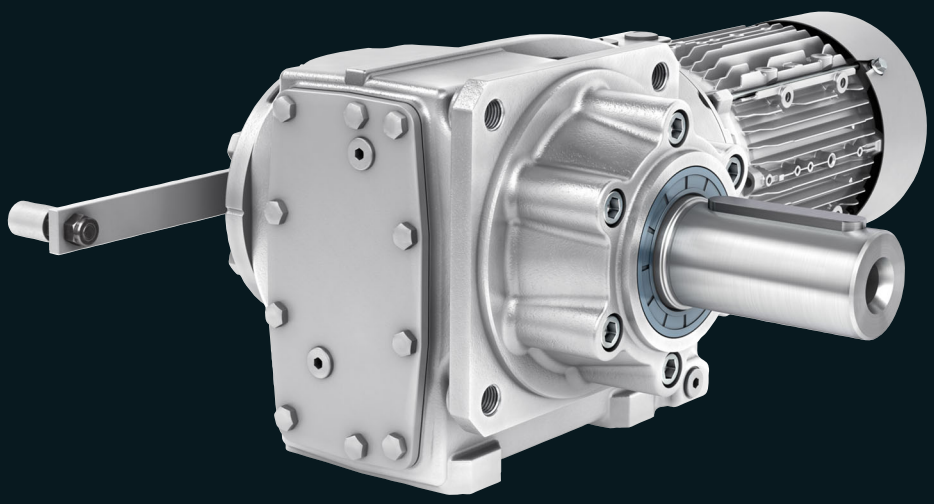

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8 Electric-monorail geared motors

8/2 Orientation

8/3 Geared motors up to 3 kW for light-load applications

8/3 Selection and ordering data

8/8 Geared motors up to 7.5 kW for heavy-load applications

8/8 Selection and ordering data

8/16 Transmission ratios and torques for light-load applications

8/16 Selection and ordering data

8/17 Transmission ratios and torques for heavy-load applications

8/17 Selection and ordering data

8/19 Dimensional drawings

8/19 Overview

Light-load applications

8/20 Bevel gearbox BHZ29

8/21 Bevel gearbox BHZ39

8/22 Bevel gearbox BH39

Heavy-load applications

8/23 Bevel gearbox KHF49

8/24 Bevel gearbox KHF69

8/25 Bevel gearbox KHF79

8/26 Clutch lever, position B

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Electric-monorail geared motors

Bevel geared motor 2-stages for light-load applications

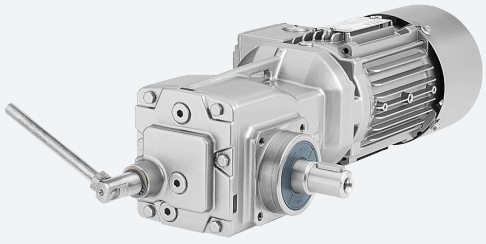

Fig. 8-1 Bevel geared motor BH

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power P_1 kW	Supported motors
_ Foot-mounted design _ Design with integrated housing flange	_ Solid shaft design with and without feather key	BH.29 ... BH.39	72 ... 200	7.23 ... 60.21	3	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors

Bevel geared motor 3-stages for heavy-load applications

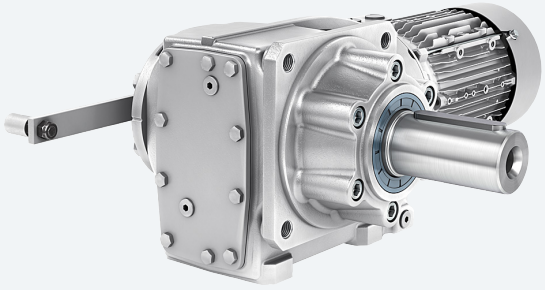

Fig. 8-2 Bevel geared motor KHF

Designs	Mounting	Frame sizes	Maximum output torque T_{2N} Nm	Transmission ratio i –	Maximum motor power P_1 kW	Supported motors
_ Flange-mounted design	_ Solid shaft design with and without feather key	KHF49 ... KHF79	415 ... 820	10.27 ... 244.25	7.5	_ Converter World Motor _ Induction motors _ Synchronous reluctance motors

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2} [1]	$F_{R2}90$ [1]	$F_{R2}270$ [1]	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
0.12	**BH.29-LE63ZMH4P**									
	28	41	50.26	7500	7500	7500	2.2	11	**2KJ3803- ■ BD23- ■■ R1 -Z**	**–**
	31	37	44.58	7500	7500	7500	2.4	11	**2KJ3803- ■ BD23- ■■ Q1 -Z**	**–**
	36	32	38.68	7240	7330	7350	2.8	11	**2KJ3803- ■ BD23- ■■ P1 -Z**	**–**
	40	29	35.16	7030	7110	7130	3.1	11	**2KJ3803- ■ BD23- ■■ N1 -Z**	**–**
	46	25	30.16	6700	6760	6780	3.6	11	**2KJ3803- ■ BD23- ■■ M1 -Z**	**–**
	51	23	27.41	6500	6560	6580	4	11	**2KJ3803- ■ BD23- ■■ L1 -Z**	**–**
	58	20	24.04	6240	6290	6300	4.5	11	**2KJ3803- ■ BD23- ■■ K1 -Z**	**–**
	65	18	21.45	6020	6060	6070	5.1	11	**2KJ3803- ■ BD23- ■■ J1 -Z**	**–**
	73	16	19.12	5800	5840	5850	5.7	11	**2KJ3803- ■ BD23- ■■ H1 -Z**	**–**
	79	15	17.65	5650	5690	5700	6.2	11	**2KJ3803- ■ BD23- ■■ G1 -Z**	**–**
	90	13	15.45	5410	5450	5460	6.9	11	**2KJ3803- ■ BD23- ■■ F1 -Z**	**–**
	103	11	13.55	5180	5210	5220	7.5	11	**2KJ3803- ■ BD23- ■■ E1 -Z**	**–**
	113	10	12.29	5030	5050	5060	8	11	**2KJ3803- ■ BD23- ■■ D1 -Z**	**–**
	120	9.5	11.57	4930	4950	4960	8.3	11	**2KJ3803- ■ BD23- ■■ C1 -Z**	**–**
	136	8.4	10.2	4730	4750	4760	9	11	**2KJ3803- ■ BD23- ■■ B1 -Z**	**–**
	157	7.3	8.85	4520	4540	4540	9.9	11	**2KJ3803- ■ BD23- ■■ A1 -Z**	**–**
0.18	**BH.39-LE71ZMK6P**									
	15	117	60.21	15000	15000	15000	1.7	16	**2KJ3804- ■ CC23- ■■ T1 -Z**	**P01**
	17	101	52.26	15000	15000	15000	2	16	**2KJ3804- ■ CC23- ■■ S1 -Z**	**P01**
	19	90	46.47	15000	15000	15000	2.2	16	**2KJ3804- ■ CC23- ■■ R1 -Z**	**P01**
	BH.29-LE71ZMK6P									
	18	98	50.26	7500	7500	7500	0.92	11	**2KJ3803- ■ CC23- ■■ R1 -Z**	**P01**
	20	87	44.58	7500	7500	7500	1	11	**2KJ3803- ■ CC23- ■■ Q1 -Z**	**P01**
	23	75	38.68	7500	7500	7500	1.2	11	**2KJ3803- ■ CC23- ■■ P1 -Z**	**P01**
	25	68	35.16	7500	7500	7500	1.3	11	**2KJ3803- ■ CC23- ■■ N1 -Z**	**P01**
	BH.29-LE63ZMK4P									
	28	62	50.26	7500	7500	7500	1.5	11	**2KJ3803- ■ BE23- ■■ R1 -Z**	**–**
	31	55	44.58	7440	7500	7500	1.6	11	**2KJ3803- ■ BE23- ■■ Q1 -Z**	**–**
	36	48	38.68	7130	7250	7290	1.9	11	**2KJ3803- ■ BE23- ■■ P1 -Z**	**–**
	40	43	35.16	6930	7040	7070	2.1	11	**2KJ3803- ■ BE23- ■■ N1 -Z**	**–**
	46	37	30.16	6610	6710	6730	2.4	11	**2KJ3803- ■ BE23- ■■ M1 -Z**	**–**
	51	34	27.41	6420	6510	6530	2.7	11	**2KJ3803- ■ BE23- ■■ L1 -Z**	**–**
	58	30	24.04	6160	6240	6260	3	11	**2KJ3803- ■ BE23- ■■ K1 -Z**	**–**
	65	26	21.45	5950	6020	6040	3.4	11	**2KJ3803- ■ BE23- ■■ J1 -Z**	**–**
	73	24	19.12	5740	5800	5820	3.8	11	**2KJ3803- ■ BE23- ■■ H1 -Z**	**–**
	79	22	17.65	5600	5650	5670	4.2	11	**2KJ3803- ■ BE23- ■■ G1 -Z**	**–**
	91	19	15.45	5360	5410	5430	4.6	11	**2KJ3803- ■ BE23- ■■ F1 -Z**	**–**
	103	17	13.55	5150	5190	5200	5	11	**2KJ3803- ■ BE23- ■■ E1 -Z**	**–**
	114	15	12.29	4990	5030	5040	5.4	11	**2KJ3803- ■ BE23- ■■ D1 -Z**	**–**
	121	14	11.57	4890	4930	4940	5.6	11	**2KJ3803- ■ BE23- ■■ C1 -Z**	**–**
	137	12	10.2	4700	4730	4740	6.1	11	**2KJ3803- ■ BE23- ■■ B1 -Z**	**–**
	158	11	8.85	4490	4520	4530	6.6	11	**2KJ3803- ■ BE23- ■■ A1 -Z**	**–**
0.25	**BH.39-LE71YMS6P**									
	15	162	60.21	15000	15000	15000	1.2	18	**2KJ3804- ■ CE23- ■■ T1 -Z**	**P01**
	17	141	52.26	15000	15000	15000	1.4	18	**2KJ3804- ■ CE23- ■■ S1 -Z**	**P01**

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

[1] Values apply to BH.39 for 30 x 50 solid shaft. For conversion for 25 x 35 solid shaft, see page 2/16.

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Electric-monorail geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2} [1]	$F_{R2}90$ [1]	$F_{R2}270$ [1]	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
0.25	**BH.39-LE71YMS6P**									
	19	125	46.47	15000	15000	15000	1.6	18	**2KJ3804- ■ CE23- ■■ R1 -Z**	**P01**
	22	110	40.8	15000	15000	15000	1.8	18	**2KJ3804- ■ CE23- ■■ Q1 -Z**	**P01**
	BH.39-LE71ZMK4P									
	23	103	60.21	15000	15000	15000	1.9	16	**2KJ3804- ■ CC23- ■■ T1 -Z**	**–**
	27	89	52.26	15000	15000	15000	2.2	16	**2KJ3804- ■ CC23- ■■ S1 -Z**	**–**
	30	80	46.47	15000	15000	15000	2.5	16	**2KJ3804- ■ CC23- ■■ R1 -Z**	**–**
	BH.29-LE71YMS6P									
	23	104	38.68	7500	7500	7500	0.86	13	**2KJ3803- ■ CE23- ■■ P1 -Z**	**P01**
	25	95	35.16	7500	7500	7500	0.95	13	**2KJ3803- ■ CE23- ■■ N1 -Z**	**P01**
	BH.29-LE71ZMK4P									
	28	86	50.26	7500	7500	7500	1	11	**2KJ3803- ■ CC23- ■■ R1 -Z**	**–**
	31	76	44.58	7280	7480	7500	1.2	11	**2KJ3803- ■ CC23- ■■ Q1 -Z**	**–**
	36	66	38.68	7000	7170	7210	1.4	11	**2KJ3803- ■ CC23- ■■ P1 -Z**	**–**
	40	60	35.16	6810	6960	7000	1.5	11	**2KJ3803- ■ CC23- ■■ N1 -Z**	**–**
	46	52	30.16	6510	6640	6680	1.7	11	**2KJ3803- ■ CC23- ■■ M1 -Z**	**–**
	51	47	27.41	6330	6450	6480	1.9	11	**2KJ3803- ■ CC23- ■■ L1 -Z**	**–**
	58	41	24.04	6080	6190	6220	2.2	11	**2KJ3803- ■ CC23- ■■ K1 -Z**	**–**
	65	37	21.45	5880	5970	6000	2.5	11	**2KJ3803- ■ CC23- ■■ J1 -Z**	**–**
	73	33	19.12	5670	5760	5780	2.8	11	**2KJ3803- ■ CC23- ■■ H1 -Z**	**–**
	79	30	17.65	5540	5610	5640	3	11	**2KJ3803- ■ CC23- ■■ G1 -Z**	**–**
	90	26	15.45	5320	5380	5400	3.3	11	**2KJ3803- ■ CC23- ■■ F1 -Z**	**–**
	103	23	13.55	5100	5160	5180	3.6	11	**2KJ3803- ■ CC23- ■■ E1 -Z**	**–**
	114	21	12.29	4950	5000	5020	3.9	11	**2KJ3803- ■ CC23- ■■ D1 -Z**	**–**
	121	20	11.57	4860	4910	4920	4	11	**2KJ3803- ■ CC23- ■■ C1 -Z**	**–**
	137	18	10.2	4670	4710	4720	4.4	11	**2KJ3803- ■ CC23- ■■ B1 -Z**	**–**
	158	15	8.85	4460	4500	4510	4.8	11	**2KJ3803- ■ CC23- ■■ A1 -Z**	**–**
0.37	**BH.39-LE80MK6P**									
	20	175	46.47	on request			1.1	21	**2KJ3804- ■ DE23- ■■ R1 -Z**	**–**
	BH.39-LE71YMS4P									
	23	151	60.21	15000	15000	15000	1.3	18	**2KJ3804- ■ CE23- ■■ T1 -Z**	**–**
	27	131	52.26	15000	15000	15000	1.5	18	**2KJ3804- ■ CE23- ■■ S1 -Z**	**–**
	30	116	46.47	15000	15000	15000	1.7	18	**2KJ3804- ■ CE23- ■■ R1 -Z**	**–**
	35	102	40.8	15000	15000	15000	2	18	**2KJ3804- ■ CE23- ■■ Q1 -Z**	**–**
	38	93	37.09	15000	15000	15000	2.2	18	**2KJ3804- ■ CE23- ■■ P1 -Z**	**–**
	44	80	31.73	15000	15000	15000	2.5	18	**2KJ3804- ■ CE23- ■■ N1 -Z**	**–**
	49	72	28.85	15000	15000	15000	2.8	18	**2KJ3804- ■ CE23- ■■ M1 -Z**	**–**
	BH.29-LE71YMS4P									
	32	112	44.58	on request			0.81	13	**2KJ3803- ■ CE23- ■■ PQ -Z**	**–**
	36	97	38.68	6740	6980	7040	0.93	13	**2KJ3803- ■ CE23- ■■ P1 -Z**	**–**
	40	88	35.16	6570	6790	6850	1	13	**2KJ3803- ■ CE23- ■■ N1 -Z**	**–**
	47	76	30.16	6300	6490	6540	1.2	13	**2KJ3803- ■ CE23- ■■ M1 -Z**	**–**
	51	69	27.41	6130	6310	6350	1.3	13	**2KJ3803- ■ CE23- ■■ L1 -Z**	**–**
	59	60	24.04	5910	6070	6110	1.5	13	**2KJ3803- ■ CE23- ■■ K1 -Z**	**–**
	66	54	21.45	5730	5860	5900	1.7	13	**2KJ3803- ■ CE23- ■■ J1 -Z**	**–**
	74	48	19.12	5540	5660	5690	1.9	13	**2KJ3803- ■ CE23- ■■ H1 -Z**	**–**

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

[1] Values apply to BH.39 for 30 x 50 solid shaft. For conversion for 25 x 35 solid shaft, see page 2/16.

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2} [1]	$F_{R2}90$ [1]	$F_{R2}270$ [1]	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
0.37	**BH.29-LE71YMS4P**									
	80	44	17.65	5400	5520	5550	2	13	**2KJ3803- ■ CE23- ■■ G1 -Z**	–
	91	39	15.45	5200	5300	5320	2.3	13	**2KJ3803- ■ CE23- ■■ F1 -Z**	–
	104	34	13.55	5000	5080	5110	2.5	13	**2KJ3803- ■ CE23- ■■ E1 -Z**	–
	115	31	12.29	4850	4930	4950	2.6	13	**2KJ3803- ■ CE23- ■■ D1 -Z**	–
	122	29	11.57	4760	4840	4860	2.7	13	**2KJ3803- ■ CE23- ■■ C1 -Z**	–
	138	26	10.2	4590	4650	4670	3	13	**2KJ3803- ■ CE23- ■■ B1 -Z**	–
	159	22	8.85	4390	4440	4460	3.2	13	**2KJ3803- ■ CE23- ■■ A1 -Z**	–
0.55	**BH.39-LE80MH4P**									
	31	169	46.47	15000	15000	15000	1.2	22	**2KJ3804- ■ DC23- ■■ R1 -Z**	–
	35	149	40.8	15000	15000	15000	1.3	22	**2KJ3804- ■ DC23- ■■ Q1 -Z**	–
	39	135	37.09	15000	15000	15000	1.5	22	**2KJ3804- ■ DC23- ■■ P1 -Z**	–
	45	116	31.73	15000	15000	15000	1.7	22	**2KJ3804- ■ DC23- ■■ N1 -Z**	–
	50	105	28.85	15000	15000	15000	1.9	22	**2KJ3804- ■ DC23- ■■ M1 -Z**	–
	56	93	25.5	15000	15000	15000	2.2	22	**2KJ3804- ■ DC23- ■■ L1 -Z**	–
	62	84	23.18	15000	15000	15000	2.4	22	**2KJ3804- ■ DC23- ■■ K1 -Z**	–
	71	74	20.31	14600	14800	14900	2.7	22	**2KJ3804- ■ DC23- ■■ J1 -Z**	–
	77	68	18.74	14300	14500	14500	2.9	22	**2KJ3804- ■ DC23- ■■ H1 -Z**	–
	87	60	16.6	13800	14000	14000	3.3	22	**2KJ3804- ■ DC23- ■■ G1 -Z**	–
	BH.29-LE80MH4P									
	48	110	30.16	5960	6230	6290	0.82	17	**2KJ3803- ■ DC23- ■■ M1 -Z**	–
	53	100	27.41	5820	6070	6120	0.9	17	**2KJ3803- ■ DC23- ■■ L1 -Z**	–
	60	88	24.04	5630	5840	5890	1	17	**2KJ3803- ■ DC23- ■■ K1 -Z**	–
	67	78	21.45	5460	5660	5700	1.2	17	**2KJ3803- ■ DC23- ■■ J1 -Z**	–
	75	70	19.12	5290	5470	5510	1.3	17	**2KJ3803- ■ DC23- ■■ H1 -Z**	–
	82	64	17.65	5180	5340	5380	1.4	17	**2KJ3803- ■ DC23- ■■ G1 -Z**	–
	93	56	15.45	4990	5130	5170	1.6	17	**2KJ3803- ■ DC23- ■■ F1 -Z**	–
	106	49	13.55	4810	4930	4970	1.7	17	**2KJ3803- ■ DC23- ■■ E1 -Z**	–
	117	45	12.29	4680	4790	4820	1.8	17	**2KJ3803- ■ DC23- ■■ D1 -Z**	–
	124	42	11.57	4600	4700	4730	1.9	17	**2KJ3803- ■ DC23- ■■ C1 -Z**	–
	141	37	10.2	4430	4520	4550	2	17	**2KJ3803- ■ DC23- ■■ B1 -Z**	–
	163	32	8.85	4250	4330	4350	2.2	17	**2KJ3803- ■ DC23- ■■ A1 -Z**	–
0.75	**BH.39-LE80ZMQ4P**									
	31	230	46.47	14800	15000	15000	0.87	21	**2KJ3804- ■ DF23- ■■ R1 -Z**	–
	36	200	40.8	15000	15000	15000	0.99	21	**2KJ3804- ■ DF23- ■■ Q1 -Z**	–
	39	183	37.09	15000	15000	15000	1.1	21	**2KJ3804- ■ DF23- ■■ P1 -Z**	–
	46	157	31.73	15000	15000	15000	1.3	21	**2KJ3804- ■ DF23- ■■ N1 -Z**	–
	50	142	28.85	15000	15000	15000	1.4	21	**2KJ3804- ■ DF23- ■■ M1 -Z**	–
	57	126	25.5	15000	15000	15000	1.6	21	**2KJ3804- ■ DF23- ■■ L1 -Z**	–
	63	114	23.18	15000	15000	15000	1.7	21	**2KJ3804- ■ DF23- ■■ K1 -Z**	–
	71	100	20.31	14500	14700	14800	2	21	**2KJ3804- ■ DF23- ■■ J1 -Z**	–
	77	93	18.74	14100	14400	14400	2.2	21	**2KJ3804- ■ DF23- ■■ H1 -Z**	–
	87	82	16.6	13700	13900	13900	2.4	21	**2KJ3804- ■ DF23- ■■ G1 -Z**	–
	105	68	13.81	13000	13200	13200	2.9	21	**2KJ3804- ■ DF23- ■■ F1 -Z**	–
	112	64	13	12800	13000	13000	3.1	21	**2KJ3804- ■ DF23- ■■ E1 -Z**	–
	124	58	11.65	12400	12600	12600	3.5	21	**2KJ3804- ■ DF23- ■■ D1 -Z**	–

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

[1] Values apply to BH.39 for 30 x 50 solid shaft. For conversion for 25 x 35 solid shaft, see page 2/16.

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Electric-monorail geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2} [1]	$F_{R2}90$ [1]	$F_{R2}270$ [1]	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
0.75	**BH.29-LE80ZMQ4P**									
	68	106	21.45	5260	5520	5580	0.85	16	**2KJ3803- ■ DF23- ■■ J1 -Z**	–
	76	94	19.12	5120	5350	5400	0.95	16	**2KJ3803- ■ DF23- ■■ H1 -Z**	–
	82	87	17.65	5020	5230	5280	1	16	**2KJ3803- ■ DF23- ■■ G1 -Z**	–
	94	76	15.45	4850	5040	5080	1.2	16	**2KJ3803- ■ DF23- ■■ F1 -Z**	–
	107	67	13.55	4690	4850	4890	1.3	16	**2KJ3803- ■ DF23- ■■ E1 -Z**	–
	118	61	12.29	4560	4710	4750	1.3	16	**2KJ3803- ■ DF23- ■■ D1 -Z**	–
	125	57	11.57	4490	4630	4660	1.4	16	**2KJ3803- ■ DF23- ■■ C1 -Z**	–
	142	50	10.2	4330	4460	4490	1.5	16	**2KJ3803- ■ DF23- ■■ B1 -Z**	–
	164	44	8.85	4160	4270	4300	1.6	16	**2KJ3803- ■ DF23- ■■ A1 -Z**	–
1.1	**BH.39-LE90SM4P**									
	45	230	31.73	14800	15000	15000	0.86	23	**2KJ3804- ■ EK23- ■■ N1 -Z**	–
	50	210	28.85	14900	15000	15000	0.95	23	**2KJ3804- ■ EK23- ■■ M1 -Z**	–
	56	186	25.5	15000	15000	15000	1.1	23	**2KJ3804- ■ EK23- ■■ L1 -Z**	–
	62	169	23.18	14600	15000	15000	1.2	23	**2KJ3804- ■ EK23- ■■ K1 -Z**	–
	71	148	20.31	14200	14500	14600	1.3	23	**2KJ3804- ■ EK23- ■■ J1 -Z**	–
	77	137	18.74	13900	14200	14300	1.5	23	**2KJ3804- ■ EK23- ■■ H1 -Z**	–
	87	121	16.6	13500	13700	13800	1.7	23	**2KJ3804- ■ EK23- ■■ G1 -Z**	–
	104	101	13.81	12800	13100	13100	2	23	**2KJ3804- ■ EK23- ■■ F1 -Z**	–
	111	95	13	12600	12800	12900	2.1	23	**2KJ3804- ■ EK23- ■■ E1 -Z**	–
	124	85	11.65	12300	12500	12500	2.4	23	**2KJ3804- ■ EK23- ■■ D1 -Z**	–
	145	72	9.92	11700	11900	12000	2.8	23	**2KJ3804- ■ EK23- ■■ C1 -Z**	–
	169	62	8.5	11300	11400	11400	3.2	23	**2KJ3804- ■ EK23- ■■ B1 -Z**	–
	197	53	7.32	10800	10900	11000	3.7	23	**2KJ3804- ■ EK23- ■■ A1 -Z**	–
	BH.29-LE90SM4P									
	106	99	13.55	4470	4720	4770	0.85	18	**2KJ3803- ■ EK23- ■■ E1 -Z**	–
	117	90	12.29	4370	4590	4640	0.9	18	**2KJ3803- ■ EK23- ■■ D1 -Z**	–
	124	84	11.57	4310	4520	4570	0.94	18	**2KJ3803- ■ EK23- ■■ C1 -Z**	–
	141	74	10.2	4180	4360	4410	1	18	**2KJ3803- ■ EK23- ■■ B1 -Z**	–
	163	65	8.85	4030	4190	4230	1.1	18	**2KJ3803- ■ EK23- ■■ A1 -Z**	–
1.5	**BH.39-LE90ZLR4P**									
	62	230	23.18	14200	14700	14800	0.87	26	**2KJ3804- ■ EM23- ■■ K1 -Z**	–
	71	200	20.31	13800	14200	14400	0.99	26	**2KJ3804- ■ EM23- ■■ J1 -Z**	–
	77	186	18.74	13500	13900	14000	1.1	26	**2KJ3804- ■ EM23- ■■ H1 -Z**	–
	87	165	16.6	13100	13500	13600	1.2	26	**2KJ3804- ■ EM23- ■■ G1 -Z**	–
	105	137	13.81	12600	12900	13000	1.5	26	**2KJ3804- ■ EM23- ■■ F1 -Z**	–
	111	129	13	12400	12700	12700	1.6	26	**2KJ3804- ■ EM23- ■■ E1 -Z**	–
	124	115	11.65	12000	12300	12400	1.7	26	**2KJ3804- ■ EM23- ■■ D1 -Z**	–
	146	98	9.92	11500	11800	11800	2	26	**2KJ3804- ■ EM23- ■■ C1 -Z**	–
	170	84	8.5	11100	11300	11300	2.4	26	**2KJ3804- ■ EM23- ■■ B1 -Z**	–
	197	73	7.32	10600	10800	10900	2.8	26	**2KJ3804- ■ EM23- ■■ A1 -Z**	–
	BH.29-LE90ZLR4P									
	163	88	8.85	3860	4080	4120	0.82	21	**2KJ3803- ■ EM23- ■■ A1 -Z**	–
2.2	**BH.39-LE100ZLSA4P**									
	88	235	16.6	12600	13100	13200	0.84	41	**2KJ3804- ■ FN23- ■■ G1 -Z**	–
	106	198	13.81	12100	12500	12600	1	41	**2KJ3804- ■ FN23- ■■ F1 -Z**	–

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

[1] Values apply to BH.39 for 30 x 50 solid shaft. For conversion for 25 x 35 solid shaft, see page 2/16.

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2} [1]	$F_{R2}90$ [1]	$F_{R2}270$ [1]	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
2.2	**BH.39-LE100ZLSA4P**									
	113	186	13	11900	12300	12400	1.1	41	**2KJ3804- ■ FN23- ■■ E1 -Z**	–
	126	167	11.65	11600	12000	12100	1.2	41	**2KJ3804- ■ FN23- ■■ D1 -Z**	–
	148	142	9.92	11200	11500	11600	1.4	41	**2KJ3804- ■ FN23- ■■ C1 -Z**	–
	172	122	8.5	10800	11100	11100	1.6	41	**2KJ3804- ■ FN23- ■■ B1 -Z**	–
	200	105	7.32	10400	10600	10700	1.9	41	**2KJ3804- ■ FN23- ■■ A1 -Z**	–
3	**BH.39-LE100ZLSB4P**									
	125	225	11.65	11200	11700	11800	0.87	41	**2KJ3804- ■ FP23- ■■ D1 -Z**	–
	147	195	9.92	10800	11300	11400	1	41	**2KJ3804- ■ FP23- ■■ C1 -Z**	–
	172	167	8.5	10500	10900	10900	1.2	41	**2KJ3804- ■ FP23- ■■ B1 -Z**	–
	199	144	7.32	10100	10400	10500	1.4	41	**2KJ3804- ■ FP23- ■■ A1 -Z**	–

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

[1] Values apply to BH.39 for 30 x 50 solid shaft. For conversion for 25 x 35 solid shaft, see page 2/16.

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Electric-monorail geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	$F_{R2}90$	$F_{R2}270$	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
0.18	**KH.79-LE71ZMK6P**									
	3.6	470	244.25	on request			1.7	52	**2KJ3808- ■ CC23- ■■ E2 -Z**	**P01**
	4	430	222.05	on request			1.9	52	**2KJ3808- ■ CC23- ■■ D2 -Z**	**P01**
	KH.69-LE71ZMK6P									
	4.5	380	196.59	on request			1.6	45	**2KJ3807- ■ CC23- ■■ C2 -Z**	**P01**
	5	345	178.72	on request			1.7	45	**2KJ3807- ■ CC23- ■■ B2 -Z**	**P01**
	5.8	295	152	on request			2	45	**2KJ3807- ■ CC23- ■■ A2 -Z**	**P01**
	KH.49-LE71ZMK6P									
	4.4	385	200.25	on request			1.1	22	**2KJ3806- ■ CC23- ■■ C2 -Z**	**P01**
	5	345	178.06	on request			1.2	22	**2KJ3806- ■ CC23- ■■ B2 -Z**	**P01**
	5.7	300	156.34	on request			1.4	22	**2KJ3806- ■ CC23- ■■ A2 -Z**	**P01**
	6.2	275	142.13	on request			1.5	22	**2KJ3806- ■ CC23- ■■ X1 -Z**	**P01**
	KH.49-LE63ZMK4P									
	7	245	200.25	on request			1.7	22	**2KJ3806- ■ BE23- ■■ C2 -Z**	**–**
	7.9	215	178.06	on request			1.9	22	**2KJ3806- ■ BE23- ■■ B2 -Z**	**–**
0.25	**KH.79-LE71YMS6P**									
	3.6	655	244.25	on request			1.2	54	**2KJ3808- ■ CE23- ■■ E2 -Z**	**P01**
	4	595	222.05	on request			1.4	54	**2KJ3808- ■ CE23- ■■ D2 -Z**	**P01**
	4.7	505	188.85	on request			1.6	54	**2KJ3808- ■ CE23- ■■ C2 -Z**	**P01**
	5.2	460	171.69	on request			1.8	54	**2KJ3808- ■ CE23- ■■ B2 -Z**	**P01**
	KH.79-LE71ZMK4P									
	5.7	415	244.25	on request			2	52	**2KJ3808- ■ CC23- ■■ E2 -Z**	**–**
	KH.69-LE71YMS6P									
	4.5	530	196.59	on request			1.1	47	**2KJ3807- ■ CE23- ■■ C2 -Z**	**P01**
	5	480	178.72	on request			1.2	47	**2KJ3807- ■ CE23- ■■ B2 -Z**	**P01**
	5.8	410	152	on request			1.5	47	**2KJ3807- ■ CE23- ■■ A2 -Z**	**P01**
	6.4	370	138.18	on request			1.6	47	**2KJ3807- ■ CE23- ■■ X1 -Z**	**P01**
	KH.69-LE71ZMK4P									
	7.1	335	196.59	on request			1.8	45	**2KJ3807- ■ CC23- ■■ C2 -Z**	**–**
	7.8	305	178.72	on request			2	45	**2KJ3807- ■ CC23- ■■ B2 -Z**	**–**
	KH.49-LE71YMS6P									
	5	480	178.06	on request			0.87	24	**2KJ3806- ■ CE23- ■■ B2 -Z**	**P01**
	5.7	420	156.34	on request			1	24	**2KJ3806- ■ CE23- ■■ A2 -Z**	**P01**
	6.2	380	142.13	on request			1.1	24	**2KJ3806- ■ CE23- ■■ X1 -Z**	**P01**
	KH.49-LE71ZMK4P									
	7	340	200.25	on request			1.2	22	**2KJ3806- ■ CC23- ■■ C2 -Z**	**–**
	7.8	305	178.06	on request			1.4	22	**2KJ3806- ■ CC23- ■■ B2 -Z**	**–**
	8.9	265	156.34	on request			1.6	22	**2KJ3806- ■ CC23- ■■ A2 -Z**	**–**
	9.8	240	142.13	on request			1.7	22	**2KJ3806- ■ CC23- ■■ X1 -Z**	**–**
	11	205	121.6	on request			2	22	**2KJ3806- ■ CC23- ■■ W1 -Z**	**–**
	13	189	110.55	on request			2.2	22	**2KJ3806- ■ CC23- ■■ V1 -Z**	**–**
0.37	**KH.79-LE80MK6P**									
	3.8	915	244.25	on request			0.89	57	**2KJ3808- ■ DE23- ■■ E2 -Z**	**P01**
	4.2	835	222.05	on request			0.98	57	**2KJ3808- ■ DE23- ■■ D2 -Z**	**P01**
	5	710	188.85	on request			1.2	57	**2KJ3808- ■ DE23- ■■ C2 -Z**	**P01**
	5.5	645	171.69	on request			1.3	57	**2KJ3808- ■ DE23- ■■ B2 -Z**	**P01**

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	$F_{R2}90$	$F_{R2}270$	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
0.37	**KH.79-LE71YMS4P**									
	5.8	610	244.25	on request			1.3	54	**2KJ3808- ■ CE23- ■■ E2 -Z**	**–**
	6.3	555	222.05	on request			1.5	54	**2KJ3808- ■ CE23- ■■ D2 -Z**	**–**
	7.5	470	188.85	on request			1.7	54	**2KJ3808- ■ CE23- ■■ C2 -Z**	**–**
	8.2	430	171.69	on request			1.9	54	**2KJ3808- ■ CE23- ■■ B2 -Z**	**–**
	9.2	380	153.18	on request			2.1	54	**2KJ3808- ■ CE23- ■■ A2 -Z**	**–**
	KH.69-LE80MK6P									
	4.8	735	196.59	on request			0.81	50	**2KJ3807- ■ DE23- ■■ C2 -Z**	**P01**
	5.3	670	178.72	on request			0.89	50	**2KJ3807- ■ DE23- ■■ B2 -Z**	**P01**
	6.2	570	152	on request			1.1	50	**2KJ3807- ■ DE23- ■■ A2 -Z**	**P01**
	6.8	515	138.18	on request			1.2	50	**2KJ3807- ■ DE23- ■■ X1 -Z**	**P01**
	KH.69-LE71YMS4P									
	7.2	490	196.59	on request			1.2	47	**2KJ3807- ■ CE23- ■■ C2 -Z**	**–**
	7.9	445	178.72	on request			1.3	47	**2KJ3807- ■ CE23- ■■ B2 -Z**	**–**
	9.3	380	152	on request			1.6	47	**2KJ3807- ■ CE23- ■■ A2 -Z**	**–**
	10	345	138.18	on request			1.7	47	**2KJ3807- ■ CE23- ■■ X1 -Z**	**–**
	11	305	123.29	on request			1.9	47	**2KJ3807- ■ CE23- ■■ W1 -Z**	**–**
	13	275	110.55	on request			2.2	47	**2KJ3807- ■ CE23- ■■ V1 -Z**	**–**
	KH.49-LE71YMS4P									
	7	500	200.25	on request			0.84	24	**2KJ3806- ■ CE23- ■■ C2 -Z**	**–**
	7.9	445	178.06	on request			0.94	24	**2KJ3806- ■ CE23- ■■ B2 -Z**	**–**
	9	390	156.34	on request			1.1	24	**2KJ3806- ■ CE23- ■■ A2 -Z**	**–**
	9.9	355	142.13	on request			1.2	24	**2KJ3806- ■ CE23- ■■ X1 -Z**	**–**
	12	305	121.6	18500	18500	18500	1.4	24	**2KJ3806- ■ CE23- ■■ W1 -Z**	**–**
	13	275	110.55	18500	18500	18500	1.5	24	**2KJ3806- ■ CE23- ■■ V1 -Z**	**–**
	14	245	97.71	18500	18500	18500	1.7	24	**2KJ3806- ■ CE23- ■■ U1 -Z**	**–**
	16	220	88.83	18500	18500	18500	1.9	24	**2KJ3806- ■ CE23- ■■ T1 -Z**	**–**
	18	195	77.81	18500	18500	18500	2.2	24	**2KJ3806- ■ CE23- ■■ S1 -Z**	**–**
	20	180	71.82	18500	18500	18500	2.3	24	**2KJ3806- ■ CE23- ■■ R1 -Z**	**–**
0.55	**KH.79-LE80ZMQ6P**									
	5.4	960	171.69	on request			0.85	57	**2KJ3808- ■ DF23- ■■ B2 -Z**	**P01**
	KH.79-LE80MH4P									
	5.9	890	244.25	on request			0.92	58	**2KJ3808- ■ DC23- ■■ E2 -Z**	**–**
	6.5	810	222.05	on request			1	58	**2KJ3808- ■ DC23- ■■ D2 -Z**	**–**
	7.6	685	188.85	on request			1.2	58	**2KJ3808- ■ DC23- ■■ C2 -Z**	**–**
	8.4	625	171.69	on request			1.3	58	**2KJ3808- ■ DC23- ■■ B2 -Z**	**–**
	9.4	555	153.18	on request			1.5	58	**2KJ3808- ■ DC23- ■■ A2 -Z**	**–**
	10	500	137.35	40000	40000	40000	1.6	58	**2KJ3808- ■ DC23- ■■ W1 -Z**	**–**
	12	450	123.8	40000	40000	40000	1.8	58	**2KJ3808- ■ DC23- ■■ V1 -Z**	**–**
	13	415	114.28	40000	40000	40000	2	58	**2KJ3808- ■ DC23- ■■ U1 -Z**	**–**
	14	380	104.32	40000	40000	40000	2.2	58	**2KJ3808- ■ DC23- ■■ T1 -Z**	**–**
	KH.69-LE80MH4P									
	7.3	715	196.59	on request			0.84	51	**2KJ3807- ■ DC23- ■■ C2 -Z**	**–**
	8.1	650	178.72	on request			0.92	51	**2KJ3807- ■ DC23- ■■ B2 -Z**	**–**
	9.5	550	152	on request			1.1	51	**2KJ3807- ■ DC23- ■■ A2 -Z**	**–**
	10	500	138.18	25000	25000	25000	1.2	51	**2KJ3807- ■ DC23- ■■ X1 -Z**	**–**
	12	450	123.29	25000	25000	25000	1.3	51	**2KJ3807- ■ DC23- ■■ W1 -Z**	**–**

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Electric-monorail geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	$F_{R2}90$	$F_{R2}270$	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
0.55	**KH.69-LE80MH4P**									
	13	400	110.55	25000	25000	25000	1.5	51	**2KJ3807- ■ DC23- ■■ V1 -Z**	**–**
	14	360	99.64	25000	25000	25000	1.7	51	**2KJ3807- ■ DC23- ■■ U1 -Z**	**–**
	16	335	91.98	25000	25000	25000	1.8	51	**2KJ3807- ■ DC23- ■■ T1 -Z**	**–**
	17	305	83.96	25000	25000	25000	2	51	**2KJ3807- ■ DC23- ■■ S1 -Z**	**–**
	21	250	69.67	25000	25000	25000	2.4	51	**2KJ3807- ■ DC23- ■■ R1 -Z**	**–**
	KH.49-LE80MH4P									
	10	515	142.13	17900	18300	18500	0.81	29	**2KJ3806- ■ DC23- ■■ X1 -Z**	**–**
	12	440	121.6	18500	18500	18500	0.95	29	**2KJ3806- ■ DC23- ■■ W1 -Z**	**–**
	13	400	110.55	18500	18500	18500	1	29	**2KJ3806- ■ DC23- ■■ V1 -Z**	**–**
	15	355	97.71	18500	18500	18500	1.2	29	**2KJ3806- ■ DC23- ■■ U1 -Z**	**–**
	16	320	88.83	18500	18500	18500	1.3	29	**2KJ3806- ■ DC23- ■■ T1 -Z**	**–**
	19	280	77.81	18500	18500	18500	1.5	29	**2KJ3806- ■ DC23- ■■ S1 -Z**	**–**
	20	260	71.82	18500	18500	18500	1.6	29	**2KJ3806- ■ DC23- ■■ R1 -Z**	**–**
	23	230	63.59	18500	18500	18500	1.8	29	**2KJ3806- ■ DC23- ■■ Q1 -Z**	**–**
	27	193	52.93	18500	18500	18500	2.2	29	**2KJ3806- ■ DC23- ■■ P1 -Z**	**–**
	29	182	49.82	18500	18500	18500	2.3	29	**2KJ3806- ■ DC23- ■■ N1 -Z**	**–**
0.75	**KH.79-LE80ZMQ4P**									
	7.7	930	188.85	on request			0.88	57	**2KJ3808- ■ DF23- ■■ C2 -Z**	**–**
	8.4	845	171.69	on request			0.97	57	**2KJ3808- ■ DF23- ■■ B2 -Z**	**–**
	9.5	755	153.18	on request			1.1	57	**2KJ3808- ■ DF23- ■■ A2 -Z**	**–**
	11	675	137.35	39400	40000	40000	1.2	57	**2KJ3808- ■ DF23- ■■ W1 -Z**	**–**
	12	610	123.8	40000	40000	40000	1.3	57	**2KJ3808- ■ DF23- ■■ V1 -Z**	**–**
	13	560	114.28	40000	40000	40000	1.5	57	**2KJ3808- ■ DF23- ■■ U1 -Z**	**–**
	14	515	104.32	40000	40000	40000	1.6	57	**2KJ3808- ■ DF23- ■■ T1 -Z**	**–**
	17	425	86.56	40000	40000	40000	1.9	57	**2KJ3808- ■ DF23- ■■ S1 -Z**	**–**
	18	400	81.47	40000	40000	40000	2	57	**2KJ3808- ■ DF23- ■■ R1 -Z**	**–**
	19	380	76.94	40000	40000	40000	2.2	57	**2KJ3808- ■ DF23- ■■ Q1 -Z**	**–**
	KH.69-LE80ZMQ4P									
	9.5	750	152	on request			0.8	50	**2KJ3807- ■ DF23- ■■ A2 -Z**	**–**
	10	680	138.18	25000	25000	25000	0.88	50	**2KJ3807- ■ DF23- ■■ X1 -Z**	**–**
	12	605	123.29	25000	25000	25000	0.99	50	**2KJ3807- ■ DF23- ■■ W1 -Z**	**–**
	13	545	110.55	25000	25000	25000	1.1	50	**2KJ3807- ■ DF23- ■■ V1 -Z**	**–**
	15	490	99.64	25000	25000	25000	1.2	50	**2KJ3807- ■ DF23- ■■ U1 -Z**	**–**
	16	450	91.98	25000	25000	25000	1.3	50	**2KJ3807- ■ DF23- ■■ T1 -Z**	**–**
	17	415	83.96	25000	25000	25000	1.4	50	**2KJ3807- ■ DF23- ■■ S1 -Z**	**–**
	21	340	69.67	25000	25000	25000	1.7	50	**2KJ3807- ■ DF23- ■■ R1 -Z**	**–**
	22	320	65.57	25000	25000	25000	1.9	50	**2KJ3807- ■ DF23- ■■ Q1 -Z**	**–**
	23	305	61.93	25000	25000	25000	2	50	**2KJ3807- ■ DF23- ■■ P1 -Z**	**–**
	28	260	52.69	25000	25000	25000	2.3	50	**2KJ3807- ■ DF23- ■■ N1 -Z**	**–**
	KH.49-LE80ZMQ4P									
	15	480	97.71	18300	18500	18500	0.87	28	**2KJ3806- ■ DF23- ■■ U1 -Z**	**–**
	16	435	88.83	18500	18500	18500	0.96	28	**2KJ3806- ■ DF23- ■■ T1 -Z**	**–**
	19	380	77.81	18500	18500	18500	1.1	28	**2KJ3806- ■ DF23- ■■ S1 -Z**	**–**
	20	355	71.82	18500	18500	18500	1.2	28	**2KJ3806- ■ DF23- ■■ R1 -Z**	**–**
	23	310	63.59	18500	18500	18500	1.3	28	**2KJ3806- ■ DF23- ■■ Q1 -Z**	**–**

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	$F_{R2}90$	$F_{R2}270$	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
0.75	**KH.49-LE80ZMQ4P**									
	27	260	52.93	18500	18500	18500	1.6	28	**2KJ3806- ■ DF23- ■■ P1 -Z**	–
	29	245	49.82	18500	18500	18500	1.7	28	**2KJ3806- ■ DF23- ■■ N1 -Z**	–
	32	220	44.63	18500	18500	18500	1.9	28	**2KJ3806- ■ DF23- ■■ M1 -Z**	–
	38	188	38	18500	18500	18500	2.2	28	**2KJ3806- ■ DF23- ■■ L1 -Z**	–
	45	161	32.57	18500	18500	18500	2.6	28	**2KJ3806- ■ DF23- ■■ K1 -Z**	–
1.1	**KH.79-LE90SM4P**									
	10	1000	137.35	31600	38000	40000	0.81	58	**2KJ3808- ■ EK23- ■■ W1 -Z**	–
	12	900	114.28	35600	40000	40000	0.97	58	**2KJ3808- ■ EK23- ■■ V1 -Z**	–
	13	830	123.8	34000	40000	40000	0.9	58	**2KJ3808- ■ EK23- ■■ U1 -Z**	–
	14	760	104.32	37400	40000	40000	1.1	58	**2KJ3808- ■ EK23- ■■ T1 -Z**	–
	17	630	86.56	40000	40000	40000	1.3	58	**2KJ3808- ■ EK23- ■■ S1 -Z**	–
	18	590	81.47	40000	40000	40000	1.4	58	**2KJ3808- ■ EK23- ■■ R1 -Z**	–
	19	560	76.94	40000	40000	40000	1.4	58	**2KJ3808- ■ EK23- ■■ Q1 -Z**	–
	22	475	65.47	40000	40000	40000	1.7	58	**2KJ3808- ■ EK23- ■■ P1 -Z**	–
	26	405	56.08	40000	40000	40000	2	58	**2KJ3808- ■ EK23- ■■ N1 -Z**	–
	29	360	49.31	40000	40000	40000	2.3	58	**2KJ3808- ■ EK23- ■■ M1 -Z**	–
	35	300	41.6	40000	40000	40000	2.6	58	**2KJ3808- ■ EK23- ■■ L1 -Z**	–
	KH.69-LE90SM4P									
	14	725	99.64	24400	25000	25000	0.83	51	**2KJ3807- ■ EK23- ■■ U1 -Z**	–
	16	670	91.98	25000	25000	25000	0.89	51	**2KJ3807- ■ EK23- ■■ T1 -Z**	–
	17	610	83.96	25000	25000	25000	0.98	51	**2KJ3807- ■ EK23- ■■ S1 -Z**	–
	21	505	69.67	25000	25000	25000	1.2	51	**2KJ3807- ■ EK23- ■■ R1 -Z**	–
	22	475	65.57	25000	25000	25000	1.3	51	**2KJ3807- ■ EK23- ■■ Q1 -Z**	–
	23	450	61.93	25000	25000	25000	1.3	51	**2KJ3807- ■ EK23- ■■ P1 -Z**	–
	27	380	52.69	25000	25000	25000	1.6	51	**2KJ3807- ■ EK23- ■■ N1 -Z**	–
	32	325	45.14	25000	25000	25000	1.8	51	**2KJ3807- ■ EK23- ■■ M1 -Z**	–
	36	290	39.69	25000	25000	25000	2.1	51	**2KJ3807- ■ EK23- ■■ L1 -Z**	–
	43	240	33.48	25000	25000	25000	2.4	51	**2KJ3807- ■ EK23- ■■ K1 -Z**	–
	49	210	29.18	25000	25000	25000	2.6	51	**2KJ3807- ■ EK23- ■■ J1 -Z**	–
	KH.49-LE90SM4P									
	23	460	63.59	18500	18500	18500	0.91	28	**2KJ3806- ■ EK23- ■■ Q1 -Z**	–
	27	385	52.93	18500	18500	18500	1.1	28	**2KJ3806- ■ EK23- ■■ P1 -Z**	–
	29	360	49.82	18500	18500	18500	1.2	28	**2KJ3806- ■ EK23- ■■ N1 -Z**	–
	32	325	44.63	18500	18500	18500	1.3	28	**2KJ3806- ■ EK23- ■■ M1 -Z**	–
	38	275	38	18500	18500	18500	1.5	28	**2KJ3806- ■ EK23- ■■ L1 -Z**	–
	44	235	32.57	18500	18500	18500	1.8	28	**2KJ3806- ■ EK23- ■■ K1 -Z**	–
	51	205	28.05	18500	18500	18500	2.1	28	**2KJ3806- ■ EK23- ■■ J1 -Z**	–
	55	192	26.3	18500	18500	18500	2.2	28	**2KJ3806- ■ EK23- ■■ H1 -Z**	–
	62	170	23.28	18500	18500	18500	2.5	28	**2KJ3806- ■ EK23- ■■ G1 -Z**	–
	74	141	19.38	18500	18500	18500	3	28	**2KJ3806- ■ EK23- ■■ F1 -Z**	–
	79	133	18.24	18500	18500	18500	3.2	28	**2KJ3806- ■ EK23- ■■ E1 -Z**	–
1.5	**KH.79-LE90ZLR4P**									
	17	855	86.56	35200	40000	40000	0.96	61	**2KJ3808- ■ EM23- ■■ S1 -Z**	–
	18	805	81.47	36400	40000	40000	1	61	**2KJ3808- ■ EM23- ■■ R1 -Z**	–
	19	760	76.94	37400	40000	40000	1.1	61	**2KJ3808- ■ EM23- ■■ Q1 -Z**	–
	22	645	65.47	40000	40000	40000	1.3	61	**2KJ3808- ■ EM23- ■■ P1 -Z**	–

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Electric-monorail geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	$F_{R2}90$	$F_{R2}270$	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
1.5	**KH.79-LE90ZLR4P**									
	26	555	56.08	40000	40000	40000	1.5	61	**2KJ3808- ■ EM23- ■■ N1 -Z**	–
	29	485	49.31	40000	40000	40000	1.7	61	**2KJ3808- ■ EM23- ■■ M1 -Z**	–
	35	410	41.6	40000	40000	40000	1.9	61	**2KJ3808- ■ EM23- ■■ L1 -Z**	–
	40	355	36.26	40000	40000	40000	2.1	61	**2KJ3808- ■ EM23- ■■ K1 -Z**	–
	44	325	32.78	39400	40000	39600	2.5	61	**2KJ3808- ■ EM23- ■■ J1 -Z**	–
	KH.69-LE90ZLR4P									
	21	690	69.67	24900	25000	25000	0.87	54	**2KJ3807- ■ EM23- ■■ R1 -Z**	–
	22	650	65.57	25000	25000	25000	0.92	54	**2KJ3807- ■ EM23- ■■ Q1 -Z**	–
	23	610	61.93	25000	25000	25000	0.98	54	**2KJ3807- ■ EM23- ■■ P1 -Z**	–
	27	520	52.69	25000	25000	25000	1.1	54	**2KJ3807- ■ EM23- ■■ N1 -Z**	–
	32	445	45.14	25000	25000	25000	1.3	54	**2KJ3807- ■ EM23- ■■ M1 -Z**	–
	36	390	39.69	25000	25000	25000	1.5	54	**2KJ3807- ■ EM23- ■■ L1 -Z**	–
	43	330	33.48	25000	25000	25000	1.7	54	**2KJ3807- ■ EM23- ■■ K1 -Z**	–
	50	285	29.18	25000	25000	25000	1.9	54	**2KJ3807- ■ EM23- ■■ J1 -Z**	–
	55	255	26.05	25000	25000	25000	2.3	54	**2KJ3807- ■ EM23- ■■ H1 -Z**	–
	59	240	24.52	25000	25000	25000	2.4	54	**2KJ3807- ■ EM23- ■■ G1 -Z**	–
	62	225	23.15	25000	25000	25000	2.5	54	**2KJ3807- ■ EM23- ■■ F1 -Z**	–
	73	195	19.7	25000	25000	25000	2.8	54	**2KJ3807- ■ EM23- ■■ E1 -Z**	–
	86	167	16.88	25000	25000	25000	3.2	54	**2KJ3807- ■ EM23- ■■ D1 -Z**	–
	97	147	14.84	24800	25000	24900	3.5	54	**2KJ3807- ■ EM23- ■■ C1 -Z**	–
	KH.49-LE90ZLR4P									
	27	525	52.93	on request			0.8	31	**2KJ3806- ■ EM23- ■■ P1 -Z**	–
	29	490	49.82	18300	18500	18500	0.85	31	**2KJ3806- ■ EM23- ■■ N1 -Z**	–
	32	440	44.63	18500	18500	18500	0.95	31	**2KJ3806- ■ EM23- ■■ M1 -Z**	–
	38	375	38	18500	18500	18500	1.1	31	**2KJ3806- ■ EM23- ■■ L1 -Z**	–
	44	320	32.57	18500	18500	18500	1.3	31	**2KJ3806- ■ EM23- ■■ K1 -Z**	–
	52	275	28.05	18500	18500	18500	1.5	31	**2KJ3806- ■ EM23- ■■ J1 -Z**	–
	55	260	26.3	18500	18500	18500	1.6	31	**2KJ3806- ■ EM23- ■■ H1 -Z**	–
	62	230	23.28	18500	18500	18500	1.8	31	**2KJ3806- ■ EM23- ■■ G1 -Z**	–
	75	192	19.38	18500	18500	18500	2.2	31	**2KJ3806- ■ EM23- ■■ F1 -Z**	–
	79	181	18.24	18500	18500	18500	2.3	31	**2KJ3806- ■ EM23- ■■ E1 -Z**	–
	88	162	16.34	18500	18500	18500	2.6	31	**2KJ3806- ■ EM23- ■■ D1 -Z**	–
	104	138	13.91	17900	18300	18000	3	31	**2KJ3806- ■ EM23- ■■ C1 -Z**	–
	121	118	11.93	17200	17500	17200	3.6	31	**2KJ3806- ■ EM23- ■■ B1 -Z**	–
2.2	**KH.79-LE100ZLSA4P**									
	22	935	65.47	33200	39300	40000	0.87	78	**2KJ3808- ■ FN23- ■■ P1 -Z**	–
	26	800	56.08	36400	40000	40000	1	78	**2KJ3808- ■ FN23- ■■ N1 -Z**	–
	30	705	49.31	38700	40000	40000	1.2	78	**2KJ3808- ■ FN23- ■■ M1 -Z**	–
	35	595	41.6	40000	40000	40000	1.3	78	**2KJ3808- ■ FN23- ■■ L1 -Z**	–
	40	520	36.26	39700	40000	39900	1.5	78	**2KJ3808- ■ FN23- ■■ K1 -Z**	–
	45	470	32.78	38700	39900	38900	1.7	78	**2KJ3808- ■ FN23- ■■ J1 -Z**	–
	53	390	27.2	36800	37800	37000	2.1	78	**2KJ3808- ■ FN23- ■■ H1 -Z**	–
	57	365	25.6	36200	37100	36300	2.1	78	**2KJ3808- ■ FN23- ■■ G1 -Z**	–
	61	345	24.17	35600	36500	35800	2.2	78	**2KJ3808- ■ FN23- ■■ F1 -Z**	–
	71	295	20.57	34100	34900	34200	2.5	78	**2KJ3808- ■ FN23- ■■ E1 -Z**	–

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	$F_{R2}90$	$F_{R2}270$	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
2.2	**KH.79-LE100ZLSA4P**									
	83	250	17.62	32700	33300	32800	2.8	78	**2KJ3808- ■ FN23- ■■ D1 -Z**	–
	95	220	15.49	31500	32100	31600	3.1	78	**2KJ3808- ■ FN23- ■■ C1 -Z**	–
	112	187	13.07	30000	30500	30100	3.5	78	**2KJ3808- ■ FN23- ■■ B1 -Z**	–
	KH.69-LE100ZLSA4P									
	32	645	45.14	25000	25000	25000	0.93	71	**2KJ3807- ■ FN23- ■■ M1 -Z**	–
	37	565	39.69	25000	25000	25000	1.1	71	**2KJ3807- ■ FN23- ■■ L1 -Z**	–
	44	480	33.48	25000	25000	25000	1.2	71	**2KJ3807- ■ FN23- ■■ K1 -Z**	–
	50	415	29.18	25000	25000	25000	1.3	71	**2KJ3807- ■ FN23- ■■ J1 -Z**	–
	56	370	26.05	25000	25000	25000	1.6	71	**2KJ3807- ■ FN23- ■■ H1 -Z**	–
	60	350	24.52	25000	25000	25000	1.7	71	**2KJ3807- ■ FN23- ■■ G1 -Z**	–
	63	330	23.15	25000	25000	25000	1.8	71	**2KJ3807- ■ FN23- ■■ F1 -Z**	–
	74	280	19.7	25000	25000	25000	2	71	**2KJ3807- ■ FN23- ■■ E1 -Z**	–
	87	240	16.88	25000	25000	25000	2.2	71	**2KJ3807- ■ FN23- ■■ D1 -Z**	–
	99	210	14.84	24400	25000	24500	2.4	71	**2KJ3807- ■ FN23- ■■ C1 -Z**	–
	117	180	12.52	23300	23800	23400	2.7	71	**2KJ3807- ■ FN23- ■■ B1 -Z**	–
	134	156	10.91	22400	22900	22500	3	71	**2KJ3807- ■ FN23- ■■ A1 -Z**	–
	KH.49-LE100ZLSA4P									
	45	465	32.57	18500	18500	18500	0.9	49	**2KJ3806- ■ FN23- ■■ K1 -Z**	–
	52	400	28.05	18500	18500	18500	1	49	**2KJ3806- ■ FN23- ■■ J1 -Z**	–
	55	375	26.3	18500	18500	18500	1.1	49	**2KJ3806- ■ FN23- ■■ H1 -Z**	–
	62	330	23.28	18500	18500	18500	1.3	49	**2KJ3806- ■ FN23- ■■ G1 -Z**	–
	75	275	19.38	18500	18500	18500	1.5	49	**2KJ3806- ■ FN23- ■■ F1 -Z**	–
	80	260	18.24	18500	18500	18500	1.6	49	**2KJ3806- ■ FN23- ■■ E1 -Z**	–
	89	230	16.34	18200	18500	18300	1.8	49	**2KJ3806- ■ FN23- ■■ D1 -Z**	–
	105	199	13.91	17500	18100	17600	2.1	49	**2KJ3806- ■ FN23- ■■ C1 -Z**	–
	122	171	11.93	16800	17300	16900	2.5	49	**2KJ3806- ■ FN23- ■■ B1 -Z**	–
	142	147	10.27	16200	16600	16200	2.8	49	**2KJ3806- ■ FN23- ■■ A1 -Z**	–
3	**KH.79-LE100ZLSB4P**									
	30	965	49.31	32600	38800	40000	0.85	78	**2KJ3808- ■ FP23- ■■ M1 -Z**	–
	35	815	41.6	36200	40000	40000	0.98	78	**2KJ3808- ■ FP23- ■■ L1 -Z**	–
	40	710	36.26	38700	40000	39300	1.1	78	**2KJ3808- ■ FP23- ■■ K1 -Z**	–
	44	640	32.78	38000	39600	38200	1.3	78	**2KJ3808- ■ FP23- ■■ J1 -Z**	–
	53	530	27.2	36200	37600	36400	1.5	78	**2KJ3808- ■ FP23- ■■ H1 -Z**	–
	57	500	25.6	35600	36900	35900	1.6	78	**2KJ3808- ■ FP23- ■■ G1 -Z**	–
	60	470	24.17	35100	36300	35300	1.6	78	**2KJ3808- ■ FP23- ■■ F1 -Z**	–
	71	400	20.57	33600	34700	33800	1.8	78	**2KJ3808- ■ FP23- ■■ E1 -Z**	–
	83	345	17.62	32300	33200	32400	2.1	78	**2KJ3808- ■ FP23- ■■ D1 -Z**	–
	94	300	15.49	31200	32000	31300	2.3	78	**2KJ3808- ■ FP23- ■■ C1 -Z**	–
	111	255	13.07	29700	30400	29900	2.6	78	**2KJ3808- ■ FP23- ■■ B1 -Z**	–
	128	220	11.39	28600	29200	28700	2.9	78	**2KJ3808- ■ FP23- ■■ A1 -Z**	–
	KH.69-LE100ZLSB4P									
	44	655	33.48	25000	25000	25000	0.88	71	**2KJ3807- ■ FP23- ■■ K1 -Z**	–
	50	570	29.18	25000	25000	25000	0.97	71	**2KJ3807- ■ FP23- ■■ J1 -Z**	–
	56	510	26.05	25000	25000	25000	1.2	71	**2KJ3807- ■ FP23- ■■ H1 -Z**	–
	59	480	24.52	25000	25000	25000	1.2	71	**2KJ3807- ■ FP23- ■■ G1 -Z**	–

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Electric-monorail geared motors

Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	$F_{R2}90$	$F_{R2}270$	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
3	**KH.69-LE100ZLSB4P**									
	63	450	23.15	25000	25000	25000	1.3	71	**2KJ3807- ■ FP23- ■■ F1 -Z**	–
	74	385	19.7	25000	25000	25000	1.4	71	**2KJ3807- ■ FP23- ■■ E1 -Z**	–
	86	330	16.88	24900	25000	25000	1.6	71	**2KJ3807- ■ FP23- ■■ D1 -Z**	–
	98	290	14.84	24100	24900	24200	1.8	71	**2KJ3807- ■ FP23- ■■ C1 -Z**	–
	117	245	12.52	23000	23700	23100	2	71	**2KJ3807- ■ FP23- ■■ B1 -Z**	–
	134	210	10.91	22200	22800	22300	2.2	71	**2KJ3807- ■ FP23- ■■ A1 -Z**	–
	KH.49-LE100ZLSB4P									
	56	515	26.3	17900	18300	18500	0.81	49	**2KJ3806- ■ FP23- ■■ H1 -Z**	–
	63	455	23.28	18500	18500	18500	0.92	49	**2KJ3806- ■ FP23- ■■ G1 -Z**	–
	75	380	19.38	18500	18500	18500	1.1	49	**2KJ3806- ■ FP23- ■■ F1 -Z**	–
	80	355	18.24	18300	18500	18400	1.2	49	**2KJ3806- ■ FP23- ■■ E1 -Z**	–
	89	320	16.34	17800	18500	17900	1.3	49	**2KJ3806- ■ FP23- ■■ D1 -Z**	–
	105	270	13.91	17100	18000	17200	1.5	49	**2KJ3806- ■ FP23- ■■ C1 -Z**	–
	122	230	11.93	16500	17200	16600	1.8	49	**2KJ3806- ■ FP23- ■■ B1 -Z**	–
	142	200	10.27	15900	16500	16000	2.1	49	**2KJ3806- ■ FP23- ■■ A1 -Z**	–
4	**KH.79-LE112ZMKB4P**									
	40	945	36.26	33200	39300	38400	0.81	79	**2KJ3808- ■ GJ23- ■■ K1 -Z**	–
	45	855	32.78	35300	39300	37400	0.96	79	**2KJ3808- ■ GJ23- ■■ J1 -Z**	–
	54	710	27.2	35400	37300	35800	1.1	79	**2KJ3808- ■ GJ23- ■■ H1 -Z**	–
	57	670	25.6	34900	36700	35200	1.2	79	**2KJ3808- ■ GJ23- ■■ G1 -Z**	–
	60	630	24.17	34400	36100	34700	1.2	79	**2KJ3808- ■ GJ23- ■■ F1 -Z**	–
	71	535	20.57	33100	34500	33300	1.4	79	**2KJ3808- ■ GJ23- ■■ E1 -Z**	–
	83	460	17.62	31800	33000	32000	1.6	79	**2KJ3808- ■ GJ23- ■■ D1 -Z**	–
	94	405	15.49	30700	31800	30900	1.7	79	**2KJ3808- ■ GJ23- ■■ C1 -Z**	–
	112	340	13.07	29400	30300	29500	1.9	79	**2KJ3808- ■ GJ23- ■■ B1 -Z**	–
	128	295	11.39	28300	29100	28400	2.2	79	**2KJ3808- ■ GJ23- ■■ A1 -Z**	–
	KH.69-LE112ZMKB4P									
	56	680	26.05	25000	25000	25000	0.88	72	**2KJ3807- ■ GJ23- ■■ H1 -Z**	–
	60	640	24.52	25000	25000	25000	0.93	72	**2KJ3807- ■ GJ23- ■■ G1 -Z**	–
	63	605	23.15	25000	25000	25000	0.97	72	**2KJ3807- ■ GJ23- ■■ F1 -Z**	–
	74	515	19.7	25000	25000	25000	1.1	72	**2KJ3807- ■ GJ23- ■■ E1 -Z**	–
	86	440	16.88	24400	25000	24600	1.2	72	**2KJ3807- ■ GJ23- ■■ D1 -Z**	–
	98	385	14.84	23600	24700	23800	1.3	72	**2KJ3807- ■ GJ23- ■■ C1 -Z**	–
	117	325	12.52	22600	23600	22800	1.5	72	**2KJ3807- ■ GJ23- ■■ B1 -Z**	–
	134	285	10.91	21800	22600	22000	1.6	72	**2KJ3807- ■ GJ23- ■■ A1 -Z**	–
	KH.49-LE112ZMKB4P									
	75	505	19.38	17800	18400	18000	0.83	50	**2KJ3806- ■ GJ23- ■■ F1 -Z**	–
	80	475	18.24	17600	18500	17800	0.88	50	**2KJ3806- ■ GJ23- ■■ E1 -Z**	–
	89	425	16.34	17200	18500	17400	0.98	50	**2KJ3806- ■ GJ23- ■■ D1 -Z**	–
	105	360	13.91	16600	17700	16800	1.2	50	**2KJ3806- ■ GJ23- ■■ C1 -Z**	–
	122	310	11.93	16100	17000	16200	1.3	50	**2KJ3806- ■ GJ23- ■■ B1 -Z**	–
	142	265	10.27	15500	16300	15600	1.5	50	**2KJ3806- ■ GJ23- ■■ A1 -Z**	–
5.5	**KH.79-LE132ZST4P**									
	54	970	27.2	32500	36600	34700	0.82	109	**2KJ3808- ■ HJ23- ■■ H1 -Z**	–
	57	915	25.6	33900	36200	34300	0.86	109	**2KJ3808- ■ HJ23- ■■ G1 -Z**	–

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Selection and ordering data

P_N	n_2	T_2	i	F_{R2}	$F_{R2}90$	$F_{R2}270$	f_B	m	Article No.	Additional identification code **-Z** with order code
kW	rpm	Nm	–	N	N	N	–	kg	(Article No. supplement ➞ below)	No. of poles
5.5	**KH.79-LE132ZST4P**									
	61	860	24.17	33400	35700	33800	0.89	109	**2KJ3808- ■ HJ23- ■■ F1 -Z**	–
	71	735	20.57	32200	34100	32500	1	109	**2KJ3808- ■ HJ23- ■■ E1 -Z**	–
	83	630	17.62	31000	32700	31300	1.1	109	**2KJ3808- ■ HJ23- ■■ D1 -Z**	–
	95	550	15.49	30100	31500	30300	1.3	109	**2KJ3808- ■ HJ23- ■■ C1 -Z**	–
	112	465	13.07	28800	30000	29000	1.4	109	**2KJ3808- ■ HJ23- ■■ B1 -Z**	–
	129	405	11.39	27800	28900	28000	1.6	109	**2KJ3808- ■ HJ23- ■■ A1 -Z**	–
	KH.69-LE132ZST4P									
	87	600	16.88	23600	25000	23900	0.88	102	**2KJ3807- ■ HJ23- ■■ D1 -Z**	–
	99	530	14.84	23000	24400	23200	0.97	102	**2KJ3807- ■ HJ23- ■■ C1 -Z**	–
	117	445	12.52	22100	23300	22300	1.1	102	**2KJ3807- ■ HJ23- ■■ B1 -Z**	–
	135	390	10.91	21300	22400	21500	1.2	102	**2KJ3807- ■ HJ23- ■■ A1 -Z**	–
	KH.49-LE132ZST4P									
	106	495	13.91	15900	17400	16100	0.85	80	**2KJ3806- ■ HJ23- ■■ C1 -Z**	–
	123	425	11.93	15400	16700	15600	0.99	80	**2KJ3806- ■ HJ23- ■■ B1 -Z**	–
	143	365	10.27	15000	16100	15100	1.1	80	**2KJ3806- ■ HJ23- ■■ A1 -Z**	–
7.5	**KH.79-LE132ZMS4P**									
	83	860	17.62	30100	32100	30500	0.83	109	**2KJ3808- ■ HL23- ■■ D1 -Z**	–
	95	755	15.49	29200	31200	29600	0.92	109	**2KJ3808- ■ HL23- ■■ C1 -Z**	–
	112	635	13.07	28100	29800	28400	1	109	**2KJ3808- ■ HL23- ■■ B1 -Z**	–
	129	555	11.39	27200	28600	27400	1.2	109	**2KJ3808- ■ HL23- ■■ A1 -Z**	–
	KH.69-LE132ZMS4P									
	117	610	12.52	21300	23000	21600	0.8	102	**2KJ3807- ■ HL23- ■■ B1 -Z**	–
	135	530	10.91	20700	22200	21000	0.88	102	**2KJ3807- ■ HL23- ■■ A1 -Z**	–
	KH.49-LE132ZMS4P									
	143	500	10.27	14300	15700	14400	0.83	80	**2KJ3806- ■ HL23- ■■ A1 -Z**	–

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Selection and ordering data

i	n_2	T_{2N}	F_{R2}	$F_{R2}90$	$F_{R2}270$	J_G	R_{ex}	Motor frame size						Article No.
–	rpm	Nm	N	N	N	10^{-4} kgm^2	–	63	71	80	90	100	112	
BH.29														
50.26	29	90	7340	7500	7500	0.04	4071/81	✓	✓					**2KJ3803 - ■ ■■■■ - ■ ■ R1**
44.58	33	90	7030	7250	7300	0.05	4012/90	✓	✓	✓				**2KJ3803 - ■ ■■■■ - ■ ■ Q1**
38.68	37	90	6670	6890	6950	0.06	3481/90	✓	✓	✓				**2KJ3803 - ■ ■■■■ - ■ ■ P1**
35.16	41	90	6440	6660	6720	0.07	3481/99	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ N1**
30.16	48	90	6090	6310	6360	0.09	2714/90	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ M1**
27.41	53	90	5880	6100	6150	0.11	2714/99	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ L1**
24.04	60	90	5600	5820	5870	0.12	2596/108	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ K1**
21.45	68	90	5370	5590	5640	0.15	2124/99	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ J1**
19.12	76	90	5140	5360	5410	0.18	2065/108	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ H1**
17.65	82	90	4990	5210	5260	0.22	2065/117	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ G1**
15.45	94	88	4760	4980	5020	0.24	1947/126	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ F1**
13.55	107	84	4560	4760	4810	0.25	1829/135	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ E1**
12.29	118	81	4410	4610	4660	0.32	1770/144	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ D1**
11.57	125	79	4330	4520	4570	0.37	1770/153	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ C1**
10.20	142	76	4150	4330	4380	0.42	1652/162	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ B1**
8.85	164	72	3960	4140	4180	0.55	1593/180	✓	✓	✓	✓			**2KJ3803 - ■ ■■■■ - ■ ■ A1**
BH.39														
60.21	24	200	15000	15000	15000	0.05	4335/72	✓	✓					**2KJ3804 - ■ ■■■■ - ■ ■ T1**
52.26	28	200	15000	15000	15000	0.06	4233/81	✓	✓					**2KJ3804 - ■ ■■■■ - ■ ■ S1**
46.47	31	200	15000	15000	15000	0.07	4182/90	✓	✓	✓				**2KJ3804 - ■ ■■■■ - ■ ■ R1**
40.80	36	200	15000	15000	15000	0.08	3672/90	✓	✓	✓				**2KJ3804 - ■ ■■■■ - ■ ■ Q1**
37.09	39	200	15000	15000	15000	0.10	3672/99	✓	✓	✓	✓			**2KJ3804 - ■ ■■■■ - ■ ■ P1**
31.73	46	200	15000	15000	15000	0.12	2856/90	✓	✓	✓	✓			**2KJ3804 - ■ ■■■■ - ■ ■ N1**
28.85	50	200	15000	15000	15000	0.14	2856/99	✓	✓	✓	✓			**2KJ3804 - ■ ■■■■ - ■ ■ M1**
25.50	57	200	15000	15000	15000	0.17	2754/108	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ L1**
23.18	63	200	15000	15000	15000	0.23	2295/99	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ K1**
20.31	71	200	15000	15000	15000	0.26	2193/108	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ J1**
18.74	77	200	14800	14800	14800	0.31	2193/117	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ H1**
16.60	87	200	14200	14200	14200	0.36	2091/126	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ G1**
13.81	105	200	13500	13500	13500	0.49	1989/144	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ F1**
13.00	112	200	13200	13200	13200	0.57	1989/153	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ E1**
11.65	124	200	12800	12800	12800	0.62	1887/162	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ D1**
9.92	146	200	12200	12200	12200	0.80	1785/180	✓	✓	✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ C1**
8.50	171	200	11600	11600	11600	1.05	1683/198			✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ B1**
7.32	198	200	11100	11100	11100	1.34	1581/216			✓	✓	✓		**2KJ3804 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Selection and ordering data

i	n_2	T_{2N}	F_{R2}	$F_{R2}90$	$F_{R2}270$	J_G	R_{ex}	Motor frame size							Article No.
–	rpm	Nm	N	N	N	10^{-4} kgm²	–	63	71	80	90	100	112	132	
KH.49															
200.25	7.2	420	18500	18500	18500	0.06	12616/63	✓	✓						**2KJ3806 - ■ ■■■■ - ■ ■ C2**
178.06	8.1	420	18500	18500	18500	0.07	6232/35	✓	✓	✓					**2KJ3806 - ■ ■■■■ - ■ ■ B2**
156.34	9.3	420	18500	18500	18500	0.08	5472/35	✓	✓	✓					**2KJ3806 - ■ ■■■■ - ■ ■ A2**
142.13	10	420	18500	18500	18500	0.10	10944/77	✓	✓	✓	✓				**2KJ3806 - ■ ■■■■ - ■ ■ X1**
121.60	12	420	18500	18500	18500	0.12	608/5	✓	✓	✓	✓				**2KJ3806 - ■ ■■■■ - ■ ■ W1**
110.55	13	420	18500	18500	18500	0.14	1216/11	✓	✓	✓	✓				**2KJ3806 - ■ ■■■■ - ■ ■ V1**
97.71	15	420	18500	18500	18500	0.17	684/7	✓	✓	✓	✓	✓	✓		**2KJ3806 - ■ ■■■■ - ■ ■ U1**
88.83	16	420	18500	18500	18500	0.22	6840/77	✓	✓	✓	✓	✓	✓		**2KJ3806 - ■ ■■■■ - ■ ■ T1**
77.81	19	420	18500	18500	18500	0.25	1634/21	✓	✓	✓	✓	✓	✓		**2KJ3806 - ■ ■■■■ - ■ ■ S1**
71.82	20	420	18500	18500	18500	0.30	6536/91	✓	✓	✓	✓	✓	✓		**2KJ3806 - ■ ■■■■ - ■ ■ R1**
63.59	23	420	18500	18500	18500	0.37	3116/49	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ Q1**
52.93	27	420	18500	18500	18500	0.50	741/14	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ P1**
49.82	29	420	18500	18500	18500	0.58	5928/119	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ N1**
44.63	32	420	18500	18500	18500	0.64	2812/63	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ M1**
38.00	38	420	18500	18500	18500	0.84	38/1	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ L1**
32.57	45	420	18500	18500	18500	1.11	228/7			✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ K1**
28.05	52	420	18500	18500	18500	1.43	589/21			✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ J1**
26.30	55	420	18500	18500	18500	0.52	55040/2093	✓	✓	✓	✓	✓	✓		**2KJ3806 - ■ ■■■■ - ■ ■ H1**
23.28	62	420	18500	18500	18500	0.64	26240/1127	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ G1**
19.38	75	420	18300	18500	18500	0.89	3120/161	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ F1**
18.24	79	420	17900	18500	18100	1.03	49920/2737	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ E1**
16.34	89	420	17300	18500	17500	1.2	23680/1449	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ D1**
13.91	104	420	16400	17600	16500	1.61	320/23	✓	✓	✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ C1**
11.93	122	420	15500	16800	15700	2.2	1920/161			✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ B1**
10.27	141	415	14800	16000	14900	2.8	4960/483			✓	✓	✓	✓	✓	**2KJ3806 - ■ ■■■■ - ■ ■ A1**
KH.69															
196.59	7.4	600	25000	25000	25000	0.17	14744/75	✓	✓	✓					**2KJ3807 - ■ ■■■■ - ■ ■ C2**
178.72	8.1	600	25000	25000	25000	0.20	29488/165	✓	✓	✓	✓				**2KJ3807 - ■ ■■■■ - ■ ■ B2**
152.00	9.5	600	25000	25000	25000	0.25	152/1	✓	✓	✓	✓				**2KJ3807 - ■ ■■■■ - ■ ■ A2**
138.18	10	600	25000	25000	25000	0.30	1520/11	✓	✓	✓	✓				**2KJ3807 - ■ ■■■■ - ■ ■ X1**
123.29	12	600	25000	25000	25000	0.35	5548/45	✓	✓	✓	✓	✓	✓		**2KJ3807 - ■ ■■■■ - ■ ■ W1**
110.55	13	600	25000	25000	25000	0.42	1216/11	✓	✓	✓	✓	✓	✓		**2KJ3807 - ■ ■■■■ - ■ ■ V1**
99.64	15	600	25000	25000	25000	0.49	4484/45	✓	✓	✓	✓	✓	✓		**2KJ3807 - ■ ■■■■ - ■ ■ U1**
91.98	16	600	25000	25000	25000	0.58	17936/195	✓	✓	✓	✓	✓	✓		**2KJ3807 - ■ ■■■■ - ■ ■ T1**
83.96	17	600	25000	25000	25000	0.69	8816/105	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ S1**
69.67	21	600	25000	25000	25000	0.87	209/3	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ R1**
65.57	22	600	25000	25000	25000	1.01	3344/51	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ Q1**
61.93	23	600	25000	25000	25000	1.15	1672/27	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ P1**
52.69	28	600	25000	25000	25000	1.4	3952/75	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ N1**
45.14	32	600	25000	25000	25000	1.7	7448/165			✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ M1**
39.69	37	600	25000	25000	25000	2.1	1786/45			✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ L1**
33.48	43	580	25000	25000	25000	2.6	11552/345			✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ K1**
29.18	50	555	25000	25000	25000	3.5	3648/125			✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ J1**
26.05	56	600	25000	25000	25000	1.26	3751/144	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ H1**
24.52	59	595	25000	25000	25000	1.44	3751/153	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ G1**
23.15	63	585	25000	25000	25000	1.63	3751/162	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ F1**
19.70	74	555	25000	25000	25000	2.1	4433/225	✓	✓	✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ E1**
16.88	86	530	24000	25000	24300	2.6	1519/90			✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ D1**
14.84	98	515	23100	24600	23400	3.3	16027/1080			✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ C1**
12.52	116	490	22000	23300	22200	4.3	12958/1035			✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ B1**
10.91	133	470	21100	22400	21300	5.7	1364/125			✓	✓	✓	✓	✓	**2KJ3807 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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Electric-monorail geared motors

Selection and ordering data

i –	n_2 rpm	T_{2N} Nm	F_{R2} N	$F_{R2}90$ N	$F_{R2}270$ N	J_G 10^{-4} kgm²	R_{ex} –	Motor frame size 63	71	80	90	100	112	132	Article No.
KH.79															
244.25	5.9	820	36100	40000	40000	0.17	175861/720	✓	✓	✓					**2KJ3808 - ■ ■■■■ - ■ ■ E2**
222.05	6.5	820	36100	40000	40000	0.21	175861/792	✓	✓	✓	✓				**2KJ3808 - ■ ■■■■ - ■ ■ D2**
188.85	7.7	820	36100	40000	40000	0.25	9065/48	✓	✓	✓	✓				**2KJ3808 - ■ ■■■■ - ■ ■ C2**
171.69	8.4	820	36100	40000	40000	0.31	45325/264	✓	✓	✓	✓				**2KJ3808 - ■ ■■■■ - ■ ■ B2**
153.18	9.5	820	36100	40000	40000	0.35	132349/864	✓	✓	✓	✓	✓	✓		**2KJ3808 - ■ ■■■■ - ■ ■ A2**
137.35	11	820	36100	40000	40000	0.42	9065/66	✓	✓	✓	✓	✓	✓		**2KJ3808 - ■ ■■■■ - ■ ■ W1**
123.80	12	820	36100	40000	40000	0.50	106967/864	✓	✓	✓	✓	✓	✓		**2KJ3808 - ■ ■■■■ - ■ ■ V1**
114.28	13	820	36100	40000	40000	0.59	106967/936	✓	✓	✓	✓	✓	✓		**2KJ3808 - ■ ■■■■ - ■ ■ U1**
104.32	14	820	36100	40000	40000	0.70	7511/72	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ T1**
86.56	17	820	36100	40000	40000	0.89	99715/1152	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ S1**
81.47	18	820	36100	40000	40000	1.02	99715/1224	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ R1**
76.94	19	820	36100	40000	40000	1.16	99715/1296	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ Q1**
65.47	22	820	36100	40000	40000	1.42	23569/360	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ P1**
56.08	26	820	36100	40000	40000	1.74	88837/1584			✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ N1**
49.31	29	820	36100	40000	40000	2.1	85211/1728			✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ M1**
41.60	35	800	36600	40000	40000	2.7	34447/828			✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ L1**
36.26	40	770	37300	40000	39100	3.6	1813/50			✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ K1**
32.78	44	820	36100	39400	37700	0.95	6293/192	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ J1**
27.20	53	800	35200	37200	35500	1.25	83545/3072	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ H1**
25.60	57	785	34500	36600	34900	1.43	83545/3264	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ G1**
24.17	60	770	34000	35900	34300	1.62	83545/3456	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ F1**
20.57	70	740	32300	34200	32600	2.1	19747/960	✓	✓	✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ E1**
17.62	82	715	30800	32700	31100	2.6	74431/4224			✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ D1**
15.49	94	695	29600	31400	29900	3.2	71393/4608			✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ C1**
13.07	111	665	28200	29900	28500	4.2	28861/2208			✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ B1**
11.39	127	645	27300	28800	27500	5.6	4557/400			✓	✓	✓	✓	✓	**2KJ3808 - ■ ■■■■ - ■ ■ A1**

Article No. supplement		
Shaft design	**1, 2 or 9**	see page 10/53
Motor frame size, motor type, efficiency class		see chapter 9
Frequency and voltage	**2 or 9**	see page 11/2
Gearbox mounting type	**A, F or H**	see page 10/42

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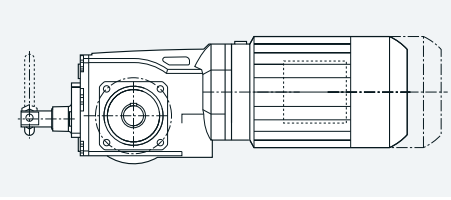
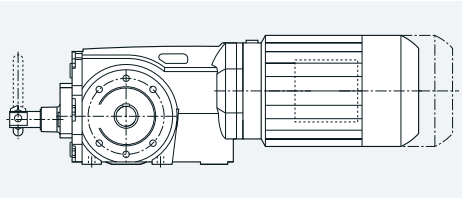
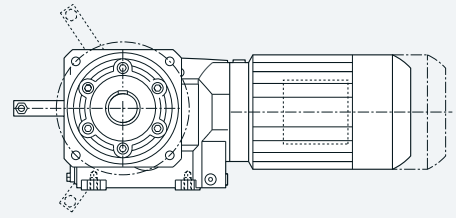
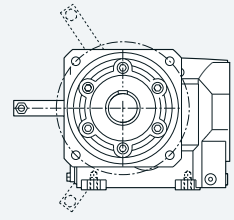
Overview

Notes on the dimensional drawings are provided in chapter Introduction on page 1/22.

Design	Frame size	Dimensional drawing, see page
Light-load applications		
Housing flange design		
	BHZ29	8/20
	BHZ39	8/21
Foot-mounted design		
	BH39	8/22
Heavy-load applications		
Flange-mounted design		
	KHF49	8/23
	KHF69	8/24
	KHF79	8/25
Additional versions and options		
	Clutch lever	8/26

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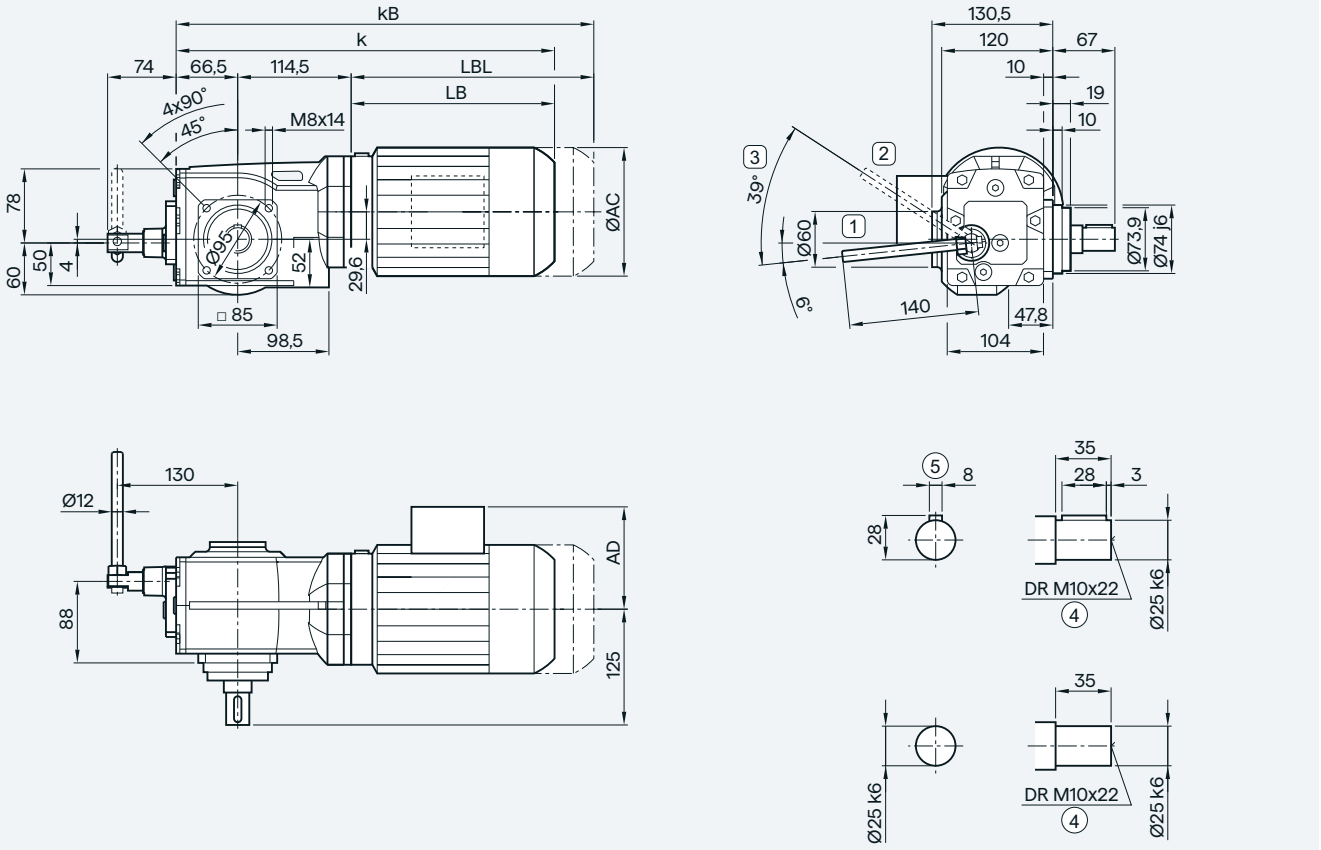
Electric-monorail geared motors

Gearbox BHZ29 in a housing flange design

BHZ29



Clutch	
1	Engaged
2	Disengaged
3	Operating travel in accordance with VDI 3643

Motor	LE63	LE63Z	LE71	LE71Z	LE71Y	LE80	LE80Z	LE90	LE90Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2
k	375.0	401.0	407.0	426.0	466.0	471.0	506.0	533.0	573.0
kB	419.5	445.5	462.0	481.0	521.0	531.0	566.5	603.0	643.0
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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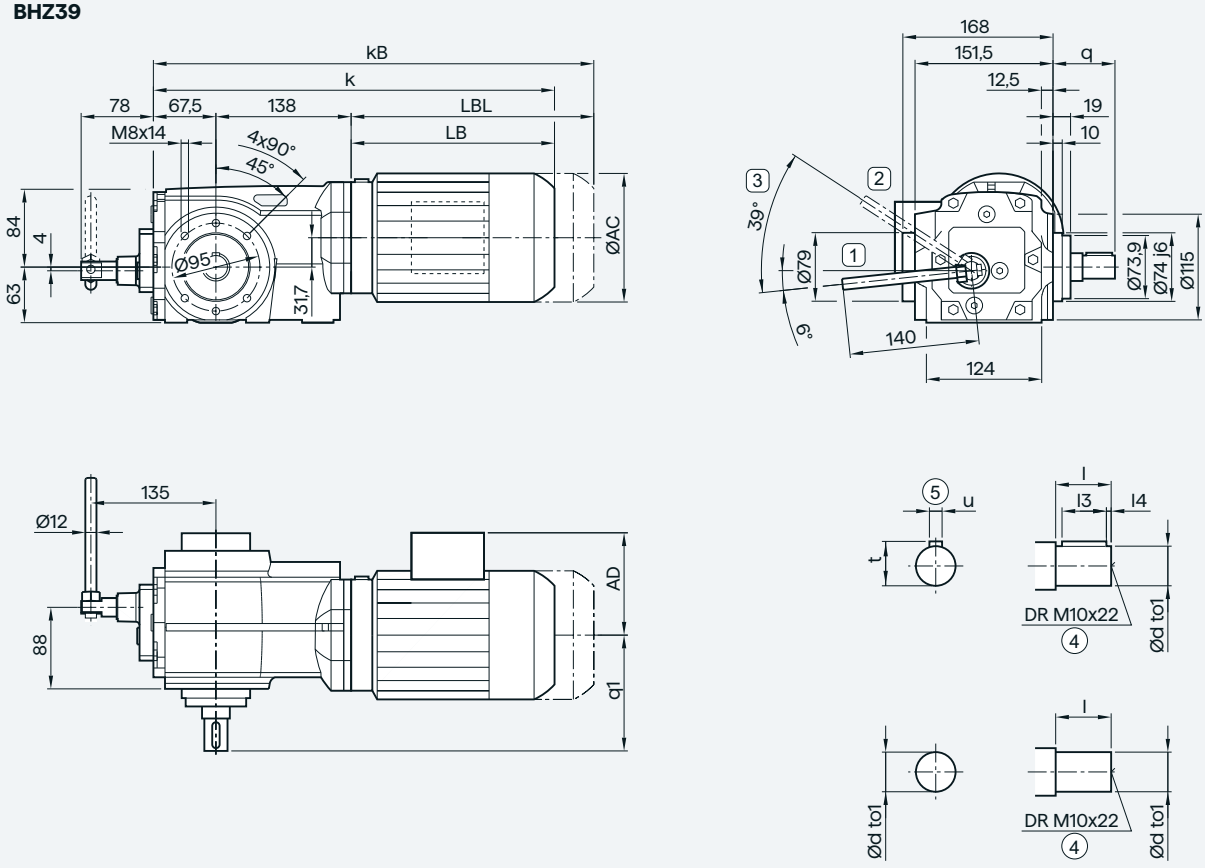
Gearbox BHZ39 in a housing flange design

BHZ39



Clutch	
1	Engaged
2	Disengaged
3	Operating travel in accordance with VDI 3643

Shaft	d	to1	l	l3	l4	t	u	q	q1
	25	k6	35	28	3	28	8	67	125
	30	k6	50	40	5	33	8	72	130

Motor	LE63	LE63Z	LE71	LE71Z	LE71Y	LE80	LE80Z	LE90	LE90Z	LE100	LE100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	399.5	425.5	431.5	450.5	491.0	496.0	531.0	557.5	597.5	614.0	649.0
kB	444.0	470.0	486.5	505.5	546.0	556.0	591.0	627.5	667.5	692.5	727.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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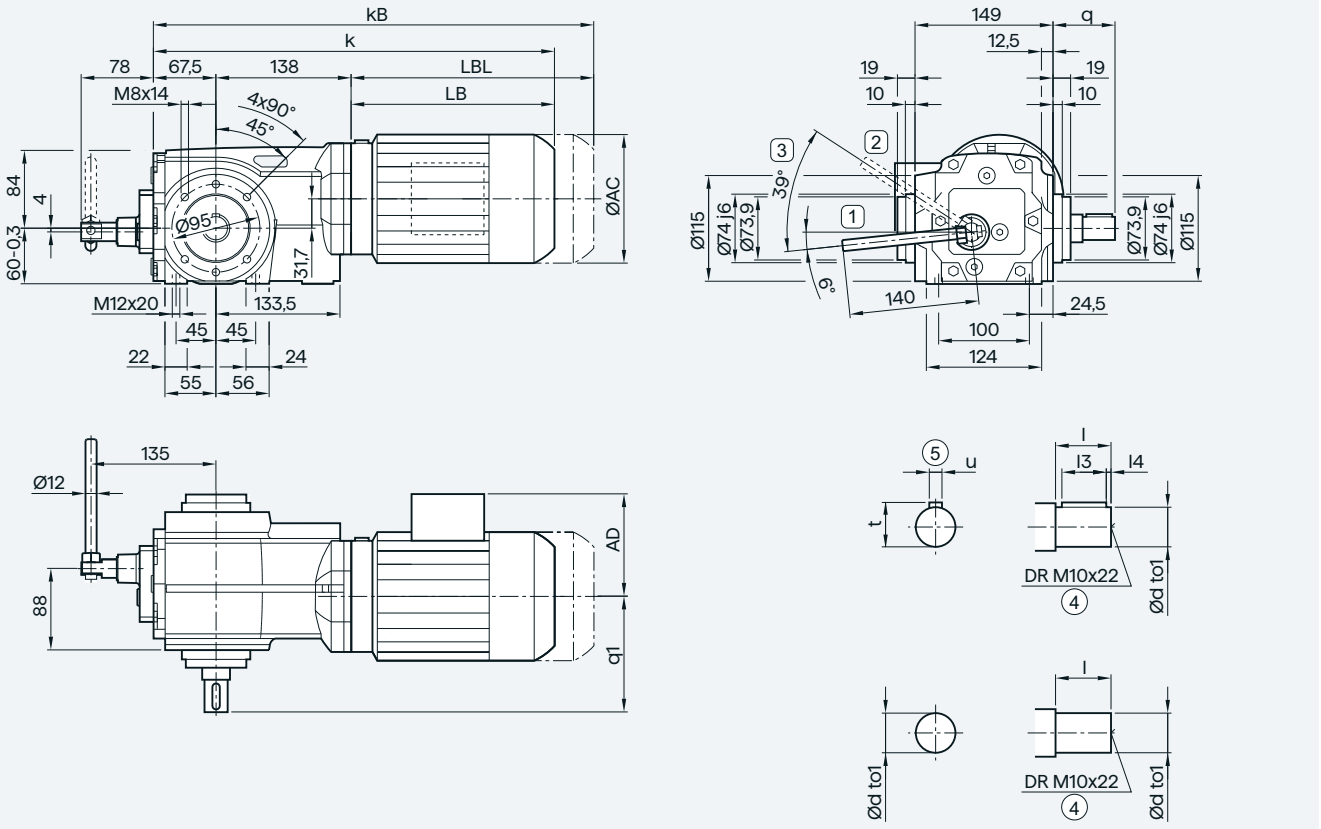
Gearbox BH39 in a foot-mounted design

BH39



Clutch	
1	Engaged
2	Disengaged
3	Operating travel in accordance with VDI 3643

Shaft	d	to1	l	l3	l4	t	u	q	q1
	25	k6	35	28	3	28	8	67	125
	30	k6	50	40	5	33	8	72	130

Motor	LE63	LE63Z	LE71	LE71Z	LE71Y	LE80	LE80Z	LE90	LE90Z	LE100	LE100Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	399.5	425.5	431.5	450.5	491.0	496.0	531.0	557.5	597.5	614.0	649.0
kB	444.0	470.0	486.5	505.5	546.0	556.0	591.0	627.5	667.5	692.5	727.5
LB	194.0	220.0	226.0	245.0	285.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	264.5	281.0	300.0	340.0	350.0	385.0	421.5	461.5	486.5	521.5

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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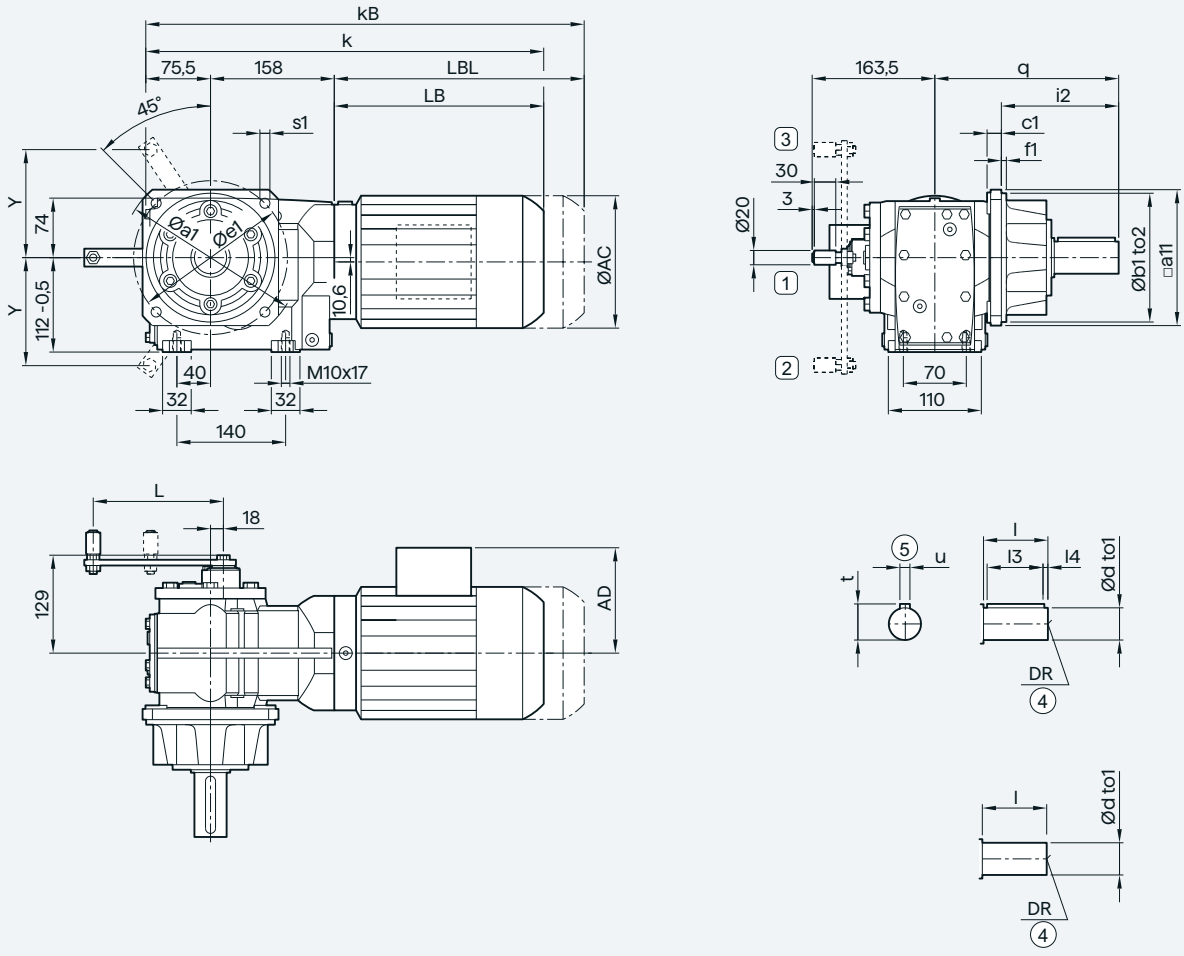
Gearbox KHF49 in a flange-mounted design

KHF49



Clutch	
1	Engaged
2 3	Disengaged

Clutch lever	L	Y
Position A, short	140	117
Position A, long	182	151

Flange	a1	b1	to2	c1	f1	a11	e1	s1	Shaft	d	to1	l	l3	l4	t	u	q	i2	DR
	200	130	j6	13	6	160	165	M10		30	k6	60	50	3.5	33	8	191	100	M10x22
										35	k6	70	56	7	38	10	201	110	M12x28
	250	180	j6	15	6	190	215	M12		30	k6	60	50	3.5	33	8	191	105	M10x22
										35	k6	70	56	7	38	10	201	115	M12x28

Motor	LE63	LE63Z	LE71	LE71Z	LE71Y	LE80	LE80Z	LE90	LE90Z	LE100	LE100Z	LE112	LE112Z	LE132	LE132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	427.5	453.5	459.5	478.5	509.0	514.0	549.0	575.5	615.5	632.0	667.0	642.0	676.5	695.0	745.0
kB	472.0	498.0	514.5	533.5	564.0	574.0	609.0	645.5	685.5	710.5	745.5	715.0	749.5	799.5	849.5
LB	194.0	220.0	226.0	245.0	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	238.5	264.5	281.0	300.0	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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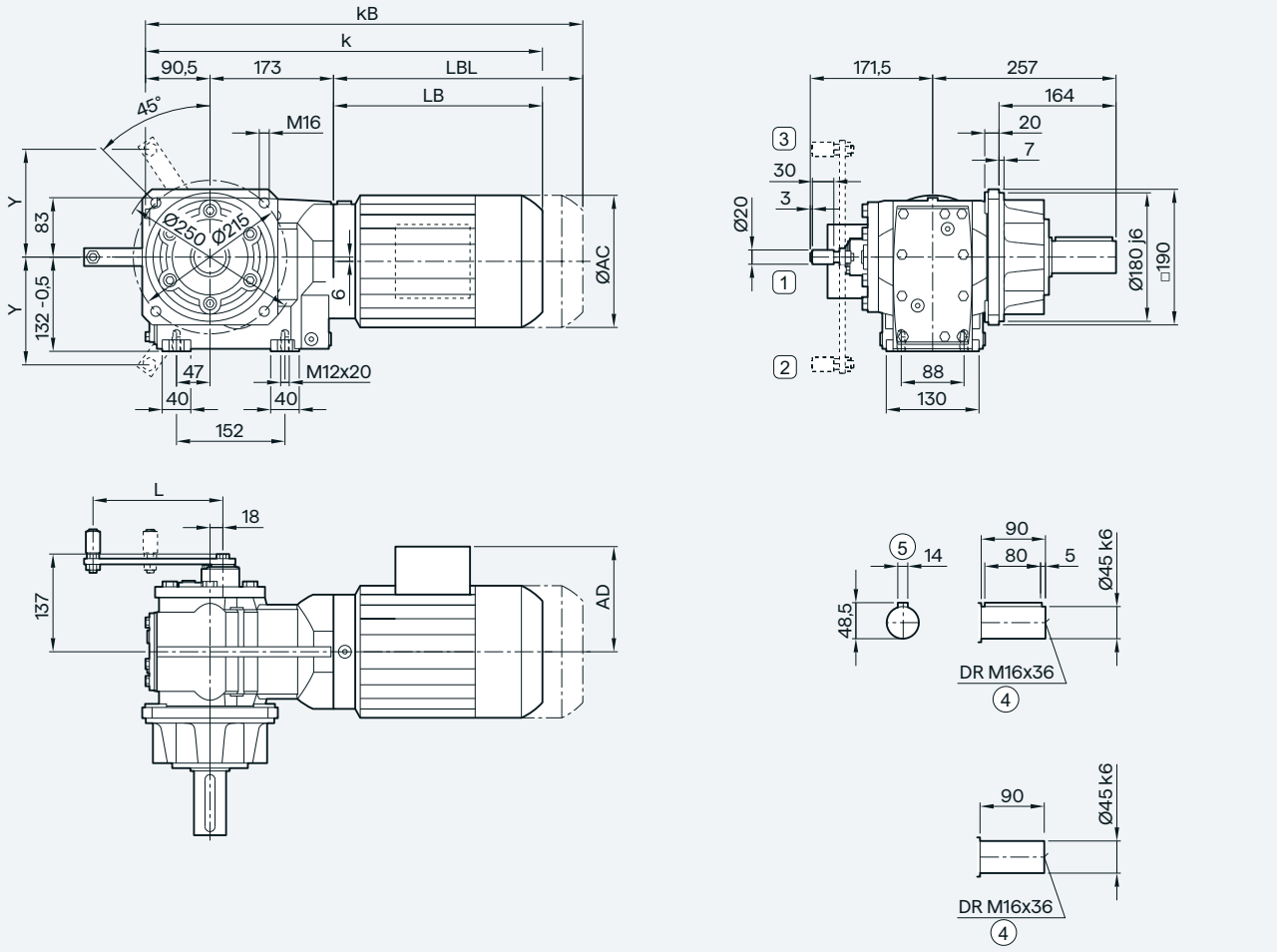
Gearbox KHF69 in a flange-mounted design

KHF69



8

Clutch	
1	Engaged
2 3	Disengaged

Clutch lever	L	Y
Position A, short	140	117
Position A, long	182	151

Motor	LE63	LE63Z	LE71	LE71Z	LE71Y	LE80	LE80Z	LE90	LE90Z	LE100	LE100Z	LE112	LE112Z	LE132	LE132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	457.5	483.5	489.5	508.5	539.0	544.0	579.0	605.5	645.5	662.0	697.0	672.0	706.5	725.0	775.0
kB	502.0	528.0	544.5	563.5	594.0	604.0	639.0	675.5	715.5	740.5	775.5	745.0	779.5	829.5	879.5
LB	194.0	220.0	226.0	245.0	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	238.5	264.5	281.0	300.0	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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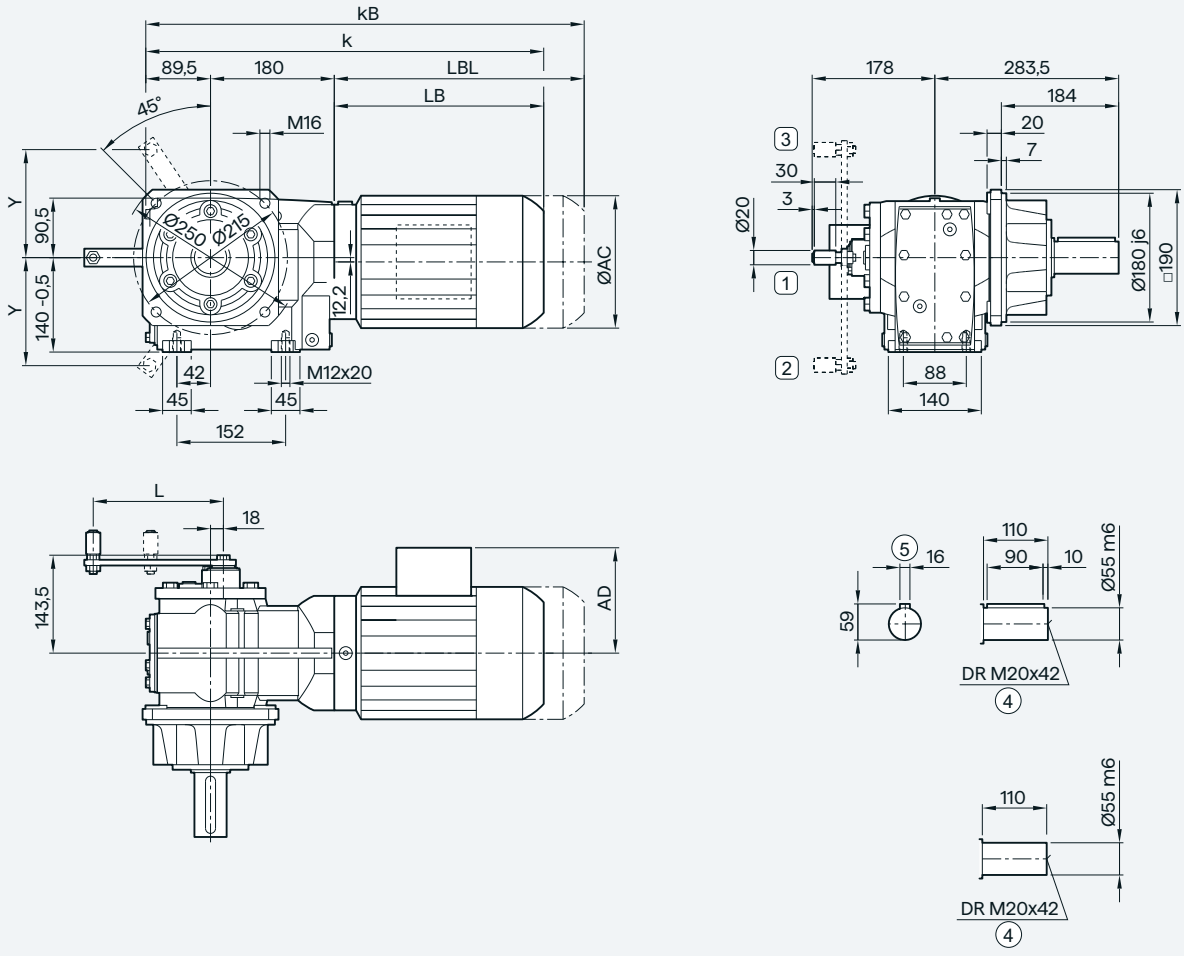
Gearbox KHF79 in a flange-mounted design

KHF79



Clutch	
1	Engaged
2 3	Disengaged

Clutch lever	L	Y
Position A, short	140	117
Position A, long	182	151

Motor	LE63	LE63Z	LE71	LE71Z	LE71Y	LE80	LE80Z	LE90	LE90Z	LE100	LE100Z	LE112	LE112Z	LE132	LE132Z
AC	117.8	117.8	138.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1)]	124.0	124.0	134.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	463.5	489.5	495.5	514.5	545.0	550.0	585.0	611.5	651.5	668.0	703.0	678.5	712.5	731.0	781.0
kB	508.5	534.0	550.5	569.5	600.0	610.0	645.0	681.5	721.5	746.5	781.5	751.0	785.5	835.5	885.5
LB	194.0	220.0	226.0	245.0	275.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	238.5	264.5	281.0	300.0	330.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

④ DIN 332

⑤ Feather key/keyway DIN 6885-1

1) AD depends on the motor options, for other dimensions, see page 9/46.

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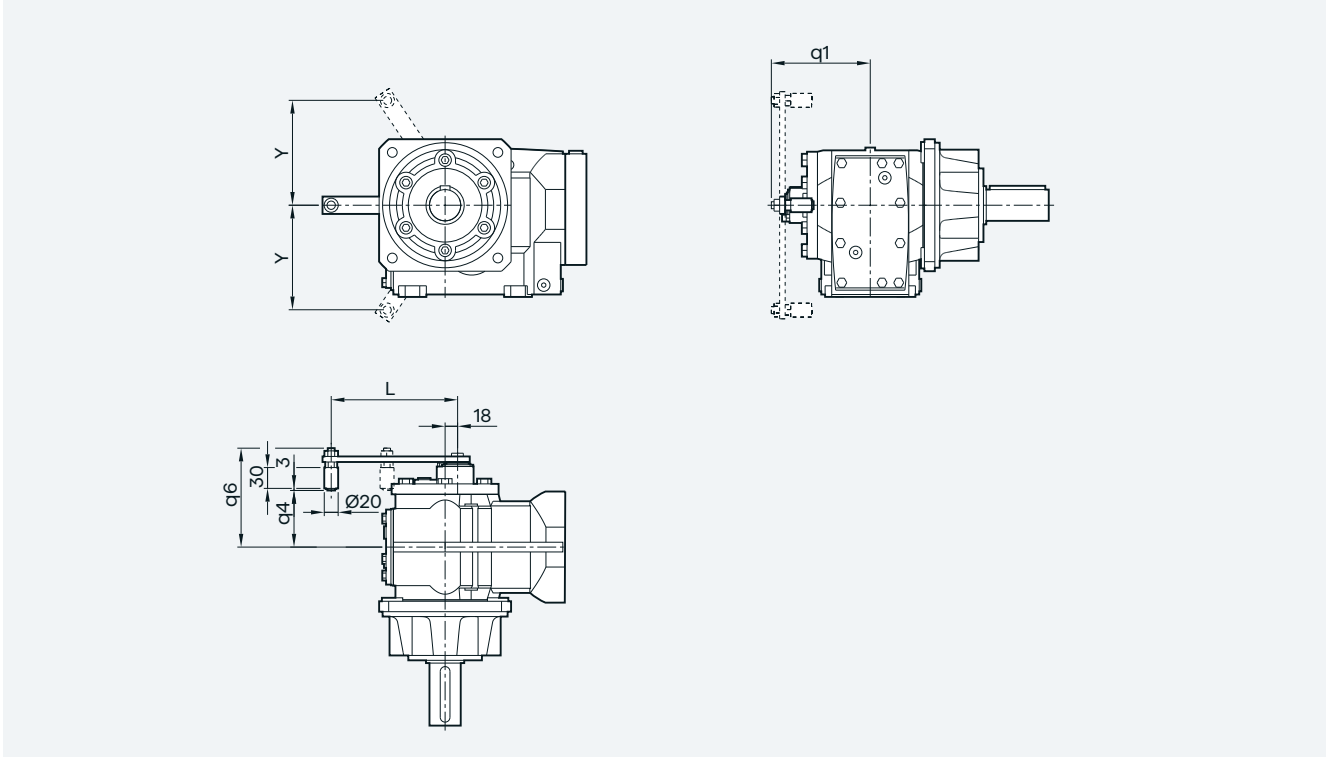
Clutch lever, position B

Further information about the clutch lever can be found in chapter Gearbox options on page 10/57.



Gearbox type	q1	q4	q6
KHF49	129.0	73.5	134.5
KHF69	137.0	81.5	142.5
KHF79	143.5	88.0	149.0

Clutch lever	L	Y
Position B, short	140	117
Position B, long	182	151

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Motors

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9

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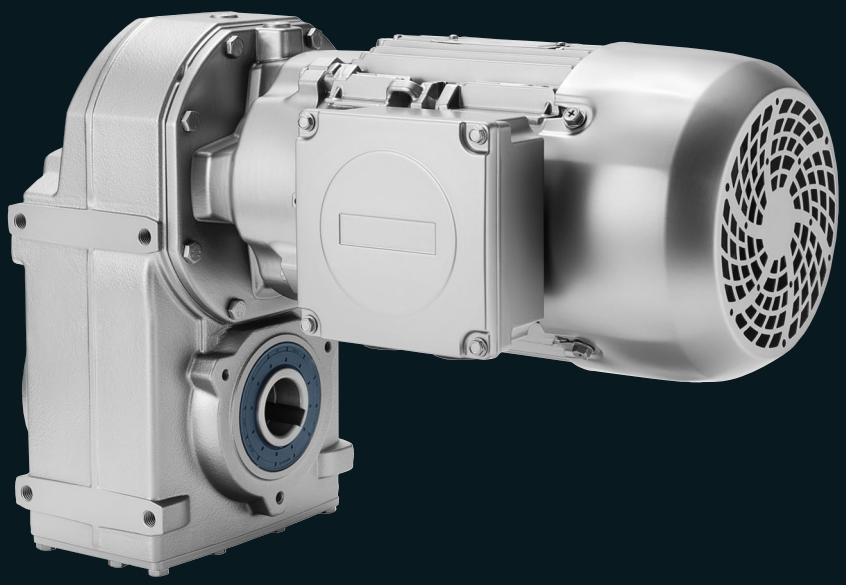

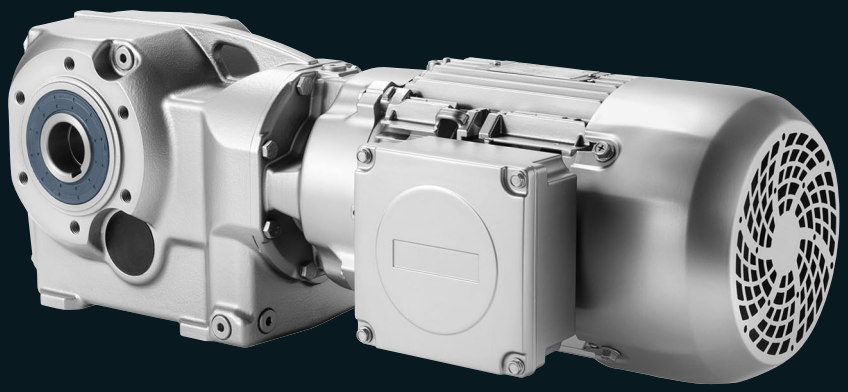

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9 Motors

9/2 Orientation

9/2 MODULOG modular system
9/3 Overview of technical specifications
9/5 Efficiency and power factor
9/5 EMC measures

9/6 Converter World Motor

Selection and ordering data
Line voltage 380 V to 480 V
9/6 1500 rpm
9/6 1750 rpm
9/8 2610 rpm
9/8 3000 rpm

9/10 Synchronous reluctance motors for converter operation

Selection and ordering data
Line voltage 400 V / 480 V
9/10 _ 4-pole at 50 Hz, 60 Hz, 87 Hz,104 Hz power

9/12 VSD10 line motors for converter operation

Selection and ordering data
Line voltage 400 V / 460V
9/14 4-pole at 50 Hz, 60 Hz, 87 Hz power
Line voltage 500 V / 575 V
9/14 4-pole at 50 Hz, 60 Hz, 87 Hz power
Line voltage 690 V
9/16 4-pole at 50 Hz, 87 Hz power

9/18 Motors with Premium Efficiency IE3

Selection and ordering data
9/18 4/2/6-pole at 50 Hz power
9/22 4/2/6-pole at 60 Hz, 50 Hz power
9/26 4/2-pole at 60 Hz, 60 Hz power
9/28 4/6-pole at 87 Hz power

9/30 Motors with High Efficiency IE2

Selection and ordering data
9/30 4/2/6-pole at 50 Hz power
9/30 4/2/6-pole at 60 Hz, 50 Hz power
9/30 4/2/6-pole at 60 Hz, 60 Hz power
9/32 4/6-pole at 87 Hz power, duty type S9

9/34 Motors with Standard Efficiency IE1

Selection and ordering data
9/34 4/6/8-pole at 50 Hz power
9/34 4/6/8-pole at 60 Hz, 50 Hz power
9/34 4/6/8-pole at 60 Hz, 60 Hz power
9/34 4/8-pole at 87 Hz power

9/36 Explosion-protected motors

Selection and ordering data
Motors for Zone 2 and Zone 22
9/36 4-pole at 50 Hz power

9/38 Motors according to UL and CSA standards

Selection and ordering data
9/38 4/2/6-pole at 60 Hz, 50 Hz power
9/42 4/2/6-pole at 60 Hz, 60 Hz power
9/44 4/6-pole at 104 Hz power

9/46 Dimensions

9/46 Motors
9/53 Motors for worm gearboxes S
9/54 Explosion-protected motors
Additional lengths
9/58 Second shaft extension, handwheel, and canopy
9/59 Encoder
9/60 Prepared for encoder mounting
9/61 Separately driven fan, encoder, and canopy
9/62 Application terminal box
9/63 HAN 10E motor plug
9/65 HAN K4/4 motor plug
9/67 HAN Q8 and HAN Q12 motor plugs

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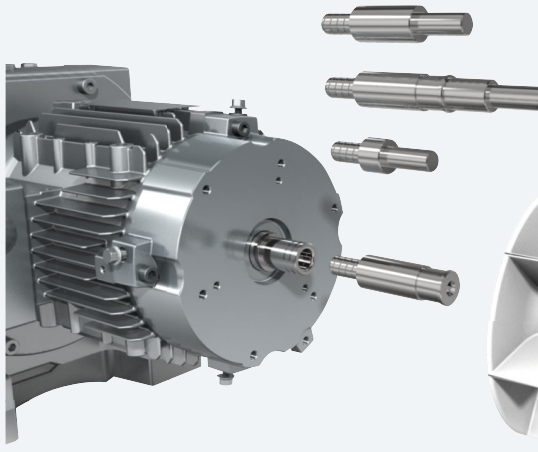
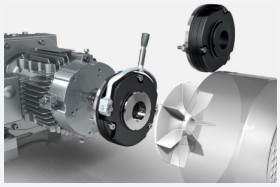
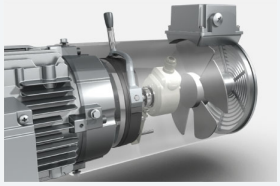
Overview





Brake motor



Motor with forced ventilation

G_D087_EN_00158

The MODULOG modular system has a range of benefits for machine and plant designers.

The name MODULOG stands for a clear and transparent **modu**lar motor system with an optimum **log**istical structure. It enables users to assemble powerful, durable, and extremely easy-to-service motors from just a few standard components to create a customized motor system for most applications.

At the heart of the system is a basic motor dimensioned for international line supply conditions with an individually configurable MODULOG modular system at the non-drive end (NDE) of the motor.

Functional expansions, such as brakes, backstops, rotary encoders, separately driven fan, canopy, etc., can be combined almost arbitrarily as "additional functional components".

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Overview

The motors comply with all applicable international (IEC), European (EN, CENELEC) and national (DIN/VDE) standards:

Motor type	Three-phase induction motors with squirrel-cage rotor
Connection types	You can establish the connection type that can be used from the product number suffixes in the selection and ordering data for the required motor.
Number of poles	2, 4, 6, 8
Rated speed (synchronous speed)	750 ... 3600 rpm
Rated power (50 Hz)	0.09 ... 55 kW (4-pole)
Rated torque	0.85 ... 355 Nm (4-pole)
Stator winding insulation	Temperature class 155 (F) Utilization according to temperature class 130 (B) [1] Optionally, temperature class 180 (H)
Degree of protection according to IEC 60034-5 (EN 60034-5)	IP55 Optional IP65, IP56
Cooling according to IEC 60034-6 (EN 60034-6)	Self-cooled (IC 411) Optionally, force ventilated (IC 416)
Coolant temperature	–40 ... +60 °C
Installation altitude	Up to 1000 m above sea level
Rated voltage	200 ... 690 V You can establish the voltage that can be used from the selection and ordering data for the required motor.
Rated frequency	50 Hz, 60 Hz, 87 Hz
Vibration severity according to IEC 60034-14 (EN 60034-14)	Vibration severity A Vibration severity B for Converter World Motor
Balancing type	Half-key balancing
Sound pressure level, sound power level according to IEC 60034-9 (EN 60034-9)	You can establish the corresponding sound pressure level and sound power level from the selection and ordering data for the required motor.
Weight	You can establish the corresponding weight from the selection and ordering data for the required motor.
Rating plates	See "Rating plate" in chapter "General options"
Connection and terminal boxes	See "Connection, circuit, and terminal boxes" in chapter "Motor options"

[1] At an ambient temperature of 60 °C, temperature class 130 (B) may be slightly exceeded by a few kelvin.

The geared motors comply with all of the applicable IEC/EN standards.

IEC	EN	DIN/VDE	Title
IEC 60027-4	EN 60027-4	EN 60027-4	Formula symbols for electrical engineering Part 4: Rotating electrical machines
IEC 60034-1	EN 60034-1	EN 60034-1 (VDE 0530-1)	Rotating electrical machines: _ Rating and performance
IEC 60034-2-1	EN 60034-2-1	EN 60034-2-1 (VDE 0530-2-1)	_ Standard technique to determine the losses and efficiency based on testing (with the exception of machines for track and road vehicles) (IEC 60034-2-1:2007); German Edition EN 60034-2-1:2007
IEC 60034-5	EN 60034-5	EN 60034-5 (VDE 0530-5)	_ Degrees of protection provided by integral design of rotating electrical machines (IP code) – Classification
IEC 60034-6	EN 60034-6	EN 60034-6 (VDE 0530-6)	_ Classification of cooling methods (IC code)
IEC 60034-7	EN 60034-7	EN 60034-7 (VDE 0530-7)	_ Classification of types of construction, mounting arrangements and terminal box position (IM code)
IEC 60034-8	EN 60034-8	EN 60034-8 (VDE 0530-8)	_ Terminal markings and direction of rotation
IEC 60034-9	EN 60034-9	EN 60034-9 (VDE 0530-9)	_ Noise limits
IEC 60034-11	EN 60034-11	EN 60034-11 (VDE 0530-11)	_ Built-in thermal protection
IEC 60034-12	EN 60034-12	EN 60034-12 (VDE 0530-12)	_ Starting behavior of three-phase squirrel-cage motors, with the exception of pole-changing motors
IEC 60034-14	EN 60034-14	EN 60034-14 (VDE 0530-14)	_ Mechanical vibration of certain machines with shaft heights 56 mm and higher

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Technical specifications

Overview

IEC	EN	DIN/VDE	Title
IEC 60034-30-1	EN 60034-30-1	EN 60034-30-1 (VDE 0530-30)	International efficiency classes for rotating electrical machines (IE code)
IEC/TS 60034-17	–	–	Converter-fed squirrel-cage induction motors – Application guide
IEC/TS 60034-25	–	DIN VDE 0530-25 (VDE 0530-25)	Rotating electrical machines - Part 25: AC machines when used in power drive systems – Application guide
–	–	ISO 10816	Vibration limits
IEC 60038	EN 60038	EN 60038 (VDE 0175-1)	IEC standard voltages
–	EN 50347	EN 50347	Three-phase induction motors for general applications with standardized dimensions and power ratings – frame sizes 56 to 315 and flange sizes 65 to 740
IEC 60085	EN 60085	EN 60085 (VDE 0301-1)	Electrical insulation, thermal evaluation + designation
IEC 60445	EN 60445	EN 60445 (VDE 0197)	Identification of equipment terminals, conductor terminations and conductors
IEC 60529	EN 60529	EN 60529 (VDE 0470-1)	Degrees of protection provided by the enclosure (IP code)
IEC 62444	EN 62444	EN 62444 (VDE 0619)	Cable glands for electrical installation
-	-	DIN 42925	Terminal box cable entries for three-phase squirrel-cage motors at rated voltages from 400 to 690 V
Further, the following applies to explosion-protected motors:			
IEC 60079-0	EN 60079-0	EN 60079-0	General provisions
IEC 60079-15	EN 60079-15	EN 60079-15	Type of protection "n" (non-sparking)
IEC 60079-31	EN 60079-31	EN 60079-31	Areas containing flammable dust

The following applies to explosion-protected motors:

Since the requirements of explosion-protected motors comply with the European standards EN 60079-0, EN 60079-15, EN 60079-31 and Directive 2014/34/EU (ATEX 95), the certificates issued by authorized testing agencies (PTB, FTZU, etc.) are recognized by all member states of the EU. The remaining members of CENELEC, Switzerland in particular, also accept the certificates.

Tolerances

The following tolerances are permitted according to EN 60034: Motors that comply with EN 60034-1 must have a voltage tolerance of ± 5 % /frequency tolerance of ± 2 % (Zone A). If utilized, the admissible limit temperature of the temperature class may be exceeded by 10 K.

Description	Tolerance
Efficiency	$P_N \leq 150$ kW: – 0.15 (1 – η) $P_N > 150$ kW: – 0.1 (1 – η)
Power factor	$\frac{-(1-\cos\varphi)}{6}$ (minimum 0.02/maximum 0.07)
Slip at full load and operating temperature	± 20 % of the setpoint slip for $P_N \geq 1$ kW ± 30 % of the setpoint slip for $P_N < 1$ kW
Starting torque	–15 % and +25 %
Breakdown torque	–10 % without upper limit
Starting current	+20 % without lower limit
Moment of inertia	± 10 %

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Efficiency and power factor

The efficiency η and the power factor cos φ for each rated power are listed in the selection tables in the individual sections of this catalog.

For motors with Standard Efficiency (IE1), High Efficiency (IE2) and Premium Efficiency (IE3), the 3/4 load efficiency is also listed in the selection tables. The part-load values stated in the tables below are averages; precise values can be provided on request.

Partial-load power factor cos φ

4/4 of full load	1/4	1/2	3/4	5/4
0.92	0.70	0.86	0.90	0.92
0.91	0.65	0.85	0.89	0.91
0.90	0.63	0.83	0.88	0.90
0.89	0.61	0.80	0.86	0.89
0.88	0.57	0.78	0.85	0.88
0.87	0.53	0.76	0.84	0.87
0.86	0.51	0.75	0.83	0.86
0.85	0.49	0.73	0.81	0.86
0.84	0.47	0.71	0.80	0.85
0.83	0.45	0.69	0.79	0.84
0.82	0.43	0.67	0.77	0.83
0.81	0.41	0.66	0.76	0.82
0.80	0.40	0.65	0.75	0.81
0.79	0.38	0.63	0.74	0.80
0.78	0.36	0.61	0.72	0.80
0.77	0.34	0.59	0.71	0.79
0.76	0.32	0.58	0.70	0.78
0.75	0.30	0.56	0.69	0.78
0.74	0.29	0.55	0.68	0.77
0.73	0.28	0.54	0.67	0.77
0.72	0.27	0.52	0.63	0.76
0.71	0.26	0.50	0.62	0.76

Partial-load efficiency η in %

4/4 of full load	1/4	1/2	3/4	5/4
97	93	96.0	97.0	96.5
96	92	95.0	96.0	95.5
95	90	93.5	95.0	94.5
94	89	92.5	94.0	93.5
93	88	91.5	93.0	92.5
92	87	91.0	92.0	91.5
91	86	90.0	91.0	90.0
90	85	89.0	90.0	89.0
89	84	88.0	89.0	88.0
88	80	87.0	88.0	87.0
87	79	86.0	87.0	86.0
86	78	85.0	86.0	85.0
85	76	84.0	85.0	83.5
84	74	83.0	84.0	82.5
83	72	82.0	83.0	81.5
82	70	81.0	82.0	80.5
81	68	80.0	81.0	79.5
80	66	79.0	80.0	78.5
79	64	77.0	79.5	77.5
78	62	75.5	78.5	76.5
77	60	74.0	77.5	75.0
76	58	73.0	76.0	74.0
75	56	72.0	75.0	73.0
74	55	71.0	74.0	72.0
73	54	70.0	73.0	71.0
72	53	68.0	72.0	70.0
71	52	67.0	71.0	69.0
70	51	66.0	70.0	68.0
69	50	65.0	69.0	67.0
68	49	64.0	67.5	66.0
67	48	62.0	66.5	65.0
66	47	61.0	65.0	64.0
65	46	60.0	64.0	63.0
64	45	59.0	63.0	62.0
63	44	57.0	62.0	61.0
62	43	56.0	60.5	60.5
61	42	55.0	59.5	59.5
60	41	54.0	58.5	58.5

EMC measures

Innomotics SG geared motors are designed as components for installation in systems and machines. The manufacturer of the system or machine is responsible for complying with EMC Directive 2014/30/EU and "Electromagnetic Compatibility Regulations 2016".

The motors, when correctly used in continuous operation connected to the line supply, fulfill basic EMC standards EN 50081 and EN 50082.

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Line voltage 380 V to 480 V

Selection and ordering data

Frame size	Motor	P_N kW	Connection	f_N Hz	T_N Nm	I_N A	U_N V	cos φ –	η PDS (90, 100) %	Efficiency class acc. to IEC TS 60034-30-2 and IEC 60034-2-3
1500 rpm										
71	LE71YMS4PV	0.37	Y	52.7	2.4	1.2	330	0.7	75.36	IE3
80	LE80ZMK4PV	0.55	Y	51.6	3.5	1.5	330	0.77	79.12	IE3
	LE80ZMQ4PV	0.75	Y	51.7	4.8	2.1	330	0.76	80.91	IE3
90	LE90SM4PV	1.1	Y	52.3	7	2.9	330	0.79	82.27	IE3
	LE90ZLR4PV	1.5	Y	52.1	9.6	3.8	330	0.82	83.64	IE3
100	LE100ZLSA4PV	2.2	Y	51.3	14	5.3	330	0.82	86.24	IE3
	LE100ZLSB4PV	3	Y	51.5	19.1	7.3	330	0.83	86.33	IE3
112	LE112ZMKB4PV	4	Y	51.5	26	9.6	330	0.83	87.46	IE3
132	LE132ZST4PV	5.5	Y	50.8	35	13.4	330	0.81	88.82	IE3
	LE132ZMS4PV	7.5	Y	50.7	48	18.4	330	0.79	89.3	IE3
160	LE160MPA4PV	9.2	Y	50.7	59	25	330	0.71	90.74	IE3
	LE160MPB4PV	11	Y	50.9	70	26	330	0.81	91.43	IE3
	LE160ZLL4PV	15	Y	50.9	96	35	330	0.82	91.46	IE3
180	LES180MQ4PV	18.5	Y	50.7	118	37	380	0.81	92.67	IE3
	LES180ZLN4PV	22	Y	51	140	44	380	0.83	92.38	IE3
200	LES200ZLU4PV	30	Y	50.7	191	58	380	0.84	93.37	IE3
225	LES225SD4PV	37	Y	50.5	236	70	380	0.83	93.59	IE3
	LES225YMF4PV	45	Y	50.7	286	86	380	0.85	93.5	IE3
250	LES250MD4PV	55	Y	50.4	350	101	380	0.86	94.42	IE3
1750 rpm										
71	LE71YMS4PV	0.43	Y	61.7	2.4	1.2	380	0.73	77.08	IE3
80	LE80ZMK4PV	0.64	Y	60.2	3.5	1.5	380	0.8	80.38	IE3
	LE80ZMQ4PV	0.88	Y	59.6	4.8	2.1	380	0.78	81.99	IE3
90	LE90SM4PV	1.3	Y	60.7	7	2.9	380	0.82	83.33	IE3
	LE90ZLR4PV	1.8	Y	60.2	9.6	3.8	380	0.85	84.22	IE3
100	LE100ZLSA4PV	2.6	Y	59.5	14	5.3	380	0.85	87.67	IE3
	LE100ZLSB4PV	3.5	Y	59.7	19.1	7.3	380	0.83	87.42	IE3
112	LE112ZMKB4PV	4.7	Y	59.5	26	9.6	380	0.84	88.37	IE3
132	LE132ZST4PV	6.4	Y	59.2	35	13.4	380	0.81	90.47	IE3
	LE132ZMS4PV	8.8	Y	59.2	48	18.4	380	0.79	91.06	IE3
160	LE160MPA4PV	10.7	Y	59.1	59	25	380	0.71	91.48	IE3
	LE160MPB4PV	12.8	Y	59	70	26	380	0.81	91.95	IE3
	LE160ZLL4PV	17.5	Y	59.1	96	35	380	0.82	92.18	IE3
180	LES180MQ4PV	18.5	Y	59.4	101	35	380	0.85	93.5	IE4
	LES180ZLN4PV	22	Y	59.6	120	42	380	0.85	93.26	IE3
200	LES200ZLU4PV	30	Y	59.4	164	56	380	0.87	94.02	IE3
225	LES225SD4PV	37	Y	59.3	202	70	380	0.85	94.22	IE3
	LES225YMF4PV	45	Y	59.2	246	83	380	0.89	94.56	IE3
250	LES250MD4PV	55	Y	59	300	101	380	0.87	94.8	IE3

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Frame size	Motor	Mech. limit speed	J_{mot}	m_{mot}	9th to 13th position of the Article No.
		rpm	10^{-4} kgm²	kg	2KJ3... - . ■ ■ ■ ■ - ■ ... -Z
1500 rpm					
71	LE71YMS4PV	4200	13	11	2KJ3... - . **C E 1 3 - 6** ...
80	LE80ZMK4PV	4200	30	13	2KJ3... - . **D E 1 3 - 6** ...
	LE80ZMQ4PV	4200	30	15	2KJ3... - . **D F 1 3 - 6** ...
90	LE90SM4PV	4200	37	21	2KJ3... - . **E K 1 3 - 6** ...
	LE90ZLR4PV	4200	49	22	2KJ3... - . **E M 1 3 - 6** ...
100	LE100ZLSA4PV	4200	123	39	2KJ3... - . **F N 1 3 - 6** ...
	LE100ZLSB4PV	4200	123	39	2KJ3... - . **F P 1 3 - 6** ...
112	LE112ZMKB4PV	4200	145	57	2KJ3... - . **G J 1 3 - 6** ...
132	LE132ZST4PV	4200	351	84	2KJ3... - . **H J 1 3 - 6** ...
	LE132ZMS4PV	4200	399	87	2KJ3... - . **H L 1 3 - 6** ...
160	LE160MPA4PV	4200	710	97	2KJ3... - . **J Q 1 3 - 6** ...
	LE160MPB4PV	4200	710	97	2KJ3... - . **J R 1 3 - 6** ...
	LE160ZLL4PV	4200	851	112	2KJ3... - . **J U 1 3 - 6** ...
180	LES180MQ4PV	4200	1397	190	2KJ3... - . **K L 1 3 - 6** ...
	LES180ZLN4PV	4200	1515	200	2KJ3... - . **K N 1 3 - 6** ...
200	LES200ZLU4PV	4200	2394	267	2KJ3... - . **L N 1 3 - 6** ...
225	LES225SD4PV	4200	4200	312	2KJ3... - . **M F 1 3 - 6** ...
	LES225YMF4PV	4200	5200	354	2KJ3... - . **M T 1 3 - 6** ...
250	LES250MD4PV	3700	8500	441	2KJ3... - . **N M 1 3 - 6** ...
1750 rpm					
71	LE71YMS4PV	4200	13	11	2KJ3... - . **C E 1 3 - 6** ...
80	LE80ZMK4PV	4200	30	13	2KJ3... - . **D E 1 3 - 6** ...
	LE80ZMQ4PV	4200	30	15	2KJ3... - . **D F 1 3 - 6** ...
90	LE90SM4PV	4200	37	21	2KJ3... - . **E K 1 3 - 6** ...
	LE90ZLR4PV	4200	49	22	2KJ3... - . **E M 1 3 - 6** ...
100	LE100ZLSA4PV	4200	123	39	2KJ3... - . **F N 1 3 - 6** ...
	LE100ZLSB4PV	4200	123	39	2KJ3... - . **F P 1 3 - 6** ...
112	LE112ZMKB4PV	4200	145	57	2KJ3... - . **G J 1 3 - 6** ...
132	LE132ZST4PV	4200	351	84	2KJ3... - . **H J 1 3 - 6** ...
	LE132ZMS4PV	4200	399	87	2KJ3... - . **H L 1 3 - 6** ...
160	LE160MPA4PV	4200	710	97	2KJ3... - . **J Q 1 3 - 6** ...
	LE160MPB4PV	4200	710	97	2KJ3... - . **J R 1 3 - 6** ...
	LE160ZLL4PV	4200	851	112	2KJ3... - . **J U 1 3 - 6** ...
180	LES180MQ4PV	4200	1397	190	2KJ3... - . **K L 1 3 - 6** ...
	LES180ZLN4PV	4200	1515	200	2KJ3... - . **K N 1 3 - 6** ...
200	LES200ZLU4PV	4200	2394	267	2KJ3... - . **L N 1 3 - 6** ...
225	LES225SD4PV	4200	4200	312	2KJ3... - . **M F 1 3 - 6** ...
	LES225YMF4PV	4200	5200	354	2KJ3... - . **M T 1 3 - 6** ...
250	LES250MD4PV	3700	8500	441	2KJ3... - . **N M 1 3 - 6** ...

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Line voltage 380 V to 480 V

Selection and ordering data

Frame size	Motor	P_N kW	Connection	f_N Hz	T_N Nm	I_N A	U_N V	cos φ –	η PDS (90, 100) %	Efficiency class acc. to IEC TS 60034-30-2 and IEC 60034-2-3
2610 rpm										
71	LE71YMS4PV	0.64	D	89.6	2.4	2	330	0.67	78.81	IE3
80	LE80ZMK4PV	0.96	D	88.6	3.5	2.6	330	0.76	81.92	IE3
	LE80ZMQ4PV	1.3	D	88.8	4.8	3.6	330	0.73	84.24	IE4
90	LE90SM4PV	1.9	D	89.1	7	5	330	0.76	84.92	IE3
	LE90ZLR4PV	2.6	D	89	9.6	6.5	330	0.79	85.64	IE3
100	LE100ZLSA4PV	3.81	D	88.3	14	9.3	330	0.82	88.35	IE3
	LE100ZLSB4PV	5.2	D	88.4	19.1	12.6	330	0.8	87.61	IE3
112	LE112ZMKB4PV	6.93	D	88.3	26	16.6	330	0.81	89.08	IE3
132	LE132ZST4PV	9.6	D	87.8	35	23	330	0.81	90.61	IE3
	LE132ZMS4PV	13.1	D	87.8	48	33	330	0.79	90.76	IE3
160	LE160MPA4PV	16	D	87.7	59	43	330	0.71	91.31	IE3
	LE160MPB4PV	19.1	D	88	70	46	330	0.79	91.97	IE3
	LE160ZLL4PV	26	D	87.9	96	61	330	0.81	92.3	IE3
180	LES180MQ4PV	32	D	87.8	118	64	380	0.81	93.55	IE3
	LES180ZLN4PV	38	D	87.8	140	77	380	0.82	93	IE3
200	LES200ZLU4PV	52	D	87.7	191	101	380	0.83	94.18	IE3
225	LES225SD4PV	64	D	87.6	236	123	380	0.83	94.37	IE3
	LES225YMF4PV	78	D	87.8	286	147	380	0.85	94.58	IE3
250	LES250MD4PV	96	D	87.4	350	177	380	0.86	94.86	IE3
3000 rpm										
71	LE71YMS4PV	0.74	D	103.2	2.5	2	380	0.7	79.83	IE3
80	LE80ZMK4PV	1.1	D	101.8	3.5	2.6	380	0.78	82.37	IE3
	LE80ZMQ4PV	1.5	D	101.5	4.8	3.6	380	0.75	84.04	IE3
90	LE90SM4PV	2.2	D	101.9	7	5	380	0.78	85.76	IE3
	LE90ZLR4PV	3	D	101.9	9.6	6.5	380	0.81	86.04	IE3
100	LE100ZLSA4PV	4.4	D	101.1	14	9.3	380	0.81	88.43	IE3
	LE100ZLSB4PV	6	D	101.1	19.1	12.6	380	0.81	88.86	IE3
112	LE112ZMKB4PV	8	D	100.9	26	16.6	380	0.82	89.08	IE3
132	LE132ZST4PV	11	D	101	35	23	380	0.8	90.87	IE3
	LE132ZMS4PV	15	D	100.9	48	33	380	0.78	90.88	IE3
160	LE160MPA4PV	18.4	D	100.7	59	43	380	0.71	91.36	IE3
	LE160MPB4PV	22	D	101	70	46	380	0.79	91.71	IE3
	LE160ZLL4PV	30	D	100.9	96	61	380	0.81	92.41	IE3
180	LES180MQ4PV	32	D	102.5	102	61	380	0.85	93.78	IE3
	LES180ZLN4PV	38	D	101.3	121	73	380	0.85	93.4	IE3
200	LES200ZLU4PV	52	D	101	166	94	380	0.86	94.26	IE3
225	LES225SD4PV	64	D	101	204	128	380	0.81	93.52	IE2
	LES225YMF4PV	78	D	100.9	248	144	380	0.87	94.92	IE3
250	LES250MD4PV	96	D	100.7	306	175	380	0.88	95.7	IE3

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Frame size	Motor	Mech. limit speed	J_{mot}	m_{mot}	9th to 13th position of the Article No.
		rpm	10^{-4} kgm²	kg	2KJ3... - . ■ ■ ■ ■ - ■ ... -Z
2610 rpm					
71	LE71YMS4PV	4200	13	11	2KJ3... - . **C E 1 3 - 7** ...
80	LE80ZMK4PV	4200	30	13	2KJ3... - . **D E 1 3 - 7** ...
	LE80ZMQ4PV	4200	30	15	2KJ3... - . **D F 1 3 - 7** ...
90	LE90SM4PV	4200	37	21	2KJ3... - . **E K 1 3 - 7** ...
	LE90ZLR4PV	4200	49	22	2KJ3... - . **E M 1 3 - 7** ...
100	LE100ZLSA4PV	4200	123	39	2KJ3... - . **F N 1 3 - 7** ...
	LE100ZLSB4PV	4200	123	39	2KJ3... - . **F P 1 3 - 7** ...
112	LE112ZMKB4PV	4200	145	57	2KJ3... - . **G J 1 3 - 7** ...
132	LE132ZST4PV	4200	351	84	2KJ3... - . **H J 1 3 - 7** ...
	LE132ZMS4PV	4200	399	87	2KJ3... - . **H L 1 3 - 7** ...
160	LE160MPA4PV	4200	710	97	2KJ3... - . **J Q 1 3 - 7** ...
	LE160MPB4PV	4200	710	97	2KJ3... - . **J R 1 3 - 7** ...
	LE160ZLL4PV	4200	851	112	2KJ3... - . **J U 1 3 - 7** ...
180	LES180MQ4PV	4200	1397	190	2KJ3... - . **K L 1 3 - 7** ...
	LES180ZLN4PV	4200	1515	200	2KJ3... - . **K N 1 3 - 7** ...
200	LES200ZLU4PV	4200	2394	267	2KJ3... - . **L N 1 3 - 7** ...
225	LES225SD4PV	4200	4200	312	2KJ3... - . **M F 1 3 - 7** ...
	LES225YMF4PV	4200	5200	354	2KJ3... - . **M T 1 3 - 7** ...
250	LES250MD4PV	3700	8500	441	2KJ3... - . **N M 1 3 - 7** ...
3000 rpm					
71	LE71YMS4PV	4200	13	11	2KJ3... - . **C E 1 3 - 7** ...
80	LE80ZMK4PV	4200	30	13	2KJ3... - . **D E 1 3 - 7** ...
	LE80ZMQ4PV	4200	30	15	2KJ3... - . **D F 1 3 - 7** ...
90	LE90SM4PV	4200	37	21	2KJ3... - . **E K 1 3 - 7** ...
	LE90ZLR4PV	4200	49	22	2KJ3... - . **E M 1 3 - 7** ...
100	LE100ZLSA4PV	4200	123	39	2KJ3... - . **F N 1 3 - 7** ...
	LE100ZLSB4PV	4200	123	39	2KJ3... - . **F P 1 3 - 7** ...
112	LE112ZMKB4PV	4200	145	57	2KJ3... - . **G J 1 3 - 7** ...
132	LE132ZST4PV	4200	351	84	2KJ3... - . **H J 1 3 - 7** ...
	LE132ZMS4PV	4200	399	87	2KJ3... - . **H L 1 3 - 7** ...
160	LE160MPA4PV	4200	710	97	2KJ3... - . **J Q 1 3 - 7** ...
	LE160MPB4PV	4200	710	97	2KJ3... - . **J R 1 3 - 7** ...
	LE160ZLL4PV	4200	851	112	2KJ3... - . **J U 1 3 - 7** ...
180	LES180MQ4PV	4200	1397	190	2KJ3... - . **K L 1 3 - 7** ...
	LES180ZLN4PV	4200	1515	200	2KJ3... - . **K N 1 3 - 7** ...
200	LES200ZLU4PV	4200	2394	267	2KJ3... - . **L N 1 3 - 7** ...
225	LES225SD4PV	4200	4200	312	2KJ3... - . **M F 1 3 - 7** ...
	LES225YMF4PV	4200	5200	354	2KJ3... - . **M T 1 3 - 7** ...
250	LES250MD4PV	3700	8500	441	2KJ3... - . **N M 1 3 - 7** ...

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Line voltage 400 V / 480 V

Selection and ordering data

Frame size	Motor	P_N	Connection	f_N	T_N	I_N 50/87 Hz: 380 V 60/104 Hz: 440 V	cos φ	η 4/4 load	Efficiency class acc. to IEC	L_{pfA}	L_{WA}
		kW		Hz	Nm	A	–	%	60034-30-2	dB (A)	dB (A)
50 Hz power											
4-pole, 1500 rpm											
80	LE80MH4SV	0.55	Y	50	3.50	1.49	0.67	83.9	IE4	66.0	78.0
	LE80ZMQ4SV	0.75	Y	50	4.75	1.98	0.67	85.7	IE4	66.0	78.0
90	LE90SQ4SV	1.1	Y	50	7.00	2.80	0.69	87.2	IE4	58.0	70.0
	LE90ZLT4SV	1.5	Y	50	9.50	3.75	0.69	88.2	IE4	58.0	70.0
112	LE112MGA4SV	2.2	Y	50	14.00	5.30	0.71	89.5	IE4	58.0	70.0
	LE112MGB4SV	3	Y	50	19.10	7.10	0.71	90.4	IE4	59.0	71.0
	LE112ZMN4SV	4	Y	50	25.50	9.30	0.72	91.1	IE4	59.0	71.0
60 Hz, 50 Hz power											
4-pole, 1800 rpm											
80	LE80MH4SV	0.55	Y	60	2.90	1.32	0.65	84.0	IE4	67.0	79.0
	LE80ZMQ4SV	0.75	Y	60	4.00	1.80	0.64	85.5	IE4	67.0	79.0
90	LE90SQ4SV	1.1	Y	60	5.80	2.45	0.67	87.5	IE4	59.0	71.0
	LE90ZLT4SV	1.5	Y	60	8.00	3.35	0.66	88.5	IE4	59.0	71.0
112	LE112MGA4SV	2.2	Y	60	11.70	4.70	0.69	91.0	IE4	58.0	70.0
	LE112MGB4SV	3	Y	60	15.90	6.30	0.70	91.0	IE4	59.0	71.0
	LE112ZMN4SV	4	Y	60	21.00	8.30	0.71	91.0	IE4	60.0	72.0
60 Hz, 60 Hz power											
4-pole, 1800 rpm											
80	LE80MH4SV	0.63	Y	60	3.35	1.49	0.66	84.0	IE4	67.0	79.0
	LE80ZMQ4SV	0.86	Y	60	4.55	2.00	0.66	85.5	IE4	67.0	79.0
90	LE90SQ4SV	1.27	Y	60	6.70	2.75	0.69	87.5	IE4	59.0	71.0
	LE90ZLT4SV	1.75	Y	60	9.30	3.80	0.68	88.5	IE4	59.0	71.0
112	LE112MGA4SV	2.55	Y	60	13.50	5.20	0.71	91.0	IE4	58.0	70.0
	LE112MGB4SV	3.45	Y	60	18.30	6.90	0.72	91.0	IE4	59.0	71.0
	LE112ZMN4SV	4.55	Y	60	24.00	9.00	0.73	91.0	IE4	60.0	72.0
87 Hz power											
4-pole, 2610 rpm											
80	LE80MH4SV	0.96	Δ	87	3.50	2.55	0.65	87.5	IE4	69.0	81.0
	LE80ZMQ4SV	1.3	Δ	87	4.75	3.45	0.64	89.0	IE4	69.0	81.0
90	LE90SQ4SV	1.9	Δ	87	7.00	4.80	0.68	89.0	IE4	69.0	81.0
	LE90ZLT4SV	2.6	Δ	87	9.50	6.50	0.67	90.5	IE4	69.0	81.0
112	LE112MGA4SV	3.83	Δ	87	14.10	9.20	0.69	92.0	IE4	65.0	77.0
	LE112MGB4SV	5.2	Δ	87	19.00	12.30	0.70	91.8	IE4	65.0	77.0
	LE112ZMN4SV	6.9	Δ	87	25.00	16.00	0.71	92.3	IE4	69.0	81.0
104 Hz power											
4-pole, 3120 rpm											
80	LE80MH4SV	1.09	Δ	104	3.35	2.50	0.65	88.0	IE4	69.0	81.0
	LE80ZMQ4SV	1.49	Δ	104	4.55	3.45	0.64	89.0	IE4	69.0	81.0
90	LE90SQ4SV	2.2	Δ	104	6.70	4.80	0.68	89.0	IE4	O. R.	O. R.
	LE90ZLT4SV	3.0	Δ	104	9.30	6.50	0.67	90.5	IE4	O. R.	O. R.
112	LE112MGA4SV	4.41	Δ	104	13.50	9.00	0.70	92.0	IE4	64.0	76.0
	LE112MGB4SV	6.0	Δ	104	18.40	12.10	0.71	91.8	IE4	64.0	76.0
	LE112ZMN4SV	7.9	Δ	104	24.00	15.60	0.72	92.3	IE4	64.0	76.0

O. R. On request

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Frame size	Motor	Mech. limit speed	J_{mot}	m_{mot}	Recommended converter rated power	IES class acc. to EN 50598-2 with Siemens converter SINAMICS G120 PM240-2	9th to 12th position of the Article No.					Additional identification code **-Z** with order code
		rpm	10^{-4} kgm²	kg			2KJ3... - .	■	■	■	■ - .... **-Z**	Power
50 Hz power												
4-pole, 1500 rpm												
80	LE80MH4SV	3200	19	11	0.55	IES2	2KJ3... - .	**D**	**D**	**2**	**7** -	**P92**
	LE80ZMQ4SV	3200	25	13	0.75	IES2	2KJ3... - .	**D**	**E**	**2**	**7** -	**P92**
90	LE90SQ4SV	3200	34	16	1.1	IES2	2KJ3... - .	**E**	**L**	**2**	**7** -	**P92**
	LE90ZLT4SV	3200	43	18	1.5	IES2	2KJ3... - .	**E**	**N**	**2**	**7** -	**P92**
112	LE112MGA4SV	3200	93	32	2.2	IES2	2KJ3... - .	**G**	**J**	**2**	**7** -	**P92**
	LE112MGB4SV	3200	93	32	3	IES2	2KJ3... - .	**G**	**K**	**2**	**7** -	**P92**
	LE112ZMN4SV	3200	114	37	4	IES2	2KJ3... - .	**G**	**L**	**2**	**7** -	**P92**
60 Hz, 50 Hz power												
4-pole, 1800 rpm												
80	LE80MH4SV	3200	19	11	0.55	IES2	2KJ3... - .	**D**	**D**	**2**	**7** -	**P92**
	LE80ZMQ4SV	3200	25	13	0.75	IES2	2KJ3... - .	**D**	**E**	**2**	**7** -	**P92**
90	LE90SQ4SV	3200	34	16	1.1	IES2	2KJ3... - .	**E**	**L**	**2**	**7** -	**P92**
	LE90ZLT4SV	3200	43	18	1.5	IES2	2KJ3... - .	**E**	**N**	**2**	**7** -	**P92**
112	LE112MGA4SV	3200	93	32	2.2	IES2	2KJ3... - .	**G**	**J**	**2**	**7** -	**P92**
	LE112MGB4SV	3200	93	32	3	IES2	2KJ3... - .	**G**	**K**	**2**	**7** -	**P92**
	LE112ZMN4SV	3200	114	37	4	IES2	2KJ3... - .	**G**	**L**	**2**	**7** -	**P92**
60 Hz, 60 Hz power												
4-pole, 1800 rpm												
80	LE80MH4SV	3200	19	11	0.55	IES2	2KJ3... - .	**D**	**D**	**2**	**7** -	**P92**
	LE80ZMQ4SV	3200	25	13	0.75	IES2	2KJ3... - .	**D**	**E**	**2**	**7** -	**P92**
90	LE90SQ4SV	3200	34	16	1.1	IES2	2KJ3... - .	**E**	**L**	**2**	**7** -	**P92**
	LE90ZLT4SV	3200	43	18	1.5	IES2	2KJ3... - .	**E**	**N**	**2**	**7** -	**P92**
112	LE112MGA4SV	3200	93	32	2.2	IES2	2KJ3... - .	**G**	**J**	**2**	**7** -	**P92**
	LE112MGB4SV	3200	93	32	3	IES2	2KJ3... - .	**G**	**K**	**2**	**7** -	**P92**
	LE112ZMN4SV	3200	114	37	4	IES2	2KJ3... - .	**G**	**L**	**2**	**7** -	**P92**
87 Hz power												
4-pole, 2610 rpm												
80	LE80MH4SV	3200	19	11	1.1	IES2	2KJ3... - .	**D**	**D**	**2**	**7** -	**P92**
	LE80ZMQ4SV	3200	25	13	1.5	IES2	2KJ3... - .	**D**	**E**	**2**	**7** -	**P92**
90	LE90SQ4SV	3200	34	16	2.2	IES2	2KJ3... - .	**E**	**L**	**2**	**7** -	**P92**
	LE90ZLT4SV	3200	43	18	3	IES2	2KJ3... - .	**E**	**N**	**2**	**7** -	**P92**
112	LE112MGA4SV	3200	93	32	4	IES2	2KJ3... - .	**G**	**J**	**2**	**7** -	**P92**
	LE112MGB4SV	3200	93	32	5.5	IES2	2KJ3... - .	**G**	**K**	**2**	**7** -	**P92**
	LE112ZMN4SV	3200	114	37	7.5	IES2	2KJ3... - .	**G**	**L**	**2**	**7** -	**P92**
104 Hz power												
4-pole, 3120 rpm												
80	LE80MH4SV	3200	19	11	1.1	IES2	2KJ3... - .	**D**	**D**	**2**	**7** -	**P92**
	LE80ZMQ4SV	3200	25	13	1.5	IES2	2KJ3... - .	**D**	**E**	**2**	**7** -	**P92**
90	LE90SQ4SV	3200	34	16	2.2	IES2	2KJ3... - .	**E**	**L**	**2**	**7** -	**P92**
	LE90ZLT4SV	3200	43	18	3	IES2	2KJ3... - .	**E**	**N**	**2**	**7** -	**P92**
112	LE112MGA4SV	3200	93	32	4	IES2	2KJ3... - .	**G**	**J**	**2**	**7** -	**P92**
	LE112MGB4SV	3200	93	32	5.5	IES2	2KJ3... - .	**G**	**K**	**2**	**7** -	**P92**
	LE112ZMN4SV	3200	114	37	7.5	IES2	2KJ3... - .	**G**	**L**	**2**	**7** -	**P92**

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Motors

Line voltage 400 V / 460 V

Selection and ordering data

Frame size	Motor	P_N	Connection	f_N	T_N	I_N 50/87 Hz: 400 V 60 Hz: 460 V	cos φ	η 4/4 load	L_{pfA}	L_{WA}
		kW		Hz	Nm	A	–	%	dB (A)	dB (A)
50 Hz power										
4-pole, 1500 rpm										
100	LE100LB4V	2.2	Y	52.9	14.0	5.2	0.81	79.7	79.0	91.0
	LE100LH4V	3	Y	52.7	19.1	6.6	0.85	81.5	79.0	91.0
112	LE112ME4V	4	Y	52.3	25.5	8.6	0.85	83.1	77.4	89.4
132	LE132SF4V	5.5	Y	52.1	35.0	12.0	0.82	84.7	76.0	88.0
	LE132ME4V	7.5	Y	51.7	47.5	16.2	0.82	86.0	76.0	88.0
160	LE160MD4V	11	Y	51.5	70	23.5	0.82	87.6	83.5	95.5
	LE160LA4V	15	Y	51.4	95	31.5	0.82	88.7	83.5	95.5
180	LES180ZMQ4V	18.5	Y	51.1	118	37	0.85	89.3	71.0	83.0
	LES180ZLJ4V	22	Y	51.1	140	45	0.83	89.9	71.0	83.0
200	LES200LN4V	30	Y	50.9	191	60	0.83	90.7	76.3	88.3
225	LES225MD4V	37	Y	50.9	236	72	0.85	91.4	67.0	83.0
	LES225SD4V	45	Y	50.9	286	84	0.88	92.4	70.0	83.0
250	LES250MD4V	55	Y	50.8	350	105	0.86	92.3	70.0	83.0
60 Hz power										
4-pole, 1800 rpm										
100	LE100LB4V	2.55	Y	62.8	13.5	4.9	0.82	83.0	79.0	91.0
	LE100LH4V	3.45	Y	62.6	18.3	6.2	0.86	85.0	79.0	91.0
112	LE112ME4V	4.55	Y	62.2	24.0	8.3	0.85	85.0	77.2	89.2
132	LE132SF4V	6.3	Y	62.0	33.5	11.3	0.84	87.0	76.0	88.0
	LE132ME4V	8.6	Y	61.7	45.5	15.4	0.84	87.5	76.0	88.0
160	LE160MD4V	12.6	Y	61.4	67	23.0	0.82	88.5	82.3	94.3
	LE160LA4V	17.3	Y	61.4	92	30.5	0.82	90.5	82.3	94.3
180	LES180ZMQ4V	21.3	Y	61.1	113	36.0	0.85	91.0	73.0	85.0
	LES180ZLJ4V	25.3	Y	61.1	134	43.5	0.84	91.0	73.0	85.0
200	LES200LN4V	34.5	Y	60.9	183	58	0.84	92.4	77.7	89.7
225	LES225MD4V	42.5	Y	60.9	225	70	0.86	92.4	70.0	86.0
	LES225SD4V	52	Y	60.9	276	84	0.83	93.0	72.0	86.0
250	LES250MD4V	63	Y	60.8	334	103	0.86	93.0	72.0	86.0
87 Hz power										
4-pole, 2610 rpm										
100	LE100LB4V	3.7	Δ	89.3	13.5	8.6	0.79	83.0	81.0	93.0
	LE100LH4V	5	Δ	89.3	18.3	11.3	0.79	85.0	81.0	93.0
112	LE112ME4V	6.6	Δ	89.0	24.0	14.6	0.81	85.0	78.4	90.4
132	LE132SF4V	9	Δ	88.8	33.0	19.4	0.81	87.0	83.0	95.0
	LE132ME4V	12.5	Δ	88.8	45.5	27.1	0.80	87.5	83.0	95.0
160	LE160MD4V	17	Δ	88.3	62	37.5	0.78	88.5	85.8	97.8
	LE160LA4V	23.5	Δ	88.2	86	51	0.77	90.5	85.8	97.8
180	LES180ZMQ4V	31	Δ	88.1	113	62	0.84	91.0	84.0	96.0
	LES180ZLJ4V	36.5	Δ	88.0	134	74	0.82	91.0	84.0	96.0
200	LES200LN4V	48	Δ	87.8	176	97	0.81	92.4	83.1	95.1

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Frame size	Motor	Mech. limit speed	J_{mot}	m_{mot}	Recommended converter rated power	IES class acc. to EN 50598-2 with Siemens converter SINAMICS G120 PM240-2	9th to 12th position of the Article No.					Additional identification code **-Z** with order code
		rpm	10^{-4} kgm^2	kg			2KJ3... - .	■	■	■	■ - .... **-Z**	Power
50 Hz power												
4-pole, 1500 rpm												
100	LE100LB4V	4200	59	15	2.2	IES1	2KJ3... - .	**F**	**L**	**2**	**8** -	**P92**
	LE100LH4V	4200	78	21	3	IES1	2KJ3... - .	**F**	**N**	**2**	**8** -	**P92**
112	LE112ME4V	4200	100	27	4	IES1	2KJ3... - .	**G**	**H**	**2**	**8** -	**P92**
132	LE132SF4V	4200	190	39	5.5	IES1	2KJ3... - .	**H**	**J**	**2**	**8** -	**P92**
	LE132ME4V	4200	240	43	7.5	IES1	2KJ3... - .	**H**	**F**	**2**	**8** -	**P92**
160	LE160MD4V	4200	440	67	11	IES1	2KJ3... - .	**J**	**P**	**2**	**8** -	**P92**
	LE160LA4V	4200	560	75	15	IES2	2KJ3... - .	**J**	**S**	**2**	**8** -	**P92**
180	LES180ZMQ4V	4200	1300	170	18.5	IES2	2KJ3... - .	**K**	**N**	**3**	**8** -	**P92**
	LES180ZLJ4V	4200	1300	170	22	IES2	2KJ3... - .	**K**	**L**	**3**	**8** -	**P92**
200	LES200LN4V	4200	2000	220	30	IES2	2KJ3... - .	**L**	**M**	**3**	**8** -	**P92**
225	LES225MD4V	4500	3700	260	37	IES2	2KJ3... - .	**M**	**R**	**3**	**8** -	**P92**
	LES225SD4V	4500	4500	290	45	IES2	2KJ3... - .	**M**	**F**	**3**	**8** -	**P92**
250	LES250MD4V	3700	6900	360	55	IES2	2KJ3... - .	**N**	**M**	**3**	**8** -	**P92**
60 Hz power												
4-pole, 1800 rpm												
100	LE100LB4V	4200	59	15	2.2	IES1	2KJ3... - .	**F**	**L**	**2**	**8** -	**P92**
	LE100LH4V	4200	78	21	3	IES1	2KJ3... - .	**F**	**N**	**2**	**8** -	**P92**
112	LE112ME4V	4200	100	27	4	IES1	2KJ3... - .	**G**	**H**	**2**	**8** -	**P92**
132	LE132SF4V	4200	190	39	5.5	IES1	2KJ3... - .	**H**	**J**	**2**	**8** -	**P92**
	LE132ME4V	4200	240	43	7.5	IES1	2KJ3... - .	**H**	**F**	**2**	**8** -	**P92**
160	LE160MD4V	4200	440	67	11	IES1	2KJ3... - .	**J**	**P**	**2**	**8** -	**P92**
	LE160LA4V	4200	560	75	15	IES2	2KJ3... - .	**J**	**S**	**2**	**8** -	**P92**
180	LES180ZMQ4V	4200	1300	170	18.5	IES2	2KJ3... - .	**K**	**N**	**3**	**8** -	**P92**
	LES180ZLJ4V	4200	1300	170	22	IES2	2KJ3... - .	**K**	**L**	**3**	**8** -	**P92**
200	LES200LN4V	4200	2000	220	30	IES2	2KJ3... - .	**L**	**M**	**3**	**8** -	**P92**
225	LES225MD4V	4500	3700	260	37	IES2	2KJ3... - .	**M**	**R**	**3**	**8** -	**P92**
	LES225SD4V	4500	4500	290	45	IES2	2KJ3... - .	**M**	**F**	**3**	**8** -	**P92**
250	LES250MD4V	3700	6900	360	55	IES2	2KJ3... - .	**N**	**M**	**3**	**8** -	**P92**
87 Hz power												
4-pole, 2610 rpm												
100	LE100LB4V	4200	59	15	4	IES1	2KJ3... - .	**F**	**L**	**2**	**8** -	**P92**
	LE100LH4V	4200	78	21	5.5	IES1	2KJ3... - .	**F**	**N**	**2**	**8** -	**P92**
112	LE112ME4V	4200	100	27	7.5	IES1	2KJ3... - .	**G**	**H**	**2**	**8** -	**P92**
132	LE132SF4V	4200	190	39	11	IES1	2KJ3... - .	**H**	**J**	**2**	**8** -	**P92**
	LE132ME4V	4200	240	43	15	IES1	2KJ3... - .	**H**	**F**	**2**	**8** -	**P92**
160	LE160MD4V	4200	440	67	18.5	IES1	2KJ3... - .	**J**	**P**	**2**	**8** -	**P92**
	LE160LA4V	4200	560	75	22	IES2	2KJ3... - .	**J**	**S**	**2**	**8** -	**P92**
180	LES180ZMQ4V	4200	1300	170	30	IES2	2KJ3... - .	**K**	**N**	**3**	**8** -	**P92**
	LES180ZLJ4V	4200	1300	170	37	IES2	2KJ3... - .	**K**	**L**	**3**	**8** -	**P92**
200	LES200LN4V	4200	2000	220	45	IES2	2KJ3... - .	**L**	**M**	**3**	**8** -	**P92**

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Motors

Line voltage 500 V / 575 V

Selection and ordering data

Frame size	Motor	P_N	Connection	f_N	T_N	I_N 50/87 Hz: 500 V 60 Hz: 575 V	cos φ	η 4/4 load	L_{pfA}	L_{WA}
		kW		Hz	Nm	A	–	%	dB (A)	dB (A)
50 Hz power										
4-pole, 1500 rpm										
100	LE100LB4V	2.2	Y	52.8	14.0	4.1	0.81	79.7	80.0	92.1
	LE100LH4V	3	Y	52.6	19.1	5.2	0.85	81.5	80.0	92.1
112	LE112ME4V	4	Y	52.4	25.5	6.8	0.85	83.1	79.0	91.3
132	LE132SF4V	5.5	Y	52.0	35.0	9.5	0.82	84.7	77.0	89.4
	LE132ME4V	7.5	Y	51.9	47.8	12.8	0.82	86.0	77.0	89.4
160	LE160MD4V	11	Y	51.5	70	18.4	0.82	87.6	85.0	97.8
	LE160LA4V	13.5	Y	51.2	86	23.0	0.79	88.7	85.0	97.8
180	LES180ZMQ4V	16.7	Y	51.0	106	27.0	0.84	89.3	72.0	85.0
	LES180ZLJ4V	21.5	Y	51.1	137	34.5	0.83	89.9	72.0	85.0
200	LES200LN4V	30	Y	51.0	191	48	0.83	90.7	78.0	91.3
225	LES225MD4V	33	Y	50.6	210	51	0.84	92.0	70.0	84.0
	LES225SD4V	41	Y	50.7	261	61	0.87	92.4	71.0	84.0
250	LES250MD4V	52	Y	50.7	331	80	0.85	92.3	71.0	84.0
60 Hz power										
4-pole, 1800 rpm										
100	LE100LB4V	2.55	Y	62.8	13.5	3.95	0.82	83.0	80.0	92.1
	LE100LH4V	3.45	Y	62.6	18.3	4.95	0.86	85.0	80.0	92.1
112	LE112ME4V	4.55	Y	62.3	24.1	6.6	0.85	85.0	79.0	91.3
132	LE132SF4V	6.3	Y	62.0	33.4	9.0	0.84	87.0	77.0	89.4
	LE132ME4V	8.6	Y	61.9	45.6	12.3	0.84	87.5	77.0	89.4
160	LE160MD4V	12.6	Y	61.5	66.9	18.2	0.82	88.5	85.0	97.8
	LE160LA4V	15.6	Y	61.2	82.8	22.5	0.81	90.5	85.0	97.8
180	LES180ZMQ4V	19.2	Y	61.0	102	26.5	0.84	91.0	72.0	85.0
	LES180ZLJ4V	25.3	Y	61.2	134	34.5	0.84	91.0	72.0	85.0
200	LES200LN4V	34.5	Y	61.0	183	46.5	0.84	92.4	78.0	91.3
225	LES225MD4V	38	Y	60.6	202	51	0.84	92.4	70.0	84.0
	LES225SD4V	47	Y	60.7	249	61	0.87	93.0	71.0	84.0
250	LES250MD4V	59	Y	60.7	313	78	0.85	93.0	71.0	84.0
87 Hz power										
4-pole, 2610 rpm										
100	LE100LB4V	3.7	Δ	89.6	13.5	6.8	0.79	83.0	81.0	93.1
	LE100LH4V	5	Δ	89.3	18.3	8.7	0.79	85.0	81.0	93.1
112	LE112ME4V	6.6	Δ	89.1	24.1	12.0	0.81	85.0	80.0	92.3
132	LE132SF4V	9	Δ	88.8	32.9	15.4	0.81	87.0	83.0	95.4
	LE132ME4V	12.5	Δ	88.7	45.7	21.5	0.8	87.5	83.0	95.4
160	LE160MD4V	17	Δ	88.4	62.2	29.5	0.78	88.5	85.0	97.8
	LE160LA4V	23.5	Δ	88.3	86	40.5	0.77	90.5	85.0	97.8
180	LES180ZMQ4V	31	Δ	88	113	49	0.84	91.0	84.0	97.0
	LES180ZLJ4V	37	Δ	88.1	134	59	0.82	91.0	84.0	97.0
200	LES200LN4V	48	Δ	87.9	176	77	0.81	92.4	84.0	97.3

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Frame size	Motor	Mech. limit speed	J_{mot}	m_{mot}	Recommended converter rated power	9th to 12th position of the Article No.		Additional identification code **-Z** with order code
		rpm	10^{-4} kgm^2	kg		2KJ3... - . ■ ■ ■ ■ - .... **-Z**		Power
50 Hz power								
4-pole, 1500 rpm								
100	LE100LB4V	4200	59	18	2.2	2KJ3... - .	**F L 2 8** -	**P92**
	LE100LH4V	4200	78	22	3	2KJ3... - .	**F N 2 8** -	**P92**
112	LE112ME4V	4200	100	27	4	2KJ3... - .	**G H 2 8** -	**P92**
132	LE132SF4V	4200	190	38	5.5	2KJ3... - .	**H J 2 8** -	**P92**
	LE132ME4V	4200	240	44	7.5	2KJ3... - .	**H F 2 8** -	**P92**
160	LE160MD4V	4200	440	62	11	2KJ3... - .	**J P 2 8** -	**P92**
	LE160LA4V	4200	560	73	15	2KJ3... - .	**J S 2 8** -	**P92**
180	LES180ZMQ4V	4200	1300	170	18.5	2KJ3... - .	**K N 3 8** -	**P92**
	LES180ZLJ4V	4200	1300	170	22	2KJ3... - .	**K L 3 8** -	**P92**
200	LES200LN4V	4200	2000	220	30	2KJ3... - .	**L M 3 8** -	**P92**
225	LES225MD4V	4500	3700	260	37	2KJ3... - .	**M R 3 8** -	**P92**
	LES225SD4V	4500	4500	290	45	2KJ3... - .	**M F 3 8** -	**P92**
250	LES250MD4V	3700	6900	360	55	2KJ3... - .	**N M 3 8** -	**P92**
60 Hz power								
4-pole, 1800 rpm								
100	LE100LB4V	4200	59	18	2.2	2KJ3... - .	**F L 2 8** -	**P92**
	LE100LH4V	4200	78	22	3	2KJ3... - .	**F N 2 8** -	**P92**
112	LE112ME4V	4200	100	27	4	2KJ3... - .	**G H 2 8** -	**P92**
132	LE132SF4V	4200	190	38	5.5	2KJ3... - .	**H J 2 8** -	**P92**
	LE132ME4V	4200	240	44	7.5	2KJ3... - .	**H F 2 8** -	**P92**
160	LE160MD4V	4200	440	62	11	2KJ3... - .	**J P 2 8** -	**P92**
	LE160LA4V	4200	560	73	15	2KJ3... - .	**J S 2 8** -	**P92**
180	LES180ZMQ4V	4200	1300	170	18.5	2KJ3... - .	**K N 3 8** -	**P92**
	LES180ZLJ4V	4200	1300	170	22	2KJ3... - .	**K L 3 8** -	**P92**
200	LES200LN4V	4200	2000	220	30	2KJ3... - .	**L M 3 8** -	**P92**
225	LES225MD4V	4500	3700	260	37	2KJ3... - .	**M R 3 8** -	**P92**
	LES225SD4V	4500	4500	290	45	2KJ3... - .	**M F 3 8** -	**P92**
250	LES250MD4V	3700	6900	360	55	2KJ3... - .	**N M 3 8** -	**P92**
87 Hz power								
4-pole, 2610 rpm								
100	LE100LB4V	4200	59	18	4	2KJ3... - .	**F L 2 8** -	**P92**
	LE100LH4V	4200	78	22	5.5	2KJ3... - .	**F N 2 8** -	**P92**
112	LE112ME4V	4200	100	27	7.5	2KJ3... - .	**G H 2 8** -	**P92**
132	LE132SF4V	4200	190	38	11	2KJ3... - .	**H J 2 8** -	**P92**
	LE132ME4V	4200	240	44	15	2KJ3... - .	**H F 2 8** -	**P92**
160	LE160MD4V	4200	440	62	18.5	2KJ3... - .	**J P 2 8** -	**P92**
	LE160LA4V	4200	560	73	22	2KJ3... - .	**J S 2 8** -	**P92**
180	LES180ZMQ4V	4200	1300	170	30	2KJ3... - .	**K N 3 8** -	**P92**
	LES180ZLJ4V	4200	1300	170	37	2KJ3... - .	**K L 3 8** -	**P92**
200	LES200LN4V	4200	2000	220	45	2KJ3... - .	**L M 3 8** -	**P92**

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Motors

Line voltage 690 V

Selection and ordering data

Frame size	Motor	P_N	Connection	f_N	T_N	I_N	cos φ	η	L_{pfA}	L_{WA}
						50/87 Hz: 690 V		4/4 load		
		kW		Hz	Nm	A	–	%	dB (A)	dB (A)
50 Hz power										
4-pole, 1500 rpm										
100	LE100LB4V	2.2	Y	52.9	14.0	3.0	0.81	79.7	80.0	92.1
	LE100LH4V	3	Y	52.5	19.1	3.8	0.85	81.5	80.0	92.1
112	LE112ME4V	4	Y	52.5	25.5	5.0	0.85	83.1	79.0	91.3
132	LE132SF4V	5.5	Y	52.0	35.0	6.9	0.82	84.7	77.0	89.4
	LE132ME4V	7.5	Y	51.7	47.8	9.3	0.82	86.0	77.0	89.4
160	LE160MD4V	11	Y	51.5	70	13.4	0.82	87.6	85.0	97.8
	LE160LA4V	15	Y	51.4	95.5	18.0	0.82	88.7	85.0	97.8
180	LES180ZMQ4V	18.5	Y	51.1	117.8	21.5	0.85	89.3	72.0	85.0
	LES180ZLJ4V	22	Y	51.2	140	25.0	0.85	89.9	72.0	85.0
200	LES200LN4V	30	Y	51.0	191	35.0	0.83	90.7	78.0	91.3
225	LES225MD4V	37	Y	50.8	236	41.5	0.85	91.4	70.0	84.0
	LES225SD4V	45	Y	50.8	286	48.5	0.88	92.4	71.0	84.0
250	LES250MD4V	55	Y	50.8	350	61.0	0.86	92.3	71.0	84.0
87 Hz power										
4-pole, 2610 rpm										
100	LE100LB4V	3.7	Δ	89.5	13.5	4.95	0.79	83.0	81.0	93.1
	LE100LH4V	5	Δ	89.5	18.3	6.5	0.79	85.0	81.0	93.1
112	LE112ME4V	6.6	Δ	89.2	24.1	8.4	0.81	85.0	80.0	92.3
132	LE132SF4V	9	Δ	88.7	32.9	11.2	0.81	87.0	83.0	95.4
	LE132ME4V	12.5	Δ	88.6	45.7	15.6	0.80	87.5	83.0	95.4
160	LE160MD4V	17	Δ	88.3	62.2	21.5	0.78	88.5	85.0	97.8
	LE160LA4V	23.5	Δ	88.2	86	29.5	0.77	90.5	85.0	97.8
180	LES180ZMQ4V	31	Δ	88.0	112	35	0.84	91.0	84.0	97.0
	LES180ZLJ4V	36.5	Δ	88.2	134	42	0.84	91.0	84.0	97.0
200	LES200LN4V	48	Δ	87.9	176	56	0.81	92.4	84.0	97.3

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Line voltage 690 V

Frame size	Motor	Mech. limit speed	J_{mot}	m_{mot}	Recommended converter rated power	9th to 12th position of the Article No.					Additional identification code **-Z** with order code
		rpm	10^{-4} kgm²	kg		2KJ3... - .	■	■	■	■ - .... **-Z**	Power
50 Hz power											
4-pole, 1500 rpm											
100	LE100LB4V	4200	59	18	2.2	2KJ3... - .	**F**	**L**	**2**	**8** -	**P92**
	LE100LH4V	4200	78	22	3	2KJ3... - .	**F**	**N**	**2**	**8** -	**P92**
112	LE112ME4V	4200	100	27	4	2KJ3... - .	**G**	**H**	**2**	**8** -	**P92**
132	LE132SF4V	4200	190	38	5.5	2KJ3... - .	**H**	**J**	**2**	**8** -	**P92**
	LE132ME4V	4200	240	44	7.5	2KJ3... - .	**H**	**F**	**2**	**8** -	**P92**
160	LE160MD4V	4200	440	62	11	2KJ3... - .	**J**	**P**	**2**	**8** -	**P92**
	LE160LA4V	4200	560	73	15	2KJ3... - .	**J**	**S**	**2**	**8** -	**P92**
180	LES180ZMQ4V	4200	1300	170	18.5	2KJ3... - .	**K**	**N**	**3**	**8** -	**P92**
	LES180ZLJ4V	4200	1300	170	22	2KJ3... - .	**K**	**L**	**3**	**8** -	**P92**
200	LES200LN4V	4200	2000	220	30	2KJ3... - .	**L**	**M**	**3**	**8** -	**P92**
225	LES225MD4V	4500	3700	260	37	2KJ3... - .	**M**	**R**	**3**	**8** -	**P92**
	LES225SD4V	4500	4500	290	45	2KJ3... - .	**M**	**F**	**3**	**8** -	**P92**
250	LES250MD4V	3700	6900	360	55	2KJ3... - .	**N**	**M**	**3**	**8** -	**P92**
87 Hz power											
4-pole, 2610 rpm											
100	LE100LB4V	4200	59	18	4	2KJ3... - .	**F**	**L**	**2**	**8** -	**P92**
	LE100LH4V	4200	78	22	5.5	2KJ3... - .	**F**	**N**	**2**	**8** -	**P92**
112	LE112ME4V	4200	100	27	7.5	2KJ3... - .	**G**	**H**	**2**	**8** -	**P92**
132	LE132SF4V	4200	190	38	11	2KJ3... - .	**H**	**J**	**2**	**8** -	**P92**
	LE132ME4V	4200	240	44	15	2KJ3... - .	**H**	**F**	**2**	**8** -	**P92**
160	LE160MD4V	4200	440	62	18.5	2KJ3... - .	**J**	**P**	**2**	**8** -	**P92**
	LE160LA4V	4200	560	73	22	2KJ3... - .	**J**	**S**	**2**	**8** -	**P92**
180	LES180ZMQ4V	4200	1300	170	30	2KJ3... - .	**K**	**N**	**3**	**8** -	**P92**
	LES180ZLJ4V	4200	1300	170	37	2KJ3... - .	**K**	**L**	**3**	**8** -	**P92**
200	LES200LN4V	4200	2000	220	45	2KJ3... - .	**L**	**M**	**3**	**8** -	**P92**

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η			Efficiency class	I_{St}/I_N	T_{St}/T_N	T_{Bk}/T_N
					50 Hz: 400 V		4/4 load	3/4 load	2/4 load	acc. to IEC			
		kW	rpm	Nm	A	–	%	%	%	60034-30	–	–	–
50 Hz power													
4-pole, 1500 rpm													
63	LE63ZMH4P	0.12	1390	0.82	0.39	0.68	64.8	63.1	57.3	IE3	3.6	2.4	2.6
	LE63ZMK4P	0.18	1400	1.23	0.57	0.65	69.9	68.1	62.3	IE3	4	2.8	2.9
71	LE71ZMK4P	0.25	1395	1.71	0.68	0.72	73.5	73.7	70.4	IE3	4.2	2.5	2.6
	LE71YMS4P	0.37	1410	2.5	0.99	0.70	77.3	76.8	73.2	IE3	4.8	3.1	3.1
80	LE80MH4P	0.55	1440	3.65	1.26	0.78	80.8	81.5	79.8	IE3	5.9	2.1	3.1
	LE80ZMQ4P	0.75	1450	4.95	1.75	0.75	82.5	82.3	80.1	IE3	7.1	2.7	3.9
90	LE90SM4P	1.1	1440	7.30	2.40	0.78	84.1	84.7	83.4	IE3	6.9	2.9	3.6
	LE90ZLR4P	1.5	1445	9.90	3.15	0.80	85.3	85.7	84.4	IE3	7.3	2.9	3.5
100	LE100ZLSA4P	2.2	1455	14.4	4.45	0.82	86.7	87.2	86.3	IE3	8.3	3.0	3.8
	LE100ZLSB4P	3	1450	19.8	6.2	0.80	87.7	88.1	87.1	IE3	8.0	3.1	3.8
112	LE112ZMKB4P	4	1460	26.0	7.9	0.82	88.6	89.2	88.6	IE3	7.1	2.4	3.7
132	LE132ZST4P	5.5	1470	35.5	10.8	0.82	89.6	90.0	89.4	IE3	8.5	2.9	3.7
	LE132ZMS4P	7.5	1465	49.0	15.0	0.80	90.4	90.7	90.4	IE3	8.5	3.0	3.8
160	LE160MPA4P	9.2	1480	60.0	17.8	0.83	91.0	92.6	91.8	IE3	8.4	2.3	3.6
	LE160MPB4P [1]	11	1475	71.0	21.0	0.82	91.4	91.9	91.9	IE3	8.0	2.5	3.5
	LE160ZLL4P	15	1475	97.0	28.5	0.82	92.1	92.3	91.5	IE3	8.5	2.5	3.8
180	LES180MQ4P [1]	18.5	1470	120.0	35.0	0.82	92.6	93.1	92.9	IE3	7.2	2.5	3.3
	LES180ZLN4P	22	1470	143.0	41.0	0.83	93.0	93.6	93.6	IE3	6.8	2.3	3.3
200	LES200ZLU4P	30	1470	195.0	55.0	0.84	93.6	94.0	93.7	IE3	7.3	2.6	3.1
225	LES225SD4P	37	1478	239.0	66.0	0.86	93.9	94.5	94.4	IE3	6.4	2.5	2.7
	LES225YMF4P	45	1478	290.0	80.0	0.86	94.2	94.9	95	IE3	6.6	2.6	2.6
250	LES250MD4P	55	1482	354.0	96.0	0.87	94.6	95.1	95	IE3	6.8	2.5	2.9
2-pole, 3000 rpm													
63	LE63MEB2P	0.18	2850	0.6	0.51	0.78	65.9	64.8	58.6	IE3	4.5	2.2	2.7
	LE63ZMH2P	0.25	2835	0.84	0.64	0.81	69.7	68.3	61.7	IE3	4.1	1.9	2.5
71	LE71ZMH2P	0.37	2850	1.24	0.95	0.76	73.8	73.3	69.7	IE3	5.8	3.5	3.5
	LE71ZMM2P	0.55	2850	1.84	1.34	0.76	77.8	77.5	74.5	IE3	6.1	3.7	3.7
80	LE80ME2P	0.75	2850	2.50	1.56	0.86	80.7	82.2	81.9	IE3	6.2	2.6	3.0
	LE80ZMJ2P	1.1	2885	3.65	2.25	0.85	82.7	83.9	83.1	IE3	7.1	3.0	3.3
90	LE90SM2P	1.5	2910	4.90	3.0	0.86	84.2	84.6	83.2	IE3	8.1	2.7	4.2
	LE90ZLR2P	2.2	2910	7.20	4.2	0.88	85.9	86.8	86.1	IE3	8.3	2.6	4.0
100	LE100ZLLA2P	3	2910	9.8	5.7	0.87	87.1	87.7	87.0	IE3	9.4	4.4	4.5
112	LE112ZMH2P	4	2945	13.0	7.4	0.89	88.1	88.8	87.9	IE3	9.1	2.6	3.6
132	LE132SH2P	5.5	2945	17.8	10.1	0.88	89.2	89.5	88.6	IE3	8.9	2.5	3.8
	LE132ZSQB2P	7.5	2950	24.5	13.1	0.92	90.1	91.0	91.0	IE3	8.3	1.9	3.9
160	LE160MG2P	11	2955	35.5	19.6	0.89	91.2	91.4	90.6	IE3	8.3	2.5	3.5
	LE160MM2P	15	2955	48.5	27.5	0.86	91.9	91.9	90.8	IE3	10.2	3.5	4.4
	LE160ZLJ2P	18.5	2955	60.0	32.0	0.90	92.4	92.8	92.4	IE3	9.0	2.8	4.2

[1] Operating values at rated power for 60 Hz are stored in the SPC.

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Frame size	Motor	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.		Additional identification code **-Z** with order code
		–	dB (A)	dB (A)	1/h	10^{-4} kgm^2	kg	2KJ3... - . ■ ■ ■ ■ - .... **-Z**		No. of poles
50 Hz power										
4-pole, 1500 rpm										
63	LE63ZMH4P	2.6	59	67	20000	4.3	4	2KJ3... - .	**B D 2 3** -	**–**
	LE63ZMK4P	3.1	55	62	15000	4.7	5	2KJ3... - .	**B E 2 3** -	**–**
71	LE71ZMK4P	2.8	44	55	10000	9.1	5	2KJ3... - .	**C C 2 3** -	**–**
	LE71YMS4P	3.4	56	67	10000	13	6	2KJ3... - .	**C E 2 3** -	**–**
80	LE80MH4P	2.3	52	60	15000	21	9	2KJ3... - .	**D C 2 3** -	**–**
	LE80ZMQ4P	3.0	58	66	15000	29	10	2KJ3... - .	**D F 2 3** -	**–**
90	LE90SM4P	3.2	56	68	9000	36	12	2KJ3... - .	**E K 2 3** -	**–**
	LE90ZLR4P	3.19	62	70	7500	49	15	2KJ3... - .	**E M 2 3** -	**–**
100	LE100ZLSA4P	3.3	67	75	6000	110	25	2KJ3... - .	**F N 2 3** -	**–**
	LE100ZLSB4P	3.4	67	75	6000	110	26	2KJ3... - .	**F P 2 3** -	**–**
112	LE112ZMKB4P	2.6	58	70	5100	170	29	2KJ3... - .	**G J 2 3** -	**–**
132	LE132ZST4P	3.2	64	76	4500	340	57	2KJ3... - .	**H J 2 3** -	**–**
	LE132ZMS4P	3.3	72	80	4500	360	61	2KJ3... - .	**H L 2 3** -	**–**
160	LE160MPA4P	2.5	66	73	3000	620	73	2KJ3... - .	**J Q 2 3** -	**–**
	LE160MPB4P [1]	2.8	67	75	3000	620	73	2KJ3... - .	**J R 2 3** -	**–**
	LE160ZLL4P	2.8	65	77	3000	850	90	2KJ3... - .	**J U 2 3** -	**–**
180	LES180MQ4P [1]	2.8	66	73	600	1300	165	2KJ3... - .	**K L 3 3** -	**–**
	LES180ZLN4P	2.5	67	75	550	1531	170	2KJ3... - .	**K N 3 3** -	**–**
200	LES200ZLU4P	2.9	65	72	400	2400	240	2KJ3... - .	**L N 3 3** -	**–**
225	LES225SD4P	2.8	65	78	400	4200	285	2KJ3... - .	**M F 3 3** -	**–**
	LES225YMF4P	2.86	66	79	435	5200	340	2KJ3... - .	**M T 3 3** -	**–**
250	LES250MD4P	2.8	66	79	170	8500	420	2KJ3... - .	**N M 3 3** -	**–**
2-pole, 3000 rpm										
63	LE63MEB2P	2.4	56	64	7000	2.2	4	2KJ3... - .	**B C 2 3** -	**P00**
	LE63ZMH2P	2.1	56	64	7000	2.6	5	2KJ3... - .	**B D 2 3** -	**P00**
71	LE71ZMH2P	3.9	52	63	7000	4.5	7	2KJ3... - .	**C B 2 3** -	**P00**
	LE71ZMM2P	4.1	57	68	7000	5.4	8	2KJ3... - .	**C D 2 3** -	**P00**
80	LE80ME2P	2.9	60	71	5100	11	9.3	2KJ3... - .	**D B 2 3** -	**P00**
	LE80ZMJ2P	3.3	60	71	8700	13	10	2KJ3... - .	**D M 2 3** -	**P00**
90	LE90SM2P	3.0	65	77	6000	21	12	2KJ3... - .	**E K 2 3** -	**P00**
	LE90ZLR2P	2.9	65	77	6000	31	15	2KJ3... - .	**E M 2 3** -	**P00**
100	LE100ZLLA2P	4.8	72	80	2700	46	25	2KJ3... - .	**F L 2 3** -	**P00**
112	LE112ZMH2P	2.9	73	81	1350	86	32	2KJ3... - .	**G G 2 3** -	**P00**
132	LE132SH2P	2.8	69	77	1350	190	48	2KJ3... - .	**H F 2 3** -	**P00**
	LE132ZSQB2P	2.1	72	80	1080	310	50	2KJ3... - .	**H H 2 3** -	**P00**
160	LE160MG2P	2.8	77	85	600	379	65	2KJ3... - .	**J N 2 3** -	**P00**
	LE160MM2P	3.9	77	85	600	440	78	2KJ3... - .	**J P 2 3** -	**P00**
	LE160ZLJ2P	3.1	70	82	840	680	84	2KJ3... - .	**J T 2 3** -	**P00**

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[1] Operating values at rated power for 60 Hz are stored in the SPC.

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η			Efficiency class	I_{St}/I_N	T_{St}/T_N	T_{Bk}/T_N
					50 Hz: 400 V		4/4 load	3/4 load	2/4 load	acc. to IEC			
		kW	rpm	Nm	A	–	%	%	%	60034-30	–	–	–
50 Hz power													
6-pole, 1000 rpm													
71	LE71ZMK6P	0.18	885	1.94	0.59	0.69	63.9	64.8	60.8	IE3	2.8	2.3	2.3
	LE71YMS6P	0.25	885	2.7	0.76	0.69	68.6	69.5	66.2	IE3	3.2	2.6	2.6
80	LE80MK6P	0.37	940	3.75	1.1	0.66	73.5	73.1	69.4	IE3	4.2	2.3	2.7
	LE80ZMQ6P	0.55	935	5.6	1.53	0.67	77.2	77	73.9	IE3	4.5	2.5	2.8
90	LE90SQ6P	0.75	945	7.6	1.96	0.70	78.9	80.0	78.8	IE3	4.6	2.2	2.6
100	LE100ZLSA6P	1.1	975	10.8	2.75	0.71	81.0	81.0	79.0	IE3	5.6	2.2	2.9
112	LE112ZMKA6P	1.5	975	14.7	3.45	0.76	82.5	82.8	81.2	IE3	5.7	2.0	2.8
132	LE132SQA6P	2.2	975	21.5	5.1	0.74	84.3	84.7	83.7	IE3	6.5	2.1	3.1
	LE132SQB6P	3	975	29.5	6.9	0.73	85.6	86.1	84.9	IE3	6.6	2.3	3.2
	LE132MJ6P	4	975	39	9.1	0.73	86.8	87.1	86.2	IE3	6.2	2.2	3.0
	LE132ZMS6P	5.5	975	54	12.5	0.72	88.0	88.3	87.2	IE3	6.8	2.7	3.4
160	LE160MW6P	7.5	985	73	15.0	0.81	89.1	89.5	88.6	IE3	7.9	2.3	3.2
	LE160ZLW6P	11	980	107	22.0	0.80	90.3	90.8	90.2	IE3	6.8	2.9	2.8
180	LES180LJ6P	15	975	147	29.5	0.80	91.2	91.9	91.9	IE3	5.9	2.3	2.8
200	LES200LM6P	18.5	978	181	37.0	0.79	91.7	92.5	92.5	IE3	5.6	2.5	2.6
	LES200ZLS6P	22	978	215	43.5	0.79	92.2	93.1	93.2	IE3	5.6	2.5	2.6
225	LES225YMF6P	30	982	290	56.0	0.83	92.9	93.6	93.5	IE3	6.6	2.6	3.0
250	LES250MD6P	37	985	360	67.0	0.85	93.3	94.0	94.0	IE3	7.0	2.7	2.9

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Frame size	Motor	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.		Additional identification code **-Z** with order code
		–	dB (A)	dB (A)	1/h	10^{-4} kgm^2	kg	2KJ3... - . ■ ■ ■ ■ - .... **-Z**		No. of poles
50 Hz power										
6-pole, 1000 rpm										
71	LE71ZMK6P	2.5	39	50	15000	10	7	2KJ3... - .	**C C 2 3** -	**P01**
	LE71YMS6P	2.9	46	57	15000	14	9	2KJ3... - .	**C E 2 3** -	**P01**
80	LE80MK6P	2.5	42	53	12000	24	11	2KJ3... - .	**D E 2 3** -	**P01**
	LE80ZMQ6P	2.8	42	53	12000	30	11	2KJ3... - .	**D F 2 3** -	**P01**
90	LE90SQ6P	2.4	43	55	13700	40	15	2KJ3... - .	**E C 2 3** -	**P01**
100	LE100ZLSA6P	2.4	59	71	O. R.	48	18	2KJ3... - .	**F N 2 3** -	**P01**
112	LE112ZMKA6P	2.2	62	74	6900	110	29	2KJ3... - .	**G H 2 3** -	**P01**
132	LE132SQA6P	2.3	57	65	6900	170	29	2KJ3... - .	**H G 2 3** -	**P01**
	LE132SQB6P	2.5	58	66	3900	340	42	2KJ3... - .	**H H 2 3** -	**P01**
	LE132MJ6P	2.4	67	75	3900	390	46	2KJ3... - .	**H K 2 3** -	**P01**
	LE132ZMS6P	3.0	64	72	3900	500	58	2KJ3... - .	**H L 2 3** -	**P01**
160	LE160MW6P	2.5	71	79	3300	1320	95	2KJ3... - .	**J J 2 3** -	**P01**
	LE160ZLW6P	3.2	66	74	2700	1640	106	2KJ3... - .	**J V 2 3** -	**P01**
180	LES180LJ6P	2.5	61	68	800	1900	180	2KJ3... - .	**K M 3 3** -	**P01**
200	LES200LM6P	2.8	64	71	680	2800	215	2KJ3... - .	**L L 3 3** -	**P01**
	LES200ZLS6P	2.8	61	68	680	3200	230	2KJ3... - .	**L M 3 3** -	**P01**
225	LES225YMF6P	2.9	64	77	270	6700	325	2KJ3... - .	**M K 3 3** -	**P01**
250	LES250MD6P	3.0	62	75	205	10000	405	2KJ3... - .	**N D 3 3** -	**P01**

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η			Efficiency class	I_{St}/I_N	T_{St}/T_N	T_{Bk}/T_N
					60 Hz: 460 V		4/4 load	3/4 load	2/4 load	acc. to IEC			
		kW	rpm	Nm	A	–	%	%	%	60034-30	–	–	–
60 Hz, 50 Hz power													
4-pole, 1800 rpm													
63	LE63ZMH4P	0.12	1710	0.67	0.36	0.62	67	64	57.1	IE3	4.3	2.9	3.3
	LE63ZMK4P	0.18	1715	1	0.54	0.6	69.5	66.9	60.6	IE3	4.6	3.6	3.7
71	LE71ZMK4P	0.25	1715	1.39	0.63	0.68	73.4	72.3	68.0	IE3	4.9	2.9	3.1
	LE71YMS4P	0.37	1720	2.05	0.9	0.66	78.2	76.9	72.5	IE3	5.7	3.6	3.8
80	LE80MH4P	0.55	1750	3	1.15	0.74	81.1	80.9	78.6	IE3	6.9	2.7	3.8
	LE80ZMQ4P	0.75	1760	4.05	1.59	0.71	83.5	82.6	79.7	IE3	8.3	3.1	4.7
90	LE90SM4P	1.1	1750	6.0	2.15	0.75	86.5	86.4	84.2	IE3	8.2	3.4	4.4
	LE90ZLR4P	1.5	1755	8.2	2.85	0.77	86.5	86.6	84.7	IE3	8.6	3.4	4.3
100	LE100ZLSA4P	2.2	1760	11.9	3.85	0.80	89.5	89.5	88.0	IE3	9.9	3.5	4.6
	LE100ZLSB4P	3	1760	16.3	5.4	0.78	89.5	89.4	88.0	IE3	9.9	3.5	4.7
112	LE112ZMKB4P	3.7	1770	20.0	6.5	0.80	89.5	89.4	87.7	IE3	8.2	2.9	4.3
132	LE132ZST4P	5.5	1775	29.5	9.3	0.81	91.7	91.6	90.5	IE3	10	3.1	4.2
	LE132ZMS4P	7.5	1770	40.5	13.0	0.79	91.7	91.6	90.6	IE3	9.8	3.4	4.3
160	LE160MPA4P	9.2	1775	49.5	15.4	0.82	91.7	92.7	91.5	IE3	9.3	3.4	4.1
	LE160MPB4P	11	1775	59.0	18.4	0.81	92.4	92.6	92.0	IE3	9.0	3.8	4.0
	LE160ZLL4P	15	1780	80.0	25.0	0.81	93.0	92.8	91.4	IE3	9.5	2.9	4.3
180	LES180MQ4P	18.5	1775	100.0	30.5	0.81	93.6	93.6	92.7	IE3	8.7	2.6	3.8
	LES180ZLN4P	22	1775	118.0	36.5	0.81	93.6	93.8	93.3	IE3	7.7	2.8	3.7
200	LES200ZLU4P	30	1778	161.0	48.0	0.83	94.1	94.2	93.6	IE3	8.8	2.6	3.5
225	LES225SD4P	37	1782	198.0	58.0	0.85	94.5	94.7	94.2	IE3	7.5	2.8	3.0
	LES225YMF4P	45	1782	240.0	70.0	0.85	95.0	95.3	95.1	IE3	7.7	3.0	3.0
250	LES250MD4P	55	1786	294.0	84.0	0.86	95.4	95.6	95.1	IE3	7.6	2.8	3.2
2-pole, 3600 rpm													
63	LE63MEB2P	0.18	3475	0.495	0.48	0.72	65.6	62.3	56.0	IE3	5.3	2.7	3.6
	LE63ZMH2P	0.25	3465	0.69	0.59	0.76	69.5	66.6	59.3	IE3	5.2	2.4	3.1
71	LE71ZMH2P	0.37	3470	1.02	0.87	0.73	73.4	71.7	67.0	IE3	6.8	4.2	4.2
	LE71ZMM2P	0.55	3470	1.51	1.23	0.73	76.8	75.3	71.0	IE3	7.2	4.5	4.5
80	LE80ME2P	0.75	3480	2.05	1.45	0.84	77.0	77.2	75.7	IE3	7.1	3.0	3.6
	LE80ZMJ2P	1.1	3500	3.00	1.98	0.83	84.0	84.0	82	IE3	8.4	3.3	4.0
90	LE90SM2P	1.5	3525	4.05	2.60	0.84	85.5	84.8	82.3	IE3	9.8	3.1	4.9
	LE90ZLR2P	2.2	3530	6.00	3.65	0.87	86.5	86.4	84.5	IE3	9.6	3.0	4.9
100	LE100ZLLA2P	3	3525	8.1	5	0.85	88.5	88.2	86.7	IE3	11.2	4.6	5.6
112	LE112ZMH2P	3.7	3555	9.9	6	0.87	88.5	88.4	86.7	IE3	11.8	3.3	4.7
132	LE132SH2P	5.5	3550	14.8	8.9	0.87	89.5	89.0	87.0	IE3	11.1	3	4.6
	LE132ZSQB2P	7.5	3560	20.0	11.5	0.91	90.2	90.4	89.6	IE3	9.4	2.2	4.5
160	LE160MG2P	11	3555	29.5	17.2	0.88	91.0	90.4	88.4	IE3	9.5	2.9	4.0
	LE160MM2P	15	3560	40.0	24.0	0.86	91.0	90.4	88.5	IE3	11.8	4	5.2
	LE160ZLJ2P	18.5	3560	49.5	28.5	0.89	91.7	91.5	90.3	IE3	10.2	3.0	4.8

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Frame size	Motor	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.		Additional identification code **-Z** with order code
		–	dB (A)	dB (A)	1/h	10^{-4} kgm^2	kg	2KJ3... - . ■ ■ ■ ■ - .... **-Z**		No. of poles
60 Hz, 50 Hz power										
4-pole, 1800 rpm										
63	LE63ZMH4P	3.2	O. R.	O. R.	6600	4.3	4	2KJ3... - .	**B D 2 3** -	**–**
	LE63ZMK4P	4	O. R.	O. R.	7200	4.7	5	2KJ3... - .	**B E 2 3** -	**–**
71	LE71ZMK4P	3.2	44	55	20700	9.1	5	2KJ3... - .	**C C 2 3** -	**–**
	LE71YMS4P	4	O. R.	O. R.	18000	13	6	2KJ3... - .	**C E 2 3** -	**–**
80	LE80MH4P	3.0	O. R.	O. R.	12000	21	9	2KJ3... - .	**D C 2 3** -	**–**
	LE80ZMQ4P	3.4	O. R.	O. R.	12000	29	10	2KJ3... - .	**D F 2 3** -	**–**
90	LE90SM4P	3.7	O. R.	O. R.	7000	36	12	2KJ3... - .	**E K 2 3** -	**–**
	LE90ZLR4P	3.74	O. R.	O. R.	6000	49	15	2KJ3... - .	**E M 2 3** -	**–**
100	LE100ZLSA4P	3.9	O. R.	O. R.	O. R.	110	25	2KJ3... - .	**F N 2 3** -	**–**
	LE100ZLSB4P	3.9	O. R.	O. R.	O. R.	110	26	2KJ3... - .	**F P 2 3** -	**–**
112	LE112ZMKB4P	3.2	O. R.	O. R.	O. R.	170	29	2KJ3... - .	**G J 2 3** -	**–**
132	LE132ZST4P	3.4	O. R.	O. R.	O. R.	340	57	2KJ3... - .	**H J 2 3** -	**–**
	LE132ZMS4P	3.7	O. R.	O. R.	O. R.	360	61	2KJ3... - .	**H L 2 3** -	**–**
160	LE160MPA4P	3.7	O. R.	O. R.	O. R.	620	73	2KJ3... - .	**J Q 2 3** -	**–**
	LE160MPB4P	4.2	O. R.	O. R.	O. R.	620	73	2KJ3... - .	**J R 2 3** -	**–**
	LE160ZLL4P	3.2	O. R.	O. R.	O. R.	850	90	2KJ3... - .	**J U 2 3** -	**–**
180	LES180MQ4P	2.9	O. R.	O. R.	O. R.	1300	165	2KJ3... - .	**K L 3 3** -	**–**
	LES180ZLN4P	3.1	O. R.	O. R.	O. R.	1531	170	2KJ3... - .	**K N 3 3** -	**–**
200	LES200ZLU4P	2.9	O. R.	O. R.	O. R.	2400	240	2KJ3... - .	**L N 3 3** -	**–**
225	LES225SD4P	3.1	66	80	O. R.	4200	285	2KJ3... - .	**M F 3 3** -	**–**
	LES225YMF4P	3.3	66	80	O. R.	5200	340	2KJ3... - .	**M T 3 3** -	**–**
250	LES250MD4P	3.1	67	81	O. R.	8500	420	2KJ3... - .	**N M 3 3** -	**–**
2-pole, 3600 rpm										
63	LE63MEB2P	3	O. R.	O. R.	2175	2.2	4	2KJ3... - .	**B C 2 3** -	**P00**
	LE63ZMH2P	2.6	O. R.	O. R.	3000	2.6	5	2KJ3... - .	**B D 2 3** -	**P00**
71	LE71ZMH2P	4.6	O. R.	O. R.	12000	4.5	7	2KJ3... - .	**C B 2 3** -	**P00**
	LE71ZMM2P	5	O. R.	O. R.	12000	5.4	8	2KJ3... - .	**C D 2 3** -	**P00**
80	LE80ME2P	3.3	O. R.	O. R.	O. R.	11	9.3	2KJ3... - .	**D B 2 3** -	**P00**
	LE80ZMJ2P	3.6	O. R.	O. R.	O. R.	13	10	2KJ3... - .	**D M 2 3** -	**P00**
90	LE90SM2P	3.4	O. R.	O. R.	O. R.	21	12	2KJ3... - .	**E K 2 3** -	**P00**
	LE90ZLR2P	3.3	O. R.	O. R.	O. R.	31	15	2KJ3... - .	**E M 2 3** -	**P00**
100	LE100ZLLA2P	5.1	O. R.	O. R.	O. R.	46	25	2KJ3... - .	**F L 2 3** -	**P00**
112	LE112ZMH2P	3.6	O. R.	O. R.	O. R.	86	32	2KJ3... - .	**G G 2 3** -	**P00**
132	LE132SH2P	3.3	O. R.	O. R.	O. R.	190	48	2KJ3... - .	**H F 2 3** -	**P00**
	LE132ZSQB2P	2.4	O. R.	O. R.	O. R.	310	50	2KJ3... - .	**H H 2 3** -	**P00**
160	LE160MG2P	3.2	O. R.	O. R.	O. R.	379	65	2KJ3... - .	**J N 2 3** -	**P00**
	LE160MM2P	4.4	O. R.	O. R.	O. R.	440	78	2KJ3... - .	**J P 2 3** -	**P00**
	LE160ZLJ2P	3.3	O. R.	O. R.	O. R.	680	84	2KJ3... - .	**J T 2 3** -	**P00**

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η			Efficiency class acc. to IEC	I_{St}/I_N	T_{St}/T_N	T_{Bk}/T_N
					60 Hz: 460 V		4/4 load	3/4 load	2/4 load				
		kW	rpm	Nm	A	–	%	%	%	60034-30	–	–	–
60 Hz, 50 Hz power													
6-pole, 1200 rpm													
71	LE71ZMK6P	0.18	1110	1.55	0.53	0.63	67.5	66.3	61.0	IE3	3.5	2.8	2.9
	LE71YMS6P	0.25	1110	2.15	0.69	0.64	71.4	70.6	66.4	IE3	3.9	3.2	3.2
80	LE80MK6P	0.37	1150	3.05	1.01	0.61	75.3	74.3	70.0	IE3	5	2.7	3.3
	LE80ZMQ6P	0.55	1145	4.6	1.34	0.63	81.7	80.5	76.4	IE3	5.3	2.8	3.4
90	LE90SQ6P	0.75	1155	6.2	1.76	0.65	82.5	82.4	79.9	IE3	5.3	2.4	3.1
100	LE100ZLSA6P	1.1	1180	8.9	2.3	0.69	87.5	87.2	84.8	IE3	6.7	2.4	3.3
112	LE112ZMKA6P	1.5	1175	12.2	2.9	0.73	88.5	88.3	86.2	IE3	6.9	2.2	3.2
132	LE132SQA6P	2.2	1180	17.8	4.3	0.72	89.5	89.2	87.7	IE3	7.3	2.4	3.5
	LE132SQB6P	3	1180	24.5	6	0.7	89.5	89.5	87.9	IE3	7.6	2.6	3.8
	LE132MJ6P	3.7	1180	30	7.5	0.69	89.5	89.2	87.5	IE3	7.5	2.8	3.8
	LE132ZMS6P	5.5	1180	44.5	11	0.69	91.0	90.8	89.2	IE3	7.8	3	4
160	LE160MW6P	7.5	1185	60	12.9	0.80	91.0	90.8	89.4	IE3	9.3	2.7	3.7
	LE160ZLW6P	11	1185	89	19.3	0.78	91.7	91.7	90.5	IE3	8.0	3.4	3.2
180	LES180LJ6P	15	1178	122	26	0.79	91.7	92.0	91.4	IE3	6.8	2.5	3
200	LES200LM6P	18.5	1180	150	32	0.78	93.0	93.8	93.8	IE3	6.5	2.8	3
	LES200ZLS6P	22	1180	178	37.5	0.79	93.0	93.5	93.4	IE3	6.3	2.6	2.8
225	LES225YMF6P	30	1185	240	49	0.82	94.1	94.4	94.1	IE3	7.6	2.9	3.3
250	LES250MD6P	37	1188	295	59	0.83	94.1	94.4	93.9	IE3	8.0	3.1	3.1

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Frame size	Motor	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.					Additional identification code **-Z** with order code
		–	dB (A)	dB (A)	1/h	10^{-4} kgm^2	kg	2KJ3... - .	■	■	■	■ - .... **-Z**	No. of poles
60 Hz, 50 Hz power													
6-pole, 1200 rpm													
71	LE71ZMK6P	3.1	O. R.	O. R.	O. R.	10	7	2KJ3... - .	**C**	**C**	**2**	**3** -	**P01**
	LE71YMS6P	3.5	O. R.	O. R.	O. R.	14	9	2KJ3... - .	**C**	**E**	**2**	**3** -	**P01**
80	LE80MK6P	3	42	53	12000	24	11	2KJ3... - .	**D**	**E**	**2**	**3** -	**P01**
	LE80ZMQ6P	3.1	42	53	12000	30	11	2KJ3... - .	**D**	**F**	**2**	**3** -	**P01**
90	LE90SQ6P	2.6	O. R.	O. R.	O. R.	40	15	2KJ3... - .	**E**	**C**	**2**	**3** -	**P01**
100	LE100ZLSA6P	2.6	O. R.	O. R.	O. R.	48	18	2KJ3... - .	**F**	**N**	**2**	**3** -	**P01**
112	LE112ZMKA6P	2.4	O. R.	O. R.	O. R.	110	29	2KJ3... - .	**G**	**H**	**2**	**3** -	**P01**
132	LE132SQA6P	2.6	63	71	O. R.	170	29	2KJ3... - .	**H**	**G**	**2**	**3** -	**P01**
	LE132SQB6P	2.9	61	69	O. R.	290	36	2KJ3... - .	**H**	**H**	**2**	**3** -	**P01**
	LE132MJ6P	3.1	62	70	O. R.	370	45	2KJ3... - .	**H**	**K**	**2**	**3** -	**P01**
	LE132ZMS6P	3.3	67	75	O. R.	460	45	2KJ3... - .	**H**	**L**	**2**	**3** -	**P01**
160	LE160MW6P	3.0	73	81	O. R.	980	83	2KJ3... - .	**J**	**J**	**2**	**3** -	**P01**
	LE160ZLW6P	3.7	72	80	O. R.	1200	105	2KJ3... - .	**J**	**V**	**2**	**3** -	**P01**
180	LES180LJ6P	2.8	O. R.	O. R.	O. R.	1900	180	2KJ3... - .	**K**	**M**	**3**	**3** -	**P01**
200	LES200LM6P	3.1	O. R.	O. R.	O. R.	2800	215	2KJ3... - .	**L**	**L**	**3**	**3** -	**P01**
	LES200ZLS6P	2.9	O. R.	O. R.	O. R.	3200	230	2KJ3... - .	**L**	**M**	**3**	**3** -	**P01**
225	LES225YMF6P	3.2	66	79	O. R.	6700	325	2KJ3... - .	**M**	**K**	**3**	**3** -	**P01**
250	LES250MD6P	3.4	63	76	O. R.	10000	405	2KJ3... - .	**N**	**D**	**3**	**3** -	**P01**

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η			Efficiency class	I_{St}/I_N	T_{St}/T_N	T_{Bk}/T_N
					60 Hz: 460 V		4/4 load	3/4 load	2/4 load	acc. to IEC			
		kW	rpm	Nm	A	–	%	%	%	60034-30	–	–	–
60 Hz, 60 Hz power													
4-pole, 1800 rpm													
63	LE63ZMH4P	0.14	1690	0.79	0.39	0.67	67	65.1	59.5	IE3	4	2.5	2.8
	LE63ZMK4P	0.21	1700	1.18	0.58	0.65	69.5	67.9	62.7	IE3	4.4	3.1	3.1
71	LE71ZMK4P	0.29	1695	1.63	0.69	0.72	73.4	73.3	70.0	IE3	4.5	2.5	2.6
	LE71YMS4P	0.43	1710	2.4	0.99	0.7	78.2	77.5	74.1	IE3	5.1	3.0	3.1
80	LE80MH4P	0.63	1740	3.45	1.25	0.78	81.1	81.3	79.6	IE3	6.4	2.4	3.3
	LE80ZMQ4P	0.86	1750	4.7	1.72	0.75	83.5	83.1	80.7	IE3	7.7	2.7	4.1
90	LE90ZLR4P	1.75	1740	9.6	3.15	0.80	86.5	86.7	85.4	IE3	7.7	2.9	3.7
100	LE100ZLSA4P	2.55	1750	13.9	4.3	0.83	89.5	90.1	89.2	IE3	8.8	3.0	3.9
112	LE112ZMKB4P	4.55	1760	24.5	7.7	0.83	89.5	90.0	89.3	IE3	7.3	2.5	3.8
132	LE132ZST4P	6.3	1770	34.0	10.4	0.83	91.7	92.0	91.3	IE3	8.7	2.7	3.7
160	LE160MPA4P	10.6	1770	57.0	17.3	0.84	92.4	92.8	92.1	IE3	8.3	3.0	3.5
	LE160MPB4P	12.6	1765	68.0	20.5	0.83	92.4	92.9	92.6	IE3	8.1	3.3	3.5
180	LES180MQ4P	21.3	1770	115.0	34.5	0.83	93.6	94.0	93.6	IE3	7.2	2.4	3.2
	LES180ZLN4P	25.3	1770	137.0	41.0	0.83	93.6	94.1	94.0	IE3	6.9	2.2	3.2
2-pole, 3600 rpm													
63	LE63MEB2P	0.21	3450	0.58	0.52	0.78	65.6	63.5	58.4	IE3	4.9	2.3	3.1
	LE63ZMH2P	0.29	3435	0.81	0.65	0.81	69.5	67.5	62.0	IE3	4.8	2	2.7
71	LE71ZMH2P	0.43	3445	1.19	0.97	0.76	73.4	72.6	68.9	IE3	6	3.6	3.6
	LE71ZMM2P	0.63	3450	1.74	1.35	0.76	76.8	76.1	72.9	IE3	6.6	3.9	3.9
80	LE80ME2P	0.86	3450	2.40	1.63	0.86	77.0	78.0	77.2	IE3	6.4	2.6	3.1
	LE80ZMJ2P	1.27	3480	3.50	2.25	0.85	84.0	84.6	83.4	IE3	7.4	2.8	3.4
90	LE90SM2P	1.75	3510	4.75	2.95	0.87	85.5	85.6	84.0	IE3	8.7	2.6	4.2
100	LE100ZLLA2P	3.45	3505	9.4	5.6	0.87	88.5	88.5	87.5	IE3	10	4	4.8
112	LE112ZMH2P	4.55	3545	12.3	7.3	0.89	88.5	88.5	87.2	IE3	9.7	2.7	3.8
132	LE132SH2P	6.3	3540	17.0	10.0	0.89	88.5	89.0	88.1	IE3	9.9	2.6	4.0
160	LE160MG2P	12.6	3540	34.0	19.3	0.90	91.0	20.9	89.5	IE3	8.4	2.5	3.5
	LE160MM2P	17.3	3550	46.5	27.0	0.88	91.7	91.4	90.2	IE3	10.1	3.3	4.5
	LE160ZLJ2P	21.3	3555	57.0	32.0	0.91	91.7	91.5	90.3	IE3	9.0	2.6	4.2

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Frame size	Motor	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.		Additional identification code **-Z** with order code
		–	dB (A)	dB (A)	1/h	10^{-4} kgm^2	kg	2KJ3... - .	■ ■ ■ ■ - .... **-Z**	No. of poles
60 Hz, 60 Hz power										
4-pole, 1800 rpm										
63	LE63ZMH4P	2.8	64	72	6600	4.3	4	2KJ3... - .	**B D 2 3** -	**–**
	LE63ZMK4P	3.4	64	71	7200	4.7	5	2KJ3... - .	**B E 2 3** -	**–**
71	LE71ZMK4P	2.8	44	55	20700	9.1	5	2KJ3... - .	**C C 2 3** -	**–**
	LE71YMS4P	3.3	62	73	18000	13	6	2KJ3... - .	**C E 2 3** -	**–**
80	LE80MH4P	2.6	53	61	12000	21	9	2KJ3... - .	**D C 2 3** -	**–**
	LE80ZMQ4P	3.0	58	66	12000	29	10	2KJ3... - .	**D F 2 3** -	**–**
90	LE90ZLR4P	3.19	59	67	6000	49	15	2KJ3... - .	**E M 2 3** -	**–**
100	LE100ZLSA4P	3.3	70	78	O. R.	110	25	2KJ3... - .	**F N 2 3** -	**–**
112	LE112ZMKB4P	2.8	62	74	O. R.	170	29	2KJ3... - .	**G J 2 3** -	**–**
132	LE132ZST4P	3	68	80	O. R.	340	57	2KJ3... - .	**H J 2 3** -	**–**
160	LE160MPA4P	3.3	O. R.	O. R.	O. R.	620	73	2KJ3... - .	**J Q 2 3** -	**–**
	LE160MPB4P	3.6	69	81	O. R.	620	73	2KJ3... - .	**J R 2 3** -	**–**
180	LES180MQ4P	2.6	O. R.	O. R.	O. R.	1300	165	2KJ3... - .	**K L 3 3** -	**–**
	LES180ZLN4P	2.4	70	77	O. R.	1531	170	2KJ3... - .	**K N 3 3** -	**–**
2-pole, 3600 rpm										
63	LE63MEB2P	2.5	59	67	2175	2.2	4	2KJ3... - .	**B C 2 3** -	**P00**
	LE63ZMH2P	2.2	56	64	3000	2.6	5	2KJ3... - .	**B D 2 3** -	**P00**
71	LE71ZMH2P	4	57	68	12000	4.5	7	2KJ3... - .	**C B 2 3** -	**P00**
	LE71ZMM2P	4.3	62	73	12000	5.4	8	2KJ3... - .	**C D 2 3** -	**P00**
80	LE80ME2P	2.9	64	75	O. R.	11	9.3	2KJ3... - .	**D B 2 3** -	**P00**
	LE80ZMJ2P	3.1	64	75	O. R.	13	10	2KJ3... - .	**D M 2 3** -	**P00**
90	LE90SM2P	2.9	69	81	O. R.	21	12	2KJ3... - .	**E K 2 3** -	**P00**
100	LE100ZLLA2P	4.4	75	83	O. R.	46	25	2KJ3... - .	**F L 2 3** -	**P00**
112	LE112ZMH2P	3.0	80	88	O. R.	86	32	2KJ3... - .	**G G 2 3** -	**P00**
132	LE132SH2P	2.9	74	82	O. R.	190	48	2KJ3... - .	**H F 2 3** -	**P00**
160	LE160MG2P	2.8	82	90	O. R.	379	65	2KJ3... - .	**J N 2 3** -	**P00**
	LE160MM2P	3.6	81	89	O. R.	440	78	2KJ3... - .	**J P 2 3** -	**P00**
	LE160ZLJ2P	2.9	O. R.	O. R.	O. R.	680	84	2KJ3... - .	**J T 2 3** -	**P00**

O. R. On request

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η	T_{Bk}/T_N
					87 Hz: 400 V		4/4 load	
		kW	rpm	Nm	A	–	%	–
87 Hz power								
4-pole, 2610 rpm								
63	LE63ZMH4P	0.21	2510	0.8	0.78	0.6	64.8	2.8
	LE63ZMK4P	0.31	2510	1.18	0.89	0.64	78.0	3.1
71	LE71ZMK4P	0.44	2510	1.67	1.17	0.7	77.7	2.5
	LE71YMS4P	0.64	2520	2.4	1.64	0.68	83	3.1
80	LE80MH4P	0.96	2555	3.6	2.25	0.77	80.8	3.1
	LE80ZMQ4P	1.31	2565	4.9	3.2	0.72	82.5	3.9
90	LE90SM4P	1.91	2550	7.2	4.15	0.76	87.0	3.7
	LE90ZLR4P	2.60	2560	9.7	5.6	0.79	85.3	3.6
100	LE100ZLSA4P	3.85	2565	14.3	4.55	0.82	86.7	3.8
	LE100ZLSB4P	5.2	2560	19.4	6.3	0.79	87.7	3.9
112	LE112ZMKB4P	7.0	2570	26.0	13.8	0.81	90.0	3.7
132	LE132ZST4P	9.6	2580	35.5	18.5	0.82	91.8	3.7
	LE132ZMS4P	13.0	2575	48	15.2	0.79	90.4	3.9
160	LE160MPA4P	16.0	2580	59.0	17.4	0.83	92.4	3.7
	LE160MPB4P	19.1	2580	71.0	21.5	0.82	91.4	3.5
	LE160ZLL4P	26.0	2585	96.0	50.0	0.82	92.2	3.9
180	LES180MQ4P	32.0	2580	118.0	60.5	0.82	93.5	3.4
	LES180ZLN4P	38.5	2575	143.0	42.0	0.82	93.9	3.3
200	LES200ZLU4P	52.0	2580	193.0	95.0	0.84	94.0	3.2
225	LES225SD4P	55.5	2592	204.0	100.0	0.85	93.9	3.1
	LES225YMF4P	68.0	2592	250.0	122.0	0.85	94.2	3.0
250	LES250MD4P	82.5	2596	303.0	147.0	0.86	94.6	3.3
6-pole, 1740 rpm								
71	LE71ZMK6P	0.31	1645	1.8	0.98	0.62	73.9	2.4
	LE71YMS6P	0.44	1635	2.55	1.28	0.64	77.8	2.7
80	LE80MK6P	0.64	1685	3.65	1.91	0.6	80.7	2.8
	LE80ZMQ6P	0.96	1685	5.4	2.75	0.61	83	2.9
90	LE90SQ6P	1.31	1690	7.4	3.4	0.66	84.9	2.7
100	LE100ZLSA6P	1.91	1720	10.6	4.5	0.69	88.5	3.0
112	LE112ZMKA6P	2.6	1715	14.5	5.8	0.73	89.5	2.8
132	LE132SQA6P	3.85	1715	21.5	8.97	0.74	84.3	3.1
	LE132SQB6P	5.2	1715	29	12.2	0.72	85.6	3.3
	LE132MJ6P	7	1715	39	16.2	0.72	86.8	3.0
	LE132ZMS6P	9.6	1715	53	22.3	0.71	88.0	3.5
160	LE160MW6P	13	1725	72	26.0	0.81	89.1	3.2
	LE160ZLW6P	19.1	1720	106	38.8	0.79	90.3	2.8
180	LES180LJ6P	26	1715	145	51.8	0.78	92.7	2.8
200	LES200LM6P	32	1720	178	62.1	0.79	93.4	2.6
	LES200ZLS6P	38.5	1715	215	75.9	0.78	93.6	2.6

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Frame size	Motor	L_{pfA}	L_{WA}	J_{mot}	m_{mot}	9th to 12th position of the Article No.							Additional identification code **-Z** with order code	
		dB (A)	dB (A)	10^{-4} kgm^2	kg	2KJ3... - .	■	■	■	■	-	**-Z**	No. poles	Power
87 Hz power														
4-pole, 2610 rpm														
63	LE63ZMH4P	O. R.	O. R.	4.3	4	2KJ3... - .	**B**	**D**	**2**	**3**	-		**–**	**P91**
	LE63ZMK4P	O. R.	O. R.	4.7	5	2KJ3... - .	**B**	**E**	**2**	**3**	-		**–**	**P91**
71	LE71ZMK4P	O. R.	O. R.	9.1	5	2KJ3... - .	**C**	**C**	**2**	**3**	-		**–**	**P91**
	LE71YMS4P	O. R.	O. R.	13	6	2KJ3... - .	**C**	**E**	**2**	**3**	-		**–**	**P91**
80	LE80MH4P	O. R.	O. R.	21	9	2KJ3... - .	**D**	**C**	**2**	**3**	-		**–**	**P91**
	LE80ZMQ4P	O. R.	O. R.	29	10	2KJ3... - .	**D**	**F**	**2**	**3**	-		**–**	**P91**
90	LE90SM4P	O. R.	O. R.	36	12	2KJ3... - .	**E**	**K**	**2**	**3**	-		**–**	**P91**
	LE90ZLR4P	O. R.	O. R.	49	15	2KJ3... - .	**E**	**M**	**2**	**3**	-		**–**	**P91**
100	LE100ZLSA4P	O. R.	O. R.	110	25	2KJ3... - .	**F**	**N**	**2**	**3**	-		**–**	**P91**
	LE100ZLSB4P	O. R.	O. R.	110	26	2KJ3... - .	**F**	**P**	**2**	**3**	-		**–**	**P91**
112	LE112ZMKB4P	O. R.	O. R.	170	29	2KJ3... - .	**G**	**J**	**2**	**3**	-		**–**	**P91**
132	LE132ZST4P	O. R.	O. R.	340	57	2KJ3... - .	**H**	**J**	**2**	**3**	-		**–**	**P91**
	LE132ZMS4P	O. R.	O. R.	360	61	2KJ3... - .	**H**	**L**	**2**	**3**	-		**–**	**P91**
160	LE160MPA4P	O. R.	O. R.	620	73	2KJ3... - .	**J**	**Q**	**2**	**3**	-		**–**	**P91**
	LE160MPB4P	O. R.	O. R.	620	73	2KJ3... - .	**J**	**R**	**2**	**3**	-		**–**	**P91**
	LE160ZLL4P	O. R.	O. R.	850	90	2KJ3... - .	**J**	**U**	**2**	**3**	-		**–**	**P91**
180	LES180MQ4P	O. R.	O. R.	1300	165	2KJ3... - .	**K**	**L**	**3**	**3**	-		**–**	**P91**
	LES180ZLN4P	O. R.	O. R.	1531	170	2KJ3... - .	**K**	**N**	**3**	**3**	-		**–**	**P91**
200	LES200ZLU4P	O. R.	O. R.	2400	240	2KJ3... - .	**L**	**N**	**3**	**3**	-		**–**	**P91**
225	LES225SD4P	O. R.	O. R.	4200	285	2KJ3... - .	**M**	**F**	**3**	**3**	-		**–**	**P91**
	LES225YMF4P	O. R.	O. R.	4700	320	2KJ3... - .	**M**	**T**	**3**	**3**	-		**–**	**P91**
250	LES250MD4P	O. R.	O. R.	8500	420	2KJ3... - .	**N**	**M**	**3**	**3**	-		**–**	**P91**
6-pole, 1740 rpm														
71	LE71ZMK6P	O. R.	O. R.	10	7	2KJ3... - .	**C**	**C**	**2**	**3**	-		**P01**	**P91**
	LE71YMS6P	O. R.	O. R.	14	9	2KJ3... - .	**C**	**E**	**2**	**3**	-		**P01**	**P91**
80	LE80MK6P	O. R.	O. R.	24	12	2KJ3... - .	**D**	**E**	**2**	**3**	-		**P01**	**P91**
	LE80ZMQ6P	O. R.	O. R.	30	13	2KJ3... - .	**D**	**F**	**2**	**3**	-		**P01**	**P91**
90	LE90SQ6P	O. R.	O. R.	40	15	2KJ3... - .	**E**	**C**	**2**	**3**	-		**P01**	**P91**
100	LE100ZLSA6P	O. R.	O. R.	48	18	2KJ3... - .	**F**	**N**	**2**	**3**	-		**P01**	**P91**
112	LE112ZMKA6P	O. R.	O. R.	110	29	2KJ3... - .	**G**	**H**	**2**	**3**	-		**P01**	**P91**
132	LE132SQA6P	O. R.	O. R.	170	29	2KJ3... - .	**H**	**G**	**2**	**3**	-		**P01**	**P91**
	LE132SQB6P	O. R.	O. R.	290	36	2KJ3... - .	**H**	**H**	**2**	**3**	-		**P01**	**P91**
	LE132MJ6P	O. R.	O. R.	370	45	2KJ3... - .	**H**	**K**	**2**	**3**	-		**P01**	**P91**
	LE132ZMS6P	O. R.	O. R.	460	45	2KJ3... - .	**H**	**L**	**2**	**3**	-		**P01**	**P91**
160	LE160MW6P	O. R.	O. R.	980	83	2KJ3... - .	**J**	**J**	**2**	**3**	-		**P01**	**P91**
	LE160ZLW6P	O. R.	O. R.	1200	105	2KJ3... - .	**J**	**V**	**2**	**3**	-		**P01**	**P91**
180	LES180LJ6P	O. R.	O. R.	1900	180	2KJ3... - .	**K**	**M**	**3**	**3**	-		**P01**	**P91**
200	LES200LM6P	O. R.	O. R.	2800	215	2KJ3... - .	**L**	**L**	**3**	**3**	-		**P01**	**P91**
	LES200ZLS6P	O. R.	O. R.	3200	230	2KJ3... - .	**L**	**M**	**3**	**3**	-		**P01**	**P91**

O. R. On request

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N 50 Hz: 400 V 60 Hz: 460 V	cos φ	η			Efficiency class	I_{St}/I_N	T_{St}/T_N	T_{Bk}/T_N
							4/4 load	3/4 load	2/4 load	acc. to IEC			
		kW	rpm	Nm	A	–	%	%	%	60034-30	–	–	–
50 Hz power													
4-pole, 1500 rpm													
63	LE63MEB4E [1]	0.12	1390	0.82	0.44	0.66	59.1	56.4	49.0	IE2	3.1	2.4	2.5
	LE63ZMH4E [1]	0.18	1385	1.24	0.62	0.65	64.7	62.4	55.7	IE2	3.3	2.6	2.6
71	LE71MG4E [1]	0.25	1395	1.71	0.76	0.69	68.5	68.4	64.2	IE2	3.7	2.4	2.5
	LE71ZMK4E [1]	0.37	1380	2.55	1.02	0.72	72.7	73.2	69.9	IE2	4.0	2.5	2.5
80	LE80MD4E	0.55	1440	3.65	1.39	0.74	77.1	76.8	73.7	IE2	5.3	2.2	3.1
2-pole, 3000 rpm													
63	LE63MEB2E [1]	0.18	2850	0.60	0.55	0.78	60.4	59.4	53.7	IE2	4.5	2.2	2.7
	LE63ZMH2E [1]	0.25	2835	0.84	0.69	0.81	64.8	63.5	57.3	IE2	4.1	1.9	2.5
71	LE71ME2E [1]	0.37	2770	1.28	0.95	0.81	69.5	70.5	67.9	IE2	4.1	2.5	2.5
	LE71ZMH2E [1]	0.55	2780	1.89	1.34	0.80	74.1	75.2	72.9	IE2	4.6	2.6	2.6
6-pole, 1000 rpm													
71	LE71MG6E [1]	0.18	875	1.96	0.68	0.68	56.6	56.9	52.7	IE2	2.5	2.2	2.3
	LE71ZMK6E [1]	0.25	870	2.75	0.84	0.70	61.6	62.7	59.2	IE2	2.6	2.3	2.3
80	LE80MD6E	0.37	925	3.82	1.08	0.69	71.4	71.5	64.4	IE2	4.0	2.10	2.40
	LE80MK6E	0.55	935	5.62	1.63	0.66	74.0	74.0	70.8	IE2	4.4	2.50	2.90
60 Hz, 50 Hz power													
4-pole, 1800 rpm													
63	LE63MEB4E [1]	0.12	1710	0.67	0.39	0.60	64.0	60.3	52.2	IE2	3.7	2.9	3.2
	LE63ZMH4E [1]	0.18	1710	1.01	0.56	0.59	68.0	64.4	57.3	IE2	3.9	3.3	3.4
71	LE71MG4E [1]	0.25	1715	1.39	0.70	0.64	70.0	68.5	63.6	IE2	4.4	2.8	3.1
	LE71ZMK4E [1]	0.37	1705	2.05	0.96	0.67	72.0	71.2	66.9	IE2	5.0	3.0	3.2
80	LE80MD4E	0.55	1750	3.00	1.29	0.71	75.5	74.6	71.1	IE2	6.4	2.7	3.8
2-pole, 3600 rpm													
63	LE63MEB2E [1]	0.18	3475	0.49	0.49	0.72	64.0	60.8	54.6	IE2	5.3	2.7	3.6
	LE63ZMH2E [1]	0.25	3465	0.69	0.61	0.76	68.0	65.2	58.0	IE2	5.2	2.4	3.1
71	LE71ME2E [1]	0.37	3410	1.04	0.84	0.77	72.0	71.4	67.8	IE2	5.1	2.9	3.0
	LE71ZMH2E [1]	0.55	3420	1.54	1.23	0.76	74.0	73.4	69.6	IE2	5.4	3.4	3.4
6-pole, 1200 rpm													
71	LE71MG6E [1]	0.18	1105	1.56	0.67	0.61	55.0	53.6	48.8	IE2	2.7	2.9	2.9
	LE71ZMK6E [1]	0.25	1100	2.40	0.82	0.64	59.5	58.9	54.7	IE2	3.0	2.7	2.7
80	LE80MD6E	0.37	1140	3.10	0.98	0.63	75.3	74.1	61.3	IE2	4.6	2.30	2.90
	LE80MK6E	0.55	1135	4.63	1.47	0.61	77.0	77.5	65.8	IE2	5.2	2.90	3.60
60 Hz, 60 Hz power													
4-pole, 1800 rpm													
63	LE63MEB4E [1]	0.14	1685	0.79	0.42	0.66	64.0	61.4	54.8	IE2	3.5	2.4	2.7
	LE63ZMH4E [1]	0.21	1685	1.19	0.60	0.65	68.0	65.8	59.7	IE2	3.8	2.8	2.9
71	LE71MG4E [1]	0.29	1695	1.63	0.75	0.69	70.0	69.7	65.9	IE2	4.1	2.4	2.6
	LE71ZMK4E [1]	0.43	1680	2.45	1.04	0.72	72.0	72.4	69.4	IE2	4.5	2.4	2.4
80	LE80MD4E	0.63	1735	3.45	1.42	0.74	75.5	75.8	73.5	IE2	5.7	2.4	3.3
2-pole, 3600 rpm													
63	LE63MEB2E [1]	0.21	3450	0.58	0.53	0.78	64.0	62.0	57.0	IE2	4.9	2.3	3.1
	LE63ZMH2E [1]	0.29	3435	0.81	0.66	0.81	68.0	66.1	60.7	IE2	4.8	2.0	2.7
71	LE71ME2E [1]	0.43	3370	1.22	0.93	0.81	72.0	72.5	69.9	IE2	4.6	2.5	2.5
	LE71ZMH2E [1]	0.63	3380	1.78	1.34	0.80	74.0	74.4	71.8	IE2	5.1	2.9	2.9
6-pole, 1200 rpm													
71	LE71MG6E [1]	0.21	1075	1.87	0.72	0.67	55.0	54.9	51.2	IE2	2.5	2.4	2.4
	LE71ZMK6E [1]	0.29	1070	2.60	0.87	0.70	59.5	60.1	57.0	IE2	2.8	2.3	2.3
80	LE80MD6E	0.43	1125	3.65	1.04	0.69	75.3	75.3	59.1	IE2	4.2	2.1	2.6
	LE80MK6E	0.63	1135	5.30	1.56	0.66	77.0	77.5	63.7	IE2	4.8	2.6	3.1

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Frame size	Motor	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.		Additional identification code **-Z** with order code
		–	dB (A)	dB (A)	1/h	10^{-4} kgm^2	kg	2KJ3... - . ■ ■ ■ ■ - .... **-Z**		No. of poles
50 Hz power										
4-pole, 1500 rpm										
63	LE63MEB4E [1]	2.6	50	58	20000	3.7	4	2KJ3... - .	**B C 2 2** -	**–**
	LE63ZMH4E [1]	2.9	57	64	15000	4.5	4	2KJ3... - .	**B D 2 2** -	**–**
71	LE71MG4E [1]	2.6	50	61	10000	7.6	6	2KJ3... - .	**C C 2 2** -	**–**
	LE71ZMK4E [1]	2.8	59	67	10000	9.5	7	2KJ3... - .	**C E 2 2** -	**–**
80	LE80MD4E	2.4	53	64	9000	17	9.3	2KJ3... - .	**D C 2 2** -	**–**
2-pole, 3000 rpm										
63	LE63MEB2E [1]	2.4	57	64	7000	2.2	4	2KJ3... - .	**B C 2 2** -	**P00**
	LE63ZMH2E [1]	2.1	57	64	7000	2.6	5	2KJ3... - .	**B D 2 2** -	**P00**
71	LE71ME2E [1]	2.8	58	69	7000	3.5	6	2KJ3... - .	**C C 2 2** -	**P00**
	LE71ZMH2E [1]	2.9	58	69	7000	4.5	7	2KJ3... - .	**C D 2 2** -	**P00**
6-pole, 1000 rpm										
71	LE71MG6E [1]	2.4	46	57	15000	8	6	2KJ3... - .	**C C 2 2** -	**P01**
	LE71ZMK6E [1]	2.5	46	57	15000	10	7	2KJ3... - .	**C E 2 2** -	**P01**
80	LE80MD6E	2.17	42	53	12000	17	8.3	2KJ3... - .	**D C 2 2** -	**P01**
	LE80MK6E	2.63	42	53	12000	25	11.3	2KJ3... - .	**D F 2 2** -	**P01**
60 Hz, 50 Hz power										
4-pole, 1800 rpm										
63	LE63MEB4E [1]	3.2	O. R.	O. R.	6600	3.7	4	2KJ3... - .	**B C 2 2** -	**–**
	LE63ZMH4E [1]	3.6	O. R.	O. R.	7200	4.5	4	2KJ3... - .	**B D 2 2** -	**–**
71	LE71MG4E [1]	3.1	O. R.	O. R.	20700	7.6	6	2KJ3... - .	**C C 2 2** -	**–**
	LE71ZMK4E [1]	3.3	O. R.	O. R.	18000	9.5	7	2KJ3... - .	**C E 2 2** -	**–**
80	LE80MD4E	3.0	O. R.	O. R.	7000	17	9.3	2KJ3... - .	**D C 2 2** -	**–**
2-pole, 3600 rpm										
63	LE63MEB2E [1]	3.0	O. R.	O. R.	2175	2.2	4	2KJ3... - .	**B C 2 2** -	**P00**
	LE63ZMH2E [1]	2.6	O. R.	O. R.	3000	2.6	5	2KJ3... - .	**B D 2 2** -	**P00**
71	LE71ME2E [1]	3.2	O. R.	O. R.	12000	3.5	6	2KJ3... - .	**C B 2 2** -	**P00**
	LE71ZMH2E [1]	3.7	O. R.	O. R.	12000	4.5	7	2KJ3... - .	**C D 2 2** -	**P00**
6-pole, 1200 rpm										
71	LE71MG6E [1]	3.2	O. R.	O. R.	O. R.	8	6	2KJ3... - .	**C C 2 2** -	**P01**
	LE71ZMK6E [1]	3.0	O. R.	O. R.	O. R.	10	7	2KJ3... - .	**C E 2 2** -	**P01**
80	LE80MD6E	2.5	45	56	8400	17	8.3	2KJ3... - .	**D C 2 2** -	**P01**
	LE80MK6E	3.13	45	56	8400	25	11.3	2KJ3... - .	**D F 2 2** -	**P01**
60 Hz, 60 Hz power										
4-pole, 1800 rpm										
63	LE63MEB4E [1]	2.6	54	61	6060	3.7	4	2KJ3... - .	**B C 2 2** -	**–**
	LE63ZMH4E [1]	3.1	62	69	7200	4.5	4	2KJ3... - .	**B D 2 2** -	**–**
71	LE71MG4E [1]	2.6	53	64	20700	7.6	6	2KJ3... - .	**C C 2 2** -	**–**
	LE71ZMK4E [1]	2.6	53	64	18000	9.5	7	2KJ3... - .	**C E 2 2** -	**–**
80	LE80MD4E	2.6	55	66	7000	17	9.3	2KJ3... - .	**D C 2 2** -	**–**
2-pole, 3600 rpm										
63	LE63MEB2E [1]	2.5	60	67	2175	2.2	4	2KJ3... - .	**B C 2 2** -	**P00**
	LE63ZMH2E [1]	2.2	57	64	3000	2.6	5	2KJ3... - .	**B D 2 2** -	**P00**
71	LE71ME2E [1]	2.8	63	74	12000	3.5	6	2KJ3... - .	**C B 2 2** -	**P00**
	LE71ZMH2E [1]	3.2	63	74	12000	4.5	7	2KJ3... - .	**C D 2 2** -	**P00**
6-pole, 1200 rpm										
71	LE71MG6E [1]	2.6	49	60	O. R.	8	6	2KJ3... - .	**C C 2 2** -	**P01**
	LE71ZMK6E [1]	2.5	49	60	O. R.	10	7	2KJ3... - .	**C E 2 2** -	**P01**
80	LE80MD6E	2.23	45	56	8400	17	8.3	2KJ3... - .	**D C 2 2** -	**P01**
	LE80MK6E	2.73	45	56	8400	25	11.3	2KJ3... - .	**D F 2 2** -	**P01**

O. R. On request

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η	T_{Bk}/T_N
					87 Hz: 400 V		4/4 load	
		kW	rpm	Nm	A	–	%	–
87 Hz power, duty type S9								
4-pole, 1500 rpm								
63	LE63MEB4E [1]	0.21	2510	0.80	0.73	0.59	70.0	2.5
	LE63ZMH4E [1]	0.31	2515	1.18	1.04	0.57	73.6	2.7
71	LE71MG4E [1]	0.44	2515	1.67	1.29	0.60	76.8	2.6
	LE71ZMK4E [1]	0.64	2495	2.45	1.90	0.67	72.7	2.5
80	LE80MD4E	0.96	2550	3.60	2.40	0.70	82.1	3.1
6-pole, 1000 rpm								
71	LE71MG6E [1]	0.31	1645	1.80	1.03	0.60	72.7	2.4
	LE71ZMK6E [1]	0.44	1635	2.55	1.34	0.63	75.3	2.4
80	LE80MD6E	0.65	1675	3.71	1.85	0.63	78.9	2.5
	LE80MK6E	0.95	1675	5.42	2.75	0.61	81.2	3.0

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Frame size	Motor	L_{pfA}	L_{WA}	J_{mot}	m_{mot}	9th to 12th position of the Article No.					Additional identification code **-Z** with order code	
		dB (A)	dB (A)	10^{-4} kgm^2	kg	2KJ3... - .	■	■	■	- .... **-Z**	No. poles	Power
87 Hz power, duty type S9												
4-pole, 1500 rpm												
63	LE63MEB4E [1]	O. R.	O. R.	3.7	4	2KJ3... - .	**B**	**C**	**2**	**2** -	**–**	**P91**
	LE63ZMH4E [1]	O. R.	O. R.	4.5	5	2KJ3... - .	**B**	**D**	**2**	**2** -	**–**	**P91**
71	LE71MG4E [1]	O. R.	O. R.	7.6	6	2KJ3... - .	**C**	**C**	**2**	**2** -	**–**	**P91**
	LE71ZMK4E [1]	O. R.	O. R.	9.5	7	2KJ3... - .	**C**	**E**	**2**	**2** -	**–**	**P91**
80	LE80MD4E	O. R.	O. R.	17	9.3	2KJ3... - .	**D**	**C**	**2**	**2** -	**–**	**P91**
6-pole, 1000 rpm												
71	LE71MG6E [1]	O. R.	O. R.	8	6	2KJ3... - .	**C**	**C**	**2**	**2** -	**P01**	**P91**
	LE71ZMK6E [1]	O. R.	O. R.	10	7	2KJ3... - .	**C**	**E**	**2**	**2** -	**P01**	**P91**
80	LE80MD6E	O. R.	O. R.	17	8.3	2KJ3... - .	**D**	**C**	**2**	**2** -	**P01**	**P91**
	LE80MK6E	O. R.	O. R.	25	11.3	2KJ3... - .	**D**	**F**	**2**	**2** -	**P01**	**P91**

O. R. On request

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N 50/87 Hz: 400 V 60 Hz: 460 V	cos φ	η 4/4 load	3/4 load	2/4 load	Efficiency class acc. to IEC 60034-30	I_{St}/I_N	T_{St}/T_N	T_{Bk}/T_N
		kW	rpm	Nm	A	–	%	%	%		–	–	–
50 Hz power													
4-pole, 1500 rpm													
63	LE63MCA4	0.09	1410	0.61	0.48	0.57	47.0	41.3	31.4	IE1	2.5	2.4	2.9
6-pole, 1000 rpm													
63	LE63MEB6 [1]	0.09	895	0.96	0.48	0.63	42.7	38.5	30.4	–	2.0	1.8	1.9
8-pole, 750 rpm													
71	LE71MC8	0.09	635	1.40	0.53	0.63	39.0	35.7	28.6	–	1.8	1.8	2.0
60 Hz, 50 Hz power													
4-pole, 1800 rpm													
63	LE63MCA4	0.09	1720	0.61	0.40	0.53	53.1	47.0	37.1	–	3.0	2.8	3.4
6-pole, 1200 rpm													
63	LE63MEB6 [1]	0.09	1115	0.77	0.43	0.56	46.4	41.6	33.4	–	2.3	2.0	2.2
8-pole, 900 rpm													
71	LE71MC8	0.09	790	1.10	0.42	0.59	45.0	40.1	31.8	–	2.0	2.2	2.3
60 Hz, 60 Hz power													
4-pole, 1800 rpm													
63	LE63MCA4	0.11	1705	0.62	0.46	0.57	52.7	47.6	38.7	IE1	2.8	2.5	3.1
6-pole, 1200 rpm													
63	LE63MEB6 [1]	0.11	1095	0.96	0.49	0.60	46.6	42.6	35.0	–	2.2	1.8	2.0
8-pole, 900 rpm													
71	LE71MC8	0.11	790	1.30	0.52	0.59	45.0	40.9	32.9	–	2.0	1.9	2.0
87 Hz power													
4-pole, 2610 rpm													
63	LE63MCA4	0.16	2530	0.60	0.81	0.51	53.6	–	–	–	–	–	2.9
8-pole, 1305 rpm													
71	LE71MC8	0.15	1115	1.30	0.86	0.47	48.6	–	–	–	–	–	2.1

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Frame size	Motor	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.		Additional identification code **-Z** with order code	
		–	dB (A)	dB (A)	1/h	10^{-4} kgm^2	kg	2KJ3... - .	■ ■ ■ ■ - .... **-Z**	No. poles	Power
50 Hz power											
4-pole, 1500 rpm											
63	LE63MCA4	2.6	54	61	20000	2.9	4	2KJ3... - .	**B B 2 1** -	**–**	**–**
6-pole, 1000 rpm											
63	LE63MEB6 [1]	2.0	56	62	15000	3.7	4	2KJ3... - .	**B D 2 1** -	**P01**	**–**
8-pole, 750 rpm											
71	LE71MC8	2.0	49	56	O. R.	5.5	5	2KJ3... - .	**C B 2 1** -	**P02**	**–**
60 Hz, 50 Hz power											
4-pole, 1800 rpm											
63	LE63MCA4	3.1	54	61	15000	2.9	4	2KJ3... - .	**B B 2 1** -	**–**	**–**
6-pole, 1200 rpm											
63	LE63MEB6 [1]	2.2	O. R.	O. R.	10500	3.7	4	2KJ3... - .	**B D 2 1** -	**P01**	**–**
8-pole, 900 rpm											
71	LE71MC8	2.4	O. R.	O. R.	O. R.	5.5	5	2KJ3... - .	**C B 2 1** -	**P02**	**–**
60 Hz, 60 Hz power											
4-pole, 1800 rpm											
63	LE63MCA4	2.8	55	62	15000	2.9	4	2KJ3... - .	**B B 2 1** -	**–**	**–**
6-pole, 1200 rpm											
63	LE63MEB6 [1]	2.0	57	64	10500	3.7	4	2KJ3... - .	**B D 2 1** -	**P01**	**–**
8-pole, 900 rpm											
71	LE71MC8	2.1	54	61	O. R.	5.5	5	2KJ3... - .	**C B 2 1** -	**P02**	**–**
87 Hz power											
4-pole, 2610 rpm											
63	LE63MCA4	–	O. R.	O. R.	–	O. R.	4	2KJ3... - .	**B B 2 1** -	**–**	**P91**
8-pole, 1305 rpm											
71	LE71MC8	–	O. R.	O. R.	–	5.5	5	2KJ3... - .	**C B 2 1** -	**P02**	**P92**

O. R. On request

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Selection and ordering data

Frame size	Motor	P_N	n_N	T_N	I_N	cos φ	η			I_{St}/I_N
					50 Hz 400 V		4/4 load	3/4 load	2/4 load	
		kW	rpm	Nm	A	–	%	%	%	–
50 Hz power										
4-pole, 1500 rpm										
71	MB71MG4E	0.25	1395	1.71	0.76	0.69	68.5	68.4	64.2	3.7
	MB71ZMK4E	0.37	1380	2.55	1.02	0.72	72.7	73.2	69.9	3.8
80	MB80MH4P	0.55	1440	3.6	1.26	0.78	80.8	81.1	79.3	5.9
	MB80ZMQ4P	0.75	1450	4.9	1.75	0.75	82.5	82.3	79.9	7.1
90	MB90SM4P	1.1	1440	7.3	2.40	0.78	84.1	84.7	83.4	6.9
	MB90ZLR4P	1.5	1445	9.9	3.15	0.80	85.3	86.0	85.2	7.3
100	MB100ZLSA4P	2.2	1455	14.4	4.45	0.82	86.7	87.2	86.3	8.3
	MB100ZLSB4P	3	1450	19.8	6.2	0.80	87.7	88.1	87.1	8.0
112	MB112ZMKB4P	4	1460	26	7.90	0.82	88.6	89.2	88.6	7.1
132	MB132ZST4P	5.5	1470	36	10.8	0.82	89.6	90.0	89.4	8.6
	MB132ZMS4P	7.5	1465	49	15.0	0.80	90.4	90.7	90.4	8.5
160	MB160MPB4P	11	1470	71	21.0	0.82	91.4	91.9	91.9	8.0
	MB160ZLL4P	15	1475	97	28.5	0.82	92.1	92.3	91.5	8.5
180	MBS180MQ4P	18.5	1470	120	35.0	0.82	92.6	93.1	93.0	7.2
	MBS180ZLN4P	22	1470	143	41.0	0.83	93.0	93.6	93.6	6.8

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Frame size	Motor	T_{St}/T_N	T_{BK}/T_N	L_{pfA}	L_{WA}	J_{mot}	m_{mot}	9th to 12th position of the Article No.					Additional identification code **-Z** with order code	
		–	–	dB (A)	dB (A)	10^{-4} kgm^2	kg	2KJ3... - .	■	■	■	■	- .... **-Z**	Zone 2[1]	Zone 22[1]
50 Hz power														
4-pole, 1500 rpm														
71	MB71MG4E	2.4	2.5	50	61	7.6	6	2KJ3... - .	**C**	**C**	**7**	**2**	-	**K72**	**K74**
	MB71ZMK4E	2.3	2.4	50	61	9.5	7	2KJ3... - .	**C**	**E**	**7**	**2**	-	**K72**	**K74**
80	MB80MH4P	2.1	3.1	53	64	21	11	2KJ3... - .	**D**	**C**	**7**	**3**	-	**K72**	**K74**
	MB80ZMQ4P	2.7	3.9	53	64	29	14	2KJ3... - .	**D**	**F**	**7**	**3**	-	**K72**	**K74**
90	MB90SM4P	2.9	3.6	56	68	36	16	2KJ3... - .	**E**	**K**	**7**	**3**	-	**K72**	**K74**
	MB90ZLR4P	2.9	3.5	60	68	49	19	2KJ3... - .	**E**	**M**	**7**	**3**	-	**K72**	**K74**
100	MB100ZLSA4P	3.0	3.8	67	75	110	25	2KJ3... - .	**F**	**N**	**7**	**3**	-	**K72**	**K74**
	MB100ZLSB4P	3.1	3.8	67	75	110	25	2KJ3... - .	**F**	**P**	**7**	**3**	-	**K72**	**K74**
112	MB112ZMKB4P	2.4	3.7	58	70	170	34	2KJ3... - .	**G**	**J**	**7**	**3**	-	**K72**	**K74**
132	MB132ZST4P	2.9	3.7	64	76	460	64	2KJ3... - .	**H**	**J**	**7**	**3**	-	**K72**	**K74**
	MB132ZMS4P	3.0	3.8	72	80	360	61	2KJ3... - .	**H**	**L**	**7**	**3**	-	**K72**	**K74**
160	MB160MPB4P	2.5	3.5	67	75	620	73	2KJ3... - .	**J**	**R**	**7**	**3**	-	**K72**	**K74**
	MB160ZLL4P	2.5	3.8	65	77	990	100	2KJ3... - .	**J**	**U**	**7**	**3**	-	**K72**	**K74**
180	MBS180MQ4P	2.5	3.3	66	73	1300	165	2KJ3... - .	**K**	**L**	**7**	**3**	-	**K72**	**K74**
	MBS180ZLN4P	2.3	3.3	68	75	1400	170	2KJ3... - .	**K**	**N**	**7**	**3**	-	**K72**	**K74**

[1] Additional ordering data and notes relating to explosion-protected geared motors are listed in table "Designs for Innomotics SG explosion-protected geared motors in Zone 2 and Zone 22" on page 2/35.

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NEMA Premium Efficient motors MG1, Table 12-12

Selection and ordering data

Frame size	Motor	P_N		n_N	T_N	EISA	I_N	cos φ	η			I_{St}/I_N	T_{St}/T_N
						CC no.	460 V		4/4 load	3/4 load	2/4 load		
		kW	hp	rpm	Nm	CC032A	A	–	%	%	%	–	–
60 Hz, 50 Hz power													
4-pole, 1800 rpm													
63	LE63MCA4	0.09	0.12	1720	0.50	–	0.40	0.53	53.1	47.0	37.1	3.0	2.8
	LE63MEB4E [1]	0.12	0.17	1710	0.67	–	0.39	0.60	64.0	60.3	52.2	3.7	2.9
	LE63ZMH4E [1]	0.18	0.25	1710	1.01	–	0.56	0.59	68.0	64.4	57.3	3.9	3.3
71	LE71MG4E [1]	0.25	0.33	1715	1.39	–	0.70	0.64	70.0	68.5	63.6	4.4	2.8
	LE71ZMK4E [1]	0.37	0.50	1705	2.05	–	0.96	0.67	72.0	71.2	66.9	4.4	2.8
80	LE80MH4P	0.55	0.75	1750	3.00	–	1.15	0.74	81.1	80.9	78.6	6.9	2.7
	LE80ZMQ4P	0.75	1	1760	4.05	✓	1.59	0.71	83.5	82.6	79.7	8.3	3.1
90	LE90SM4P	1.1	1.5	1750	6.00	✓	2.15	0.75	86.5	86.4	84.2	8.2	3.4
	LE90ZLR4P	1.5	2	1755	8.20	✓	2.85	0.77	86.5	86.2	84.5	8.6	3.4
100	LE100ZLSA4P	2.2	3	1760	11.9	✓	3.85	0.80	89.5	89.5	88.0	9.9	3.5
	LE100ZLSB4P	3	4	1760	16.3	✓	5.4	0.78	89.5	89.4	88.0	9.9	3.5
112	LE112ZMKB4P	3.7	5	1770	20.0	✓	6.5	0.80	89.5	89.4	87.7	8.2	2.9
132	LE132ZST4P	5.5	7.5	1775	29.5	✓	9.3	0.81	91.7	91.6	90.5	10.0	3.1
	LE132ZMS4P	7.5	10	1770	40.5	✓	13.0	0.79	91.7	91.6	90.6	9.8	3.4
160	LE160MPA4P	9.2	12.3	1775	49.5	✓	15.4	0.82	91.7	92.7	91.5	9.3	3.4
	LE160MPB4P	11	15	1775	59.0	✓	18.4	0.81	92.4	92.6	92.0	9.0	3.8
	LE160ZLL4P	15	20	1780	80.0	✓	25.0	0.81	93.0	92.8	91.4	9.5	2.9
180	LES180MQ4P	18.5	25	1775	100.0	✓	30.5	0.81	93.6	93.7	93.1	7.8	2.7
	LES180ZLN4P	22	30	1775	118.0	✓	36.5	0.81	93.6	93.8	93.3	7.7	2.8
200	LES200ZLU4P	30	40	1778	161.0	✓	48.0	0.83	94.1	94.2	93.6	8.8	2.6
225	LES225SD4P	37	50	1782	198.0	✓	58.0	0.85	94.5	94.7	94.2	7.5	2.8
	LES225YMF4P	45	60	1782	240.0	✓	70.0	0.85	95.0	95.3	95.1	7.7	3.0
250	LES250MD4P	55	75	1786	294.0	✓	84.0	0.86	95.4	95.6	95.1	7.6	2.8
2-pole, 3600 rpm													
63	LE63MEB2E [1]	0.18	0.25	3475	0.49	–	0.49	0.72	64.0	60.8	54.6	5.3	2.7
	LE63ZMH2E [1]	0.25	0.33	3465	0.69	–	0.61	0.76	68.0	65.2	58	5.2	2.4
71	LE71ME2E [1]	0.37	0.50	3410	1.04	–	0.84	0.77	72.0	71.4	67.8	5.1	2.9
	LE71ZMH2E [1]	0.55	0.75	3420	1.54	–	1.23	0.76	74.0	73.4	69.6	5.4	3.4
80	LE80ME2P	0.75	1	3480	2.05	✓	1.45	0.84	77.0	77.2	75.7	7.1	3.0
	LE80ZMJ2P	1.1	1.5	3500	3.0	✓	1.98	0.83	84.0	84.0	82.0	8.4	3.3
90	LE90SM2P	1.5	2	3525	4.05	✓	2.60	0.84	85.5	84.8	82.3	9.8	3.1
	LE90ZLR2P	2.2	3	3530	6.0	✓	3.65	0.87	86.5	86.4	84.5	9.6	3.0
100	LE100ZLLA2P	3	4	3525	8.1	✓	5	0.85	88.5	88.2	86.7	11.2	4.6
112	LE112ZMH2P	3.7	5	3555	9.9	✓	6	0.87	88.5	88.4	86.7	11.8	3.3
132	LE132SH2P	5.5	7.5	3550	14.8	✓	8.9	0.87	89.5	89.0	87.0	11.1	3
	LE132ZSQB2P	7.5	10	3555	20.0	✓	11.5	0.91	90.2	90.5	90.0	9.5	2.4
160	LE160MG2P	11	15	3555	29.5	✓	17.2	0.88	91.0	90.4	88.4	9.5	2.9
	LE160MM2P	15	20	3560	40.0	✓	24.0	0.86	91.0	90.4	88.5	11.8	4
	LE160ZLJ2P	18.5	25	3560	49.5	✓	28.0	0.90	91.7	91.5	90.3	9.4	3.1

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Frame size	Motor	T_{Bk}/T_N	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.					Additional identification code **-Z** with order code	
														No. of poles	Specification
		–	–	dB (A)	dB (A)	1/h	10^{-4} kgm²	kg	2KJ3... - .	■	■	■	■ -	**-Z**	UL-R/CSA
60 Hz, 50 Hz power															
4-pole, 1800 rpm															
63	LE63MCA4	3.4	3.1	O. R.	O. R.	O. R.	2.9	4	2KJ3... - .	**B**	**B**	**2**	**1** -	**–**	**N38**
	LE63MEB4E [1]	3.2	3.2	O. R.	O. R.	O. R.	3.7	4	2KJ3... - .	**B**	**C**	**2**	**2** -	**–**	**N38**
	LE63ZMH4E [1]	3.4	3.6	O. R.	O. R.	O. R.	4.5	5	2KJ3... - .	**B**	**D**	**2**	**2** -	**–**	**N38**
71	LE71MG4E [1]	3.1	3.1	O. R.	O. R.	O. R.	7.6	6	2KJ3... - .	**C**	**C**	**2**	**2** -	**–**	**N38**
	LE71ZMK4E [1]	2.8	3.1	O. R.	O. R.	O. R.	9.5	7	2KJ3... - .	**C**	**E**	**2**	**2** -	**–**	**N38**
80	LE80MH4P	3.8	3.0	O. R.	O. R.	O. R.	21	9	2KJ3... - .	**D**	**C**	**2**	**3** -	**–**	**N38**
	LE80ZMQ4P	4.7	3.4	O. R.	O. R.	O. R.	39	10	2KJ3... - .	**D**	**F**	**2**	**3** -	**–**	**N38**
90	LE90SM4P	4.4	3.7	O. R.	O. R.	O. R.	36	12	2KJ3... - .	**E**	**K**	**2**	**3** -	**–**	**N38**
	LE90ZLR4P	4.3	3.74	O. R.	O. R.	O. R.	49	15	2KJ3... - .	**E**	**M**	**2**	**3** -	**–**	**N38**
100	LE100ZLSA4P	4.6	3.9	O. R.	O. R.	O. R.	140	29	2KJ3... - .	**F**	**N**	**2**	**3** -	**–**	**N38**
	LE100ZLSB4P	4.7	3.9	O. R.	O. R.	O. R.	140	29	2KJ3... - .	**F**	**P**	**2**	**3** -	**–**	**N38**
112	LE112ZMKB4P	4.3	3.2	O. R.	O. R.	O. R.	170	29	2KJ3... - .	**G**	**J**	**2**	**3** -	**–**	**N38**
132	LE132ZST4P	4.2	3.4	O. R.	O. R.	O. R.	340	57	2KJ3... - .	**H**	**J**	**2**	**3** -	**–**	**N38**
	LE132ZMS4P	4.3	3.7	O. R.	O. R.	O. R.	460	57	2KJ3... - .	**H**	**L**	**2**	**3** -	**–**	**N38**
160	LE160MPA4P	4.1	3.7	O. R.	O. R.	O. R.	620	73	2KJ3... - .	**J**	**Q**	**2**	**3** -	**–**	**N38**
	LE160MPB4P	4.0	4.2	O. R.	O. R.	O. R.	620	73	2KJ3... - .	**J**	**R**	**2**	**3** -	**–**	**N38**
	LE160ZLL4P	4.3	3.2	O. R.	O. R.	O. R.	850	90	2KJ3... - .	**J**	**U**	**2**	**3** -	**–**	**N38**
180	LES180MQ4P	3.6	3.0	O. R.	O. R.	O. R.	1300	165	2KJ3... - .	**K**	**L**	**3**	**3** -	**–**	**N38**
	LES180ZLN4P	3.7	3.1	O. R.	O. R.	O. R.	1531	170	2KJ3... - .	**K**	**N**	**3**	**3** -	**–**	**N38**
200	LES200ZLU4P	3.5	2.9	O. R.	O. R.	O. R.	2400	240	2KJ3... - .	**L**	**N**	**3**	**3** -	**–**	**N38**
225	LES225SD4P	3.0	3.1	66	80	O. R.	4200	285	2KJ3... - .	**M**	**F**	**3**	**3** -	**–**	**N38**
	LES225YMF4P	3.0	3.3	66	80	O. R.	4700	320	2KJ3... - .	**M**	**T**	**3**	**3** -	**–**	**N38**
250	LES250MD4P	3.2	3.1	67	81	O. R.	8500	420	2KJ3... - .	**N**	**M**	**3**	**3** -	**–**	**N38**
2-pole, 3600 rpm															
63	LE63MEB2E [1]	3.6	3.0	O. R.	O. R.	O. R.	2.2	4	2KJ3... - .	**B**	**C**	**2**	**2** -	**P00**	**N38**
	LE63ZMH2E [1]	3.1	2.6	O. R.	O. R.	O. R.	2.6	5	2KJ3... - .	**B**	**D**	**2**	**2** -	**P00**	**N38**
71	LE71ME2E [1]	3.0	3.2	O. R.	O. R.	O. R.	3.5	6	2KJ3... - .	**C**	**B**	**2**	**2** -	**P00**	**N38**
	LE71ZMH2E [1]	3.4	3.7	O. R.	O. R.	O. R.	4.5	7	2KJ3... - .	**C**	**D**	**2**	**2** -	**P00**	**N38**
80	LE80ME2P	3.6	3.3	O. R.	O. R.	O. R.	11.0	9.3	2KJ3... - .	**D**	**B**	**2**	**3** -	**P00**	**N38**
	LE80ZMJ2P	4.0	3.6	O. R.	O. R.	O. R.	13.0	10	2KJ3... - .	**D**	**M**	**2**	**3** -	**P00**	**N38**
90	LE90SM2P	4.9	3.4	O. R.	O. R.	O. R.	21.0	12	2KJ3... - .	**E**	**K**	**2**	**3** -	**P00**	**N38**
	LE90ZLR2P	4.9	3.3	O. R.	O. R.	O. R.	31.0	15	2KJ3... - .	**E**	**M**	**2**	**3** -	**P00**	**N38**
100	LE100ZLLA2P	5.6	5.1	O. R.	O. R.	O. R.	54.0	26	2KJ3... - .	**F**	**L**	**2**	**3** -	**P00**	**N38**
112	LE112ZMH2P	4.7	3.6	O. R.	O. R.	O. R.	120.0	29	2KJ3... - .	**G**	**G**	**2**	**3** -	**P00**	**N38**
132	LE132SH2P	4.6	3.3	O. R.	O. R.	O. R.	240.0	36	2KJ3... - .	**H**	**F**	**2**	**3** -	**P00**	**N38**
	LE132ZSQB2P	4.7	2.6	O. R.	O. R.	O. R.	310.0	50	2KJ3... - .	**H**	**H**	**2**	**3** -	**P00**	**N38**
160	LE160MG2P	4.0	3.2	O. R.	O. R.	O. R.	379.0	65	2KJ3... - .	**J**	**N**	**2**	**3** -	**P00**	**N38**
	LE160MM2P	5.2	4.4	O. R.	O. R.	O. R.	610.0	74	2KJ3... - .	**J**	**P**	**2**	**3** -	**P00**	**N38**
	LE160ZLJ2P	4.4	3.4	O. R.	O. R.	O. R.	680.0	84	2KJ3... - .	**J**	**T**	**2**	**3** -	**P00**	**N38**

O. R. On request

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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NEMA Premium Efficient motors MG1, Table 12-12

Selection and ordering data

Frame size	Motor	P_N		n_N	T_N	EISA	I_N	cos φ	η			I_{St}/I_N	T_{St}/T_N
						CC no.	460 V		4/4 load	3/4 load	2/4 load		
		kW	hp	rpm	Nm	CC032A	A	–	%	%	%	–	–
60 Hz, 50 Hz power													
6-pole, 1200 rpm													
63	LE63MEB6 [1]	0.09	0.12	1115	0.77	–	0.43	0.56	46.4	41.6	33.4	2.3	2.0
71	LE71MG6E [1]	0.18	0.25	1105	1.56	–	0.67	0.61	55.0	53.6	48.8	2.7	2.9
	LE71ZMK6E [1]	0.25	0.33	1100	2.40	–	0.82	0.64	59.5	58.9	54.7	3.0	2.7
80	LE80MD6E	0.37	0.50	1140	3.10	–	1.15	0.63	64.0	63.0	59.1	4.6	2.3
	LE80MK6E	0.55	0.75	1145	4.60	–	1.66	0.61	68.0	67.4	63.7	5.2	2.9
90	LE90SQ6P	0.75	1.0	1155	6.20	✓	1.76	0.65	82.5	82.4	79.9	5.3	2.4
100	LE100ZLSA6P	1.1	1.5	1180	8.90	✓	2.30	0.69	87.5	87.2	84.8	6.7	2.4
112	LE112ZMKA6P	1.5	2	1175	12.2	✓	2.90	0.73	88.5	88.3	86.2	6.9	2.2
132	LE132SQA6P	2.2	3	1180	17.8	✓	4.30	0.72	89.5	89.2	87.7	7.3	2.4
	LE132SQB6P	3	4	1180	24.5	✓	6.00	0.70	89.5	89.5	87.9	7.6	2.6
	LE132MJ6P	4	5	1180	30.0	✓	7.50	0.69	89.5	89.2	87.5	7.5	2.8
	LE132ZMS6P	5.5	7.5	1180	44.5	✓	11.00	0.69	91.0	90.8	89.2	7.8	3.0
160	LE160MW6P	7.5	10	1185	60.0	✓	12.90	0.80	91.0	90.8	89.4	9.3	2.7
	LE160ZLW6P	11	15	1185	89.0	✓	19.30	0.78	91.7	91.7	90.5	8.0	3.4
180	LES180LJ6P	15	20	1178	122.0	✓	26.00	0.79	91.7	92.0	91.4	6.8	2.5
200	LES200LM6P	18.5	25	1180	150.0	✓	32.00	0.78	93.0	93.8	93.8	6.5	2.8
	LES200ZLS6P	22	30	1180	178.0	✓	37.50	0.79	93.0	93.5	93.4	6.3	2.6
225	LES225YMF6P	30	40	1185	242.0	✓	49.00	0.82	94.1	94.4	94.1	7.6	2.9
250	LES250MD6P	37	50	1188	297.0	✓	59.00	0.83	94.1	94.4	93.9	8.0	3.1

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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NEMA Premium Efficient motors MG1, Table 12-12

Frame size	Motor	T_{Bk}/T_N	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.					Additional identification code **-Z** with order code	
														No. of poles	Specification
		–	–	dB (A)	dB (A)	1/h	10^{-4} kgm²	kg	2KJ3... - .	■	■	■	■	- .... **-Z**	UL-R/CSA
60 Hz, 50 Hz power															
6-pole, 1200 rpm															
63	LE63MEB6 [1]	2.2	2.2	O. R.	O. R.	O. R.	3.7	4	2KJ3... - .	**B**	**D**	**2**	**1**	-	**P01**	**N38**
71	LE71MG6E [1]	2.9	3.20	O. R.	O. R.	O. R.	8.0	6	2KJ3... - .	**C**	**C**	**2**	**2**	-	**P01**	**N38**
	LE71ZMK6E [1]	2.7	3.00	O. R.	O. R.	O. R.	10	7	2KJ3... - .	**C**	**E**	**2**	**2**	-	**P01**	**N38**
80	LE80MD6E	2.9	2.50	O. R.	O. R.	O. R.	17	8.3	2KJ3... - .	**D**	**C**	**2**	**2**	-	**P01**	**N38**
	LE80MK6E	3.6	3.20	O. R.	O. R.	O. R.	25	11.3	2KJ3... - .	**D**	**F**	**2**	**2**	-	**P01**	**N38**
90	LE90SQ6P	3.1	2.60	O. R.	O. R.	O. R.	40	15	2KJ3... - .	**E**	**C**	**2**	**3**	-	**P01**	**N38**
100	LE100ZLSA6P	3.3	2.60	O. R.	O. R.	O. R.	110	25	2KJ3... - .	**F**	**N**	**2**	**3**	-	**P01**	**N38**
112	LE112ZMKA6P	3.2	2.40	O. R.	O. R.	O. R.	170	29	2KJ3... - .	**G**	**H**	**2**	**3**	-	**P01**	**N38**
132	LE132SQA6P	3.5	2.60	63	71	O. R.	370	45	2KJ3... - .	**H**	**G**	**2**	**3**	-	**P01**	**N38**
	LE132SQB6P	3.8	2.9	56	66	O. R.	340	42	2KJ3... - .	**H**	**H**	**2**	**3**	-	**P01**	**N38**
	LE132MJ6P	3.8	3.1	67	75	O. R.	390	46	2KJ3... - .	**H**	**K**	**2**	**3**	-	**P01**	**N38**
	LE132ZMS6P	4.0	3.30	67	75	O. R.	500	58	2KJ3... - .	**H**	**L**	**2**	**3**	-	**P01**	**N38**
160	LE160MW6P	3.7	2.97	73	81	O. R.	1320	95	2KJ3... - .	**J**	**J**	**2**	**3**	-	**P01**	**N38**
	LE160ZLW6P	3.2	3.74	72	80	O. R.	1640	106	2KJ3... - .	**J**	**V**	**2**	**3**	-	**P01**	**N38**
180	LES180LJ6P	3.0	2.80	O. R.	O. R.	O. R.	1900	180	2KJ3... - .	**K**	**M**	**3**	**3**	-	**P01**	**N38**
200	LES200LM6P	3.0	3.10	O. R.	O. R.	O. R.	2800	215	2KJ3... - .	**L**	**L**	**3**	**3**	-	**P01**	**N38**
	LES200ZLS6P	2.8	2.90	O. R.	O. R.	O. R.	3200	230	2KJ3... - .	**L**	**M**	**3**	**3**	-	**P01**	**N38**
225	LES225YMF6P	3.3	3.20	66	79	O. R.	6700	325	2KJ3... - .	**M**	**K**	**3**	**3**	-	**P01**	**N38**
250	LES250MD6P	3.1	3.40	63	76	O. R.	10000	405	2KJ3... - .	**N**	**D**	**3**	**3**	-	**P01**	**N38**

O. R. On request
[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Selection and ordering data

Frame size	Motor	P_N		n_N	T_N	EISA	I_N	cos φ	η			I_{St}/I_N	T_{St}/T_N
						CC no.	460 V		4/4 load	3/4 load	2/4 load		
		kW	hp	rpm	Nm	CC032A	A	–	%	%	%	–	–
60 Hz, 60 Hz power													
4-pole, 1800 rpm													
63	LE63MCA4	0.11	0.15	1705	0.62	–	0.46	0.57	52.7	47.6	38.7	2.8	2.5
	LE63MEB4E [1]	0.14	0.19	1685	0.79	–	0.42	0.66	64.0	61.4	54.8	3.5	2.4
	LE63ZMH4E [1]	0.21	0.29	1685	1.19	–	0.60	0.65	68.0	65.8	59.7	3.8	2.8
71	LE71MG4E [1]	0.29	0.39	1695	1.63	–	0.75	0.69	70.0	69.7	65.9	4.1	2.4
	LE71ZMK4E [1]	0.43	0.58	1680	2.45	–	1.04	0.72	72.0	72.4	69.4	4.0	2.4
80	LE80MH4P	0.63	0.85	1710	3.45	–	1.25	0.78	81.1	81.3	79.6	6.4	2.4
	LE80ZMQ4P	0.86	1.15	1750	4.70	–	1.72	0.75	83.5	83.1	80.7	7.7	2.7
90	LE90ZLR4P	1.75	2.35	1740	9.60	–	3.15	0.80	86.5	86.7	85.4	7.7	2.9
100	LE100ZLSA4P	2.55	3.40	1750	13.9	–	4.3	0.83	89.5	90.1	89.2	8.8	3.0
	LE100ZLSB4P	3.45	4.60	1750	18.8	–	6.1	0.81	87.5	88.0	87.2	9.0	3.1
112	LE112ZMKB4P	4.55	6.10	1760	24.5	–	7.7	0.83	89.5	90.0	89.3	7.3	2.5
132	LE132ZST4P	6.3	8.40	1770	34.0	–	10.4	0.83	91.7	92.0	91.7	8.7	2.7
	LE132ZMS4P	8.6	11.50	1765	46.5	–	14.9	0.81	89.5	90.0	89.4	8.8	3.0
160	LE160MPA4P	10.6	14.20	1770	57.0	–	17.3	0.81	92.4	92.8	92.1	8.3	3.0
	LE160MPB4P	12.6	16.90	1765	68.0	–	20.5	0.83	92.4	92.9	92.6	8.1	3.3
180	LES180MQ4P	21.3	28.60	1770	115.0	–	34.5	0.83	93.6	94.0	93.8	7.2	2.4
	LES180ZLN4P	25.3	33.90	1770	137.0	–	41.0	0.83	93.6	94.1	94.0	6.9	2.2
2-pole, 3600 rpm													
63	LE63MEB2E [1]	0.21	0.28	3450	0.58	–	0.53	0.78	64.0	62.0	57.0	4.9	2.3
	LE63ZMH2E [1]	0.29	0.39	3435	0.81	–	0.66	0.81	68.0	66.1	60.7	4.8	2.0
71	LE71ME2E [1]	0.43	0.58	3370	1.22	–	0.93	0.81	72.0	72.5	69.9	4.6	2.5
	LE71ZMH2E [1]	0.63	0.85	3380	1.78	–	1.34	0.80	74.0	74.4	71.8	5.1	2.9
80	LE80ME2P	0.86	1.15	3450	2.40	–	1.63	0.86	77.0	78.0	77.2	6.4	2.6
	LE80ZMJ2P	1.27	1.70	3480	3.50	–	2.25	0.85	84.0	84.6	83.4	7.4	2.8
90	LE90SM2P	1.75	2.35	3510	4.75	–	2.95	0.87	85.5	85.6	84.0	8.7	2.6
100	LE100ZLLA2P	3.45	4.60	3505	9.4	–	5.6	0.87	88.5	88.5	87.5	10.0	4.0
112	LE112ZMH2P	4.55	6.20	3545	12.3	–	7.30	0.89	88.5	88.5	87.2	9.7	2.7
132	LE132SH2P	6.3	8.40	3540	17.0	–	10.00	0.89	88.5	89.0	88.1	9.9	2.6
	LE132ZSQB2P	8.6	11.50	3550	23.0	–	13.00	0.92	90.2	90.5	90.0	8.4	2.1
160	LE160MG2P	12.6	16.90	3540	34.0	–	19.3	0.9	91.0	90.9	89.5	8.4	2.5
	LE160MM2P	17.3	24.00	3550	46.5	–	27.00	0.88	91.7	91.4	90.2	10.1	3.3
	LE160ZLJ2P	21.3	28.60	3550	57.0	–	32.00	0.91	91.7	91.8	91.1	8.2	2.7
6-pole, 1200 rpm													
63	LE63MEB6 [1]	0.11	0.13	1095	0.96	–	0.49	0.60	46.6	42.6	35.0	2.2	1.8
71	LE71MG6E [1]	0.21	0.28	1075	1.87	–	0.72	0.67	55.0	54.9	51.2	2.5	2.4
	LE71ZMK6E [1]	0.29	0.39	1070	2.60	–	0.87	0.70	59.5	60.1	57.0	2.8	2.3
80	LE80MD6E	0.43	0.58	1125	3.65	–	1.22	0.69	64.0	64.1	61.3	4.2	2.1
	LE80MK6E	0.63	0.85	1135	5.30	–	1.76	0.66	68.0	68.4	65.8	4.8	2.6

[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Frame size	Motor	T_{Bk}/T_N	T_A/T_N	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.					Additional identification code **-Z** with order code	
														No. of poles	Specification
		–	–	dB (A)	dB (A)	1/h	10^{-4} kgm²	kg	2KJ3... - .	■	■	■	■ -		**-Z** UL-R/CSA
60 Hz, 60 Hz power															
4-pole, 1800 rpm															
63	LE63MCA4	3.1	2.8	55	62	O. R.	2.9	4	2KJ3... - .	**B**	**B**	**2**	**1** -	–	**N38**
	LE63MEB4E [1]	2.7	2.6	54	61	O. R.	3.7	4	2KJ3... - .	**B**	**C**	**2**	**2** -	–	**N38**
	LE63ZMH4E [1]	2.9	3.1	62	69	O. R.	4.5	5	2KJ3... - .	**B**	**D**	**2**	**2** -	–	**N38**
71	LE71MG4E [1]	2.6	2.6	53	64	O. R.	7.6	6	2KJ3... - .	**C**	**C**	**2**	**2** -	–	**N38**
	LE71ZMK4E [1]	2.4	2.6	53	64	O. R.	9.5	7	2KJ3... - .	**C**	**E**	**2**	**2** -	–	**N38**
80	LE80MH4P	3.3	2.6	53	61	O. R.	21	9	2KJ3... - .	**D**	**C**	**2**	**3** -	–	**N38**
	LE80ZMQ4P	4.1	3.0	58	66	O. R.	29	10	2KJ3... - .	**D**	**F**	**2**	**3** -	–	**N38**
90	LE90ZLR4P	3.7	3.19	59	67	O. R.	49	15	2KJ3... - .	**E**	**M**	**2**	**3** -	–	**N38**
100	LE100ZLSA4P	3.9	3.3	70	78	O. R.	140	29	2KJ3... - .	**F**	**N**	**2**	**3** -	–	**N38**
	LE100ZLSB4P	4.1	3.4	70	78	O. R.	140	29	2KJ3... - .	**F**	**P**	**2**	**3** -	–	**N38**
112	LE112ZMKB4P	3.8	2.8	62	74	O. R.	170	29	2KJ3... - .	**G**	**J**	**2**	**3** -	–	**N38**
132	LE132ZST4P	3.7	3.0	68	80	O. R.	340	57	2KJ3... - .	**H**	**J**	**2**	**3** -	–	**N38**
	LE132ZMS4P	3.8	3.3	68	76	O. R.	460	57	2KJ3... - .	**H**	**L**	**2**	**3** -	–	**N38**
160	LE160MPA4P	3.5	3.3	70	77	O. R.	620	73	2KJ3... - .	**J**	**Q**	**2**	**3** -	–	**N38**
	LE160MPB4P	3.5	3.6	70	78	O. R.	620	73	2KJ3... - .	**J**	**R**	**2**	**3** -	–	**N38**
180	LES180MQ4P	3.2	2.6	68	75	O. R.	1300	165	2KJ3... - .	**K**	**L**	**3**	**3** -	–	**N38**
	LES180ZLN4P	3.2	2.4	70	77	O. R.	1531	170	2KJ3... - .	**K**	**N**	**3**	**3** -	–	**N38**
2-pole, 3600 rpm															
63	LE63MEB2E [1]	3.1	2.5	60	67	O. R.	2.2	4	2KJ3... - .	**B**	**C**	**2**	**2** -	**P00**	**N38**
	LE63ZMH2E [1]	2.7	2.2	57	64	O. R.	2.6	5	2KJ3... - .	**B**	**D**	**2**	**2** -	**P00**	**N38**
71	LE71ME2E [1]	2.5	2.8	63	74	O. R.	3.5	6	2KJ3... - .	**C**	**B**	**2**	**2** -	**P00**	**N38**
	LE71ZMH2E [1]	2.9	3.2	63	74	O. R.	4.5	7	2KJ3... - .	**C**	**D**	**2**	**2** -	**P00**	**N38**
80	LE80ME2P	3.1	2.9	64	75	O. R.	11	9.3	2KJ3... - .	**D**	**B**	**2**	**3** -	**P00**	**N38**
	LE80ZMJ2P	3.4	3.1	64	75	O. R.	13	10	2KJ3... - .	**D**	**M**	**2**	**3** -	**P00**	**N38**
90	LE90SM2P	4.2	2.9	69	81	O. R.	21	12	2KJ3... - .	**E**	**K**	**2**	**3** -	**P00**	**N38**
100	LE100ZLLA2P	4.8	4.4	75	83	O. R.	54	26	2KJ3... - .	**F**	**L**	**2**	**3** -	**P00**	**N38**
112	LE112ZMH2P	3.8	3.0	80	88	O. R.	120	29	2KJ3... - .	**G**	**G**	**2**	**3** -	**P00**	**N38**
132	LE132SH2P	4.0	2.9	74	82	O. R.	240	36	2KJ3... - .	**H**	**F**	**2**	**3** -	**P00**	**N38**
	LE132ZSQB2P	4.1	2.3	72	84	O. R.	310	50	2KJ3... - .	**H**	**H**	**2**	**3** -	**P00**	**N38**
160	LE160MG2P	3.5	2.8	82	90	O. R.	379	65	2KJ3... - .	**J**	**N**	**2**	**3** -	**P00**	**N38**
	LE160MM2P	4.5	3.6	81	89	O. R.	610	74	2KJ3... - .	**J**	**P**	**2**	**3** -	**P00**	**N38**
	LE160ZLJ2P	3.8	3.0	O. R.	O. R.	O. R.	680	84	2KJ3... - .	**J**	**T**	**2**	**3** -	**P00**	**N38**
6-pole, 1200 rpm															
63	LE63MEB6 [1]	2.0	2.0	57	64	O. R.	3.7	4	2KJ3... - .	**B**	**D**	**2**	**1** -	**P01**	**N38**
71	LE71MG6E [1]	2.4	2.6	49	60	O. R.	8.0	6	2KJ3... - .	**C**	**C**	**2**	**2** -	**P01**	**N38**
	LE71ZMK6E [1]	2.3	2.5	49	60	O. R.	10.0	7	2KJ3... - .	**C**	**E**	**2**	**2** -	**P01**	**N38**
80	LE80MD6E	2.6	2.3	45	56	O. R.	17	8.3	2KJ3... - .	**D**	**C**	**2**	**2** -	**P01**	**N38**
	LE80MK6E	3.1	2.9	45	56	O. R.	25	11.3	2KJ3... - .	**D**	**F**	**2**	**2** -	**P01**	**N38**

O. R. On request
[1] The technical specifications also apply to LEI63 and LEI71 motors (with IEC B14 flange) for worm geared motors S.

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Selection and ordering data

Frame size	Motor	P_N		n_N	T_N	EISA	I_N	cos φ	η
						CC no.	460 V		4/4 load
		kW	hp	rpm	Nm	CC032A	A	–	%
104 Hz power									
4-pole, 3120 rpm									
63	LE63MCA4	0.19	0.25	3025	0.60	–	0.85	0.58	58.2
	LE63MEB4E	0.24	0.32	3020	0.76	–	0.71	0.59	71.1
	LE63ZMH4E	0.36	0.48	3020	1.14	–	1.01	0.59	75.2
71	LE71MG4E	0.50	0.67	3035	1.57	–	1.24	0.65	77.8
	LE71ZMK4E	0.75	1.0	3020	2.35	–	1.72	0.69	79.1
80	LE80MH4P	1.09	1.47	3070	3.4	–	2.2	0.77	80.8
	LE80ZMQ4P	1.49	2.0	3075	4.63	–	3.15	0.72	82.5
90	LE90ZLR4P	3.05	4.09	3065	9.5	–	5.7	0.79	85.3
100	LE100ZLSA4P	4.4	5.9	3075	13.7	–	4.5	0.82	86.7
	LE100ZLSB4P	6.0	8.04	3070	18.7	–	6.3	0.79	87.7
112	LE112ZMKB4P	7.9	10.59	3080	24.5	–	13.3	0.82	90.2
6-pole, 2080 rpm									
63	LE63MEB6	0.17	0.23	2000	0.81	–	0.82	0.47	52.4
71	LE71ZMK6E	0.50	0.67	1975	2.4	–	1.29	0.63	77.3
112	LE112ZMKA6P	3.05	4.09	2055	14.2	–	5.7	0.74	89.7

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Frame size	Motor	L_{pfA}	L_{WA}	Z_0	J_{mot}	m_{mot}	9th to 12th position of the Article No.					Additional identification code **-Z** with order code	
												No. of poles	Specification
		dB (A)	dB (A)	1/h	10^{-4} kgm²	kg	2KJ3... - .	■	■	■	■ - .... **-Z**		UL-R/CSA
104 Hz power													
4-pole, 3120 rpm													
63	LE63MCA4	O. R.	O. R.	O. R.	2.9	4	2KJ3... - .	**B**	**B**	**2**	**1** -	**–**	**N38**
	LE63MEB4E	O. R.	O. R.	O. R.	3.7	4	2KJ3... - .	**B**	**C**	**2**	**2** -	**–**	**N38**
	LE63ZMH4E	O. R.	O. R.	O. R.	4.5	5	2KJ3... - .	**B**	**D**	**2**	**2** -	**–**	**N38**
71	LE71MG4E	O. R.	O. R.	O. R.	7.6	7	2KJ3... - .	**C**	**C**	**2**	**2** -	**–**	**N38**
	LE71ZMK4E	O. R.	O. R.	O. R.	9.5	7	2KJ3... - .	**C**	**E**	**2**	**2** -	**–**	**N38**
80	LE80MH4P	O. R.	O. R.	O. R.	21.0	9	2KJ3... - .	**D**	**C**	**2**	**3** -	**–**	**N38**
	LE80ZMQ4P	O. R.	O. R.	O. R.	29.0	10	2KJ3... - .	**D**	**F**	**2**	**3** -	**–**	**N38**
90	LE90ZLR4P	O. R.	O. R.	O. R.	49.0	15	2KJ3... - .	**E**	**M**	**2**	**3** -	**–**	**N38**
100	LE100ZLSA4P	O. R.	O. R.	O. R.	140.0	29	2KJ3... - .	**F**	**N**	**2**	**3** -	**–**	**N38**
	LE100ZLSB4P	O. R.	O. R.	O. R.	140.0	29	2KJ3... - .	**F**	**P**	**2**	**3** -	**–**	**N38**
112	LE112ZMKB4P	O. R.	O. R.	O. R.	170.0	29	2KJ3... - .	**G**	**J**	**2**	**3** -	**–**	**N38**
6-pole, 2080 rpm													
63	LE63MEB6	O. R.	O. R.	O. R.	3.7	4	2KJ3... - .	**B**	**D**	**2**	**1** -	**P00**	**N38**
71	LE71ZMK6E	O. R.	O. R.	O. R.	10.0	7	2KJ3... - .	**C**	**E**	**2**	**2** -	**P00**	**N38**
112	LE112ZMKA6P	O. R.	O. R.	O. R.	170.0	29	2KJ3... - .	**G**	**H**	**2**	**3** -	**P00**	**N38**

O. R. On request

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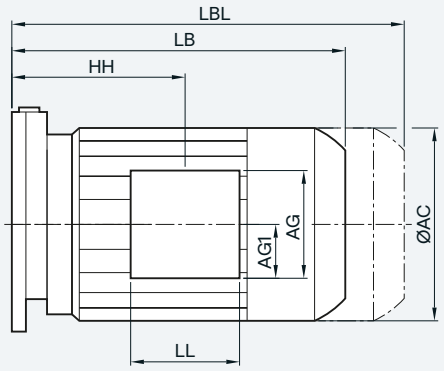
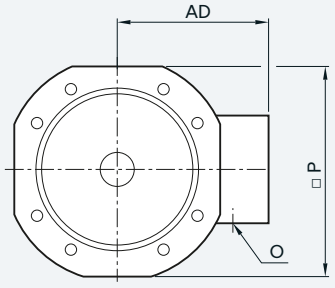
Motors

Motor frame sizes LE63 to LE71Y

Overview





Motor	Gearbox type							Dimensions					Terminal box						
	D/Z	E	FD/FZ	B	K	C	EHB	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric	O NPT
LE63	19	–	–	19	–	–	–	–	61.5	160.5	205.0	117.8	**gk127**	124.0	90	90	45.0	M20x1.5/ M25x1.5	2 x 1/2"
	29	–	29	29	–	29	BH29	120	95.0	194.0	238.5		**gk030**	101.0	75	75	37.5		–
	39	39	39	39	39	39	BH39						**TB1E10**	132.0	123	119.5	58.0		
	49	49	49	49	49	49	KH49	160	85.5	184.5	229.0								
	59	59	–	–	–	–	–												
	69	69	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
LE63Z	19	–	–	19	–	–	–	–	87.5	186.5	231.0	117.8	**gk127**	124.0	90	90	45.0	M20x1.5/ M25x1.5	2 x 1/2"
	29	–	29	29	–	29	BH29	120	121.0	220.0	264.5		**gk030**	101.0	75	75	37.5		–
	39	39	39	39	39	39	BH39						**TB1E10**	132.0	123	119.5	58.0		
	49	49	49	49	49	49	KH49	160	111.5	210.5	255.0								
	59	59	–	–	–	–	–												
	69	69	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
LE71	19	–	–	19	–	–	–	–	93.5	184.5	239.5	138.8	**gk127**	134.0	90	90	45.0	M20x1.5/ M25x1.5	2 x 1/2"
	29	–	29	29	–	29	BH29	120	135.0	226.0	281.0		**gk030**	111.0	75	75	37.5		–
	39	39	39	39	39	39	BH39						**TB1E10**	142.0	123	119.5	58.0		
	49	49	49	49	49	49	KH49	160	125.5	216.5	271.5								
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	123.5	214.5	269.5								
	–	–	–	–	89	89	–												
LE71Z	19	–	–	19	–	–	–	–	93.5	203.5	258.5	138.8	**gk127**	134.0	90	90	45.0	M20x1.5/ M25x1.5	2 x 1/2"
	29	–	29	29	–	29	BH29	120	135.0	245.0	300.0		**gk030**	111.0	75	75	37.5		–
	39	39	39	39	39	39	BH39						**TB1E10**	142.0	123	119.5	58.0		
	49	49	49	49	49	49	KH49	160	125.5	235.5	290.5								
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	123.5	233.5	288.5								
	–	–	–	–	89	89	–												
LE71Y	19	–	–	19	–	–	–	–	133.5	243.5	298.5	138.8	**gk127**	134.0	90	90	45.0	M20x1.5/ M25x1.5	2 x 1/2"
	29	–	29	29	–	29	BH29	120	175	285	340		**gk030**	111.0	75	75	37.5		–
	39	39	39	39	39	39	BH39						**TB1E10**	142.0	123	119.5	58.0		
	49	49	49	49	49	49	KH49	160	165.5	275.5	330.5								
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	163.5	273.5	328.5								
	–	–	–	–	89	89	–												

[1] Terminal box type is dependent on the motor options, see page 11/23.

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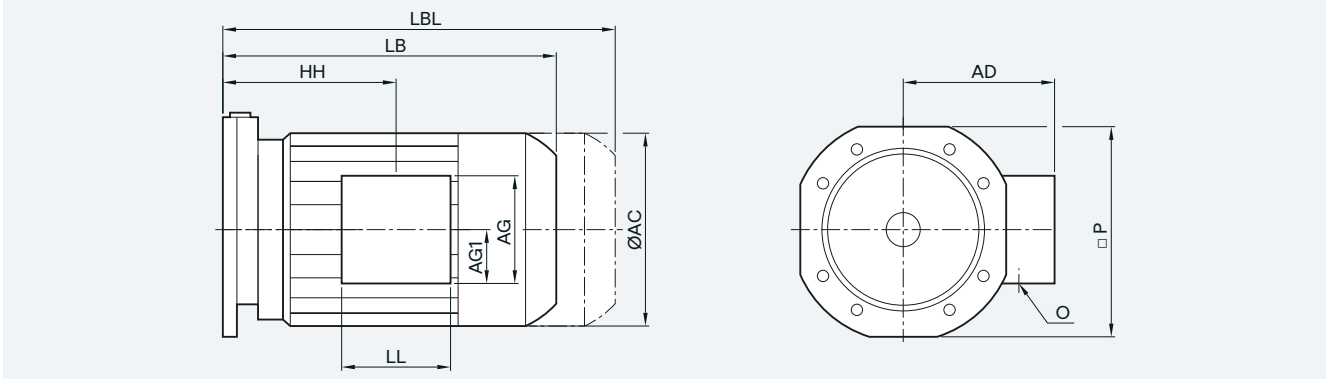
Overview



Motor	Gearbox type							Dimensions					Terminal box						
	D/Z	E	FD/FZ	B	K	C	EHB	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric	O NPT
LE80	19	–	–	19	–	–	–	0	120.0	240.0	300.0	156.3	**TB1E10**	149.2	123	119.5	58.0	M20x1.5/ M25x1.5	2 x 1/2"
	29	–	29	29	–	29	BH29	120	170.0	290.0	350.0		**TB1E00**	121.0	79	93	50.0		–
	39	39	39	39	39	39	BH39												
	49	49	49	49	49	49	KH49	160	160.5	280.5	340.5								
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	154.5	274.5	334.5								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	141.5	261.5	321.5								
	–	–	–	–	109	–	–												
LE80Z	19	–	–	19	–	–	–	0	155.0	275.0	335.0	156.3	**TB1E10**	149.2	123	119.5	58.0	M20x1.5/ M25x1.5	2 x 1/2"
	29	–	29	29	–	29	BH29	120	205.0	325.0	385.0		**TB1E00**	121.0	79	93	50.0		–
	39	39	39	39	39	39	BH39												
	49	49	49	49	49	49	KH49	160	195.5	315.5	375.5								
	59	–	–	–	–	–	–												
	69	69	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	–	79	–	–	–	–	198	189.5	309.5	369.5								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	176.5	296.5	356.5								
	–	–	–	–	109	–	–												
LE90	29	–	29	29	–	29	BH29	120	207.5	351.5	421.5	173.8	**TB1E10**	154.2	123	119.5	58	M20x1.5/ M25x1.5	3/4"+1/2"
	39	39	39	39	39	39	BH39						**TB1E00**	126.0	79	93	50		–
	49	49	49	49	49	49	KH49	160	198.0	342.0	412.0								
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	192.0	336.0	406.0								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	179.0	323.0	393.0								
	–	–	–	–	109	–	–												
	–	–	–	–	129	–	–	300	172.0	316.0	386.0								
	109	109	109	–	–	–	–												
	129	129	129	–	–	–	–	350	165.0	309.0	379.0								
	–	–	–	–	149	–	–												

[1] Terminal box type is dependent on the motor options, see page 11/23.

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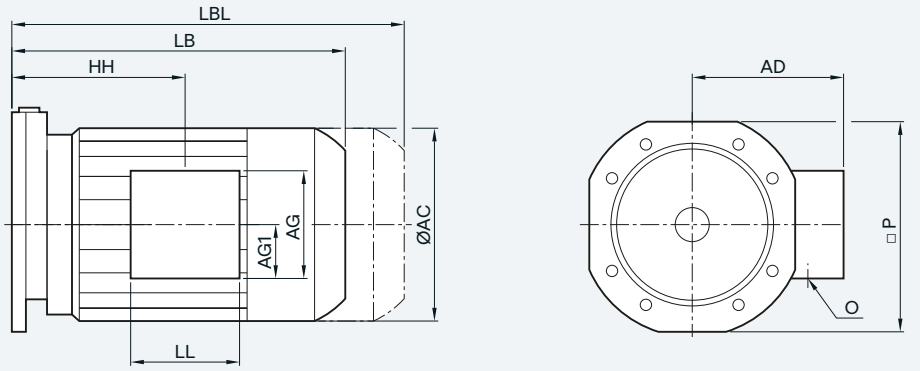
Motors

Motor frame sizes LE90Z to LE100Z

Overview



Motor	Gearbox type							Dimensions					Terminal box						
	D/Z	E	FD/FZ	B	K	C	EHB	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric	O NPT
LE90Z	29	–	29	29	–	29	BH29	120	247.5	391.5	461.5	173.8	**TB1E10**	154.2	123	119.5	58	M20x1.5/ M25x1.5	3/4"+1/2"
	39	39	39	39	39	39	BH39						**TB1E00**	126.0	79	93	50		–
	49	49	49	49	49	49	KH49	160	238.0	382.0	452.0								
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	232.0	376.0	446.0								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	219.0	363.0	433.0								
	–	–	–	–	109	–	–												
	–	–	–	–	129	–	–	300	212.0	356.0	426.0								
	109	109	109	–	–	–	–												
	129	129	129	–	–	–	–	350	205.0	349.0	419.0								
	–	–	–	–	149	–	–												
LE100	29	–	29	29	–	29	BH29	120	242.5	408.0	486.5	198.0	**TB1F10**	170.5	135	135	67.5	2xM32x1.5	3/4"+1/2"
	39	39	39	39	39	39	BH39						**TB1F00**	166.0	112	135	71.5		–
	49	49	49	49	49	49	KH49	160	233.0	398.5	477.0								
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	227.0	392.5	471.0								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	210.0	375.5	454.0								
	–	–	–	–	109	–	–												
	–	–	–	–	129	–	–	300	201.0	366.5	445.0								
	109	109	109	–	–	–	–												
	129	129	129	–	–	–	–	350	192.0	357.5	436.0								
	–	–	–	–	149	–	–												
	149	149	149	–	169	–	–	405	190.5	356.0	434.5								
LE100Z	29	–	29	29	–	29	BH29	120	277.5	443.0	521.5	198.0	**TB1F10**	170.5	135	135	67.5	2xM32x1.5	3/4"+1/2"
	39	39	39	39	39	39	BH39						**TB1F00**	166.0	112	135	71.5		–
	49	49	49	49	49	49	KH49	160	268.0	433.5	512.0								
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	262.0	427.5	506.0								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	245.0	410.5	489.0								
	–	–	–	–	109	–	–												
	–	–	–	–	129	–	–	300	236.0	401.5	480.0								
	109	109	109	–	–	–	–												
	129	129	129	–	–	–	–	350	227.0	392.5	471.0								
	–	–	–	–	149	–	–												
	149	149	149	–	169	–	–	405	225.5	391.0	469.5								

[1] Terminal box type is dependent on the motor options, see page 11/23.

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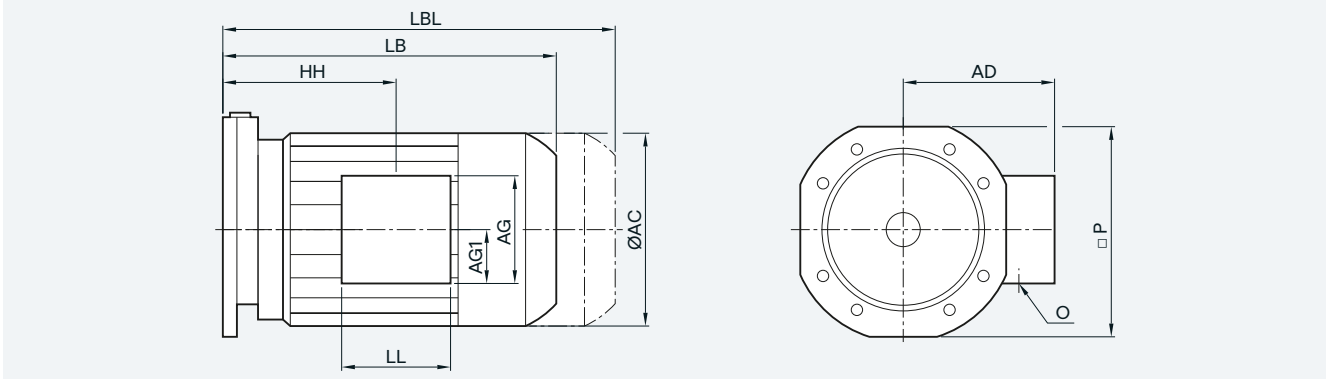
Overview



Motor	Gearbox type							Dimensions					Terminal box						
	D/Z	E	FD/FZ	B	K	C	EHB	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric	O NPT
LE112	29	–	29	29	–	29	–	120	244.0	418.0	491.0	222.0	**TB1F10**	181.5	135	135	67.5	2xM32x1.5	3/4"+1/2"
	39	39	39	39	39	39	–						**TB1F00**	177.0	112	135	71.5		–
	49	49	49	49	49	49	KH49	160	234.5	408.5	481.5								
	59	–	–	–	–	–	–												
	69	69	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79		79	–	–	–	–	198	228.5	402.5	475.5								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	211.5	385.5	458.5								
	–	–	–	–	109	–	–												
	–	–	–	–	129	–	–	300	202.5	376.5	449.5								
	109	109	109	–	–	–	–												
	129	129	129	–	–	–	–	350	193.5	367.5	440.5								
	–	–	–	–	149	–	–												
	149	149	149	–	169	–	–	405	192.0	366.0	439.0								
	169	169	169	–	–	–	–	465	179.5	353.5	426.5								
	189	189	189	–	189	–	–												
LE112Z	29	–	29	29	–	29	–	120	269.0	443.0	516.0	222.0	**TB1F10**	181.5	135	135	67.5	2xM32x1.5	3/4"+1/2"
	39	39	39	39	39	39	–						**TB1F00**	177.0	112	135	71.5		–
	49	49	49	49	49	49	KH49	160											
	59	–	–	–	–	–	–												
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	253.5	427.5	500.5								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	236.5	410.5	483.5								
	–	–	–	–	109	–	–												
	–	–	–	–	129	–	–	300	227.5	401.5	474.5								
	109	109	109	–	–	–	–												
	129	129	129	–	–	–	–	350	218.5	392.5	465.5								
	–	–	–	–	149	–	–												
	149	149	149	–	169	–	–	405	217.0	391.0	464.0								
	169	169	169	–	–	–	–	465	204.5	378.5	451.5								
	189	189	189	–	189	–	–												
LE132	49	49	49	49	49	49	KH49	160	266.0	461.5	566.0	264.0	**TB1H10**	207.0	162	162	81.0	2xM32x1.5	3/4"+1/2"
	59	–	–	–	–	–	–						**TB1H00**	202.0	130	155	84.5		–
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	260.0	455.5	560.0								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	243.0	438.5	543.0								
	–	–	–	–	109	–	–												
	–	–	–	–	129	–	–	300	234.0	429.5	534.0								
	109	109	109	–	–	–	–												
	129	129	129	–	–	–	–	350	223.0	418.5	523.0								
	–	–	–	–	149	–	–												
	149	149	149	–	169	–	–	405	216.5	412.0	516.5								
	169	169	169	–	–	–	–	465	203.5	399.0	503.5								
	189	189	189	–	189	–	–												

[1] Terminal box type is dependent on the motor options, see page 11/23.

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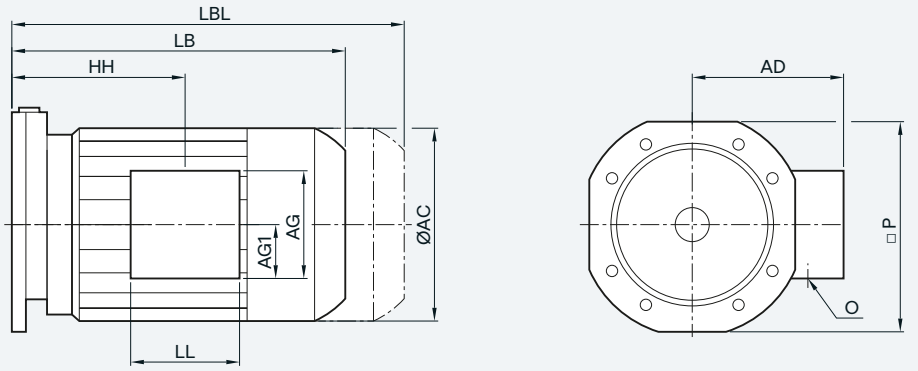
Motors

Motor frame sizes LE132Z to LE160Z

Overview



Motor	Gearbox type							Dimensions					Terminal box						
	D/Z	E	FD/FZ	B	K	C	EHB	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric	O NPT
LE132Z	49	49	49	49	49	49	KH49	160	316.0	511.5	616.0	264.0	**TB1H10**	207.0	162	162	81.0	2xM32x1.5	3/4"+1/2"
	59	–	–	–	–	–	–						**TB1H00**	202.0	130	155	84.5		–
	69	–	69	–	69	69	KH69												
	–	–	–	–	79	–	KH79												
	79	69	79	–	–	–	–	198	310.0	505.5	610.0								
	–	–	–	–	89	89	–												
	89	89	89	–	–	–	–	245	293.0	488.5	593.0								
	–	–	–	–	109	–	–												
	–	–	–	–	129	–	–	300	284.0	479.5	584.0								
	109	109	109	–	–	–	–												
	129	129	129	–	–	–	–	350	273.0	468.5	573.0								
	–	–	–	–	149	–	–												
	149	149	149	–	169	–	–	405	266.5	462.0	566.5								
	169	169	169	–	–	–	–	465	253.5	499.0	553.5								
	189	189	189	–	189	–	–												
LE160	49	49	49	49	49	49		160	299.5	543.5	659.5	318.0	**TB1J10**	241.0	180	180	90.0	2xM40x1.5	1 1/4"+1/2"
	59	–	–	–	–	–							**TB1J00**	236.5	145	175	97.5		–
	69	–	69	–	69	69													
	–	–	–	–	79	–													
	79	69	79	–	–	–		198	293.5	537.5	653.5								
	–	–	–	–	89	89													
	89	89	89	–	–	–		245	276.5	520.5	636.5								
	–	–	–	–	109	–													
	–	–	–	–	129	–		300	267.5	511.5	627.5								
	109	109	109	–	–	–													
	129	129	129	–	–	–		350	256.5	500.5	616.5								
	–	–	–	–	149	–													
	149	149	149	–	169	–		405	250.0	494.0	610.0								
	169	169	169	–	–	–		465	237.0	481.0	597.0								
	189	189	189	–	189	–													
LE160Z	49	49	49	49	49	49		160	359.5	603.5	719.5	318.0	**TB1J10**	241.0	180	180	90.0	2xM40x1.5	1 1/4"+1/2"
	59	–	–	–	–	–							**TB1J00**	236.5	145	175	97.5		–
	69	–	69	–	69	69													
	–	–	–	–	79	–													
	79	69	79	–	–	–		198	353.5	597.5	713.5								
	–	–	–	–	89	89													
	89	89	89	–	–	–		245	336.5	580.5	696.5								
	–	–	–	–	109	–													
	–	–	–	–	129	–		300	327.5	571.5	687.5								
	109	109	109	–	–	–													
	129	129	129	–	–	–		350	316.5	560.5	676.5								
	–	–	–	–	149	–													
	149	149	149	–	169	–		405	310.0	554.0	670.0								
	169	169	169	–	–	–		465	297.0	541.0	657.0								
	189	189	189	–	189	–													

[1] Terminal box type is dependent on the motor options, see page 11/23.

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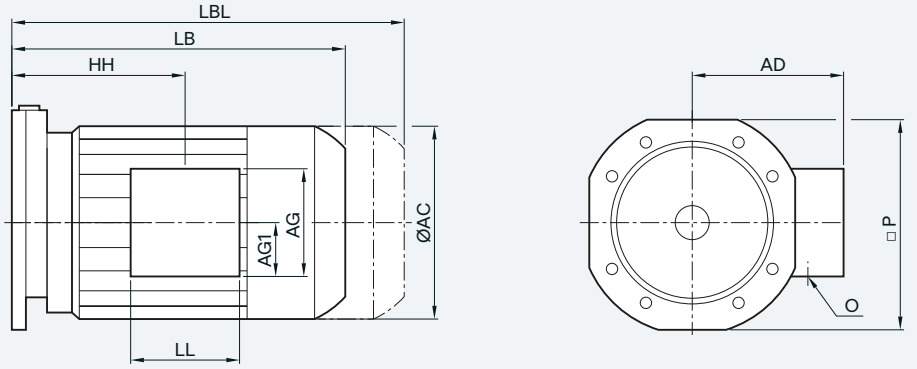
Overview



Motor	Gearbox type						Dimensions					Terminal box						
	D/Z	E	FD/FZ	B	K	C	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric	O NPT
LES180	89	89	89	–	–	–	245	336.0	593.5	722.5	352.5	**TB1K01**	292.0	197	265	153	2xM40x1.5	1 1/2"+1/2"
	–	–	–	–	109	–												
	–	–	–	–	129	–	300	327.0	584.5	713.5								
	109	109	109	–	–	–												
	129	129	129	–	–	–	350	316.0	573.5	702.5								
	–	–	–	–	149	–												
	149	149	149	–	169	–	405	309.5	567.0	696.0								
	169	169	169	–	–	–	465	296.0	553.5	682.5								
	189	189	189	–	189	–												
LES180	89	89	89	–	–	–	245	336.0	593.5	722.5	352.5	**TB1K01**	292.0	197	265	153	2xM40x1.5	1 1/2"+1/2"
	–	–	–	–	109	–												
	–	–	–	–	129	–	300	327.0	584.5	713.5								
	109	109	109	–	–	–												
	129	129	129	–	–	–	350	316.0	573.5	702.5								
	–	–	–	–	149	–												
	149	149	149	–	169	–	405	309.5	567.0	696.0								
	169	169	169	–	–	–	465	296.0	553.5	682.5								
	189	189	189	–	189	–												
LES180Z	89	89	89	–	–	–	245	366.0	623.5	752.5	352.5	**TB1K01**	292.0	197	265	153	2xM40x1.5	1 1/2"+1/2"
	–	–	–	–	109	–												
	–	–	–	–	129	–	300	357.0	614.5	743.5								
	109	109	109	–	–	–												
	129	129	129	–	–	–	350	346.0	603.5	732.5								
	–	–	–	–	149	–												
	149	149	149	–	169	–	405	339.5	597.0	726.0								
	169	169	169	–	–	–	465	326.0	583.5	712.5								
	189	189	189	–	189	–												
LES200	–	–	–	–	129	–	300	391.5	652.5	799.5	392.5	**TB1L01**	315.0	197	266	154	2xM50x1.5	1 1/2"+1/2"
	109	109	109	–	–	–												
	129	129	129	–	–	–	350	380.5	641.5	788.5								
	–	–	–	–	149	–												
	149	149	149	–	169	–	405	374.0	635.0	782.0								
	169	169	169	–	–	–	465	360.5	621.5	768.5								
	189	189	189	–	189	–												
LES200Z	–	–	–	–	129	–	300	416.5	677.5	824.5	392.5	**TB1L01**	315.0	197	266	154	2xM50x1.5	1 1/2"+1/2"
	109	109	109	–	–	–												
	129	129	129	–	–	–	350	405.5	666.5	813.5								
	–	–	–	–	149	–												
	149	149	149	–	169	–	405	399.0	660.0	807.0								
	169	169	169	–	–	–	466	385.5	646.5	793.5								
	189	189	189	–	189	–												
LES225	–	–	–	–	129	–	300	420.0	698.0	937.0	439.0	**TB1L01**	337.0	197	266	154	2xM50x1.5	1 1/2"+1/2"
	109	109	109	–	–	–						**TB1N01**	407.5	233	319	174	2xM63x1.5	–
	129	129	129	–	–	–	350	409.0	687.0	926.0								
	–	–	–	–	149	–												
	149	149	149	–	169	–	405	402.5	680.5	919.5								
	169	169	169	–	–	–	465	388.0	666.0	905.0								
	189	189	189	–	189	–												

[1] Terminal box type is dependent on the motor options, see page 11/23.

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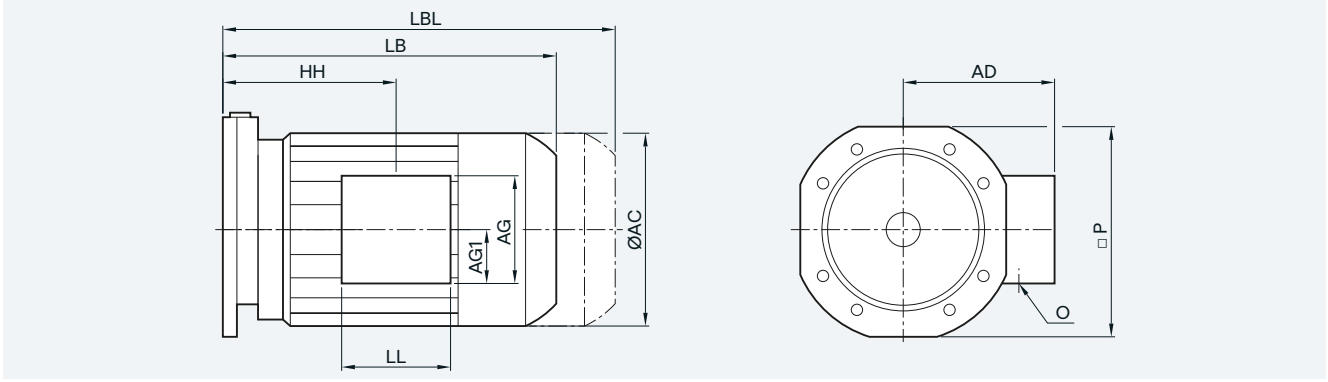
Motors

Motor frame sizes LES225Y to LES250

Overview



Motor	Gearbox type						Dimensions					Terminal box						
	D/Z	E	FD/FZ	B	K	C	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric	O NPT
LES225Y	–	–	–	–	129	–	300	480.0	758.0	997.0	439.0	**TB1L01**	337.0	197	266	154	2xM50x1.5	1 1/2"+1/2"
	109	109	109	–	–	–						**TB1N01**	407.5	233	319	174	2xM63x1.5	–
	129	129	129	–	–	–	350	469.0	747.0	986.0								
	–	–	–	–	149	–												
	149	149	149	–	169	–	405	462.5	740.5	979.5								
	169	169	169	–	–	–	465	448.0	726.0	965.0								
	189	189	189	–	189	–												
LES250	129	129	129	–	–	–	350	487.5	798.5	1023.5	487.0	**TB1N01**	407.5	233	319	174	2xM63x1.5	2 1/2"+1/2"
	–	–	–	–	149	–						**TB1Q01**	457.0	299	374	210	2xM63x1.5	–
	149	149	149	–	169	–	405	481.0	792.0	1017.0								
	169	169	169	–	–	–	465	462.5	773.5	998.5								
	189	189	189	–	189	–												

[1] Terminal box type is dependent on the motor options, see page 11/23.

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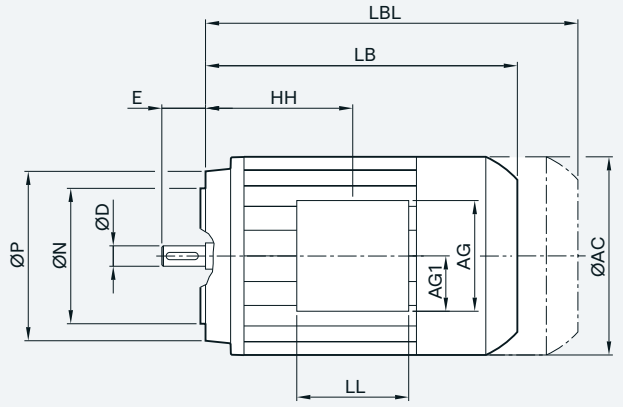
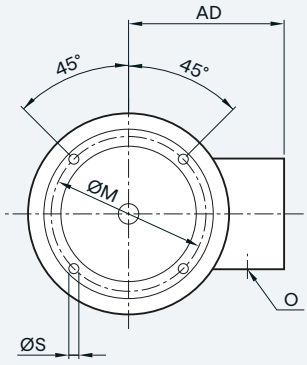
Motors with B14 flange





Motor	Dimensions										Terminal box					
	P	HH	LB	LBL	AC	N	M	S	D	E	Type [1]	AD	LL	AG	AG1	O
LEI63	90	69.5	179.5	230.5	118.0	60	75	M5	11	23	**gk127**	124.0	90	90	45.0	M20x1.5/ M25x1.5
											gk030	101.0	75	75	37.5	
											TB1E10	132.0	123	119.5	58.0	
LEI63Z	90	69.5	205.5	256.5	118.0	60	75	M5	11	23						
LEI71	105	63.5	210.0	261.5	139.0	70	85	M6	14	30	**gk127**	134.0	90	90	45.0	M20x1.5/ M25x1.5
											gk030	111.0	75	75	37.5	
											TB1E10	142.0	123	119.5	58.0	
LEI71Z	105	63.5	226.5	281.5	139.0	70	85	M6	14	30						
LEI71Y	105	63.5	266.5	321.5	139.0	70	85	M6	14	30						

[1] Terminal box type is dependent on the motor options, see page 11/23.

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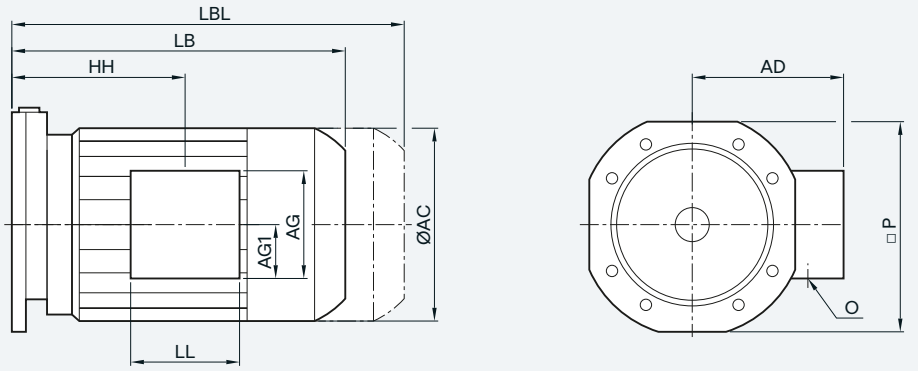
Explosion-protected motors - motor frame sizes MB71 to MB80Z

Overview



Motor	Gearbox type						Dimensions					Terminal box					
	D/Z	E	FD/FZ	B	K	C	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric
MB71	29	–	29	29	–	29	120	135.0	226.0	281.0	138.8	**TB1B00** [2]	111.0	75	75	37.5	M25x1.5/ M16x1.5+ M25x1.5
	39	39	39	39	39	39						**TB1B10** [2]	134.0	90	90	45.0	
	49	49	49	49	49	49	160	125.5	216.5	271.5		**TB1C10** [3]	142.0	123	119.5	58.0	
	59	–	–	–	–	–											
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	79	79	–	–	–	198	123.5	214.5	269.5							
	–	–	–	–	89	89											
MB71Z	29	–	29	29	–	29	120	135.0	245.0	300.0	138.8	**TB1B00** [2]	111.0	75	75	37.5	M20x1.5/ M25x1.5
	39	39	39	39	39	39						**TB1B10** [2]	134.0	90	90	45.0	
	49	49	49	49	49	49	160	125.5	235.5	290.5		**TB1C10** [3]	142.0	123	119.5	58.0	
	59	–	–	–	–	–											
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	123.5	233.5	288.5							
	–	–	–	–	89	89											
MB80	29	–	29	29	–	29	120	170.0	290.0	350.0	156.3	**TB1E10**	149.2	123	119.5	58.0	M20x1.5/ M25x1.5
	39	39	39	39	39	39						**TB1E00**	121.0	79	93	50.0	
	49	49	49	49	49	49	160	160.5	280.5	340.5							
	59	–	–	–	–	–											
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	154.5	274.5	334.5							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	141.5	261.5	321.5							
	–	–	–	–	109	–											
MB80Z	29	–	29	29	–	29	120	205.0	325.0	385.0	156.3	**TB1E10**	149.2	123	119.5	58.0	M20x1.5/ M25x1.5
	39	39	39	39	39	39						**TB1E00**	121.0	79	93	50.0	
	49	49	49	49	49	49	160	195.5	315.5	375.5							
	59	–	–	–	–	–											
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	189.5	309.5	369.5							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	176.5	296.5	356.5							
	–	–	–	–	109	–											

[1] Terminal box type is dependent on the motor options, see page 11/23.
[2] Terminal box for Zone 22
[3] Terminal box for Zone 2

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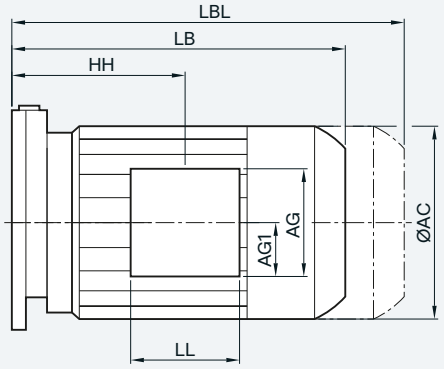
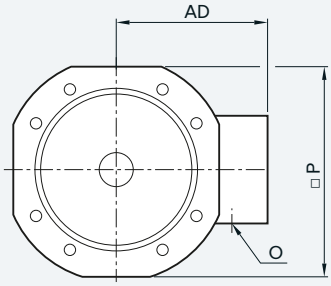
Overview





Motor	Gearbox type						Dimensions					Terminal box					
	D/Z	E	FD/FZ	B	K	C	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric
MB90	29	–	29	29	–	29	120	207.5	351.5	421.5	173.8	**TB1E10**	154.2	123	119.5	58	M20x1.5/ M25x1.5
	39	39	39	39	39	39						**TB1E00**	126.0	79	93	50	
	49	49	49	49	49	49	160	198.0	342.0	412.0							
	59	–	–	–	–	–											
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	192.0	336.0	406.0							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	179.0	323.0	393.0							
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	172.0	316.0	386.0							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	165.0	309.0	379.0							
	–	–	–	–	149	–											
MB90Z	29	–	29	29	–	29	120	247.5	391.5	461.5	173.8	**TB1E10**	154.2	123	119.5	58	M20x1.5/ M25x1.5
	39	39	39	39	39	39						**TB1E00**	126.0	79	93	50	
	49	49	49	49	49	49	160	238.0	382.0	452.0							
	59	–	–	–	–	–											
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	232.0	376.0	446.0							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	219.0	363.0	433.0							
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	212.0	356.0	426.0							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	205.0	349.0	419.0							
	–	–	–	–	149	–											
MB100Z	29	–	29	29	–	29	120	277.5	436.5	515.0	198.0	**TB1F10**	170.5	135	135	67.5	2xM32x1.5
	39	39	39	39	39	39						**TB1F00**	166.0	112	135	71.5	
	49	49	49	49	49	49	160	268.0	427.0	505.5							
	59	–	–	–	–	–											
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	262.0	421.0	499.5							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	245.0	404.0	482.5							
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	236.0	395.0	473.5							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	227.0	386.0	464.5							
	–	–	–	–	149	–											
	149	149	149	–	169	–	405	225.5	384.5	463.0							

[1] Terminal box type is dependent on the motor options, see page 11/23.

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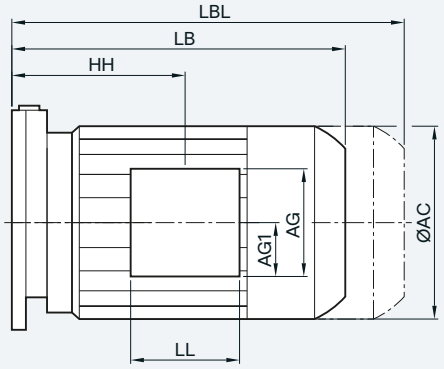
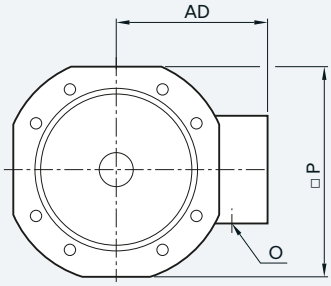
Explosion-protected motors - motor frame sizes MB112Z to MB160

Overview





Motor	Gearbox type						Dimensions					Terminal box					
	D/Z	E	FD/FZ	B	K	C	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric
MB112Z	29	–	29	29	–	29	120	269.0	432	505	222.0	**TB1F10**	181.5	135	135	67.5	2xM32x1.5
	39	39	39	39	39	39						**TB1F00**	177.0	112	135	71.5	
	49	49	49	49	49	49	160										
	59	–	–	–	–	–											
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	253.5	416.5	489.5							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	236.5	399.5	472.5							
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	227.5	390.5	463.5							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	218.5	381.5	454.5							
	–	–	–	–	149	–											
	149	149	149	–	169	–	405	217.0	380.0	453.0							
	169	169	169	–	–	–	465	204.5	367.5	440.5							
	189	189	189	–	189	–											
MB132Z	49	49	49	49	49	49	160	316.0	502.0	606.5	264.0	**TB1H10**	207.0	162	162	81.0	2xM32x1.5
	59	–	–	–	–	–						**TB1H00**	202.0	130	155	84.5	
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	310.0	496.0	600.5							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	293.0	479.0	583.5							
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	284.0	470.0	574.5							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	273.0	459.0	563.5							
	–	–	–	–	149	–											
	149	149	149	–	169	–	405	266.5	452.5	557.0							
	169	169	169	–	–	–	465	253.5	489.5	544.0							
	189	189	189	–	189	–											
MB160	49	49	49	49	49	49	160	299.5	528.5	644.5	318.0	**TB1J10**	241.0	180	180	90.0	2xM40x1.5
	59	–	–	–	–	–						**TB1J00**	236.5	145	175	97.5	
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	293.5	522.5	638.5							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	276.5	505.5	621.5							
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	267.5	496.5	612.5							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	256.5	485.5	601.5							
	–	–	–	–	149	–											
	149	149	149	–	169	–	405	250.0	479.0	595.0							
	169	169	169	–	–	–	465	237.0	466.0	582.0							
	189	189	189	–	189	–											

[1] Terminal box type is dependent on the motor options, see page 11/23.

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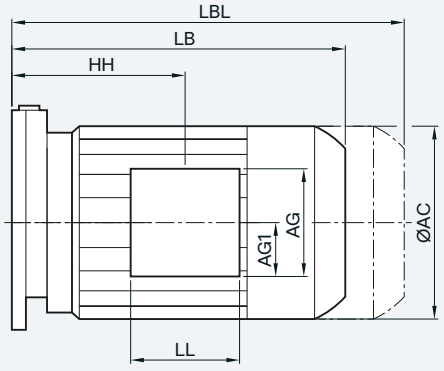
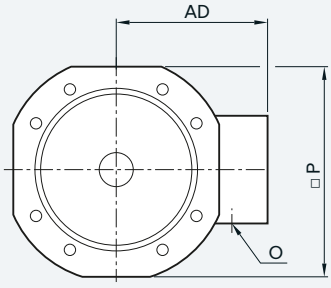
Overview





Motor	Gearbox type						Dimensions					Terminal box					
	D/Z	E	FD/FZ	B	K	C	P	HH	LB	LBL	AC	Type [1]	AD	LL	AG	AG1	O metric
MB160Z	49	49	49	49	49	49	160	359.5	588.5	704.5	318.0	**TB1J10**	241.0	180	180	90.0	2xM40x1.5
	59	–	–	–	–	–						**TB1J00**	236.5	145	175	97.5	
	69	69	69	–	69	69											
	–	–	–	–	79	–											
	79	–	79	–	–	–	198	353.5	582.5	698.5							
	–	–	–	–	89	89											
	89	89	89	–	–	–	245	336.5	565.5	681.5							
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	327.5	556.5	672.5							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	316.5	545.5	661.5							
	–	–	–	–	149	–											
	149	149	149	–	169	–	405	310.0	539.0	655.0							
	169	169	169	–	–	–	465	297.0	526.0	642.0							
	189	189	189	–	189	–											
MB180	89	89	89	–	–	–	245	336.0	593.5	722.5	352.5	**TB1J01**	241.0	180	180	90.0	2xM40x1.5
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	327.0	584.5	713.5							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	316.0	573.5	702.5							
	–	–	–	–	149	–											
	149	149	149	–	169	–	405	309.5	567.0	696.0							
	169	169	169	–	–	–	465	296.0	553.5	682.5							
	189	189	189	–	189	–											
MB180Z	89	89	89	–	–	–	245	366.0	623.5	752.5	352.5	**TB1J01**	241.0	180	180	90.0	2xM40x1.5
	–	–	–	–	109	–											
	–	–	–	–	129	–	300	357.0	614.5	743.5							
	109	109	109	–	–	–											
	129	129	129	–	–	–	350	346.0	603.5	732.5							
	–	–	–	–	149	–											
	149	149	149	–	169	–	405	339.5	597.0	726.0							
	169	169	169	–	–	–	465	326.0	583.5	712.5							
	189	189	189	–	189	–											

[1] Terminal box type is dependent on the motor options, see page 11/23.

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Second shaft extension, handwheel, and canopy

More information about the second shaft extension, the handwheel and the canopy can be found in chapter "Motor options" from page 11/75.

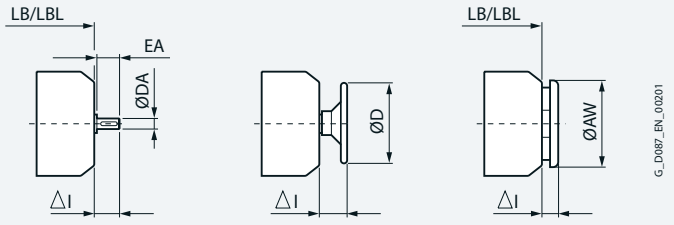

Fig. 1 Fig. 6 Fig. 2

Relevant figure	**1**			**6**		**2**	
Motor	**Second shaft extension**			**Handwheel at the second shaft extension**		**Canopy**	
	DA	EA	ΔI	D	ΔI	AW	ΔI
LEI63 / LEI63Z[1)]	–	–	–	–	–	124	27
LEI71 [1)]	–	–	–	–	–	124	27
LE63 / LE63Z	–	–	–	–	–	122.8	11.9
LE71 / LE71Z / LE71Y	14	30	34	100	50	137.8	25.9
LE80 / LE80Z	14	30	34	100	50	137.8	25.9
LE90 / LE90Z	19	40	45	160	65	175.8	16
LE100 / LE100Z	19	40	45	160	65	195	40
LE112 / LE112Z	24	50	56	200	77	195	40
LE132 / LE132Z	28	60	68	200	89	260	60
LE160 / LE160Z	38	80	88	315	111	260	60
LES180 / LES180Z	42	110	125	–	–	340	90
LES200 / LES200Z	48	110	130	–	–	340	90
LES225 / LES225Y	55	110	115	–	–	425	96
LES250	60	140	145	–	–	470	96

[1)] Only for worm geared motors S

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Encoder

More information about the encoder can be found in chapter "Motor options" from page 11/53.

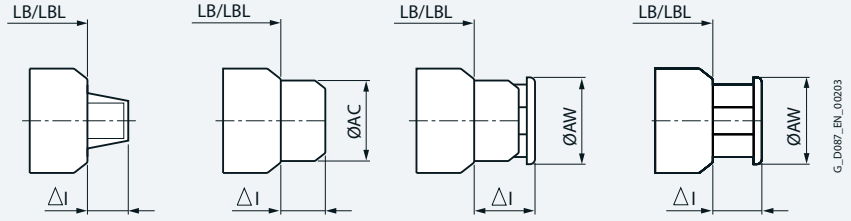

Fig. 3 Fig. 4 Fig. 5 Fig. 7

Relevant figure	**3**	**4**			**5**			**7**			
Motor	**Encoder with protective plate**	**Encoder under cover**			**Encoder under cover with canopy**			**Encoder with canopy**			
	ΔI	AC	ΔI		AW	ΔI		AW	ΔI		
	1XP		1XP IN 8.5834 IA 8.5883	LL, HOG9, HOG10		1XP	LL, HOG9, HOG10		1XP	LL, HOG9	HOG10
LEI63 / LEI63Z[1)]	70	–	–	–	–	–	–	–	–	–	–
LEI71 [1)]	70	–	–	–	–	–	–	–	–	–	–
LE63 / LE63Z	70	–	–	–	–	–	–	–	–	–	–
LE71 / LE71Z / LE71Y	70	139	92.5	–	138	118.5	–	–	–	–	–
LE80 / LE80Z	70	156.5	92.5	–	138	118.5	–	155	67.5	–	–
LE90 / LE90Z	70	174	92.5	–	176	107	–	155	67.5	–	–
LE100 / LE100Z	–	174	93.5	–	176	108	–	195	83	–	–
LE112 / LE112Z	–	195	95.0	–	194	111	–	195	83	83	–
LE132 / LE132Z	–	195	95.0	–	194	111	–	260	87	87	130
LE160 / LE160Z	–	195	95.0	–	310	111	–	260	87	87	130
LES180 / LES180Z	–	195	95.0	–	310	111	–	340	91	91	131
LES200 / LES200Z	–	195	95.0	–	310	111	–	340	91	91	131
LES225 / LES225Y	–	–	–	–	–	–	–	425	87	87	158.2
LES250	–	–	–	–	–	–	–	472	87	87	158.2

[1)] Only for worm geared motors S

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Prepared for encoder mounting

More information about "prepared for encoder mounting" can be found in chapter "Motor options" on page 11/69.

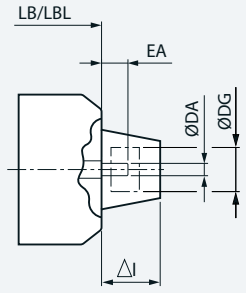

Fig. 1

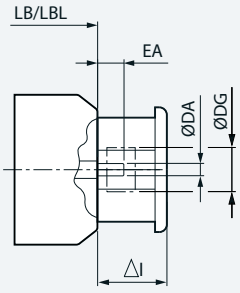

Fig. 2

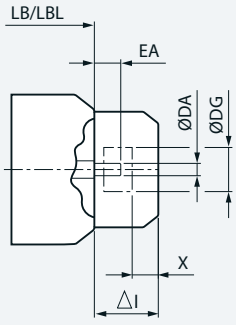

Fig. 3

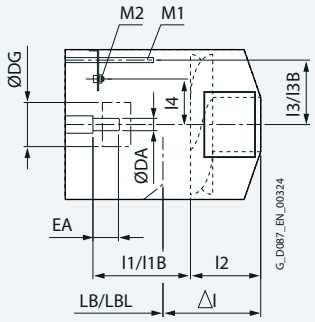

Fig. 4

Relevant figure **Motor**				**1** **Encoder prepared with protective plate**	**2** **Encoder prepared under canopy**	**3** **Encoder prepared under cover**		**4** **Encoder prepared + separately driven fan + with / without brake**									
	DA	EA	DG	Δl	Δl	Δl	X	Δl	l1	l2	l3	Brake	l1B	l3B	l4	M1	M2
LE63	12	25	max. 60	70	–	–	–	–	–	–	–	–	–	–	–	–	–
LE63Z																	
LE71		30				92.5	min. 10	229.5	134.5	95	59.0	L4, L8	115.0	59.0	37	M5x120	2xM4
LE71Z																	
LE71Y																	
LE80		30 (25)[1]			67.5			213.0	121.2	95	56.0	L4, L8	95.5	67.0		M6x130	
												L16	95.5	56.0			
LE80Z												L4, L8	95.5	67.0			
												L16	95.5	56.0			
LE90								213.0	109.4	105	66.0	L8, L16	93.5	75.0			
												L32	93.5	66.0			
LE90Z												L8, L16	93.5	75.0			
												L32	93.5	66.0			
LE100		25		–	83	93.5		218.5	115.3	105	66.0	L16, L32	97.0	85.0			
												L60	97.0	72.5		M8x160	
LE100Z												L16, L32	97.0	85.0		M6x130	
												L60	97.0	72.5		M8x160	
LE112						95.0		206.0	115.5	105	72.5	L32, L60	93.5	95.0			
LE112Z																	
LE132					87			258.5	132.0	127	98.0	L80	97.5	116.0			
												L150	97.5	98.0			
LE132Z												L80	97.5	116.0			
												L150	97.5	98.0			
LE160								285.0	147.0	152	115.0	L150, L260	93.0	141.0		M8x170	
LE160Z												L150, L260	93.0	141.0			
LES180					91			274.0	162.0	151.5	157.0	L260	95.0	157.0		M10x210	
LES180Z																	
LES200								293.0	136.5	151.5	175.0	L260, L400	96.0	175.0			
LES200Z																	

[1] Value in parenthesis applies to motor with separately driven fan and brake

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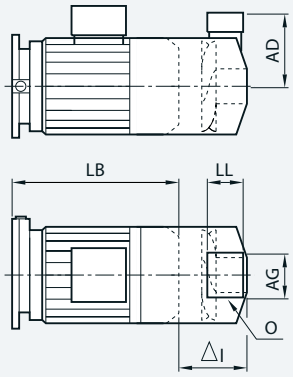
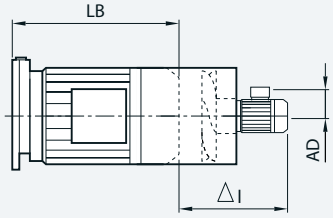
Separately driven fan, encoder, and canopy

More information about the separately driven fan can be found in chapter "Motor options" on page 11/17.



LA71 ... LES200

Fig. 8



LES225 ... LES250

Fig. 8

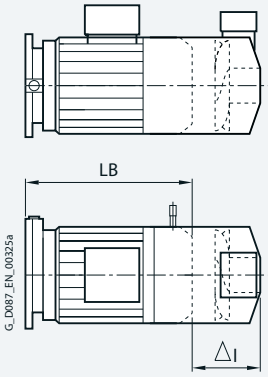


Fig. 9

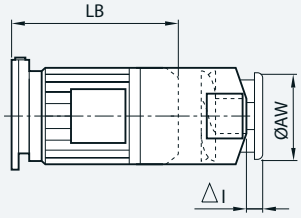


Fig. 10

Relevant figure	**8**					**9**	**9**		**9**			**10**	
Motor	**Separately driven fan**					**Brake + separately driven fan**	**Encoder + separately driven fan**		**Brake + encoder + separately driven fan**			**Canopy for separately driven fan**	
	ΔI	AD	LL	AG	O	ΔI	ΔI		ΔI			ΔI	AW
							1XP	LL, HOG9, HOG10	1XP	LL, HOG9	HOG10		
LE63 / LE63Z	–	–	–	–	–	–	–	–	–	–	–	–	–
LE71 / LE71Z / LE71Y	110.5	124	107	105	M16x1.5	134.5	229.5	–	229.5	–	–	37	150
LE80 / LE80Z	89	134	107	105	M16x1.5	118	213	–	213	–	–	40	170
LE90 / LE90Z	85	143	107	105	M16x1.5	120	213	–	213	–	–	30	188
LE100 / LE100Z	81.5	152	107	105	M16x1.5	121.5	218.5	–	218.5	–	–	28	210
LE112 / LE112Z	81	164	107	105	M16x1.5	113	206	–	206	–	–	33	249
LE132 / LE132Z	114.5	185	107	105	M16x1.5	164.5	258.5	258.5	258.5	258.5	302.5	25	300
LE160 / LE160Z	131	211	107	105	M16x1.5	191	285	285	285	285	329	32	338
LES180 / LES180Z	132	211	107	105	M16x1.5	199	274	274	274	274	319	32	338
LES200 / LES200Z	141	211	107	105	M16x1.5	233	293	293	293	293	337	32	338
LES225 / LES225Y	227.5	101	–	–	M25x1.5 + M16x1.5	–	–	786.5	–	–	–	258	470
LES250	232.5	101	–	–	M25x1.5 + M16x1.5	–	–	826.5	–	–	–	256	525
Explosion-protected motors													
MB100 / MB100Z	81.5	152	107	105			–	–	–	–	–	28	210
MB112 / MB112Z	81.0	164	107	105			–	–	–	–	–	33	249
MB132 / MB132Z	114.5	185	107	105			–	–	–	–	–	25	300
MB160 / MB160Z	131	211	107	105			–	–	–	–	–	32	338
MB180 / MB180Z	132	211	107	105			–	–	–	–	–	32	338

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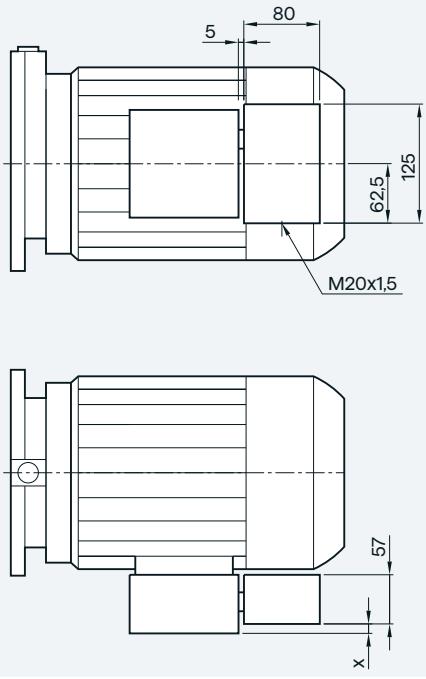
Application terminal box

Overview

More information about the application terminal box can be found in chapter "Motor options" on page 11/72.



Motor	x	Terminal box type
LE63	2.5 (3.5)	gk127 (TB1E10)
LE71	2.5 (3.5)	
LE80	3.5	TB1E10
LE90	3.5	
LE100	7.0	TB1F10
LE112	7.0	
LE132	11.5	TB1H10
LE160	19.8	TB1J10
LES180	38.0	TB1K01
LES200	39.0	TB1L01

() Dimension or terminal box type in parenthesis for terminal box with 9 terminals (YY/Y connection)

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Overview

More information about the motor plug can be found in chapter "Motor options" on page 11/25.

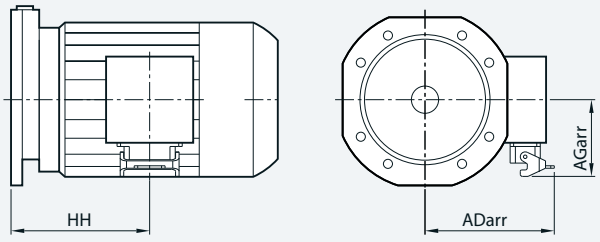

Fig. 1

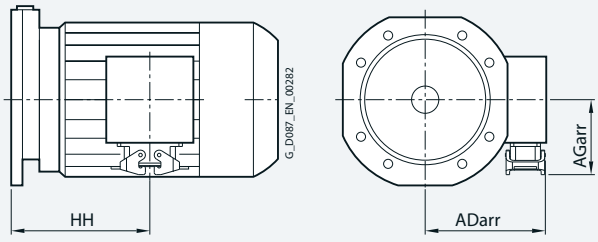

Fig. 2

Relevant figure							Fig. 1			Fig. 2		
Motor	**Gearbox type**						**HAN 10E motor plug with one bracket**			**HAN 10E motor plug with two brackets**		
	D/Z	FD/FZ	B	K	C	EHB	HH	ADarr	AGarr	HH	ADarr	AGarr
LE63	19	–	19	–	–	–	61.5	132	92.0	61.5	127.0	89.5
	39	29, 39	29, 39	39	29, 39	BH29, BH39	95.0			95.0		
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	85.5			85.5		
LE63Z	19	–	19	–	–	–	87.5	132	92.0	87.5	127.0	89.5
	39	29, 39	29, 39	39	29, 39	BH29, BH39	121.0			121.0		
	49 ... 69	49, 69	49	49 ... 79	49,69	KH49...79	111.5			111.5		
LE71 **LE71Z** **LE71Y**	19	–	19	–	–	–	93.5	142.0	92.0	93.5	127.0	89.5
	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	135.0			135.0		
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	125.5			125.5		
	79	79	–	89	89	–	123.5			123.5		
LE80	19	–	19	–	–	–	120.0	155.0	106.0	120.0	139.5	103.5
	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	170.0			170.0		
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	160.5			160.5		
	79	79	–	89	89	–	154.5			154.5		
	89	89	–	109	–	–	141.5			141.5		
LE80Z	19	–	19	–	–	–	155.0	155.0	106.0	155.0	139.5	103.5
	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	205.0			205.0		
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	195.5			195.5		
	79	79	–	89	89	–	189.5			189.5		
	89	89	–	109	–	–	176.5			176.5		
LE90	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	207.5	160.0	106.0	207.5	144.5	103.5
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	198.0			198.0		
	79	79	–	89	89	–	192.0			192.0		
	89	89	–	109	–	–	179.0			179.0		
	109	109	–	129	–	–	172.0			172.0		
	129	129	–	149	–	–	165.0			165.0		
LE90Z	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	247.5	160.0	106.0	247.5	144.5	103.5
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	238.0			238.0		
	79	79	–	89	89	–	232.0			232.0		
	89	89	–	109	–	–	219.0			219.0		
	109	109	–	129	–	–	212.0			212.0		
	129	129	–	149	–	–	205.0			205.0		
LE100	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	242.5	179.5	115.5	242.5	164.0	113.0
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	233.0			233.0		
	79	79	–	89	89	–	227.0			227.0		
	89	89	–	109	–	–	210.0			210.0		
	109	109	–	129	–	–	201.0			201.0		
	129	129	–	149	–	–	192.0			192.0		
	149	149	–	169	–		190.5			190.5		

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Motors

HAN 10E motor plug

Overview

More information about the motor plug can be found in chapter "Motor options" on page 11/25.

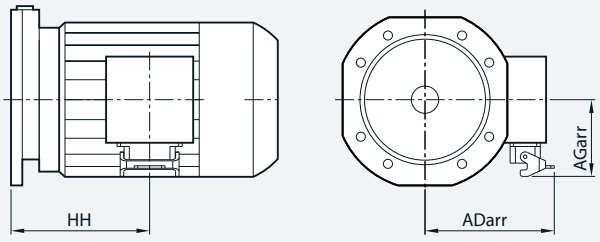

Fig. 1

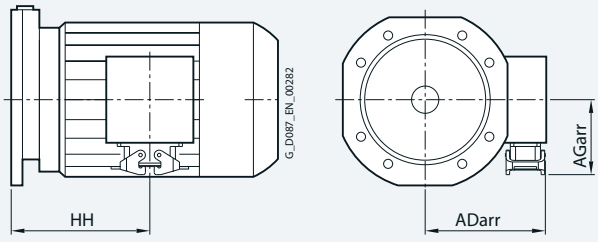

Fig. 2

Relevant figure							Fig. 1			Fig. 2		
Motor	Gearbox type						HAN 10E motor plug with one bracket			HAN 10E motor plug with two brackets		
	D/Z	FD/FZ	B	K	C	EHB	HH	ADarr	AGarr	HH	ADarr	AGarr
LE100Z	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	277.5	179.5	115.5	277.5	164.0	113.0
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	268.0			268.0		
	79	79	–	89	89	–	262.0			262.0		
	89	89	–	109	–	–	245.0			245.0		
	109	109	–	129	–	–	236.0			236.0		
	129	129	–	149	–	–	227.0			227.0		
	149	149	–	169	–	–	225.5			225.5		
LE112	29, 39	29, 39	29, 39	39	29, 39	–	244.0	190.5	115.5	244.0	175.0	113.0
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49 ... 79	234.5			234.5		
	79	79	–	89	89	–	228.5			228.5		
	89	89	–	109	–	–	211.5			211.5		
	109	109	–	129	–	–	202.5			202.5		
	129	129	–	149	–	–	193.5			193.5		
	149	149	–	169	–	–	192.0			192.0		
	169, 189	169, 189	–	189	–	–	179.5			179.5		
LE112Z	29, 39	29, 39	29, 39	39	29, 39	–	269.0	190.5	115.5	269.0	1175.0	113.0
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49 ... 79	234.5			234.5		
	79	79	–	89	89	–	253.5			253.5		
	89	89	–	109	–	–	236.5			236.5		
	–	–	–	129	–	–	227.5			227.5		
	129	129	–	149	–	–	218.5			218.5		
	149	149	–	169	–	–	217.0			217.0		
	169, 189	169, 189	–	189	–	–	204.5			204.5		
LE132	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49 ... 79	266.0	209.5	138.0	266.0	223.0	135.5
	79	79	–	89	89	–	260.0			260.0		
	89	89	–	109	–	–	243.0			243.0		
	109	109	–	129	–	–	234.0			234.0		
	129	129	–	149	–	–	223.0			223.0		
	149	149	–	169	–	–	216.5			216.5		
	169, 189	169, 189	–	189	–	–	203.5			203.5		
LE132Z	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49 ... 79	316.0	209.5	138.0	316.0	223.0	135.5
	79	79	–	89	89	–	310.0			310.0		
	89	89	–	109	–	–	293.0			293.0		
	109	109	–	129	–	–	284.0			284.0		
	129	129	–	149	–	–	273.0			273.0		
	149	149	–	169	–	–	266.5			266.5		
	169, 189	169, 189	–	189	–	–	253.5			253.5		

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Overview

More information about the motor plug can be found in chapter "Motor options" on page 11/26.

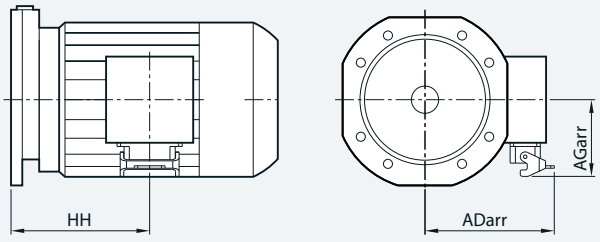

Fig. 1

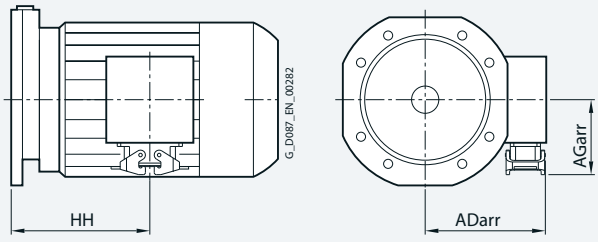

Fig. 2

Relevant figure							Fig. 1			Fig. 2		
Motor	**Gearbox type**						**K4/4 motor plug with one bracket**			**K4/4 motor plug with two brackets**		
	D/Z	FD/FZ	B	K	C	EHB	HH	ADarr	AGarr	HH	ADarr	AGarr
LE112	29, 39	29, 39	29, 39	39	29, 39	–	244.0	190.5	115.5	244.0	175.0	113.0
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49 ... 79	234.5			234.5		
	79	79	–	89	89	–	228.5			228.5		
	89	89	–	109	–	–	211.5			211.5		
	109	109	–	129	–	–	202.5			202.5		
	129	129	–	149	–	–	193.5			193.5		
	149	149	–	169	–	–	192.0			192.0		
	169, 189	169, 189	–	189	–	–	179.5			179.5		
LE112Z	29, 39	29, 39	29, 39	39	29, 39	–	269.0	190.5	115.5	269.0	1175.0	113.0
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49 ... 79	234.5			234.5		
	79	79	–	89	89	–	253.5			253.5		
	89	89	–	109	–	–	236.5			236.5		
	–	–	–	129	–	–	227.5			227.5		
	129	129	–	149	–	–	218.5			218.5		
	149	149	–	169	–	–	217.0			217.0		
	169, 189	169, 189	–	189	–	–	204.5			204.5		
LE132	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49 ... 79	266.0	209.5	138.0	266.0	223.0	135.5
	79	79	–	89	89	–	260.0			260.0		
	89	89	–	109	–	–	243.0			243.0		
	109	109	–	129	–	–	234.0			234.0		
	129	129	–	149	–	–	223.0			223.0		
	149	149	–	169	–	–	216.5			216.5		
	169, 189	169, 189	–	189	–	–	203.5			203.5		
LE132Z	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49 ... 79	316.0	209.5	138.0	316.0	223.0	135.5
	79	79	–	89	89	–	310.0			310.0		
	89	89	–	109	–	–	293.0			293.0		
	109	109	–	129	–	–	284.0			284.0		
	129	129	–	149	–	–	273.0			273.0		
	149	149	–	169	–	–	266.5			266.5		
	169, 189	169, 189	–	189	–	–	253.5			253.5		
LE160	49 ... 69	49, 69	49	49 ... 79	49, 69	–	299.5	138.5	138.0	299.5	123.0	135.5
	79	79	–	89	89	–	293.5			293.5		
	89	89	–	109	–	–	276.5			276.5		
	109	109	–	129	–	–	267.5			267.5		
	129	129	–	149	–	–	256.5			256.5		
	149	149	–	169	–	–	250.0			250.0		
	169, 189	169, 189	–	189	–	–	237.0			237.0		
LE160Z	49 ... 69	49, 69	49	49 ... 79	49, 69	–	359.5	138.5	138.0	359.5	123.0	135.5
	79	79	–	89	89	–	353.5			353.5		
	89	89	–	109	–	–	336.5			336.5		
	109	109	–	129	–	–	327.5			327.5		
	129	129	–	149	–	–	316.5			316.5		
	149	149	–	169	–	–	310.0			310.0		
	169, 189	169, 189	–	189	–	–	297.0			297.0		

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Motors

HAN K4/4 motor plug

Overview

More information about the motor plug can be found in chapter "Motor options" on page 11/26.

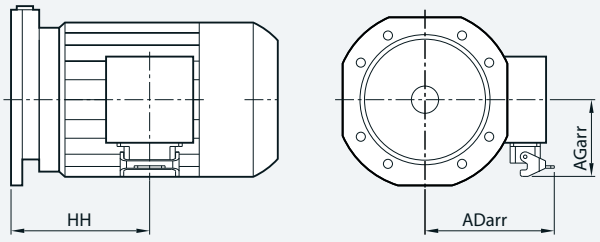

Fig. 1

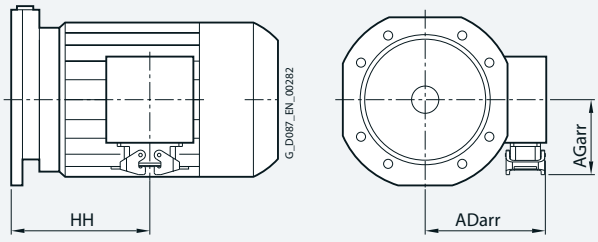

Fig. 2

Relevant figure						Fig. 1			Fig. 2		
Motor	**Gearbox type**					**K4/4 motor plug with one bracket**			**K4/4 motor plug with two brackets**		
	D/Z	FD/FZ	B	K	C	HH	ADarr	AGarr	HH	ADarr	AGarr
LES180	89	89	–	109	–	336.0	278.5	201.0	336.0	263.0	198.5
	109	109	–	129	–	327.0			327.0		
	129	129	–	149	–	316.0			316.0		
	149	149	–	169	–	309.5			309.5		
	169, 189	169, 189	–	189	–	296.0			296.0		
LES180Z	89	89	–	109	–	366.0	278.5	201.0	366.0	263.0	198.5
	–	–	–	129	–	357.0			357.0		
	129	129	–	149	–	346.0			346.0		
	149	149	–	169	–	339.5			339.5		
	169, 189	169, 189	–	189	–	326.0			326.0		
LES200	109	109	–	129	–	391.5	302.5	201.0	391.5	287.0	198.5
	129	129	–	149	–	380.5			380.5		
	149	149	–	169	–	374.0			374.0		
	169, 189	169, 189	–	189	–	360.5			360.5		
LES200Z	109	109	–	129	–	300.0	302.5	201.0	300.0	287.0	198.5
	129	129	–	149	–	350.0			350.0		
	149	149	–	169	–	405.0			405.0		
	169, 189	169, 189	–	189	–	466.0			466.0		

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Overview

More information about the motor plug can be found in chapter "Motor options" from page 11/28 to page 11/32.

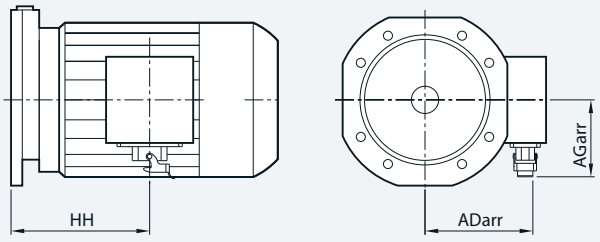

Fig. 1

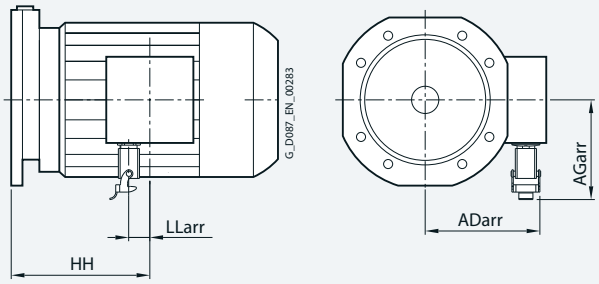

Fig. 2

Relevant figure							Fig. 1			Fig. 2			
Motor	**Gearbox type**						**HAN Q8 motor plug**			**HAN Q12 motor plug**			
	D/Z	FD/FZ	B	K	C	EHB	HH	ADarr	AGarr	HH	ADarr	AGarr	LLarr
LE63	19	–	19	–	–	–	61.5	110.0	87.5	61.5	104.0	109.0	18
	39	29, 39	29, 39	39	29, 39	BH29, BH39	95.0			95.0			
	49 … 69	49, 69	49	49 … 79	49,69	KH49…79	85.5			85.5			
LE63Z	19	–	19	–	–	–	87.5	110.0	87.5	87.5	104.0	109.0	
	39	29, 39	29, 39	39	29, 39	BH29, BH39	121.0			121.0			
	49 … 69	49, 69	49	49 … 79	49,69	KH49…79	111.5			111.5			
LE71 **LE71Z** **LE71Y**	19	–	19	–	–	–	93.5	120.0	87.5	93.5	114.0	109.0	
	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	135.0			135.0			
	49 … 69	49, 69	49	49 … 79	49, 69	KH49…79	125.5			125.5			
	79	79	–	89	89	–	123.5			123.5			
LE80	19	–	19	–	–	–	120.0	134.0	107.0	120.0	128.0	122.0	
	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	170.0			170.0			
	49 … 69	49, 69	49	49 … 79	49, 69	KH49…79	160.5			160.5			
	79	79	–	89	89	–	154.5			154.5			
	89	89	–	109	–	–	141.5			141.5			
LE80Z	19	–	19	–	–	–	155.0	134.0	107.0	155.0	233.0	122.0	
	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	205.0			205.0			
	49 … 69	49, 69	49	49 … 79	49, 69	KH49…79	195.5			195.5			
	79	79	–	89	89	–	189.5			189.5			
	89	89	–	109	–	–	176.5			176.5			
LE90	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	207.5	139.0	107.0	207.5	133.0	122.0	
	49 … 69	49, 69	49	49 … 79	49, 69	KH49…79	198.0			198.0			
	79	79	–	89	89	–	192.0			192.0			
	89	89	–	109	–	–	179.0			179.0			
	109	109	–	129	–	–	172.0			172.0			
	129	129	–	149	–	–	165.0			165.0			
LE90Z	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	247.5	139.0	107.0	247.5	152.5	122.0	
	49 … 69	49, 69	49	49 … 79	49, 69	KH49…79	238.0			238.0			
	79	79	–	89	89	–	232.0			232.0			
	89	89	–	109	–	–	219.0			219.0			
	109	109	–	129	–	–	212.0			212.0			
	129	129	–	149	–	–	205.0			205.0			
LE100	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	242.5	158.5	116.5	–	–	–	–
	49 … 69	49, 69	49	49 … 79	49, 69	KH49…79	233.0						
	79	79	–	89	89	–	227.0						
	89	89	–	109	–	–	210.0						
	109	109	–	129	–	–	201.0						
	129	129	–	149	–	–	192.0						
	149	149	–	169	–	–	190.5						

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Motors

HAN Q8 and HAN Q12 motor plugs

Overview

More information about the motor plug can be found in chapter "Motor options" from page 11/28 to page 11/32.

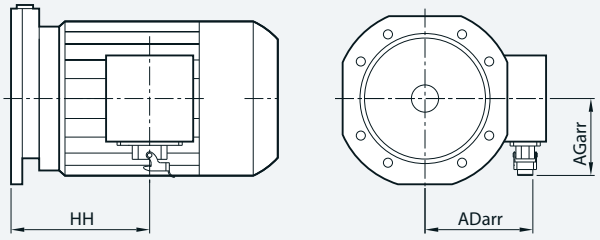

Fig. 1

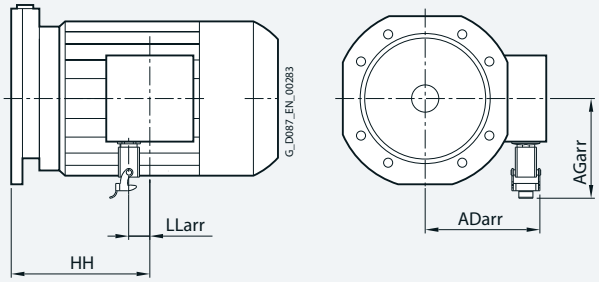

Fig. 2

Relevant figure							Fig. 1			Fig. 2			
Motor	Gearbox type						HAN Q8 motor plug			HAN Q12 motor plug			
	D/Z	FD/FZ	B	K	C	EHB	HH	ADarr	AGarr	HH	ADarr	AGarr	LLarr
LE100Z	29, 39	29, 39	29, 39	39	29, 39	BH29, BH39	277.5	158.5	116.5	–	–	–	–
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	268.0						
	79	79	–	89	89	–	262.0						
	89	89	–	109	–	–	245.0						
	109	109	–	129	–	–	236.0						
	129	129	–	149	–	–	227.0						
	149	149	–	169	–	–	225.5						
LE112	29, 39	29, 39	29, 39	39	29, 39	–	244.0	169.5	116.5	–	–	–	–
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	234.5						
	79	79	–	89	89	–	228.5						
	89	89	–	109	–	–	211.5						
	109	109	–	129	–	–	202.5						
	129	129	–	149	–	–	193.5						
	149	149	–	169	–	–	192.0						
	169, 189	169, 189	–	189	–	–	179.5						
LE112Z	29, 39	29, 39	29, 39	39	29, 39	–	269.0	169.5	116.5	–	–	–	–
	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	234.5						
	79	79	–	89	89	–	253.5						
	89	89	–	109	–	–	236.5						
	–	–	–	129	–	–	227.5						
	129	129	–	149	–	–	218.5						
	149	149	–	169	–	–	217.0						
	169, 189	169, 189	–	189	–	–	204.5						
LE132	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	266.0	188.5	130.0	–	–	–	–
	79	79	–	89	89	–	260.0						
	89	89	–	109	–	–	243.0						
	109	109	–	129	–	–	234.0						
	129	129	–	149	–	–	223.0						
	149	149	–	169	–	–	216.5						
	169, 189	169, 189	–	189	–	–	203.5						
LE132Z	49 ... 69	49, 69	49	49 ... 79	49, 69	KH49...79	316.0	188.5	130.0	–	–	–	–
	79	79	–	89	89	–	310.0						
	89	89	–	109	–	–	293.0						
	109	109	–	129	–	–	284.0						
	129	129	–	149	–	–	273.0						
	149	149	–	169	–	–	266.5						
	169, 189	169, 189	–	189	–	–	253.5						

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Gearbox options

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10

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10 Gearbox options

10/2 Mounting position

10/2 Overview
10/4 Helical gearboxes Z and D
10/11 Helical gearboxes E
10/13 Parallel shaft gearboxes
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Gearbox options

Overview

The mounting position must be specified when you place your order to ensure that the gearbox is supplied with the correct quantity of oil.

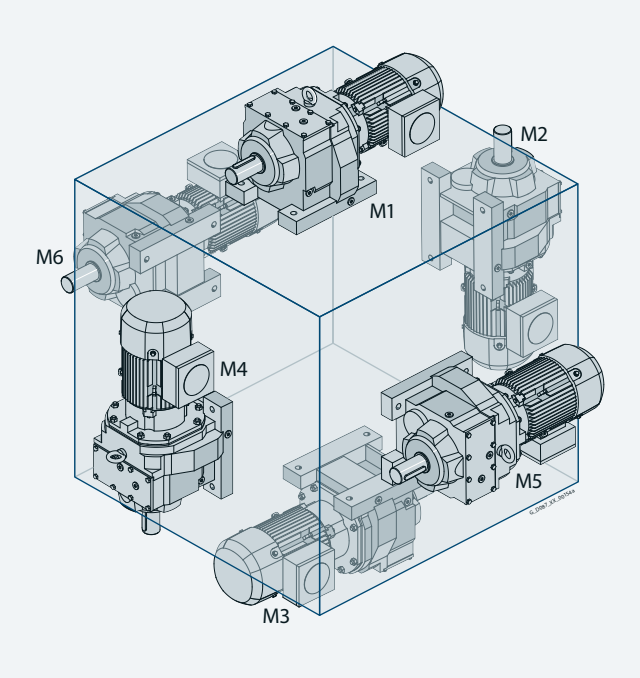

Fig. 10-1 Helical geared motors

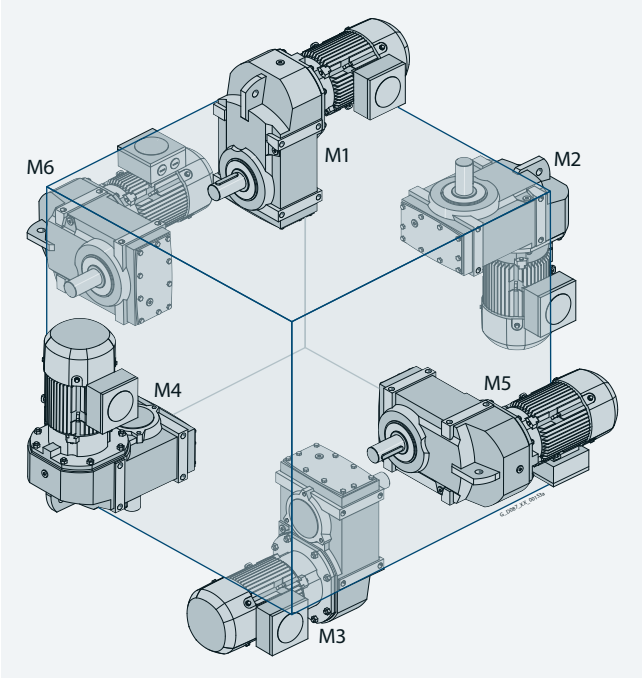

Fig. 10-2 Parallel shaft geared motors

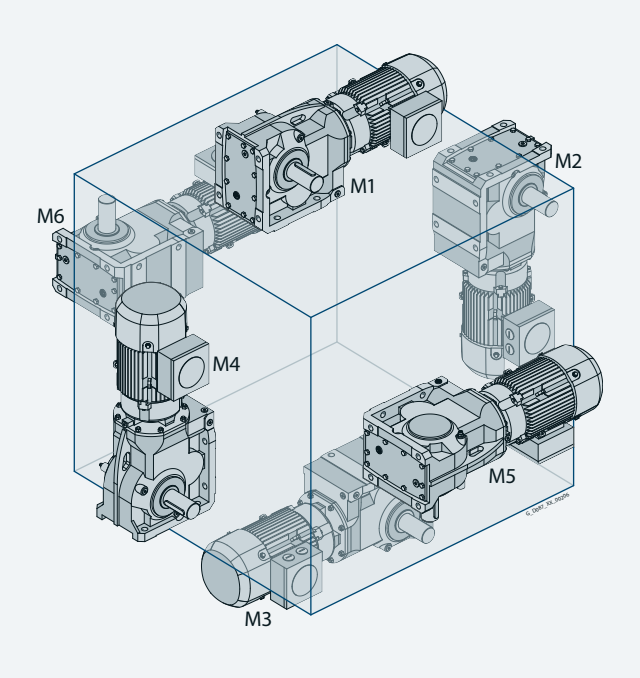

Fig. 10-3 Bevel geared motors

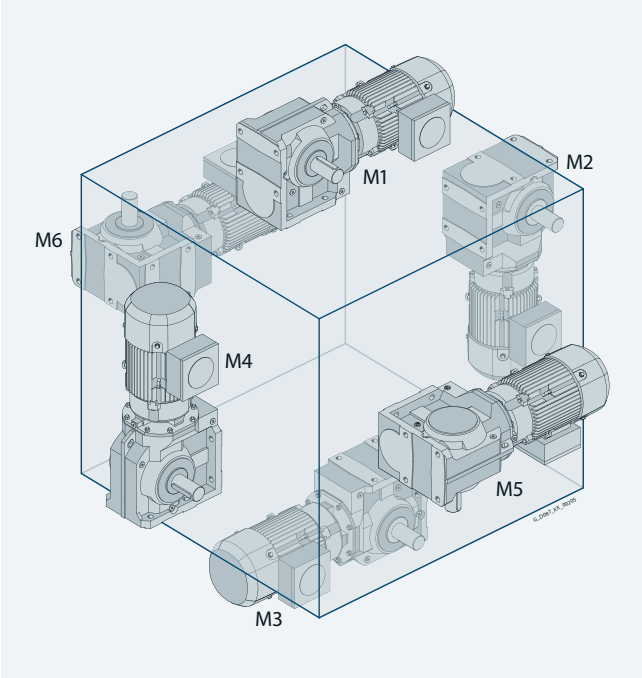

Fig. 10-4 Helical worm geared motors

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Overview

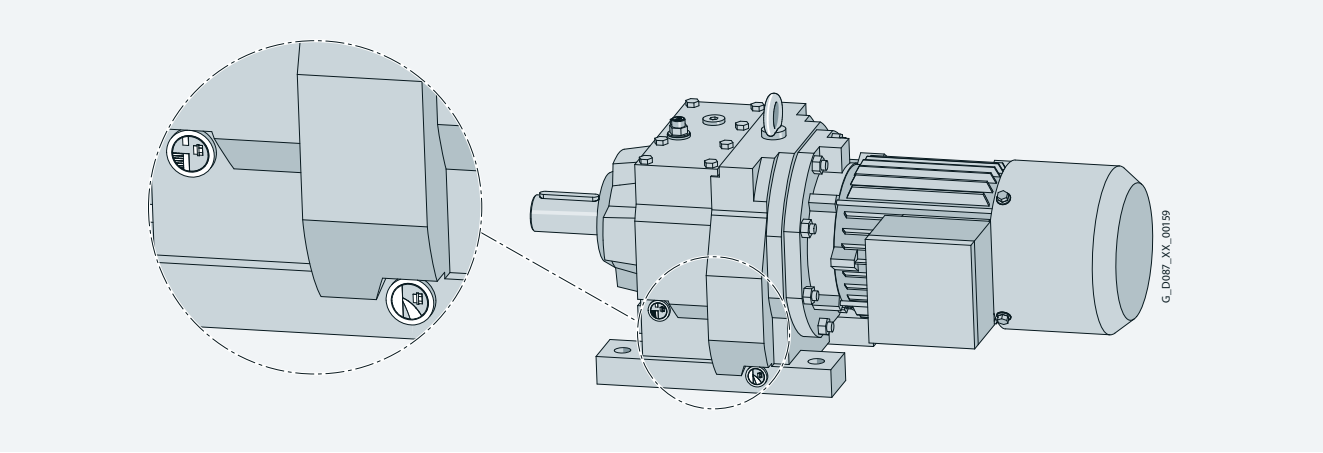

Fig. 10-5 Dimensional drawing from SPC with details

An explanation of the symbols used to represent mounting positions can be found on the following pages

Symbol	
Oil valves	
	Venting
	Oil drain
	Oil level checking screw
	Oil dipstick, optional
	Venting main gearbox (applies only to tandem geared motors)
	Oil drain main gearbox (applies only to tandem geared motors)
Supplements	
*	On opposite side
A, B	Output side A, output side B
①	Oil level checking screw not possible for tandem geared motors
②	2-stage gearboxes
③	3-stage gearboxes
④	Oil level checking screw not possible for 3-stages tandem gearbox (main gearbox)
①	Clutch engaged (only for electric-monorail geared motors)
②	Clutch disengaged (only for electric-monorail geared motors)
③	Clutch disengaged (only for electric-monorail geared motors)
① ... ④	Terminal box position

Note:
The SPC can be used to configure Innomotics SG geared motors. This can be used on the internet without requiring any installation.

The SPC can be found at the following address:
configurator.innomotics.com

For the selected mounting position, the 3D images show the exact position of the oil valves.

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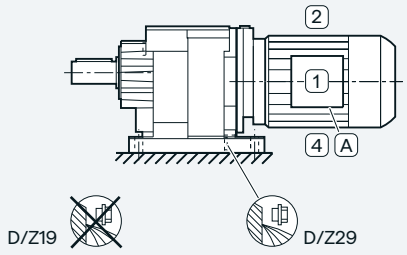
Foot-mounted design

Helical gearboxes Z and D, sizes 19 and 29

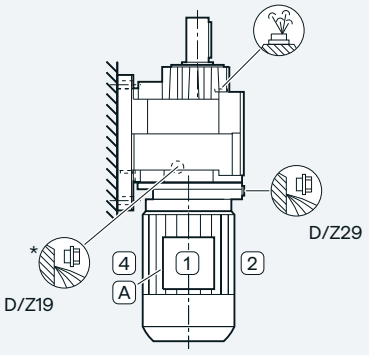
Oil valves

Sizes 19 and 29 are lubricated for life.
For an explanation of the symbols, see page 10/3.

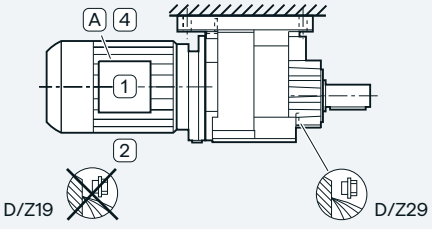
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D01**



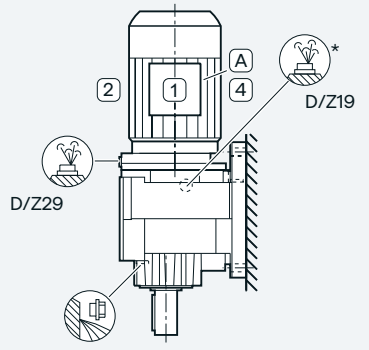
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D02**



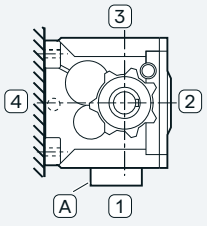
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D03**



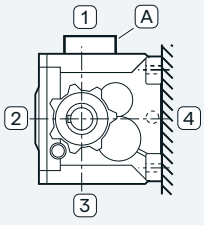
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D06**



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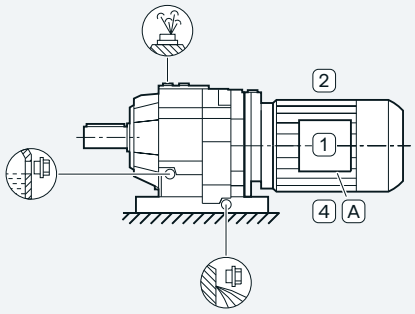
Foot-mounted design

Helical gearboxes Z and D, sizes 39 to 189

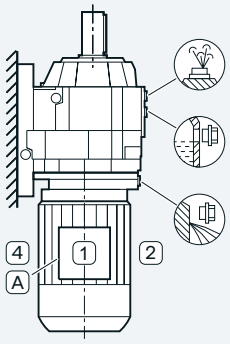
Oil valves

For an explanation of the symbols, see page 10/3.

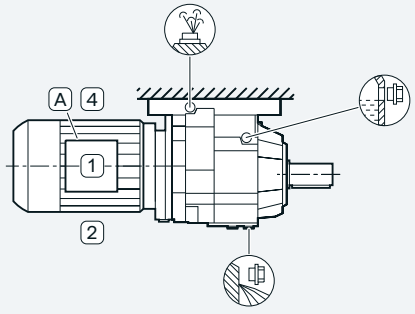
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D01**



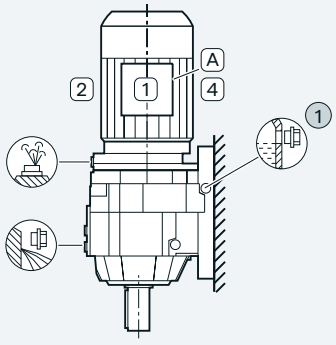
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D02**



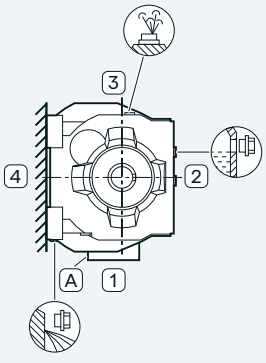
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D03**



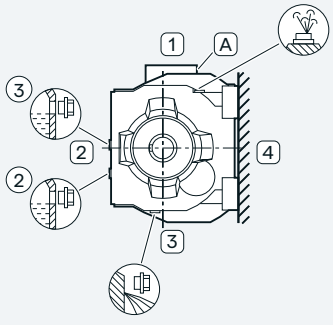
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D06**



10

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Helical gearboxes Z and D

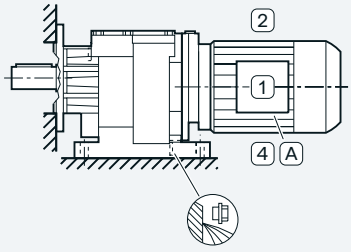
Foot/flange-mounted design

Helical gearboxes ZB and DB, size 29

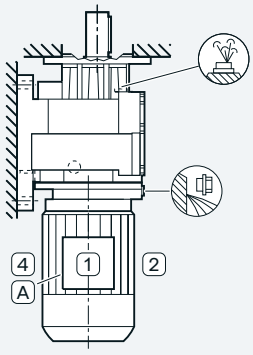
Oil valves

Size 29 is lubricated for life.
For an explanation of the symbols, see page 10/3.

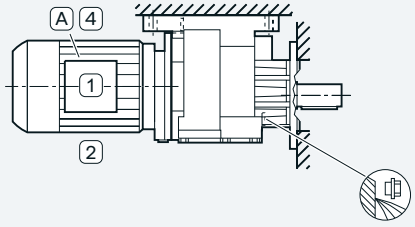
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ3102 -.....-.B..**-Z** 2KJ3202 -.....-.B..**-Z**	**D01**



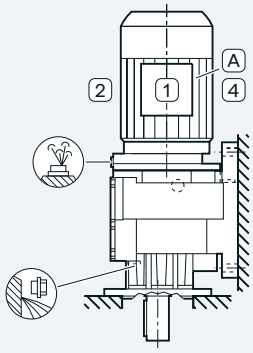
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ3102 -.....-.B..**-Z** 2KJ3202 -.....-.B..**-Z**	**D02**



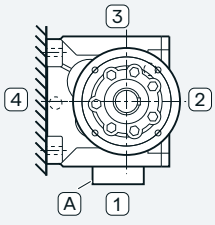
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ3102 -.....-.B..**-Z** 2KJ3202 -.....-.B..**-Z**	**D03**



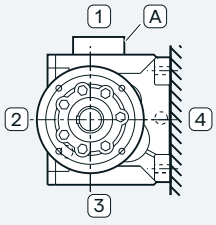
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ3102 -.....-.B..**-Z** 2KJ3202 -.....-.B..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ3102 -.....-.B..**-Z** 2KJ3202 -.....-.B..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ3102 -.....-.B..**-Z** 2KJ3202 -.....-.B..**-Z**	**D06**



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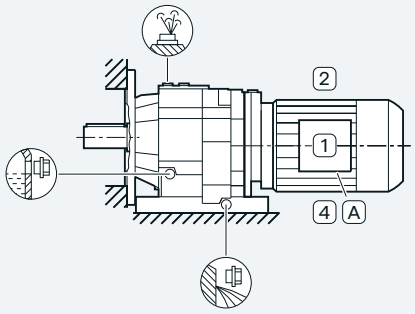
Foot/flange-mounted design

Helical gearboxes ZB and DB, sizes 39 to 89

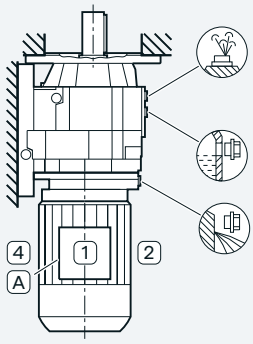
Oil valves

For an explanation of the symbols, see page 10/3.

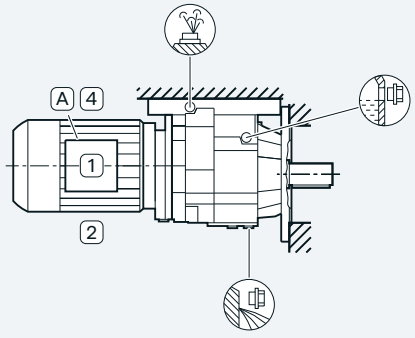
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D01**



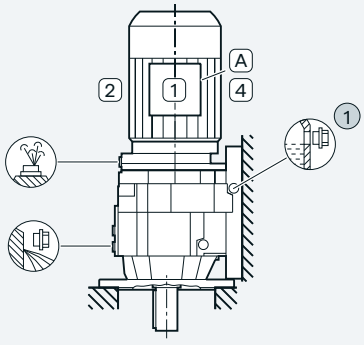
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D02**



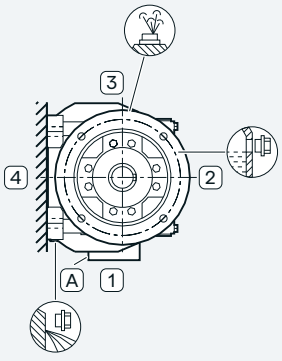
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D03**



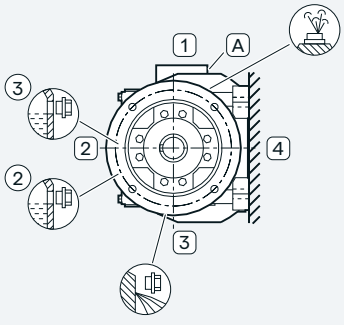
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D06**



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Helical gearboxes Z and D

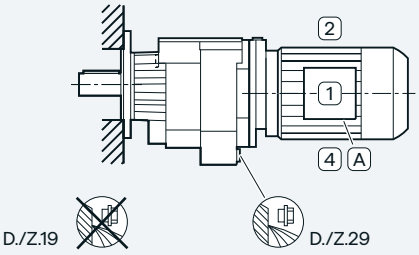
Flange-mounted design or with housing flange

Helical gearboxes ZF and DF or ZZ and DZ, sizes 19 and 29

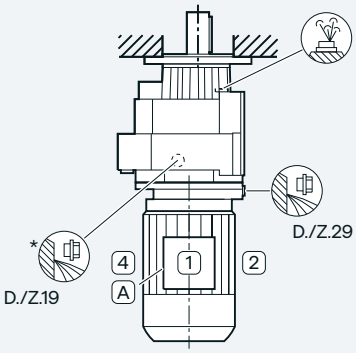
Oil valves

Sizes 19 and 29 are lubricated for life.
For an explanation of the symbols, see page 10/3.

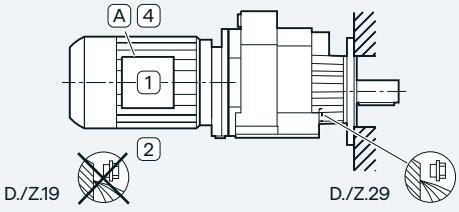
Mounting position	Additional identification code **-Z** with order code		Order code
M1	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D01**



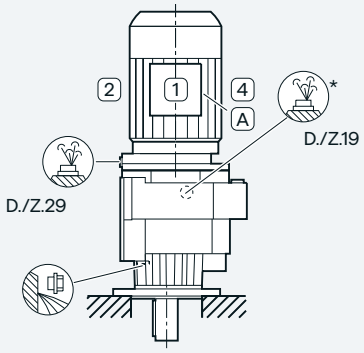
Mounting position	Additional identification code **-Z** with order code		Order code
M2	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D02**



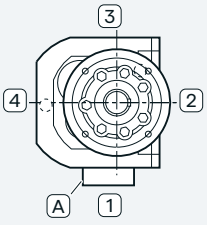
Mounting position	Additional identification code **-Z** with order code		Order code
M3	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D03**



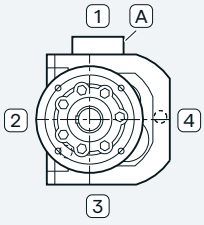
Mounting position	Additional identification code **-Z** with order code		Order code
M4	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code		Order code
M5	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code		Order code
M6	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D06**



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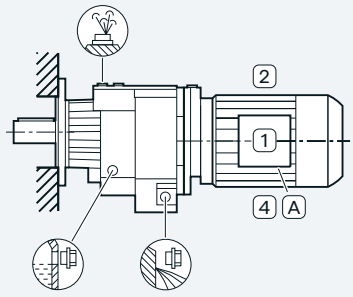
Flange-mounted design or with housing flange

Helical gearboxes ZF and DF or ZZ and DZ, size 39

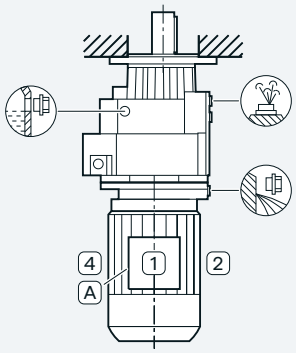
Oil valves

For an explanation of the symbols, see page 10/3.

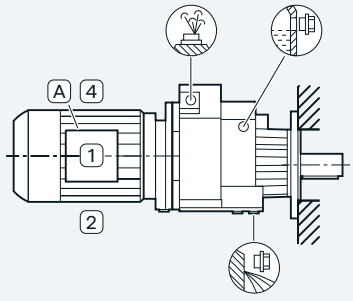
Mounting position	Additional identification code **-Z** with order code		Order code
M1	2KJ3103-.....-.F..**-Z**, 2KJ3203-.....-.F..**-Z**,	2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.H..**-Z**	**D01**



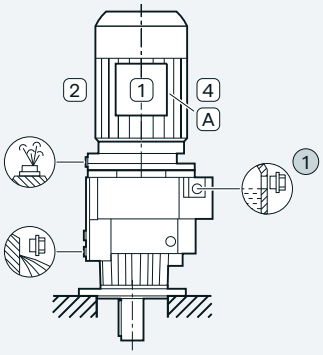
Mounting position	Additional identification code **-Z** with order code		Order code
M2	2KJ3103-.....-.F..**-Z**, 2KJ3203-.....-.F..**-Z**,	2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.H..**-Z**	**D02**



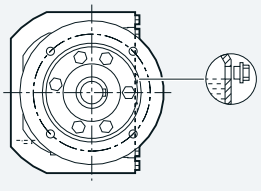
Mounting position	Additional identification code **-Z** with order code		Order code
M3	2KJ3103-.....-.F..**-Z**, 2KJ3203-.....-.F..**-Z**,	2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.H..**-Z**	**D03**



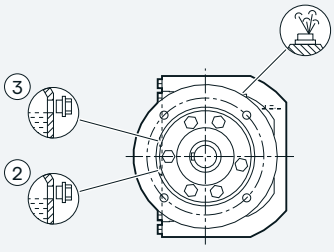
Mounting position	Additional identification code **-Z** with order code		Order code
M4	2KJ3103-.....-.F..**-Z**, 2KJ3203-.....-.F..**-Z**,	2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.H..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code		Order code
M5	2KJ3103-.....-.F..**-Z**, 2KJ3203-.....-.F..**-Z**,	2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code		Order code
M6	2KJ3103-.....-.F..**-Z**, 2KJ3203-.....-.F..**-Z**,	2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.H..**-Z**	**D06**



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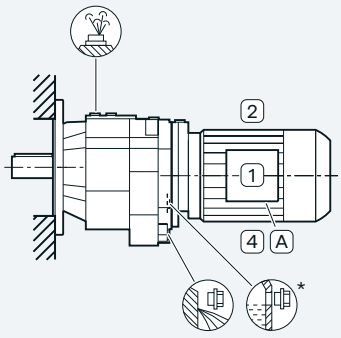
Flange-mounted design or with housing flange

Helical gearboxes ZF and DF, sizes 49 to 189 or ZZ and DZ, sizes 49 to 129
Helical gearboxes ZF and DF with VLplus (G30) / XLplus (G31) reinforced bearing systems, sizes 89 to 169
Cooling tower gearboxes ZKF, sizes 89 to 189 (mounting positions M2 and M4)

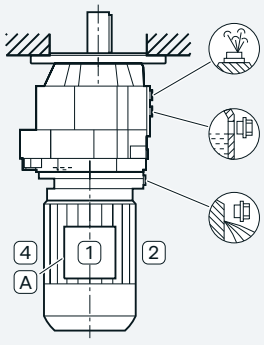
Oil valves

For an explanation of the symbols, see page 10/3.
An oil dipstick is available as an option for 2-stage helical gearboxes ZF89 to ZF189 and ZKF89 to ZKF189 with mounting position M4.

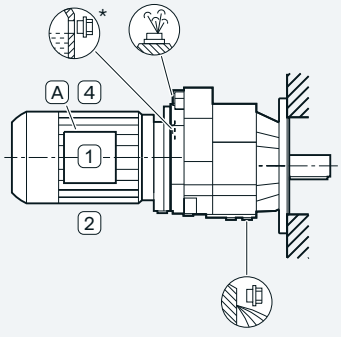
Mounting position	Additional identification code **-Z** with order code		Order code
M1	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D01**



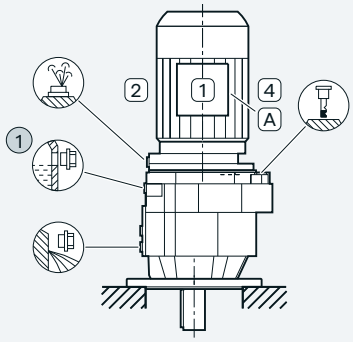
Mounting position	Additional identification code **-Z** with order code		Order code
M2	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D02**



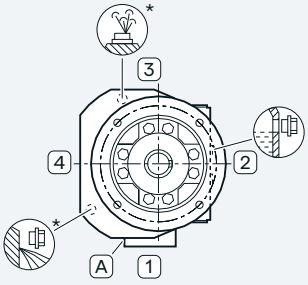
Mounting position	Additional identification code **-Z** with order code		Order code
M3	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D03**



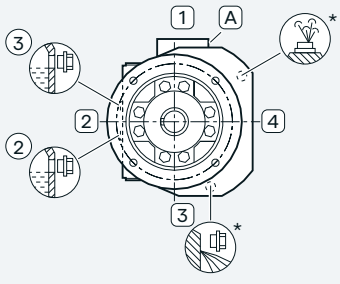
Mounting position	Additional identification code **-Z** with order code		Order code
M4	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D04**
Oil dipstick (only mounting position M4)	2KJ31.. -.....-....**-Z**		**G48 + D04**



Mounting position	Additional identification code **-Z** with order code		Order code
M5	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code		Order code
M6	2KJ31.. -.....-.F..**-Z**, 2KJ32.. -.....-.F..**-Z**,	2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.H..**-Z**	**D06**



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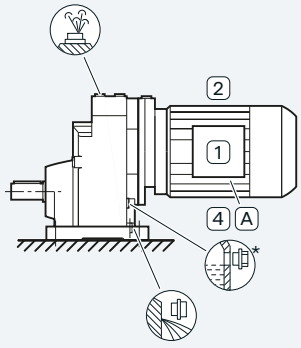
Foot-mounted design

Helical gearboxes E, sizes 39 to 149

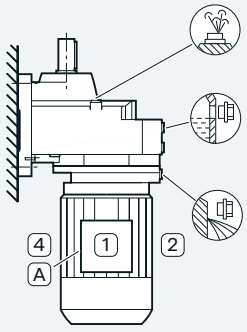
Oil valves

For an explanation of the symbols, see page 10/3.

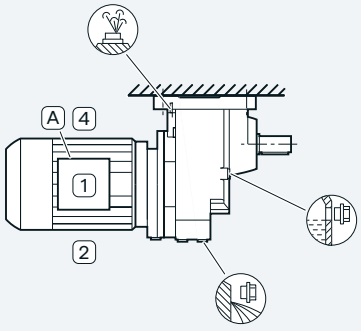
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ30.. -.....-.A..**-Z**	**D01**



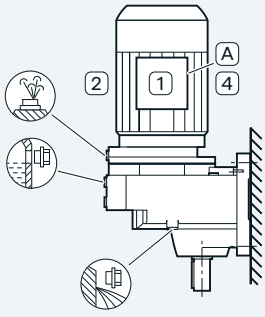
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ30.. -.....-.A..**-Z**	**D02**



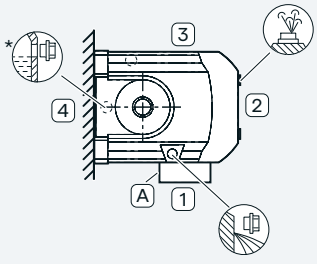
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ30.. -.....-.A..**-Z**	**D03**



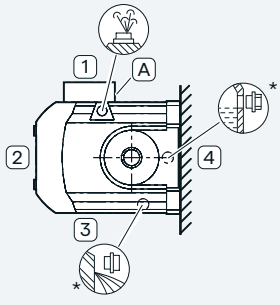
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ30.. -.....-.A..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ30.. -.....-.A..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ30.. -.....-.A..**-Z**	**D06**



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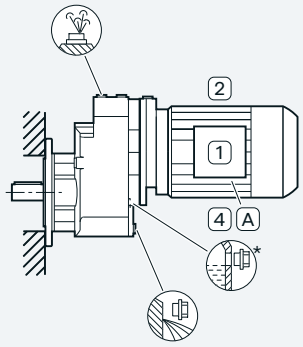
Flange-mounted design or with housing flange

Helical gearboxes EF, sizes 39 to 149 or EZ, sizes 39 to 149
Cooling tower gearboxes EKF, sizes 89 to 149 (mounting positions M2 and M4)

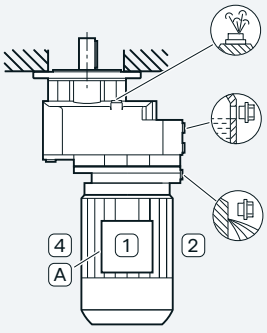
Oil valves

For an explanation of the symbols, see page 10/3.
An oil dipstick is available as an option for 1-stage helical gearboxes EF89 to EF149 and EKF89 to EKF149 with mounting position M4.

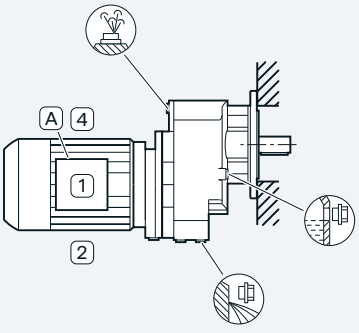
Mounting position	Additional identification code **-Z** with order code		Order code
M1	2KJ30.. -.....-.F..**-Z**,	2KJ30.. -.....-.H..**-Z**	**D01**



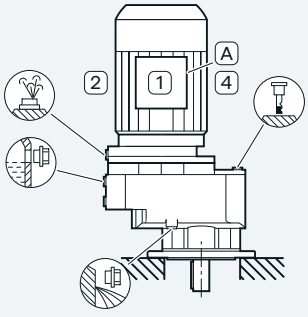
Mounting position	Additional identification code **-Z** with order code		Order code
M2	2KJ30.. -.....-.F..**-Z**,	2KJ30.. -.....-.H..**-Z**	**D02**



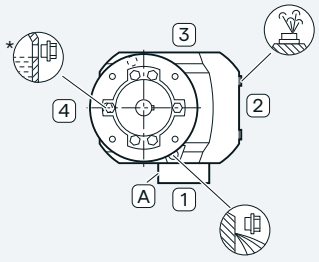
Mounting position	Additional identification code **-Z** with order code		Order code
M3	2KJ30.. -.....-.F..**-Z**,	2KJ30.. -.....-.H..**-Z**	**D03**



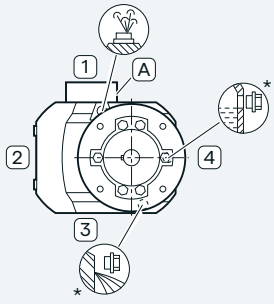
Mounting position	Additional identification code **-Z** with order code		Order code
M4	2KJ30.. -.....-.F..**-Z**,	2KJ30.. -.....-.H..**-Z**	**D04**
Oil dipstick (only mounting position M4)	2KJ30.. -.....-.F..**-Z**		**G48 + D04**



Mounting position	Additional identification code **-Z** with order code		Order code
M5	2KJ30.. -.....-.F..**-Z**,	2KJ30.. -.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code		Order code
M6	2KJ30.. -.....-.F..**-Z**,	2KJ30.. -.....-.H..**-Z**	**D06**



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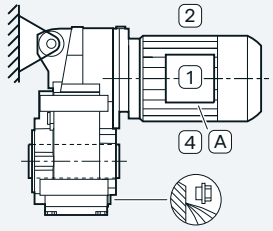
Shaft-mounted design

Parallel shaft gearboxes F.AD, size 29

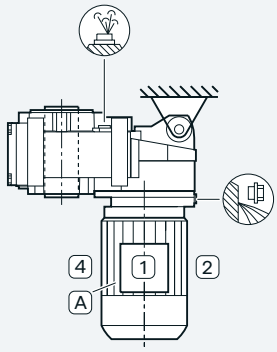
Oil valves

Size 29 is lubricated for life.
For an explanation of the symbols, see page 10/3.

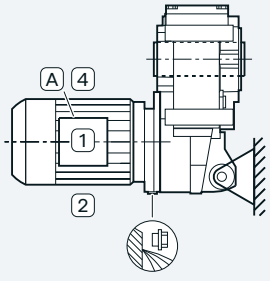
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D01**



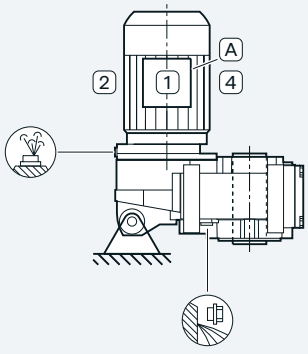
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D02**



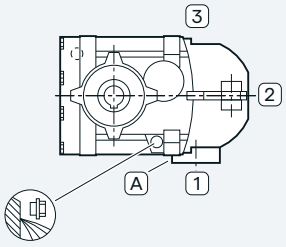
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D03**



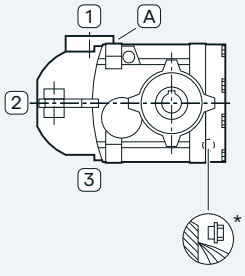
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D06**



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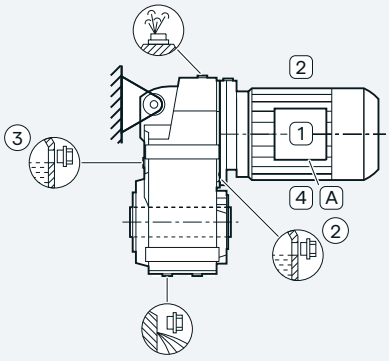
Shaft-mounted design

Parallel shaft gearboxes F.AD, sizes 39 to 189

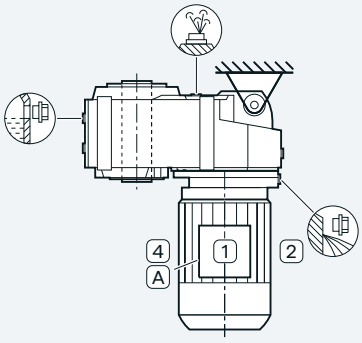
Oil valves

For an explanation of the symbols, see page 10/3.

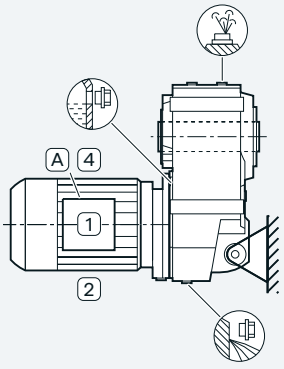
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D01**



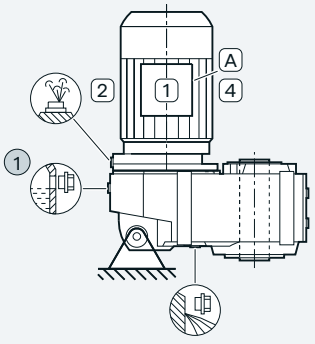
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D02**



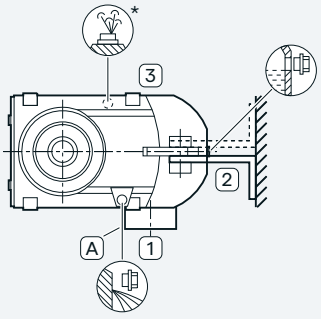
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D03**



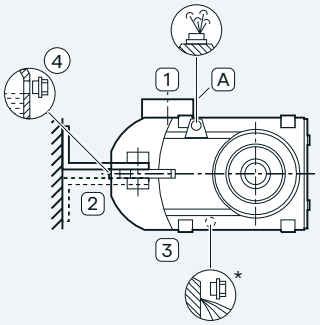
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D06**



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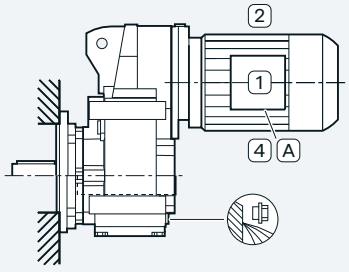
Flange-mounted design or with housing flange

Parallel shaft gearboxes F..F or F..Z, size 29

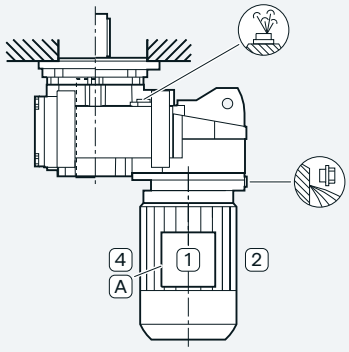
Oil valves

Size 29 is lubricated for life.
For an explanation of the symbols, see page 10/3.

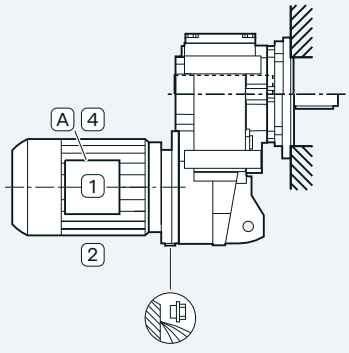
Mounting position	Additional identification code **-Z** with order code		Order code
M1	2KJ3301 -.....-.F..**-Z,**	2KJ3301 -.....-.H..**-Z**	**D01**
	2KJ3401 -.....-.F..**-Z,**	2KJ3401 -.....-.H..**-Z**	



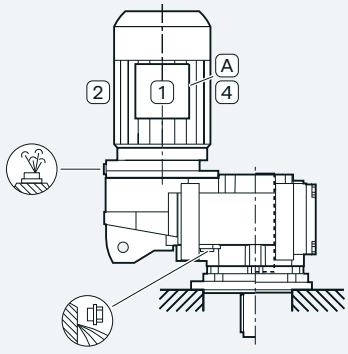
Mounting position	Additional identification code **-Z** with order code		Order code
M2	2KJ3301 -.....-.F..**-Z,**	2KJ3301 -.....-.H..**-Z**	**D02**
	2KJ3401 -.....-.F..**-Z,**	2KJ3401 -.....-.H..**-Z**	



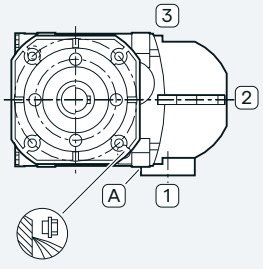
Mounting position	Additional identification code **-Z** with order code		Order code
M3	2KJ3301 -.....-.F..**-Z,**	2KJ3301 -.....-.H..**-Z**	**D03**
	2KJ3401 -.....-.F..**-Z,**	2KJ3401 -.....-.H..**-Z**	



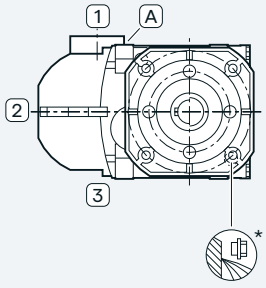
Mounting position	Additional identification code **-Z** with order code		Order code
M4	2KJ3301 -.....-.F..**-Z,**	2KJ3301 -.....-.H..**-Z**	**D04**
	2KJ3401 -.....-.F..**-Z,**	2KJ3401 -.....-.H..**-Z**	



Mounting position	Additional identification code **-Z** with order code		Order code
M5	2KJ3301 -.....-.F..**-Z,**	2KJ3301 -.....-.H..**-Z**	**D05**
	2KJ3401 -.....-.F..**-Z,**	2KJ3401 -.....-.H..**-Z**	



Mounting position	Additional identification code **-Z** with order code		Order code
M6	2KJ3301 -.....-.F..**-Z,**	2KJ3301 -.....-.H..**-Z**	**D06**
	2KJ3401 -.....-.F..**-Z,**	2KJ3401 -.....-.H..**-Z**	



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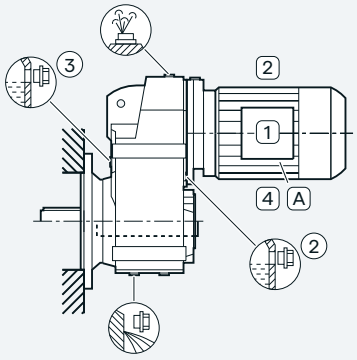
Flange-mounted design or with housing flange

Parallel shaft gearboxes F..F or F..Z, sizes 39 to 189
Parallel shaft gearboxes F..F with VLplus (G30) reinforced bearing system, sizes 89 to 169

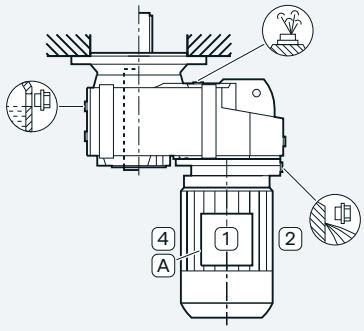
Oil valves

For an explanation of the symbols, see page 10/3.
For parallel shaft gearboxes in flange-mounted or housing flange design, mounting position M1 to M6 is specified without stating the output side A or B. Output side A is always assumed in these cases.

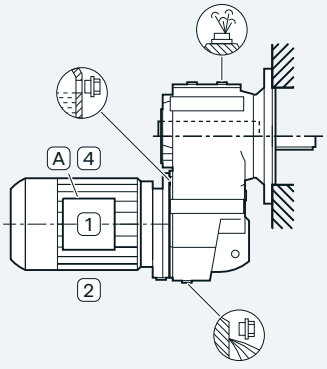
Mounting position	Additional identification code **-Z** with order code		Order code
M1	2KJ33.. -.....-.F..**-Z,**	2KJ33.. -.....-.H..**-Z**	**D01**
	2KJ34.. -.....-.F..**-Z,**	2KJ34.. -.....-.H..**-Z**	



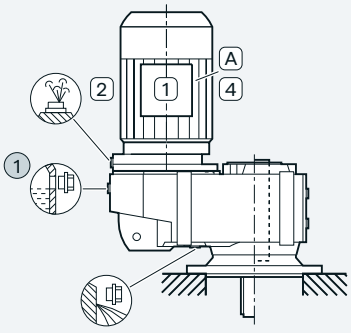
Mounting position	Additional identification code **-Z** with order code		Order code
M2	2KJ33.. -.....-.F..**-Z,**	2KJ33.. -.....-.H..**-Z**	**D02**
	2KJ34.. -.....-.F..**-Z,**	2KJ34.. -.....-.H..**-Z**	



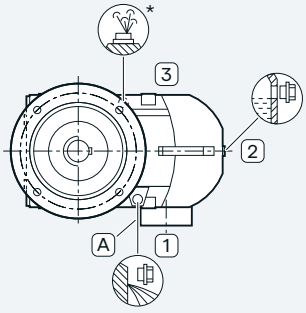
Mounting position	Additional identification code **-Z** with order code		Order code
M3	2KJ33.. -.....-.F..**-Z,**	2KJ33.. -.....-.H..**-Z**	**D03**
	2KJ34.. -.....-.F..**-Z,**	2KJ34.. -.....-.H..**-Z**	



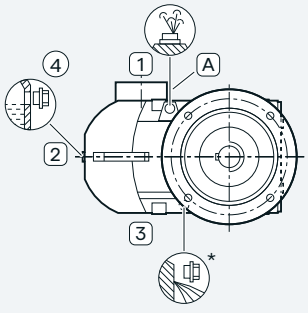
Mounting position	Additional identification code **-Z** with order code		Order code
M4	2KJ33.. -.....-.F..**-Z,**	2KJ33.. -.....-.H..**-Z**	**D04**
	2KJ34.. -.....-.F..**-Z,**	2KJ34.. -.....-.H..**-Z**	



Mounting position	Additional identification code **-Z** with order code		Order code
M5	2KJ33.. -.....-.F..**-Z,**	2KJ33.. -.....-.H..**-Z**	**D05**
	2KJ34.. -.....-.F..**-Z,**	2KJ34.. -.....-.H..**-Z**	



Mounting position	Additional identification code **-Z** with order code		Order code
M6	2KJ33.. -.....-.F..**-Z,**	2KJ33.. -.....-.H..**-Z**	**D06**
	2KJ34.. -.....-.F..**-Z,**	2KJ34.. -.....-.H..**-Z**	



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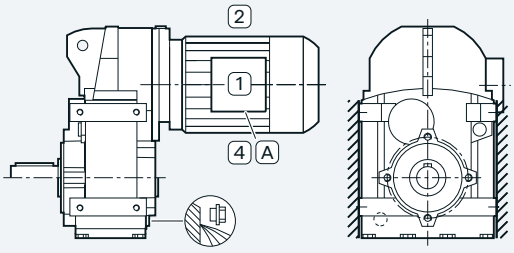
Foot-mounted design

Parallel shaft gearboxes F, size 29

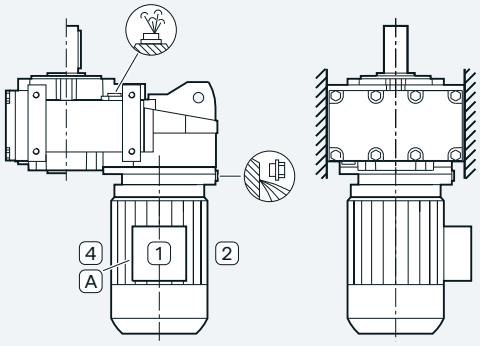
Oil valves

Size 29 is lubricated for life.
For an explanation of the symbols, see page 10/3.

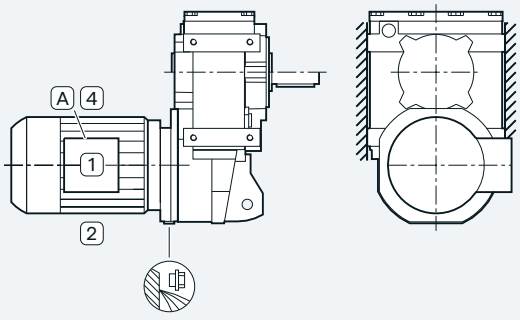
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D01**



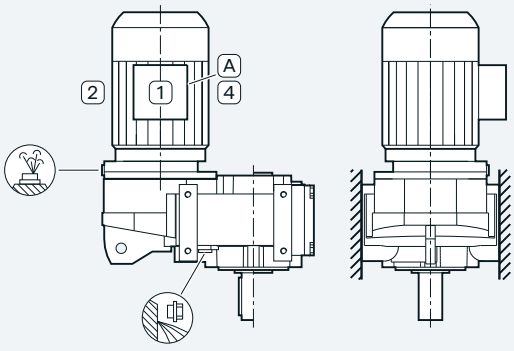
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D02**



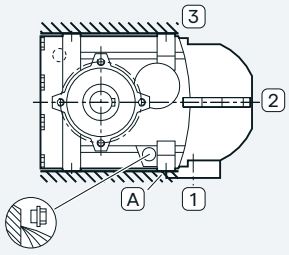
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D03**



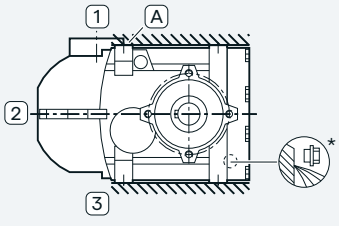
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D06**



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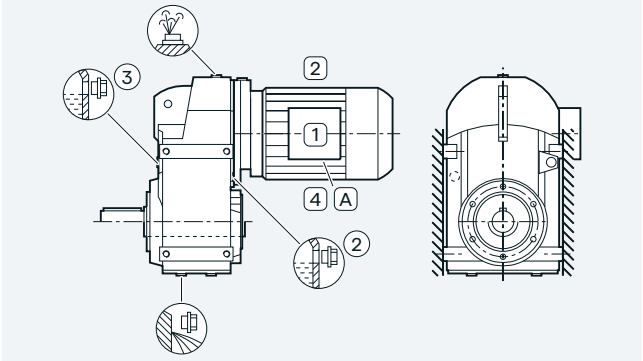
Foot-mounted design

Parallel shaft gearboxes F, sizes 39 to 189

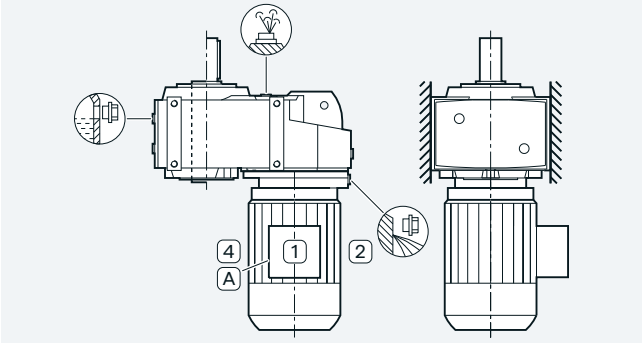
Oil valves

For an explanation of the symbols, see page 10/3.

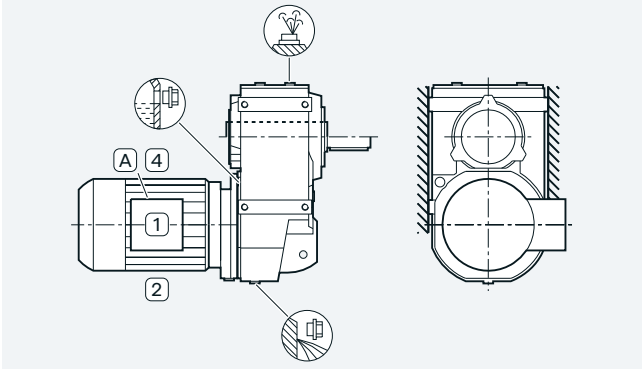
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D01**



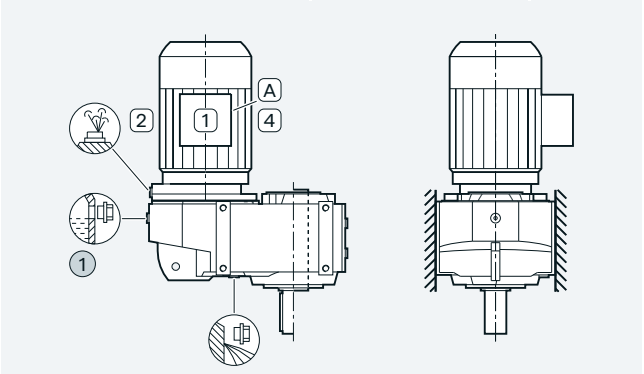
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D02**



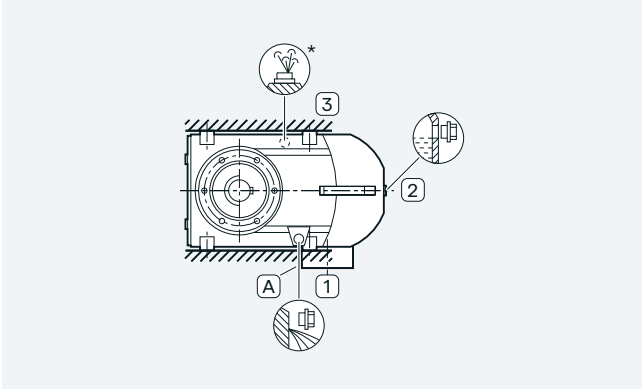
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D03**



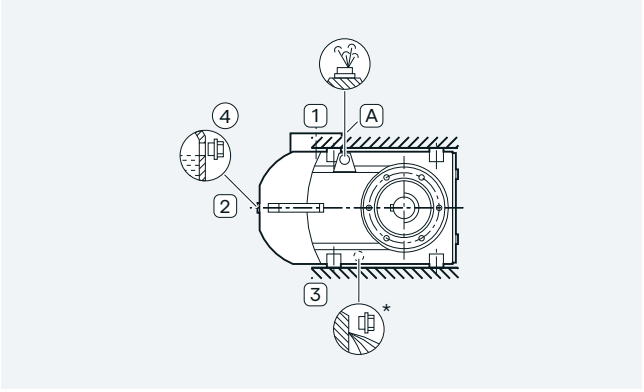
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D06**



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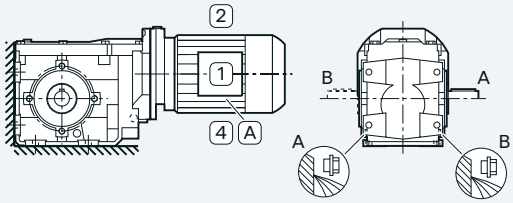
Foot-mounted design

Bevel gearboxes B, sizes 19 and 29

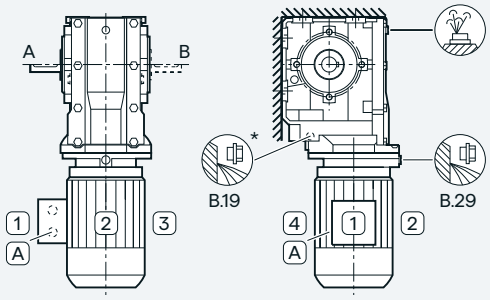
Oil valves

Sizes 19 and 29 are lubricated for life.
For an explanation of the symbols, see page 10/3.

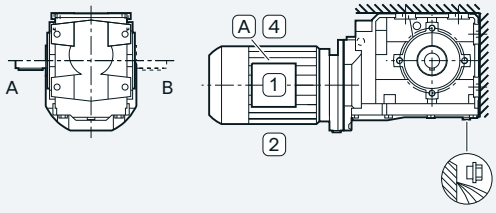
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.A..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.A..**-Z**	**D21**



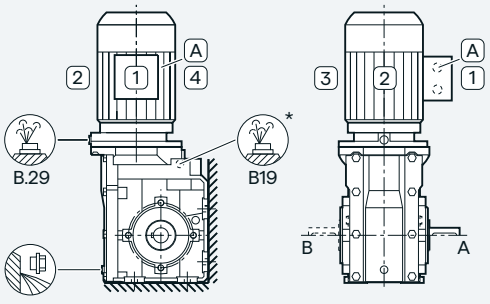
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.A..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.A..**-Z**	**D22**



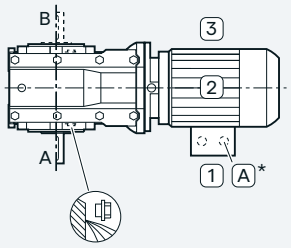
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.A..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.A..**-Z**	**D23**



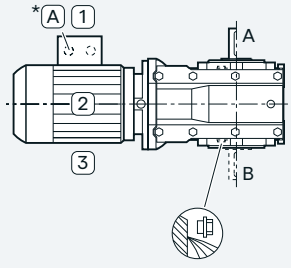
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.A..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.A..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ35.. -.....-.A..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.A..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ35.. -.....-.A..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.A..**-Z**	**D26**



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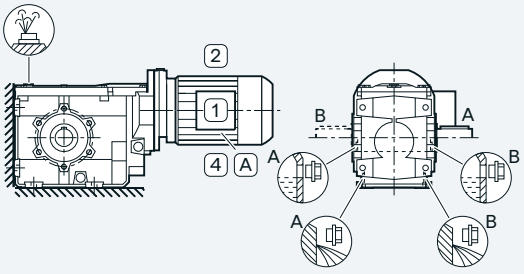
Foot-mounted design

Bevel gearboxes B, sizes 39 and 49

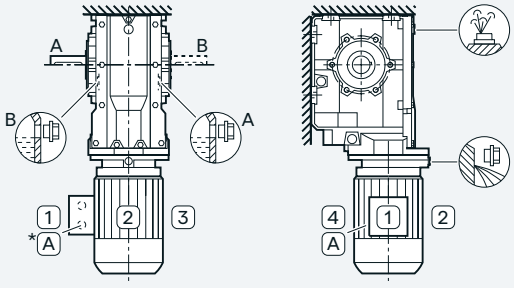
Oil valves

For an explanation of the symbols, see page 10/3.

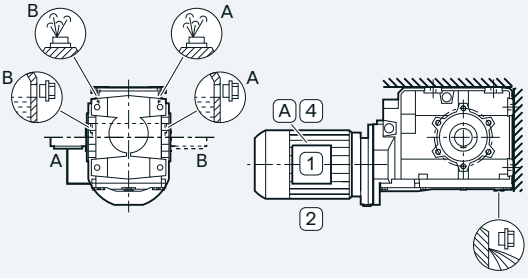
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.A..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.A..**-Z**	**D21**



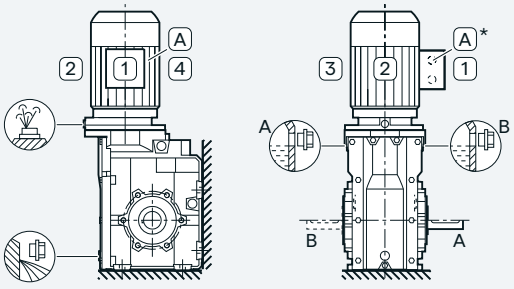
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.A..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.A..**-Z**	**D22**



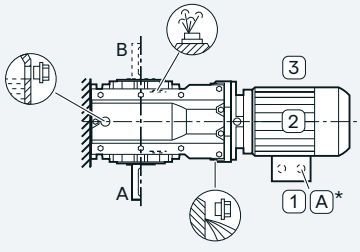
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.A..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.A..**-Z**	**D23**



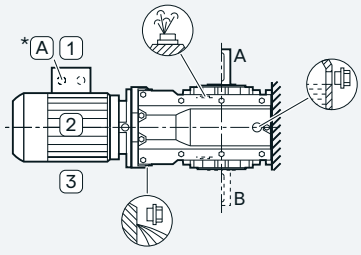
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.A..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.A..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ35.. -.....-.A..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.A..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ35.. -.....-.A..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.A..**-Z**	**D26**



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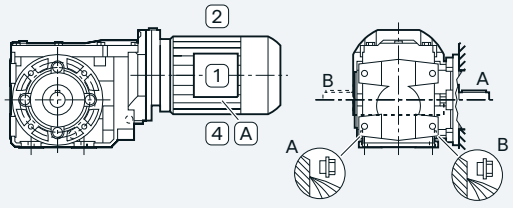
Housing flange design and flange-mounted design

Bevel gearboxes B.Z and B.F, sizes 19 and 29

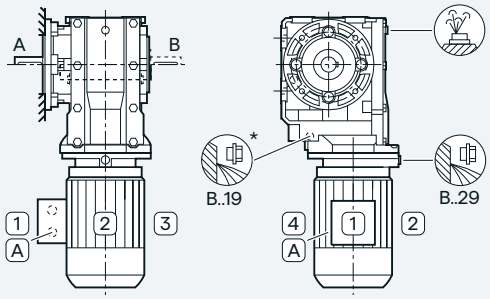
Oil valves

Sizes 19 and 29 are lubricated for life.
For an explanation of the symbols, see page 10/3.

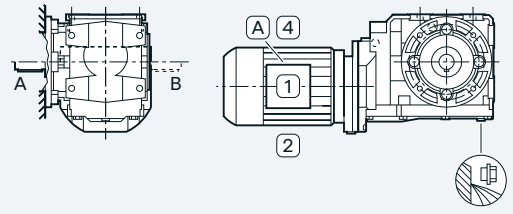
Mounting pos.	Additional identification code **-Z** with order code		Order code
M1 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D21**



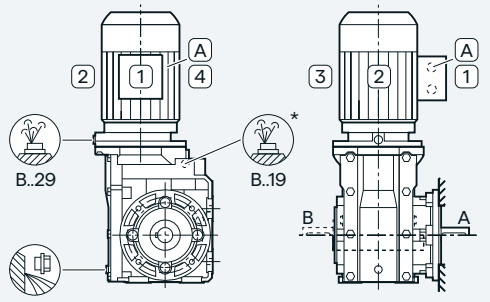
Mounting pos.	Additional identification code **-Z** with order code		Order code
M2 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D22**



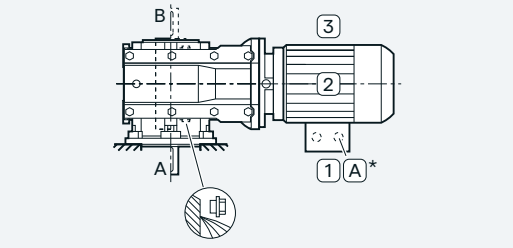
Mounting pos.	Additional identification code **-Z** with order code		Order code
M3 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D23**



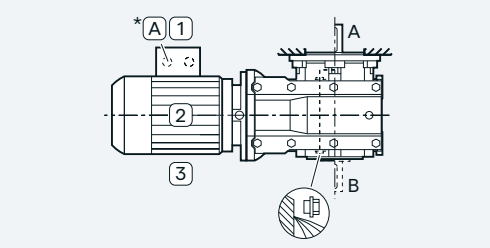
Mounting pos.	Additional identification code **-Z** with order code		Order code
M4 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D24**



Mounting pos.	Additional identification code **-Z** with order code		Order code
M5 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D25**



Mounting pos.	Additional identification code **-Z** with order code		Order code
M6 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D26**



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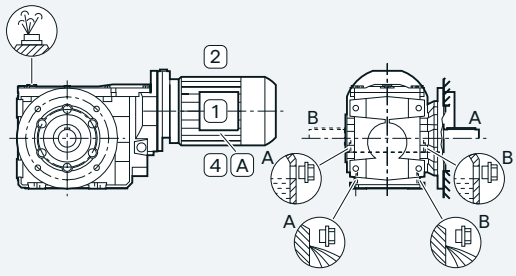
Housing flange design and flange-mounted design

Bevel gearboxes B.Z and B.F, sizes 39 and 49

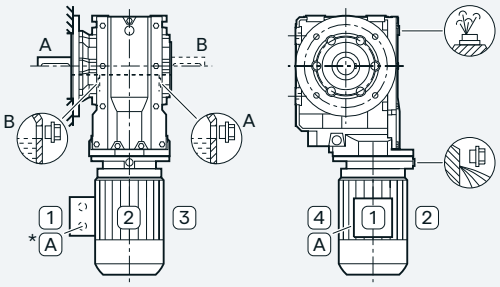
Oil valves

For an explanation of the symbols, see page 10/3.

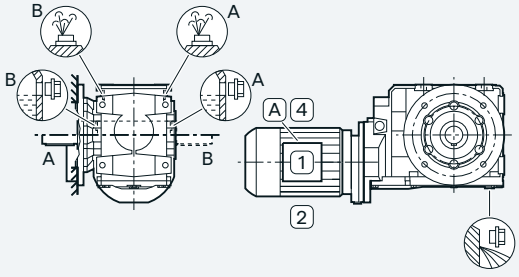
Mounting position	Additional identification code **-Z** with order code		Order code
M1 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D21**



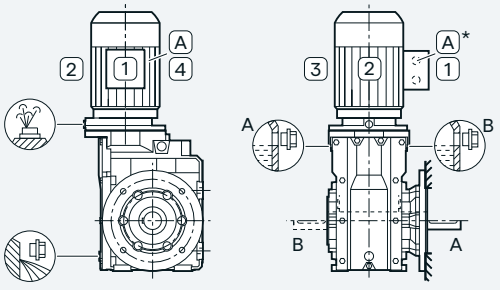
Mounting position	Additional identification code **-Z** with order code		Order code
M2 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D22**



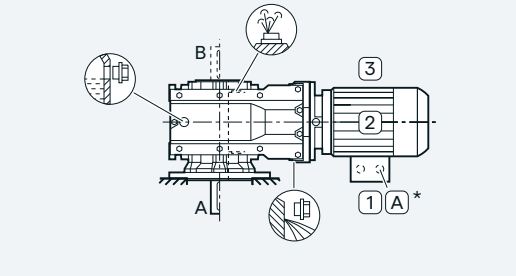
Mounting position	Additional identification code **-Z** with order code		Order code
M3 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D23**



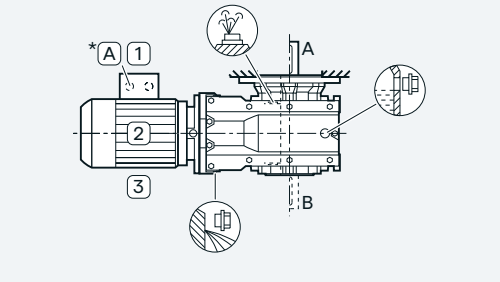
Mounting position	Additional identification code **-Z** with order code		Order code
M4 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code		Order code
M5 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code		Order code
M6 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D26**



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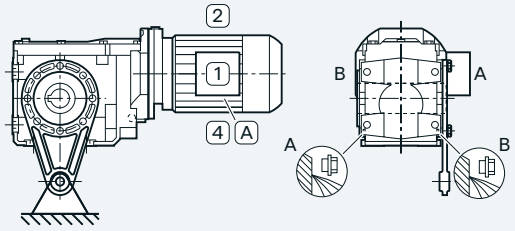
Shaft-mounted design

Bevel gearboxes BAD, sizes 19 and 29

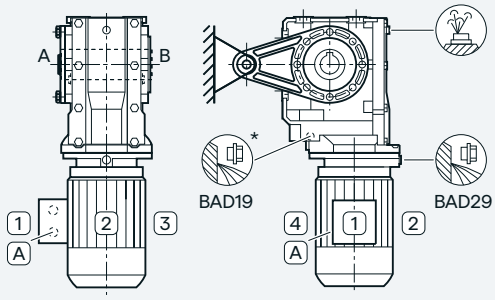
Oil valves

Sizes 19 and 29 are lubricated for life.
For an explanation of the symbols, see page 10/3.

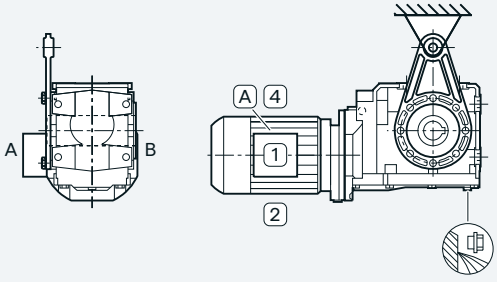
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.D..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.D..**-Z**	**D21**



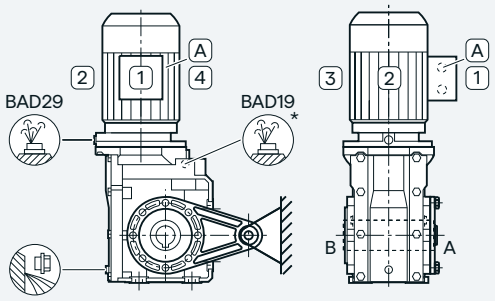
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.D..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.D..**-Z**	**D22**



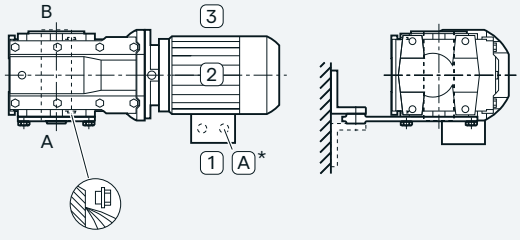
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.D..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.D..**-Z**	**D23**



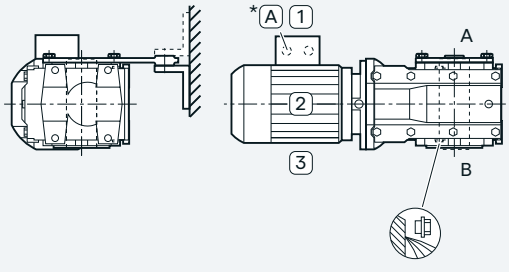
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.D..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.D..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ35.. -.....-.D..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.D..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ35.. -.....-.D..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.D..**-Z**	**D26**



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Bevel gearboxes B

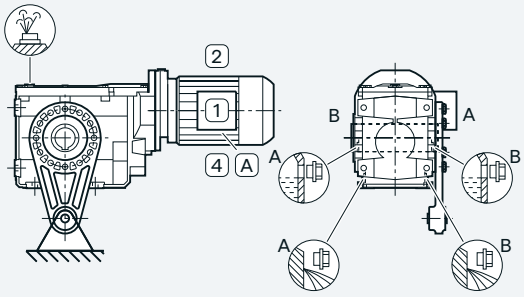
Shaft-mounted design

Bevel gearboxes BAD, sizes 39 and 49

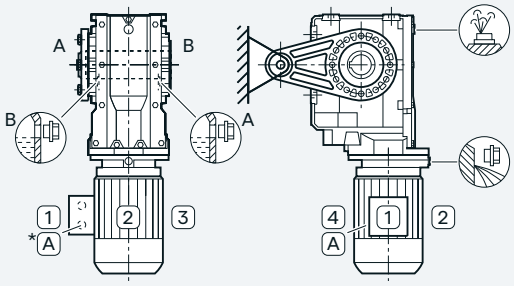
Oil valves

For an explanation of the symbols, see page 10/3.

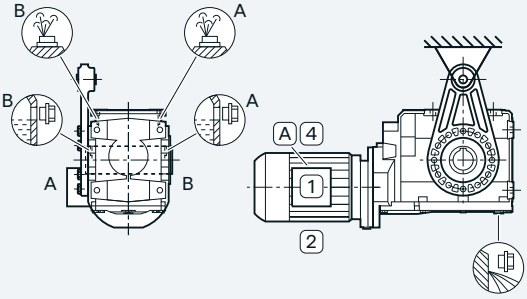
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.D..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.D..**-Z**	**D21**



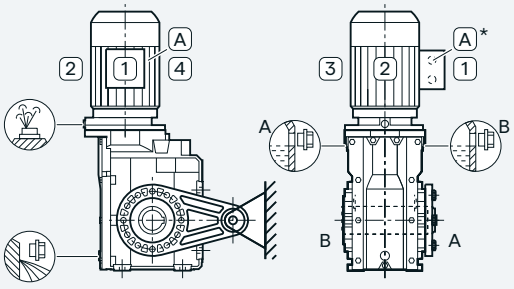
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.D..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.D..**-Z**	**D22**



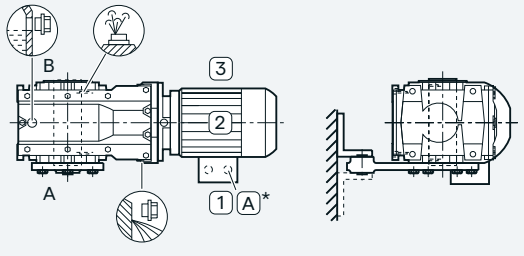
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.D..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.D..**-Z**	**D23**



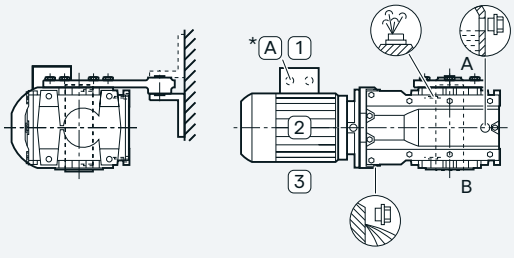
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.D..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.D..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ35.. -.....-.D..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.D..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ35.. -.....-.D..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.D..**-Z**	**D26**



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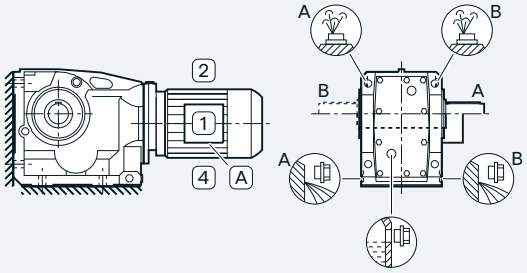
Foot-mounted design

Bevel gearboxes K, sizes 39 to 189

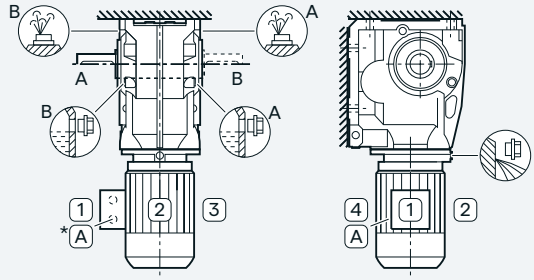
Oil valves

For an explanation of the symbols, see page 10/3.

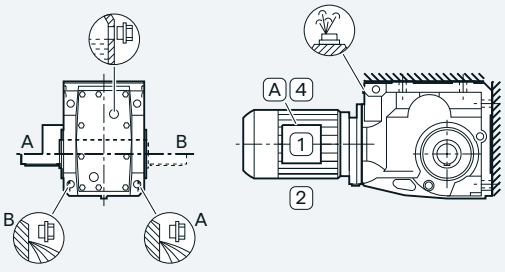
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.A..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.A..**-Z**	**D21**



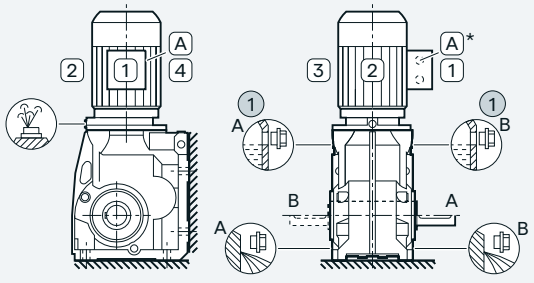
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.A..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.A..**-Z**	**D22**



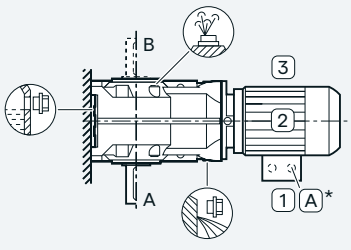
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.A..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.A..**-Z**	**D23**



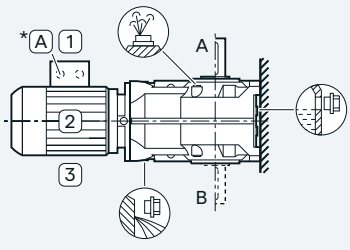
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.A..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.A..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ35.. -.....-.A..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.A..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ35.. -.....-.A..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.A..**-Z**	**D26**



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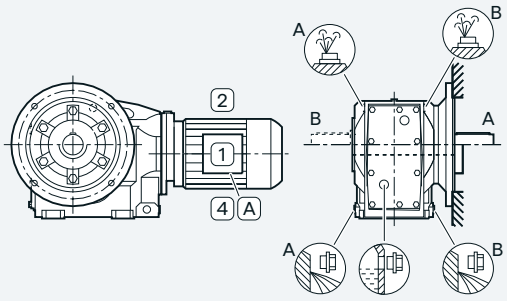
Housing flange design and flange-mounted design

Bevel gearboxes KAZ and K.F, sizes 39 to 189
Bevel gearboxes K.F with VLplus (G30) reinforced bearing systems, sizes 89 to 169

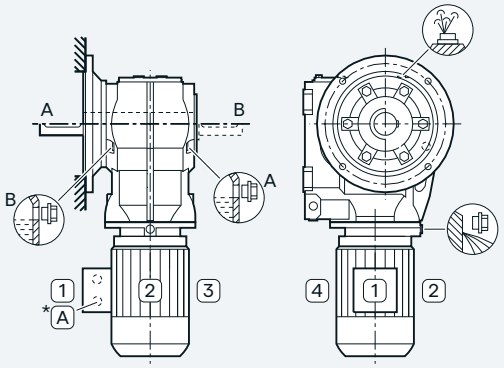
Oil valves

For an explanation of the symbols, see page 10/3.

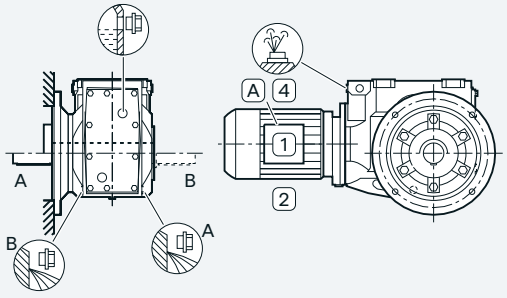
Mounting pos.	Additional identification code **-Z** with order code		Order code
M1 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D21**



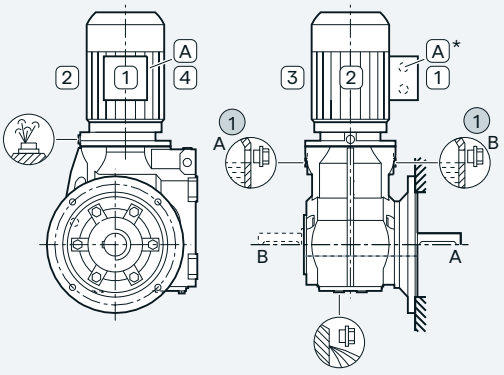
Mounting pos.	Additional identification code **-Z** with order code		Order code
M2 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D22**



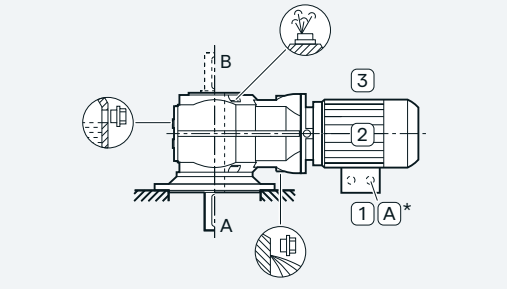
Mounting pos.	Additional identification code **-Z** with order code		Order code
M3 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D23**



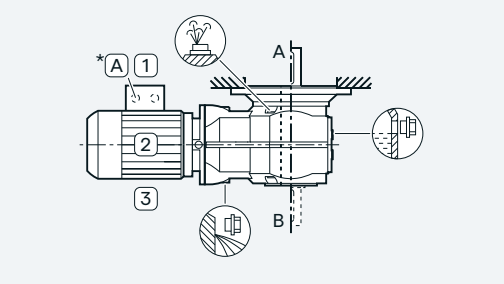
Mounting pos.	Additional identification code **-Z** with order code		Order code
M4 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D24**



Mounting pos.	Additional identification code **-Z** with order code		Order code
M5 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D25**



Mounting pos.	Additional identification code **-Z** with order code		Order code
M6 output side A	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.F..**-Z,**	2KJ35.. -.....-.H..**-Z**	**D26**



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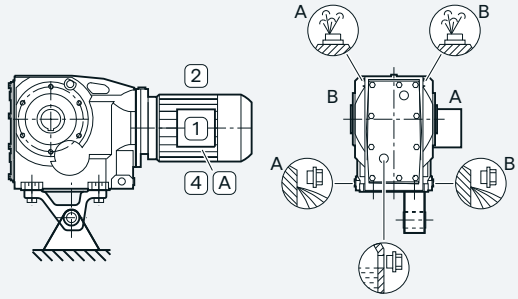
Shaft-mounted design

Bevel gearboxes KAD, sizes 39 to 189

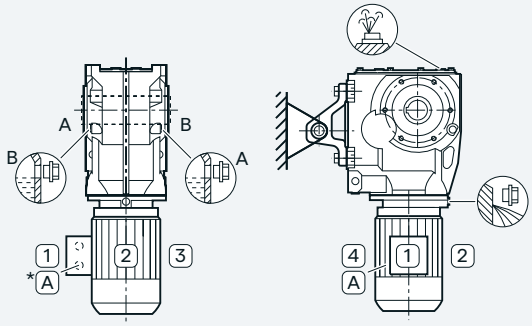
Oil valves

For an explanation of the symbols, see page 10/3.

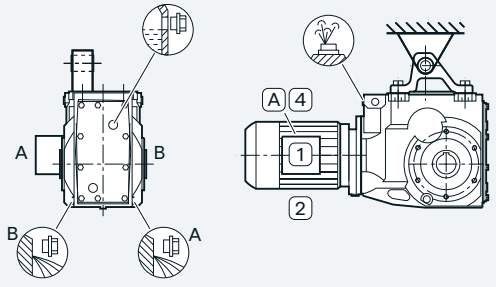
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.D..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.D..**-Z**	**D21**



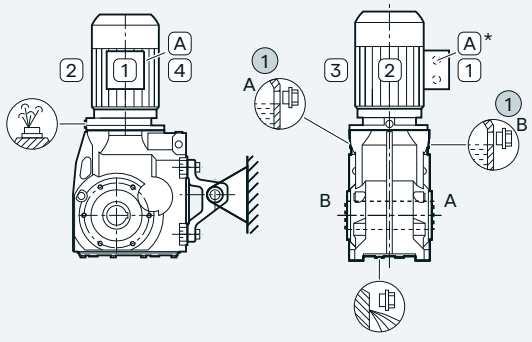
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.D..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.D..**-Z**	**D22**



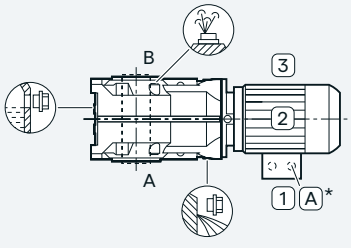
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.D..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.D..**-Z**	**D23**



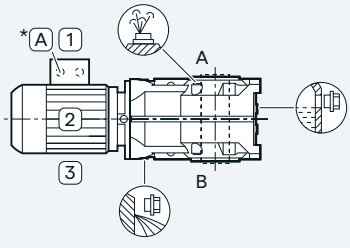
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.D..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.D..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ35.. -.....-.D..**-Z**	**D15**
M5 output side B	2KJ35.. -.....-.D..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ35.. -.....-.D..**-Z**	**D16**
M6 output side B	2KJ35.. -.....-.D..**-Z**	**D26**



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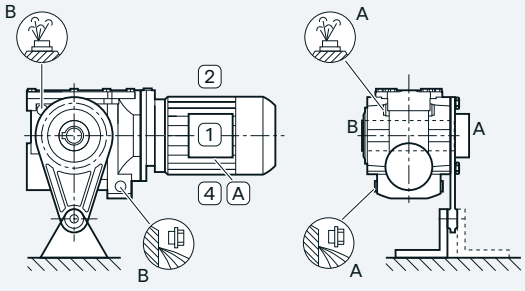
Shaft-mounted design

Helical worm gearboxes CAD, size 29

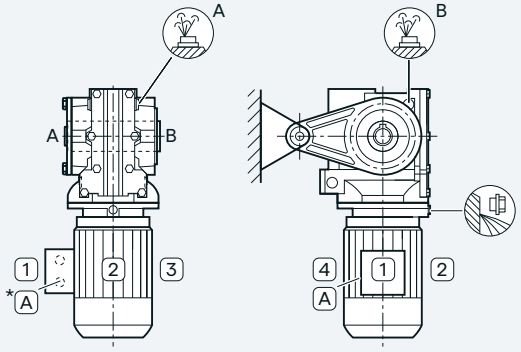
Oil valves

Sizes 29 are lubricated for life.
For an explanation of the symbols, see page 10/3.

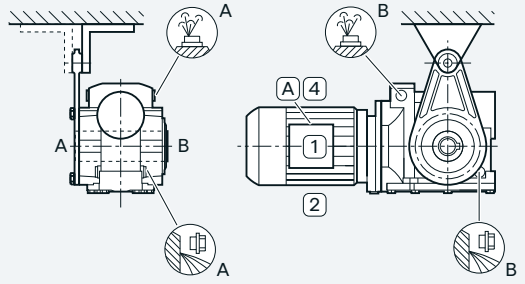
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3601-.....-.D..**-Z**	**D11**
M1 output side B	2KJ3601-.....-.D..**-Z**	**D21**



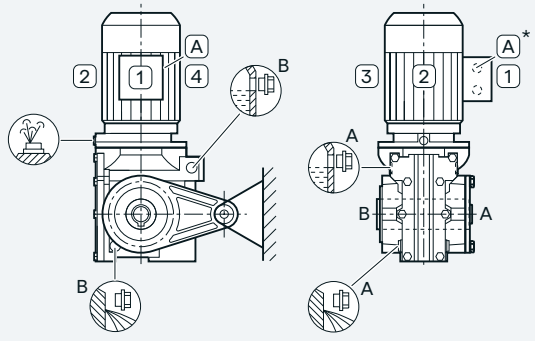
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3601-.....-.D..**-Z**	**D12**
M2 output side B	2KJ3601-.....-.D..**-Z**	**D22**



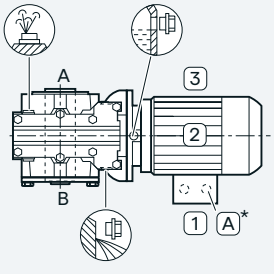
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3601-.....-.D..**-Z**	**D13**
M3 output side B	2KJ3601-.....-.D..**-Z**	**D23**



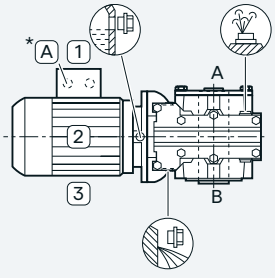
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3601-.....-.D..**-Z**	**D14**
M4 output side B	2KJ3601-.....-.D..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ3601-.....-.D..**-Z**	**D15**
M5 output side B	2KJ3601-.....-.D..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ3601-.....-.D..**-Z**	**D16**
M6 output side B	2KJ3601-.....-.D..**-Z**	**D26**



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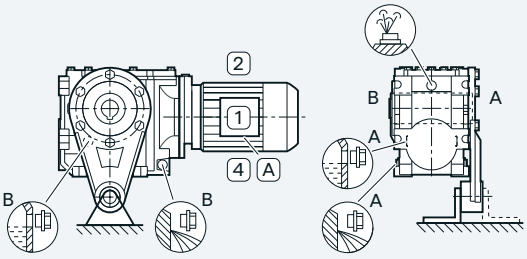
Shaft-mounted design

Helical worm gearboxes CAD, size 39A

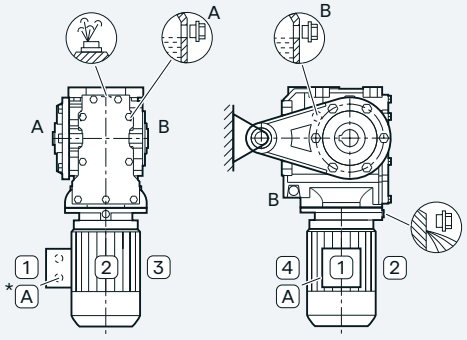
Oil valves

For an explanation of the symbols, see page 10/3.

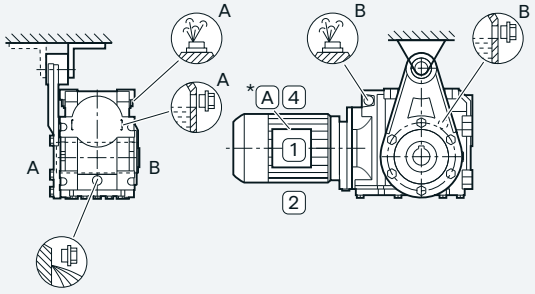
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3642-.....-.D..**-Z**	**D11**
M1 output side B	2KJ3642-.....-.D..**-Z**	**D21**



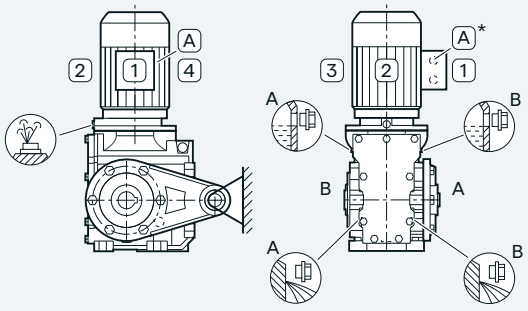
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3642-.....-.D..**-Z**	**D12**
M2 output side B	2KJ3642-.....-.D..**-Z**	**D22**



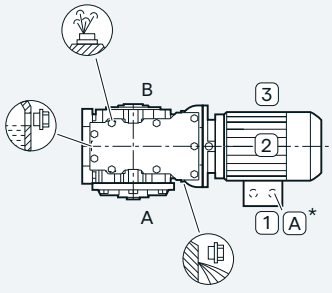
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3642-.....-.D..**-Z**	**D13**
M3 output side B	2KJ3642-.....-.D..**-Z**	**D23**



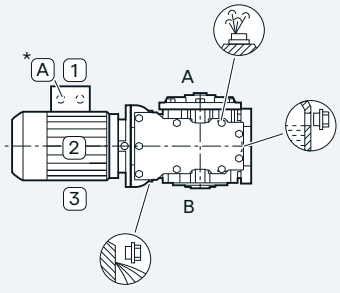
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3642-.....-.D..**-Z**	**D14**
M4 output side B	2KJ3642-.....-.D..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ3642-.....-.D..**-Z**	**D15**
M5 output side B	2KJ3642-.....-.D..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ3642-.....-.D..**-Z**	**D16**
M6 output side B	2KJ3642-.....-.D..**-Z**	**D26**



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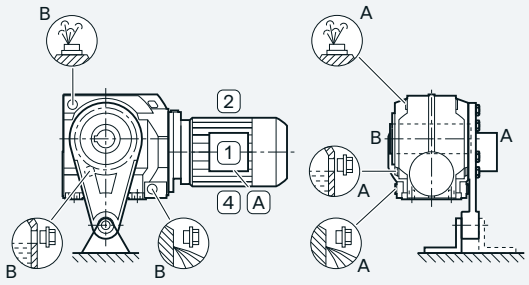
Shaft-mounted design

Helical worm gearboxes CAD, sizes 49 to 89

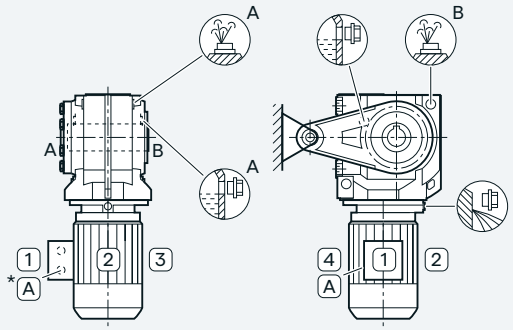
Oil valves

For an explanation of the symbols, see page 10/3.

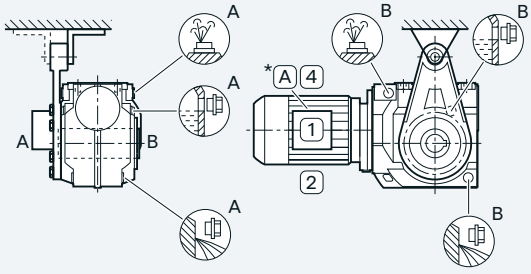
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ360.-.....-.D..**-Z**	**D11**
M1 output side B	2KJ360.-.....-.D..**-Z**	**D21**



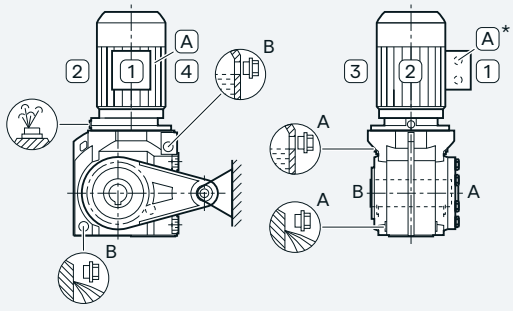
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ360.-.....-.D..**-Z**	**D12**
M2 output side B	2KJ360.-.....-.D..**-Z**	**D22**



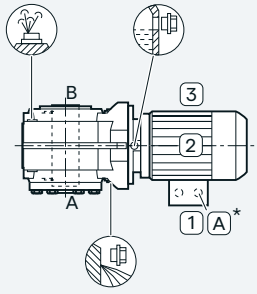
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ360.-.....-.D..**-Z**	**D13**
M3 output side B	2KJ360.-.....-.D..**-Z**	**D23**



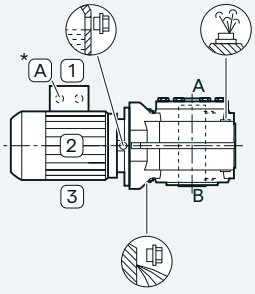
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ360.-.....-.D..**-Z**	**D14**
M4 output side B	2KJ360.-.....-.D..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ360.-.....-.D..**-Z**	**D15**
M5 output side B	2KJ360.-.....-.D..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ360.-.....-.D..**-Z**	**D16**
M6 output side B	2KJ360.-.....-.D..**-Z**	**D26**



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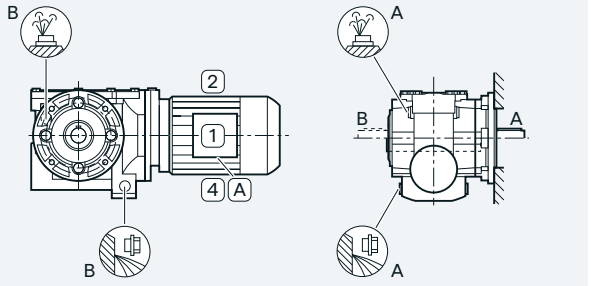
Housing flange design and flange-mounted design

Helical worm gearboxes C.Z and C.F, size 29

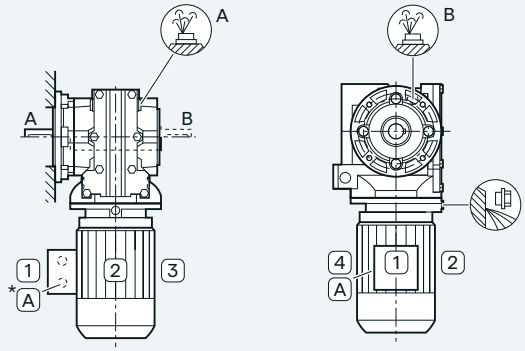
Oil valves

Sizes 29 are lubricated for life.
For an explanation of the symbols, see page 10/3.

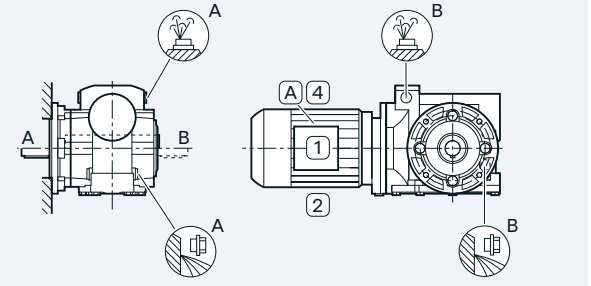
Mounting pos.	Additional identification code **-Z** with order code		Order code
M1 output side A	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D11**
M1 output side B	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D21**



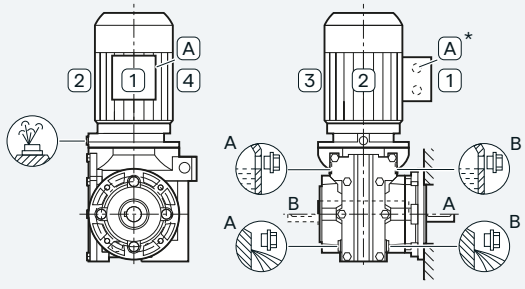
Mounting pos.	Additional identification code **-Z** with order code		Order code
M2 output side A	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D12**
M2 output side B	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D22**



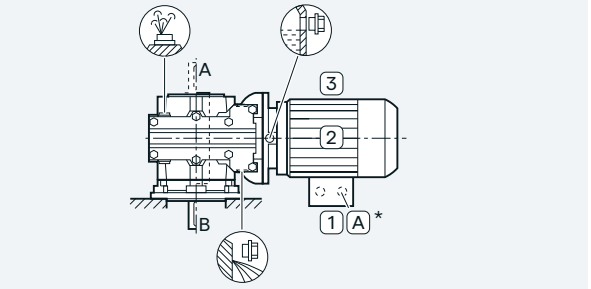
Mounting pos.	Additional identification code **-Z** with order code		Order code
M3 output side A	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D13**
M3 output side B	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D23**



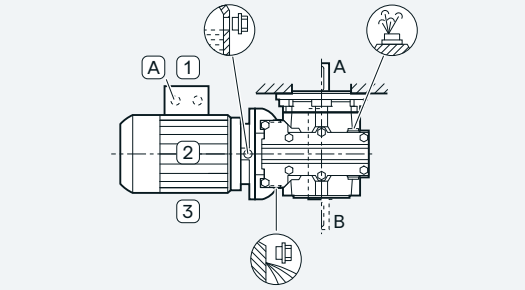
Mounting pos.	Additional identification code **-Z** with order code		Order code
M4 output side A	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D14**
M4 output side B	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D24**



Mounting pos.	Additional identification code **-Z** with order code		Order code
M5 output side A	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D15**
M5 output side B	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D25**



Mounting pos.	Additional identification code **-Z** with order code		Order code
M6 output side A	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D16**
M6 output side B	2KJ3601-.....-.F..**-Z,**	2KJ3601-.....-.H..**-Z**	**D26**



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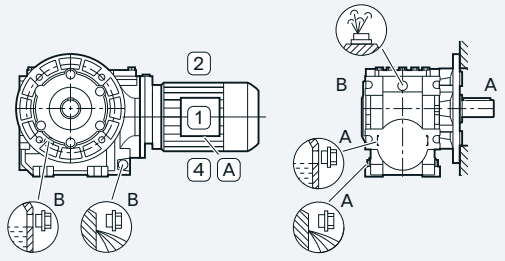
Housing flange design and flange-mounted design

Helical worm gearboxes C.Z and C.F, size 39A

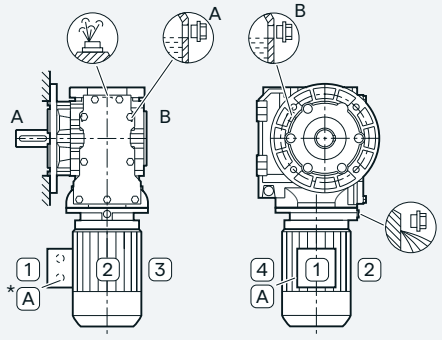
Oil valves

For an explanation of the symbols, see page 10/3.

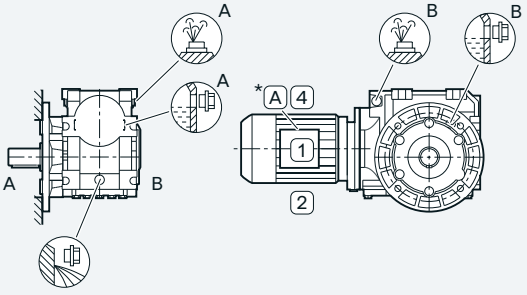
Mounting position	Additional identification code **-Z** with order code		Order code
M1 output side A	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D11**
M1 output side B	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D21**



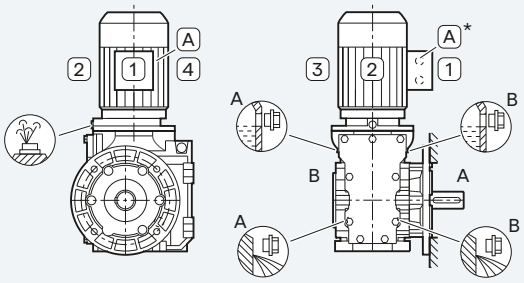
Mounting position	Additional identification code **-Z** with order code		Order code
M2 output side A	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D12**
M2 output side B	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D22**



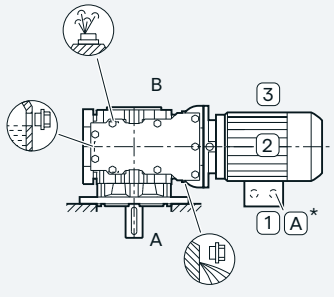
Mounting position	Additional identification code **-Z** with order code		Order code
M3 output side A	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D13**
M3 output side B	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D23**



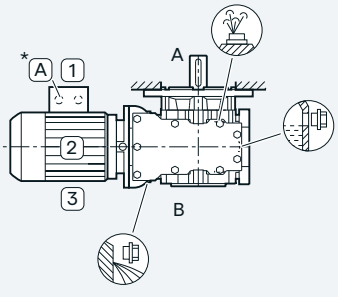
Mounting position	Additional identification code **-Z** with order code		Order code
M4 output side A	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D14**
M4 output side B	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D24**



Mounting pos.	Additional identification code **-Z** with order code		Order code
M5 output side A	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D15**
M5 output side B	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D25**



Mounting pos.	Additional identification code **-Z** with order code		Order code
M6 output side A	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D16**
M6 output side B	2KJ3642-.....-.F..**-Z,**	2KJ3642-.....-.H..**-Z**	**D26**



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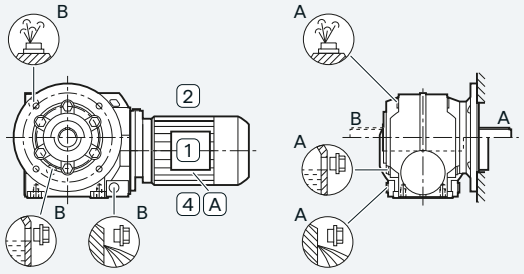
Housing flange design and flange-mounted design

Helical worm gearboxes C.Z and C.F, sizes 49 to 89

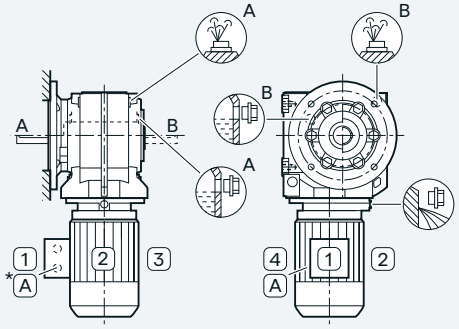
Oil valves

For an explanation of the symbols, see page 10/3.

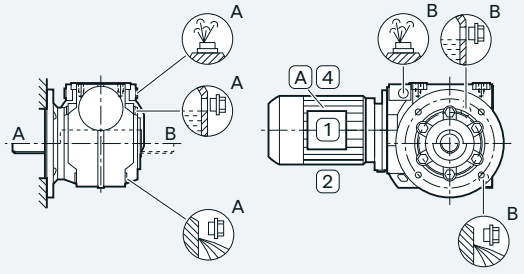
Mounting position	Additional identification code **-Z** with order code		Order code
M1 output side A	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D11**
M1 output side B	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D21**



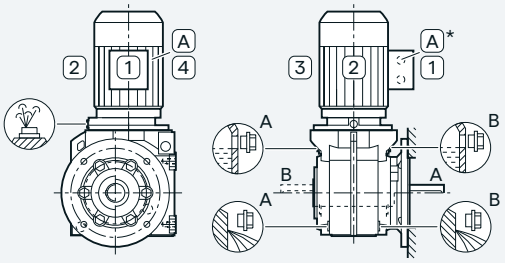
Mounting position	Additional identification code **-Z** with order code		Order code
M2 output side A	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D12**
M2 output side B	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D22**



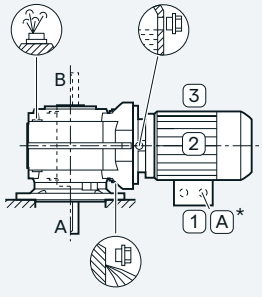
Mounting position	Additional identification code **-Z** with order code		Order code
M3 output side A	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D13**
M3 output side B	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D23**



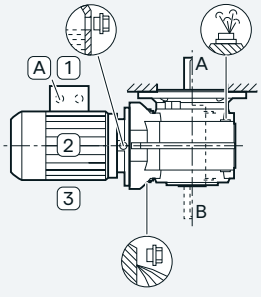
Mounting position	Additional identification code **-Z** with order code		Order code
M4 output side A	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D14**
M4 output side B	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code		Order code
M5 output side A	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D15**
M5 output side B	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code		Order code
M6 output side A	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D16**
M6 output side B	2KJ360.-.....-.F..**-Z,**	2KJ360.-.....-.H..**-Z**	**D26**



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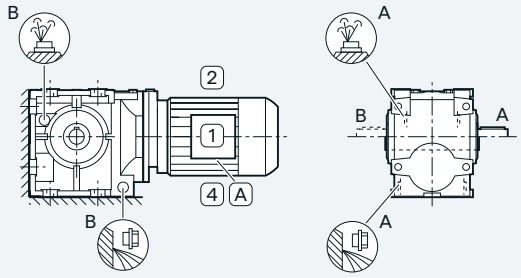
Foot-mounted design

Helical worm gearboxes C, size 29

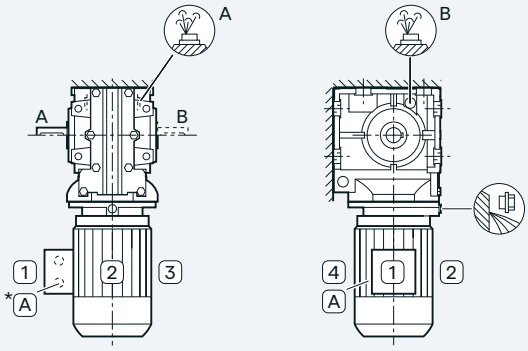
Oil valves

Sizes 29 are lubricated for life.
For an explanation of the symbols, see page 10/3.

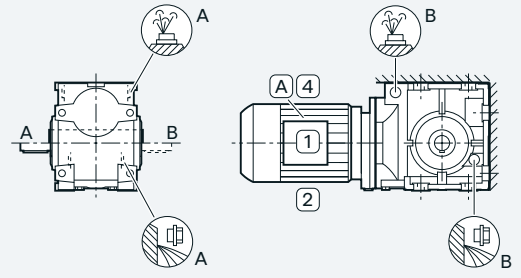
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3601-.....-.A..**-Z**	**D11**
M1 output side B	2KJ3601-.....-.A..**-Z**	**D21**



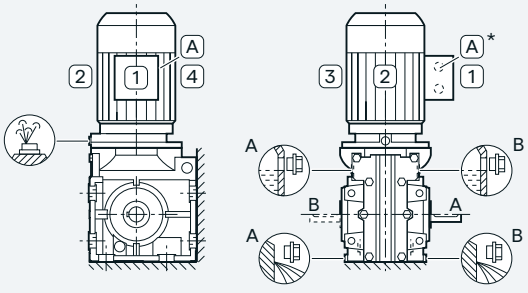
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3601-.....-.A..**-Z**	**D12**
M2 output side B	2KJ3601-.....-.A..**-Z**	**D22**



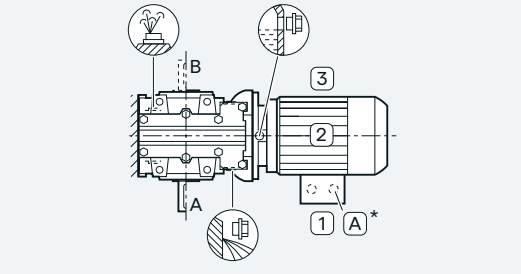
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3601-.....-.A..**-Z**	**D13**
M3 output side B	2KJ3601-.....-.A..**-Z**	**D23**



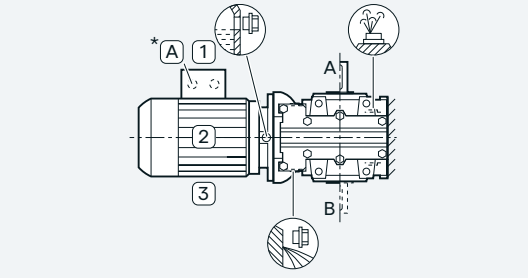
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3601-.....-.A..**-Z**	**D14**
M4 output side B	2KJ3601-.....-.A..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ3601-.....-.A..**-Z**	**D15**
M5 output side B	2KJ3601-.....-.A..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ3601-.....-.A..**-Z**	**D16**
M6 output side B	2KJ3601-.....-.A..**-Z**	**D26**



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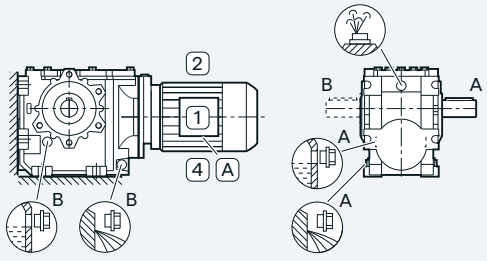
Foot-mounted design

Helical worm gearboxes C, size 39A

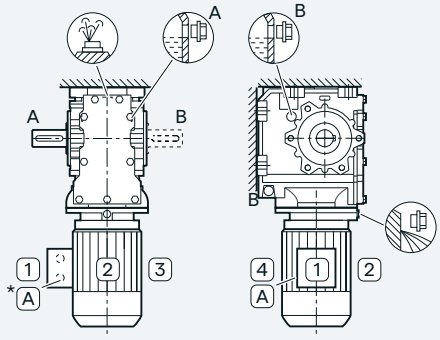
Oil valves

For an explanation of the symbols, see page 10/3.

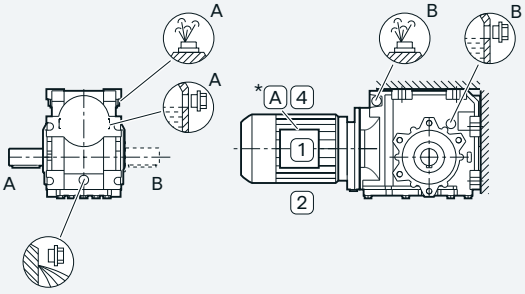
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3642-.....-.A..**-Z**	**D11**
M1 output side B	2KJ3642-.....-.A..**-Z**	**D21**



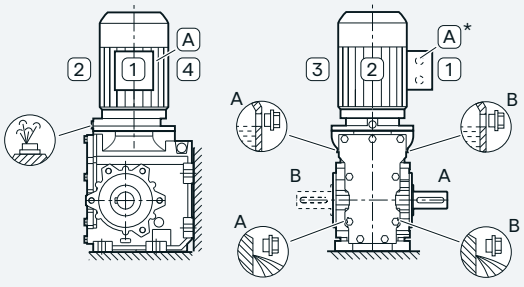
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3642-.....-.A..**-Z**	**D12**
M2 output side B	2KJ3642-.....-.A..**-Z**	**D22**



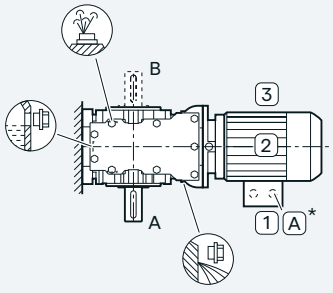
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3642-.....-.A..**-Z**	**D13**
M3 output side B	2KJ3642-.....-.A..**-Z**	**D23**



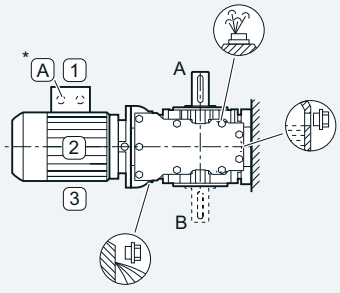
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3642-.....-.A..**-Z**	**D14**
M4 output side B	2KJ3642-.....-.A..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ3642-.....-.A..**-Z**	**D15**
M5 output side B	2KJ3642-.....-.A..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ3642-.....-.A..**-Z**	**D16**
M6 output side B	2KJ3642-.....-.A..**-Z**	**D26**



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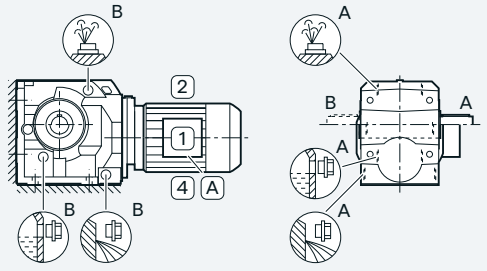
Foot-mounted design

Helical worm gearboxes C, sizes 49 to 89

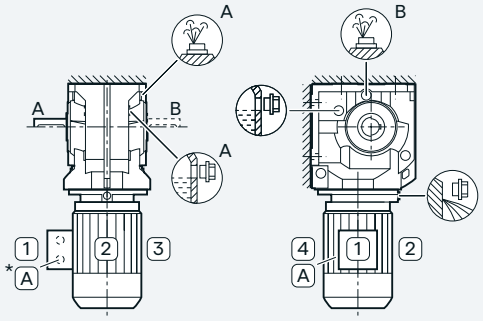
Oil valves

For an explanation of the symbols, see page 10/3.

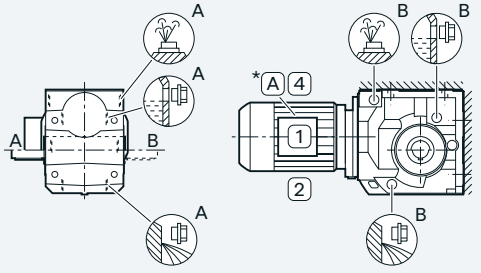
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ360.-.....-.A..**-Z**	**D11**
M1 output side B	2KJ360.-.....-.A..**-Z**	**D21**



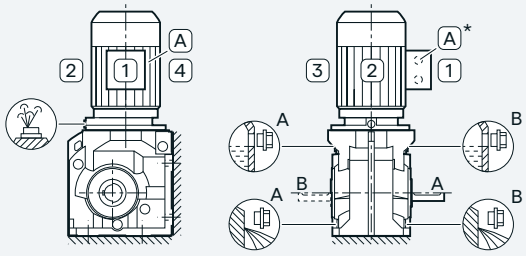
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ360.-.....-.A..**-Z**	**D12**
M2 output side B	2KJ360.-.....-.A..**-Z**	**D22**



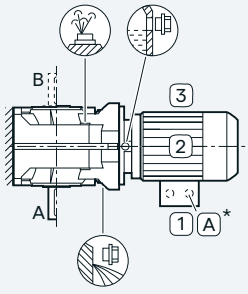
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ360.-.....-.A..**-Z**	**D13**
M3 output side B	2KJ360.-.....-.A..**-Z**	**D23**



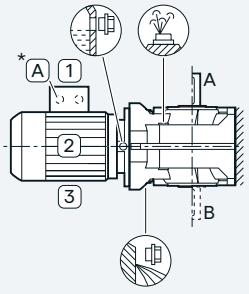
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ360.-.....-.A..**-Z**	**D14**
M4 output side B	2KJ360.-.....-.A..**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ360.-.....-.A..**-Z**	**D15**
M5 output side B	2KJ360.-.....-.A..**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ360.-.....-.A..**-Z**	**D16**
M6 output side B	2KJ360.-.....-.A..**-Z**	**D26**



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Foot-mounted, flange-mounted, shaft-mounted and housing flange designs

Worm gearboxes S., sizes 09 to 29

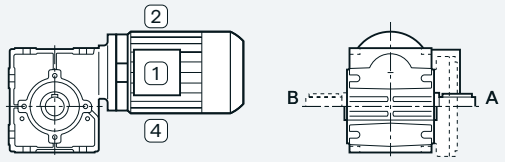
Oil valves

The worm gearboxes S are lubricated for life.
For an explanation of the symbols, see page 10/3.

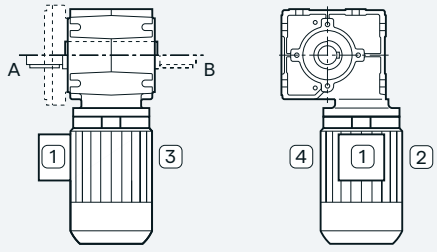
M0 is a universal mounting position in which the geared motor can be installed in any position.

Mounting position	Additional identification code **-Z** with order code	Order code
M0 output side A	2KJ373.-.....-....**-Z**	**D10**
M0 output side B	2KJ373.-.....-....**-Z**	**D20**

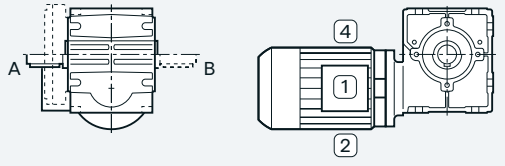
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ373.-.....-....**-Z**	**D11**
M1 output side B	2KJ373.-.....-....**-Z**	**D21**



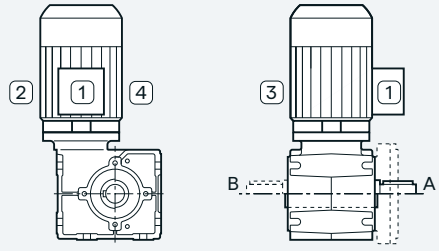
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ373.-.....-....**-Z**	**D12**
M2 output side B	2KJ373.-.....-....**-Z**	**D22**



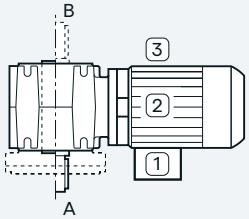
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ373.-.....-....**-Z**	**D13**
M3 output side B	2KJ373.-.....-....**-Z**	**D23**



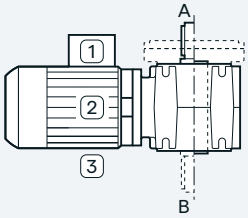
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ373.-.....-....**-Z**	**D14**
M4 output side B	2KJ373.-.....-....**-Z**	**D24**



Mounting position	Additional identification code **-Z** with order code	Order code
M5 output side A	2KJ373.-.....-....**-Z**	**D15**
M5 output side B	2KJ373.-.....-....**-Z**	**D25**



Mounting position	Additional identification code **-Z** with order code	Order code
M6 output side A	2KJ373.-.....-....**-Z**	**D16**
M6 output side B	2KJ373.-.....-....**-Z**	**D26**



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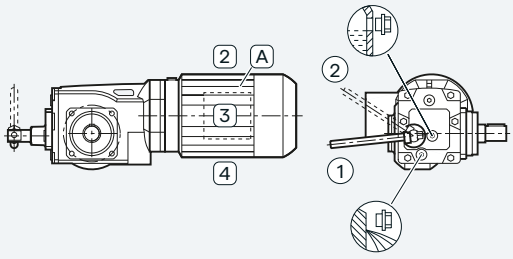
Foot-mounted design and housing flange design

Electric-monorail geared motor BH., sizes 29 and 39

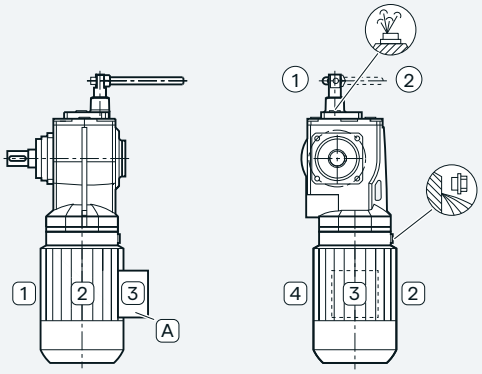
Oil valves

For an explanation of the symbols, see page 10/3.

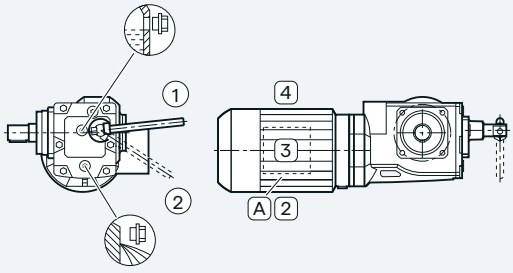
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ380.-.....-....**-Z**	**D11**



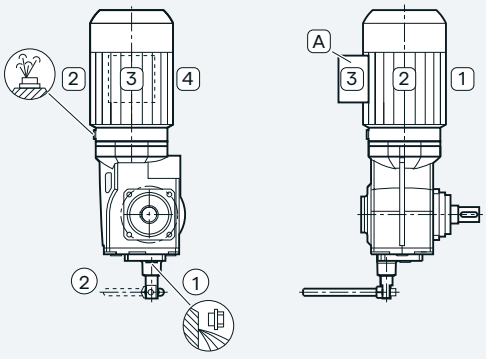
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ380.-.....-....**-Z**	**D12**



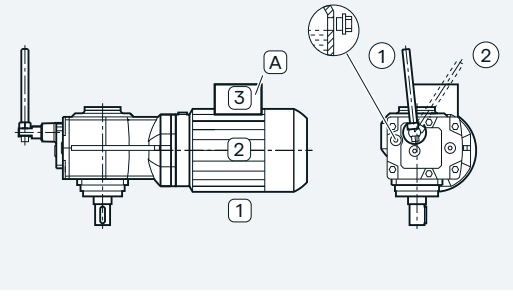
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ380.-.....-....**-Z**	**D13**



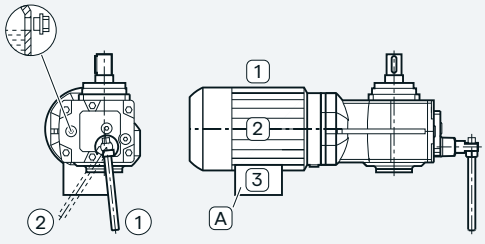
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ380.-.....-....**-Z**	**D14**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ380.-.....-....**-Z**	**D15**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ380.-.....-....**-Z**	**D16**



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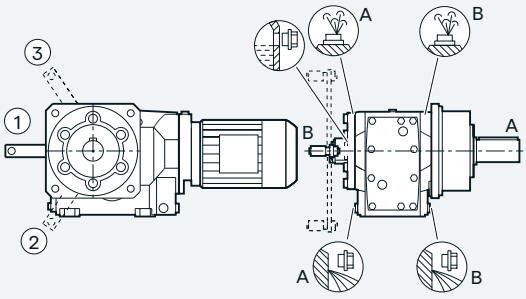
Flange-mounted design

Electric-monorail geared motor KH., sizes 49 to 79

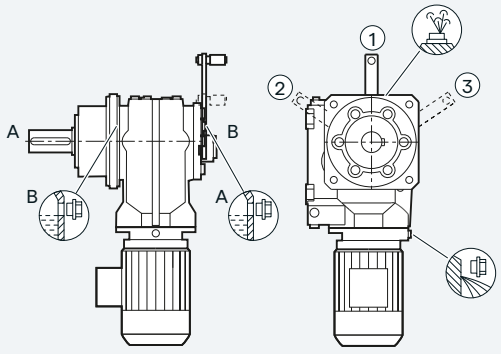
Oil valves

For an explanation of the symbols, see page 10/3.

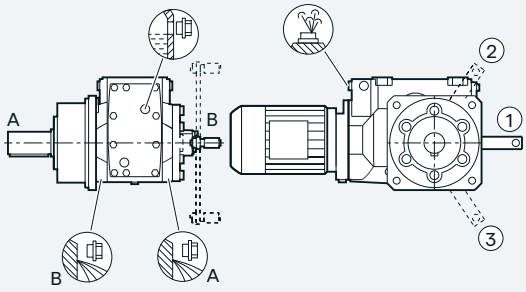
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ380.-.....-....**-Z**	**D11**
M1 output side B	2KJ380.-.....-....**-Z**	**D21**



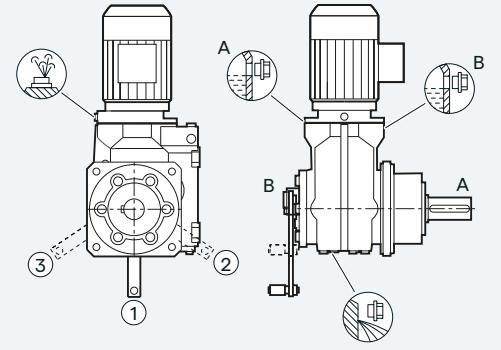
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ380.-.....-....**-Z**	**D12**
M2 output side B	2KJ380.-.....-....**-Z**	**D22**



Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ380.-.....-....**-Z**	**D13**
M3 output side B	2KJ380.-.....-....**-Z**	**D23**



Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ380.-.....-....**-Z**	**D14**
M4 output side B	2KJ380.-.....-....**-Z**	**D24**



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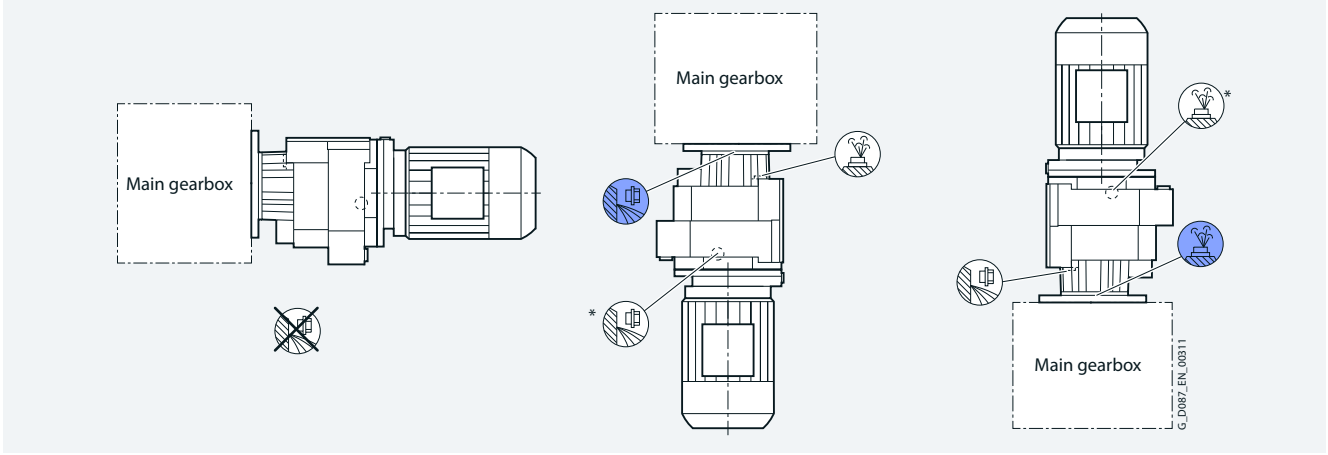
Gearbox options

Overview

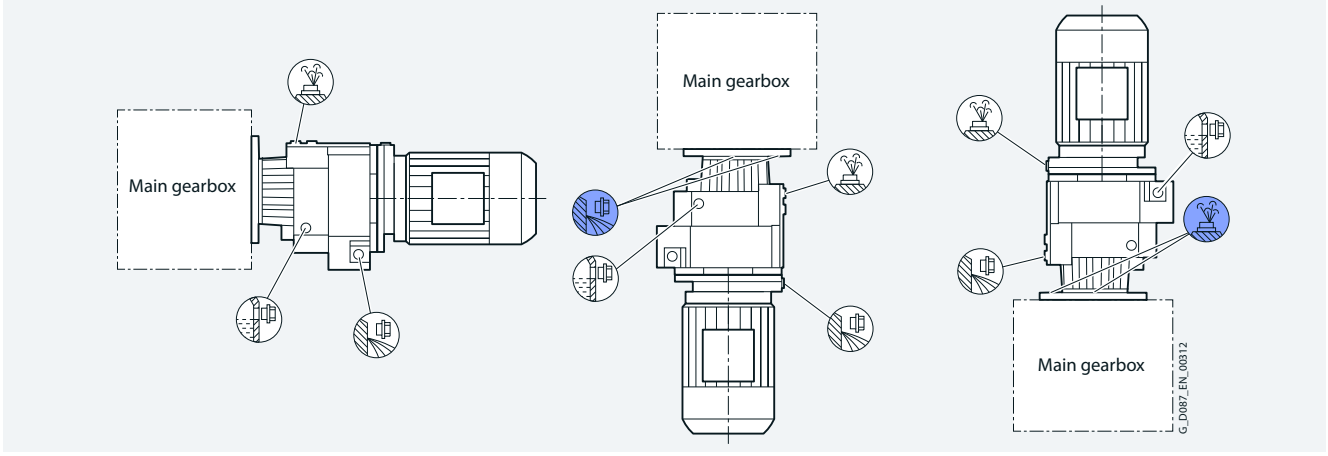
The tandem gearbox is mounted in the same position as the main gearbox. The diagrams below are only designed to show the position of the oil control valves of the 2nd gearbox.

Note:
In a horizontal operating position, the convex face of the housing of the 2nd gearbox generally points vertically downwards.
For an explanation of the symbols, see page 10/3.

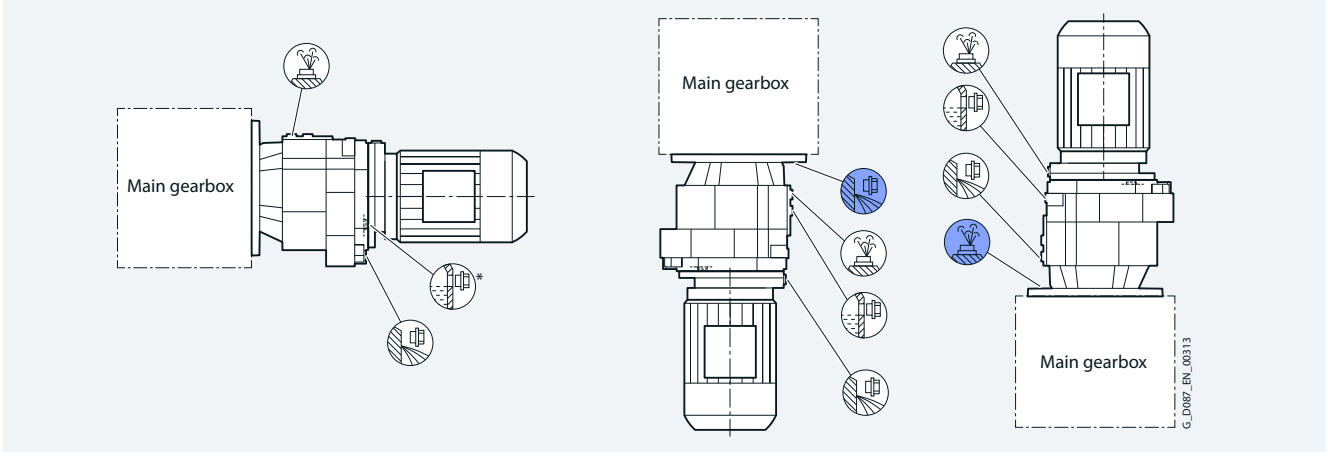
Tandem gearboxes: 2nd gearbox size 19



Tandem gearboxes: 2nd gearbox size 39



Tandem gearboxes: 2nd gearbox sizes 49 to 69



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Overview

Apart from the standard types of construction, geared motors can also be supplied in different inclined positions.

Note:
The special mounting positions are not available for the electric-monorail geared motors.

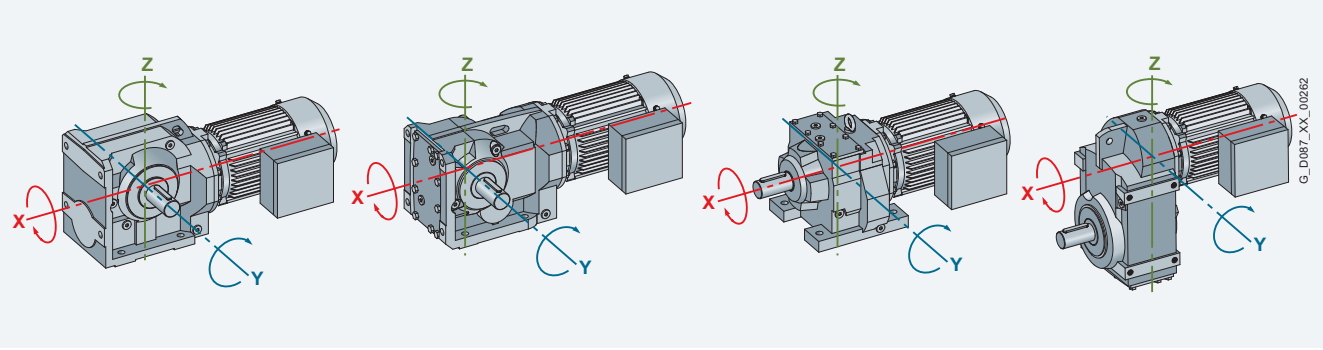

Fig. 10-6 Axes of rotation of the geared motors

Special mounting position	Additional identification code **-Z** with order code 2KJ3...-.....-....**-Z**	Order code	Special mounting position	Additional identification code **-Z** with order code 2KJ3...-.....-....**-Z**	Order code	Special mounting position	Additional identification code **-Z** with order code 2KJ3...-.....-....**-Z**	Order code
Y axis			**X axis**			**Z axis**		
Rotation angle 5 °		**E01**	Rotation angle 5 °		**E21**	Rotation angle 5 °		**E41**
Rotation angle 10 °		**E02**	Rotation angle 10 °		**E22**	Rotation angle 10 °		**E42**
Rotation angle 15 °		**E03**	Rotation angle 15 °		**E23**	Rotation angle 15 °		**E43**
Rotation angle 20 °		**E04**	Rotation angle 20 °		**E24**	Rotation angle 20 °		**E44**
Rotation angle 25 °		**E05**	Rotation angle 25 °		**E25**	Rotation angle 25 °		**E45**
Rotation angle 30 °		**E06**	Rotation angle 30 °		**E26**	Rotation angle 30 °		**E46**
Rotation angle 35 °		**E07**	Rotation angle 35 °		**E27**	Rotation angle 35 °		**E47**
Rotation angle 40 °		**E08**	Rotation angle 40 °		**E28**	Rotation angle 40 °		**E48**
Rotation angle 45 °		**E09**	Rotation angle 45 °		**E29**	Rotation angle 45 °		**E49**
Rotation angle 50 °		**E10**	Rotation angle 50 °		**E30**	Rotation angle 50 °		**E50**
Rotation angle 55 °		**E11**	Rotation angle 55 °		**E31**	Rotation angle 55 °		**E51**
Rotation angle 60 °		**E12**	Rotation angle 60 °		**E32**	Rotation angle 60 °		**E52**
Rotation angle 65 °		**E13**	Rotation angle 65 °		**E33**	Rotation angle 65 °		**E53**
Rotation angle 70 °		**E14**	Rotation angle 70 °		**E34**	Rotation angle 70 °		**E54**
Rotation angle 75 °		**E15**	Rotation angle 75 °		**E35**	Rotation angle 75 °		**E55**
Rotation angle 80 °		**E16**	Rotation angle 80 °		**E36**	Rotation angle 80 °		**E56**
Rotation angle 85 °		**E17**	Rotation angle 85 °		**E37**	Rotation angle 85 °		**E57**

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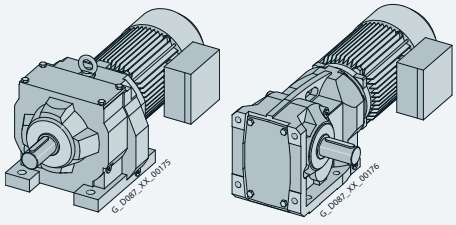
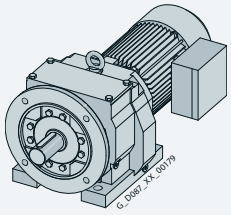
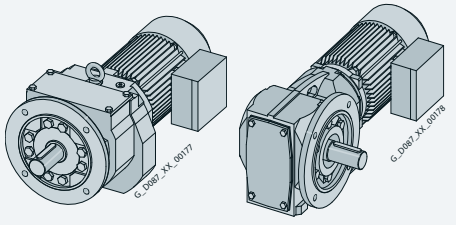
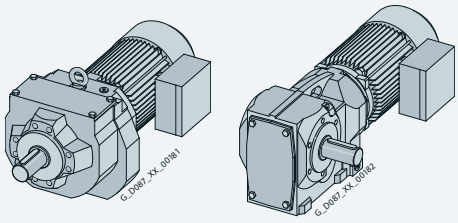
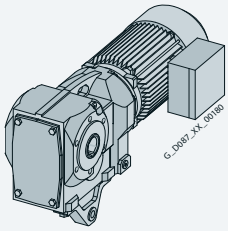
Gearbox options

Mounting types

Overview

Mounting types	Possible for the following geared motors	Gearbox type	14th position of the Article No.			Example
			2KJ31.. -.....-.	■	-..-Z	
Foot-mounted design	Helical geared motor, 2-stage	**Z**	2KJ31.. -.....-.	**A**	-..-Z	
	Helical geared motor, 3-stage	**D**	2KJ32.. -.....-.	**A**	-..-Z	
	Helical geared motor, 1-stage	**E**	2KJ30.. -.....-.	**A**	-..-Z	
	Parallel shaft geared motor, 2-stage	**FZ**	2KJ33.. -.....-.	**A**	-..-Z	
	Parallel shaft geared motor, 3-stage	**FD**	2KJ34.. -.....-.	**A**	-..-Z	
	Bevel geared motor, 2-stage	**B**	2KJ35.. -.....-.	**A**	-..-Z	
	Bevel geared motor, 3-stage	**K**	2KJ35.. -.....-.	**A**	-..-Z	
	Helical worm geared motor, 2-stage	**C**	2KJ36.. -.....-.	**A**	-..-Z	
	Worm geared motor, 1-stage	**S**	2KJ37.. -.....-.	**A**	-..-Z	
	Electric-monorail geared motor, light-load applications	**BH**	2KJ38.. -.....-.	**A**	-..-Z	
Foot/flange-mounted design	Helical geared motor, 2-stage (only for sizes 29 to 89)	**ZB**	2KJ31.. -.....-.	**B**	-..-Z	
	Helical geared motor, 3-stage (only for sizes 29 to 89)	**DB**	2KJ32.. -.....-.	**B**	-..-Z	
Flange-mounted design (A type)	Helical geared motor, 2-stage	**ZF**	2KJ31.. -.....-.	**F**	-..-Z	
	Helical geared motor, 3-stage	**DF**	2KJ32.. -.....-.	**F**	-..-Z	
	Helical geared motor, 1-stage	**EF**	2KJ30.. -.....-.	**F**	-..-Z	
	Parallel shaft geared motor, 2-stage	**FZF**	2KJ33.. -.....-.	**F**	-..-Z	
	Parallel shaft geared motor, 3-stage	**FDF**	2KJ34.. -.....-.	**F**	-..-Z	
	Bevel geared motor, 2-stage	**BF**	2KJ35.. -.....-.	**F**	-..-Z	
	Bevel geared motor, 3-stage	**KF**	2KJ35.. -.....-.	**F**	-..-Z	
	Helical worm geared motor, 2-stage	**CF**	2KJ36.. -.....-.	**F**	-..-Z	
	Worm geared motor, 1-stage	**SF**	2KJ37.. -.....-.	**F**	-..-Z	
	Electric-monorail geared motor, heavy-load applications	**KHF**	2KJ38.. -.....-.	**F**	-..-Z	
Housing flange (C type)	Helical geared motor, 2-stage	**ZZ**	2KJ31.. -.....-.	**H**	-..-Z	
	Helical geared motor, 3-stage	**DZ**	2KJ32.. -.....-.	**H**	-..-Z	
	Helical geared motor, 1-stage	**EZ**	2KJ30.. -.....-.	**H**	-..-Z	
	Parallel shaft geared motor, 2-stage	**FZZ**	2KJ33.. -.....-.	**H**	-..-Z	
	Parallel shaft geared motor, 3-stage	**FDZ**	2KJ34.. -.....-.	**H**	-..-Z	
	Bevel geared motor, 2-stage	**BZ**	2KJ35.. -.....-.	**H**	-..-Z	
	Bevel geared motor, 3-stage	**KZ**	2KJ35.. -.....-.	**H**	-..-Z	
	Helical worm geared motor, 2-stage	**CZ**	2KJ36.. -.....-.	**H**	-..-Z	
	Worm geared motor, 1-stage	**SZ**	2KJ37.. -.....-.	**H**	-..-Z	
	Electric-monorail geared motor, light-load applications	**BHZ**	2KJ38.. -.....-.	**H**	-..-Z	
Shaft-mounted design (torque arm)	Parallel shaft geared motor, 2-stage	**FZAD**	2KJ33.. -.....-.	**D**	-..-Z	
	Parallel shaft geared motor, 3-stage	**FDAD**	2KJ34.. -.....-.	**D**	-..-Z	
	Bevel geared motor, 2-stage	**BAD**	2KJ35.. -.....-.	**D**	-..-Z	
	Bevel geared motor, 3-stage	**KAD**	2KJ35.. -.....-.	**C**	-..-Z	
	Helical worm geared motor, 2-stage	**CAD**	2KJ36.. -.....-.	**D**	-..-Z	
	Worm geared motor, 1-stage	**SAD**	2KJ37.. -.....-.	**D**	-..-Z	

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Flange-mounted designs

The flange-mounted designs are available with different diameters.

Gearbox type	Flange diameter mm													Additional identification code **-Z** with order code	
Helical gearboxes DF and ZF															
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**	2KJ31.. -.....-.F..**-Z** 2KJ32.. -.....-.F..**-Z**	Order code
	120	120	120												**H02**
	140	140		140											**H03**
	160	160	160	160	160										**H04**
			200	200	200	200									**H05**
					250	250	250								**H06**
							300	300							**H07**
							350	350	350	350					**H08**
								450	450	450	450	450			**H09**
										550	550	550	550		**H10**
												660	660		**H11**
Helical gearboxes VLplus								300							**H07 + G30**
								350	350	350					**H08 + G30**
								450	450	450		450			**H09 + G30**
										550	550	550			**H10 + G30**
												660			**H11 + G30**
Helical gearboxes XLplus								450	450						**H09 + G31**
										550	550				**H10 + G31**
												660			**H11 + G31**

Helical gearboxes DB and ZB									
Gearbox size	**29**	**39**	**49**	**59**	**69**	**79**	**89**	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	Order code
	120	120							**H02**
			140						**H03**
			160	160					**H04**
					200				**H05**
						250			**H06**
							300		**H07**

Helical gearboxes EF									
Gearbox size	**39**	**49**	**69**	**89**	**109**	**129**	**149**	2KJ30.. -.....-.F..**-Z**	Order code
	120								**H02**
	140								**H03**
	160	160							**H04**
	200	200	200						**H05**
		250	250	250					**H06**
				300	300				**H07**
				350	350	350	350		**H08**
					450	450	450		**H09**
							550		**H10**

Cooling tower gearboxes												
Gearbox size	**EKF89**	**EKF109**	**EKF129**	**EKF149**	**ZKF89**	**ZKF109**	**ZKF129**	**ZKF149**	**ZKF169**	**ZKF189**	2KJ305. -.....-.F..**-Z** 2KJ315. -.....-.F..**-Z** 2KJ316. -.....-.F..**-Z**	Order code
	250											**H06**
	300	300			300							**H07**
	350	350	350	350	350	350	350					**H08**
		450	450	450	450	450	450	450	450			**H09**
				550			550	550	550	550		**H10**
									660	660		**H11**
Cooling tower gearboxes XLplus					450	450						**H09 + G31**
							550	550				**H10 + G31**
									660			**H11 + G31**

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Gearbox options

Mounting types

Flange-mounted designs

Gearbox type	Flange diameter mm											Additional identification code **-Z** with order code	
Parallel shaft gearboxes F..F													
Gearbox size	**29**	**39**	**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**	2KJ33.. -.....-.F..**-Z**	
												2KJ34.. -.....-.F..**-Z**	Order code
	120												**H02**
	160	160											**H04**
			200										**H05**
				250	250								**H06**
						300							**H07**
							350						**H08**
								450	450				**H09**
										550			**H10**
											660		**H11**
Parallel shaft gearboxes VLplus						300							**H07 + G30**
							350						**H08 + G30**
								450	450				**H09 + G30**
										550			**H10 + G30**

Bevel gearboxes B.F						
Gearbox size	**19**	**29**	**39**	**49**	2KJ35.. -.....-.F..**-Z**	Order code
	120	120				**H02**
		160	160			**H04**
			200	200		**H05**

Bevel gearboxes K.F												
Gearbox size	**39**	**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**	2KJ35.. -.....-.F..**-Z**	Order code
	160											**H04**
		200										**H05**
			250	250								**H06**
					300							**H07**
						350						**H08**
							450	450				**H09**
									550			**H10**
										660		**H11**
Bevel gearboxes VLplus					300							**H07 + G30**
						350						**H08 + G30**
							450	450				**H09 + G30**
									550			**H10 + G30**

Helical worm gearboxes C.F							
Gearbox size	**29**	**39A**	**49**	**69**	**89**	2KJ36.. -.....-.F..**-Z**	Order code
	120						**H02**
	160	160					**H04**
			200	200			**H05**
					250		**H06**

Worm gearboxes S.F					
Gearbox size	**09**	**19**	**29**	2KJ37.. -.....-.F..**-Z**	Order code
	80	110	120		**H01**
	120 / Q90	120	160 / Q136		**H02**

Electric-monorail gearboxes KHF for heavy-load applications					
Gearbox size	**49**	**69**	**79**	2KJ38.. -.....-.F..**-Z**	Order code
	200				**H05**
	250	250	250		**H06**

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Flange-mounted designs

Water drain holes at the output flange

For gearboxes in a flange-mounted design, water drain holes can be located at the output flange. This is required for mounting position M2 (output shaft facing upwards), if there is a risk that water will collect in the output flange.

Mounting type	Additional identification code **-Z** with order code	
	2KJ3… -…..-.F..**-Z**	Order code
Water drain holes at the output flange		**G77**

Flange diameter mm	Possible for												
Helical gearboxes Z and D													
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**
120													
140				✓									
160				✓	✓[1]								
200				✓	✓	✓[2]							
250					✓	✓	✓[1]						
300							✓	✓					
350							✓	✓	✓	✓			
450								✓	✓	✓	✓	✓	
550										✓	✓	✓	✓
660												✓	✓

[1] Water drain holes are also possible for foot/flange-mounted designs
[2] Water drain holes are only possible for foot/flange-mounted designs

Helical gearboxes E								
Gearbox size	**39**	**49**	**69**	**89**	**109**	**129**	**149**	
120	✓							
140	✓							
160	✓	✓						
200	✓	✓	✓					
250		✓	✓	✓				
300				✓	✓			
350					✓	✓	✓	
450						✓	✓	

Cooling tower gearboxes										
Gearbox size	**EKF89**	**EKF109**	**EKF129**	**EKF149**	**ZKF89**	**ZKF109**	**ZKF129**	**ZKF149**	**ZKF169**	**ZKF189**
250	✓									
300	✓	✓			✓					
350	✓	✓	✓	✓	✓	✓	✓			
450		✓	✓	✓	✓	✓	✓	✓	✓	
550				✓			✓	✓	✓	✓
660									✓	✓

Parallel shaft gearboxes F											
Gearbox size	**29**	**39**	**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**
120											
140											
160		✓									
200			✓								
250				✓	✓						
300						✓					
350							✓				
450								✓	✓		
550										✓	
660											✓

Bevel gearboxes K										
Gearbox size	**39**	**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**
160	✓									
200		✓								
250			✓	✓						
300					✓					
350						✓				
450							✓	✓		
550									✓	
660										✓

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Gearbox options

Mounting types

Flange-mounted designs

Output flange seal

The flange sealing option enables you to create a fluid-tight interface between the housing and the output flange. The seal prevents the escape of fluids (e.g. oil or water).

The gearbox in a flange-mounted design can be used when a fluid-tight space at the output is required. Input gears are a typical application.

The flange sealing option must always be ordered for use in combination with the "water drain holes at the output flange" option.

Note:
The "output flange seal" option is not available for the electric-monorail geared motors.

Mounting type	Additional identification code **-Z** with order code	
	2KJ3... -.....-.F..**-Z**	Order code
Output flange seal		**G78**

Parallel shaft gearboxes F.AD. in a shaft-mounted design

The rubber buffers (supplied loose) are used to flexibly support the gearbox on the housing plate provided.

When mounting, the rubber buffers must be pretensioned to the dimension specified in the dimensional drawing.

The elastomer used for support is manufactured out of natural rubber 70° ± 5 Shore A.

The rubber buffers are suitable for all mounting positions and can withstand temperatures of between –40 and +60 °C.

Mounting type	14th position of the Article No.		
	2KJ33.. -.....-.	■	..**-Z**
	2KJ34.. -.....-.	■	..**-Z**
Shaft-mounted design		**D**	

The dimensions of the torque arm can be seen in the dimensional drawings.

Bevel gearboxes KAD. in a shaft-mounted design

The torque arm of bevel gearboxes K is mounted on the underside of the housing. The rubber buffers are used to flexibly support the gearbox on the torque arm.

The elastomer used for support is manufactured out of natural rubber of grade 60° Shore A.

The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between –40 and +60 °C.

Mounting type	14th position of the Article No.		
	2KJ35.. -.....-.	■	..**-Z**
Shaft-mounted design		**C**	

The dimensions of the torque arm can be seen in the dimensional drawings.

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Bevel gearboxes BAD. in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

When ordered, the torque arm is supplied loose.

Mounting type	14th position of the Article No.		
	2KJ35.. -.....-.	■	..-Z
Shaft-mounted design		D	

Shaft-mounted design for sizes 19 and 29

The elastomer used for support is manufactured out of natural rubber of grade 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between −30 and +60 °C.

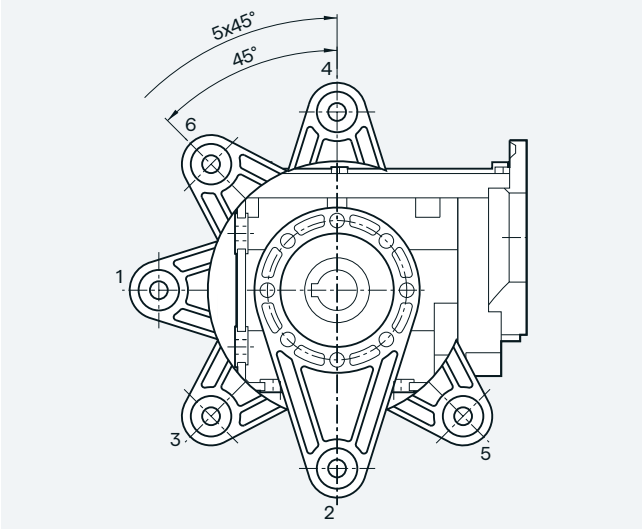

Fig. 10-7 Bevel gearboxes BAD, sizes 19 and 29

Shaft-mounted design for sizes 39 and 49

The elastomer used for support is manufactured out of natural rubber of grade 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between −40 and +60 °C.

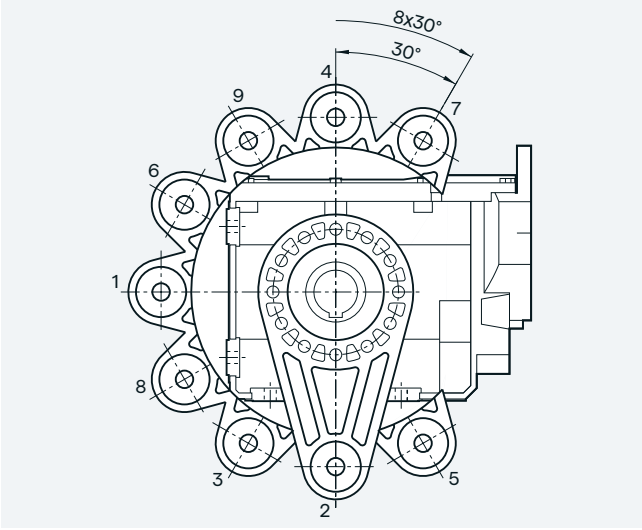

Fig. 10-8 Bevel gearboxes BAD, sizes 39 and 49

10

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Helical worm gearboxes CAD. in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

When ordered, the torque arm is supplied loose.

Mounting type	14th position of the Article No.		
	2KJ36.. -.....-.	■	..**-Z**
Shaft-mounted design		**D**	

Shaft-mounted design for size 29

The elastomer used for support is manufactured out of natural rubber of grade 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between −30 and +60 °C.

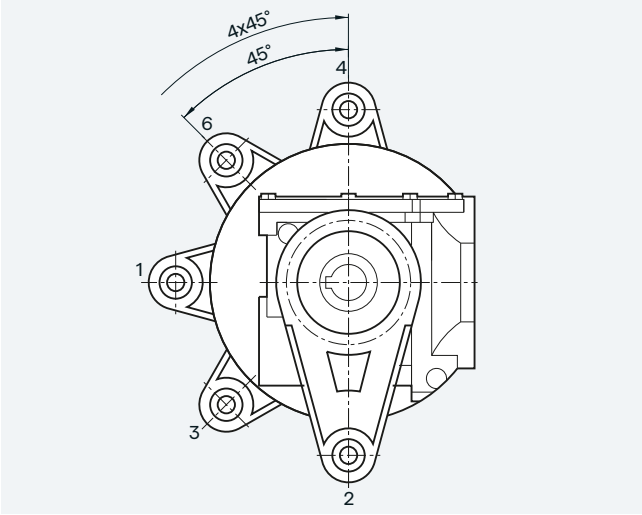

Fig. 10-9 Helical worm gearboxes CAD, size 29

Shaft-mounted design for sizes 39 to 89

The elastomer used for support is manufactured out of natural rubber of grade 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between −40 and +60 °C.

Mounting type	Additional identification code **-Z** with order code	
	2KJ36.. -.....-.D..**-Z**	Order code
Shaft-mounted design, Fig. 1		**G09**
Shaft-mounted design, Fig. 2		**G10**

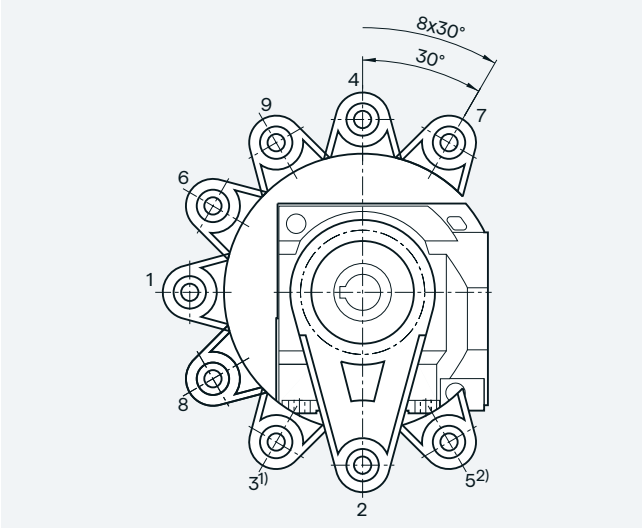

Fig. 10-10 Helical worm gearboxes CAD, Figure 1, sizes 39A to 89

1) Position not possible for sizes CAD.39A and CAD.69
2) Position not possible for size CAD.39A

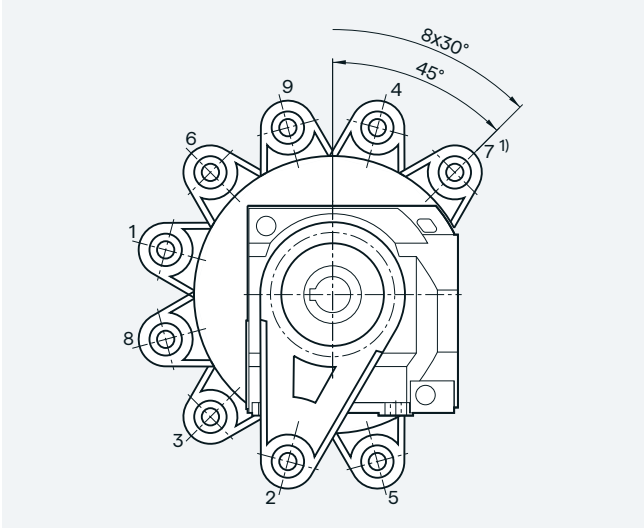

Fig. 10-11 Helical worm gearboxes CAD, Figure 2, sizes 39A to 89

1) Position not possible for sizes CAD.39A and CAD.49

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Worm gearboxes SAD in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

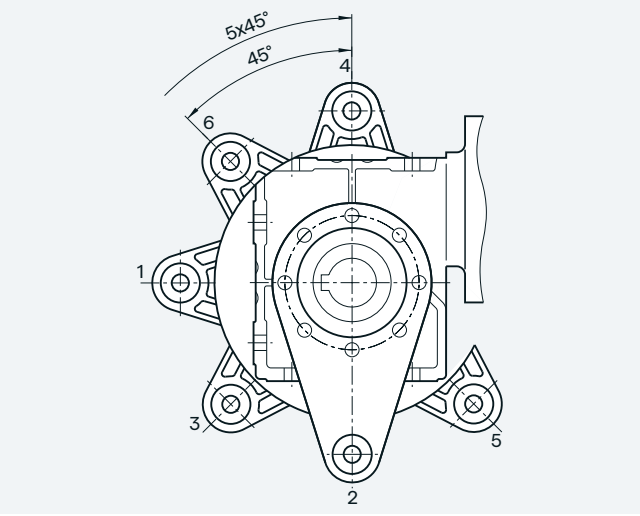

Fig. 10-12 Worm gearboxes S in a shaft-mounted design

The elastomer used for support is manufactured out of natural rubber of grade 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between −30 and +60 °C.

Mounting type	14th position of the Article No.		
	2KJ37.. -.....-.	■	..-Z
Shaft-mounted design		D	

When ordered, the torque arm is supplied loose.

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Gearbox options

Shaft designs

Selection and ordering data

Shaft design	Dimensions mm					Ambient temperature range	8th position of the Article No. An order code is required when **9** appears in the 8th position of the Article No.		
Helical gearboxes Z and D									
Gearbox size	**19**	**29**	**39**	**49**	**59**		2KJ31..- ■ ....-....**-Z** 2KJ32..- ■ ....-....**-Z**		Order code
Solid shaft	V20 x 40	V25 x 50	V25 x 50	V30 x 60	V35 x 70	−40 ... +60 °C		**1**	**–**
	V16 x 28				V30 x 60			**2**	**–**
	V16 x 40		V30 x 60		V40 x 80			**3**	**–**
Solid shaft without feather key	VG20 x 40	VG25 x 50	VG25 x 50	VG30 x 60	VG35 x 70			**9**	**H1G**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"			**9**	**H6A**
Gearbox size	**69**	**79**	**89**	**109**	**129**		2KJ31..- ■ ....-....**-Z** 2KJ32..- ■ ....-....**-Z**		Order code
Solid shaft	V35 x 70	V40 x 80	V50 x 100	V60 x 120	V70 x 140	−40 ... +60 °C		**1**	**–**
		V35 x 70						**2**	**–**
		V50 x 100	V60 x 120					**3**	**–**
Solid shaft without feather key [1]	VG35 x 70	VG40 x 80	VG50 x 100	VG60 x 120	VG70 x 140			**9**	**H1G**
Solid shaft, inches	V1.375" x 2.76"	V1.625" x 3.15"	V2.125" x 3.94"	V2.375" x 4.72"	V2.875" x 5.51"			**9**	**H6A**
Solid shaft VLplus			VM60 x120	VM70 x 140	VM90 x 170			**9**	**H1C**
Solid shaft XLplus			VM60 x120	VM70 x 140	VM90 x 170			**9**	**H1C**
Gearbox size	**149**	**169**	**189**				2KJ31..- ■ ....-....**-Z** 2KJ32..- ■ ....-....**-Z**		Order code
Solid shaft	V90 x 170	V110 x 210	V120 x 210			−40 ... +60 °C		**1**	**–**
		V100 x 210						**2**	**–**
								3	**–**
Solid shaft without feather key [1]	VG90 x 170							**9**	**H1G**
Solid shaft, inches	V3.625" x 6.69"	V4.375"x8.27"	V4.75" x 8.27"					**9**	**H6A**
Solid shaft VLplus	VM100 x 210	VM120 x 210						**9**	**H1C**
Solid shaft XLplus	VM100 x 210	VM120 x 210						**9**	**H1C**

[1] Can only be selected in conjunction with foot-mounted or housing flange design.

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Selection and ordering data

Shaft design	Dimensions mm						Ambient temperature range	8th position of the Article No. An order code is required when **9** appears in the 8th position of the Article No.		
Helical gearboxes E										
Gearbox size	**39**	**49**	**69**	**89**	**109**			2KJ30..- ■ ....-....**-Z**		Order code
Solid shaft	V20 x 40	V25 x 50	V30 x 60	V40 x 80	V50 x 100		−40 ... +60 °C		**1**	**–**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1.25" x 2.36"	V1.625" x 3.15"	V2.125" x 3.94"				**9**	**H6A**
Gearbox size	**129**	**149**						2KJ30..- ■ ....-....**-Z**		Order code
Solid shaft	V60 x 120	V70 x 140					−40 ... +60 °C		**1**	**–**
Solid shaft, inches	V2.375" x 4.72"	V2.875" x 5.51"							**9**	**H6A**
Cooling tower gearboxes										
Gearbox size	**EKF89**	**EKF109**	**EKF129**	**EKF149**				2KJ305.- ■ ....-....**-Z**		Order code
Solid shaft	VC40 x 80/160	VC50 x 100/180	VC60 x 120/200	VC70 x 140/220			−40 ... +60 °C		**9**	**H1B**
Gearbox size	**ZKF89**	**ZKF109**	**ZKF129**	**ZKF149**	**ZKF169**	**ZKF189**		2KJ315.- ■ ....-....**-Z** 2KJ316.- ■ ....-....**-Z**		Order code
Solid shaft	VC50 x 100/180	VC60 x 120/200	VC70 x 140/220	VC90 x 170/250	VC110 x 210/330	VC120 x 210/330	−40 ... +60 °C		**9**	**H1B**
Solid shaft, inches	VM60 x 120	VM70 x 140	VM90 x 170	VM100 x 210	VM120 x 210				**9**	**H1C**
Parallel shaft gearboxes F										
Gearbox size	**29**	**39**	**49**	**69**	**79**	**89**		2KJ33..- ■ ....-....**-Z** 2KJ34..- ■ ....-....**-Z**		Order code
Solid shaft	V25 x 50	V25 x 50	V30 x 60	V35 x 70	V40 x 80	V50 x 100	−40 ... +60 °C		**1**	**–**
		V35 x 70	V40 x 80		V50 x 100				**3**	**–**
Solid shaft without feather key [1]	VG25 x 50	VG25 x 50	VG30 x 60	VG35 x 70	VG40 x 80	VG50 x 100			**9**	**H1G**
Solid shaft, both ends [1] [2]		VD25 x 50	VD30 x 60	VD35 x 70	VD40 x 80	VD50 x 100			**9**	**H5A**
Solid shaft, both ends without feather key [1] [2]			VDG30 x 60	VDG35 x 70	VDG40 x 80	VDG50 x 100			**9**	**H5B**
Solid shaft, inches	V1" x 1.97"	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.625" x 3.15"	V2" x 3.94"			**9**	**H6A**
Solid shaft VLplus						VM60 x 120			**9**	**H1C**
Hollow shaft	H25	H30	H35	H40	H40	H50			**5**	**–**
		H25	H30						**6**	**–**
Hollow shaft, inches	H1"	H1.25"	H1.375"	H1.5"	H1.5"	H2"			**9**	**H7A**
Hollow shaft VLplus						HM50			**9**	**H2F**
Hollow shaft with shrink disk	HS25	HS30	HS35	HS40	HS40	HS50			**9**	**H3A**
ShaftMount assembly system, metric	HF25	HF30	HF35	HF40	HF40	HF50	−20 ... +60 °C		**9**	**H3G**
	HF20	HF25	HF30	HF35	HF35	HF40			**9**	**H3H**
ShaftMount assembly system, inches	HF1.0"	HF1.25"	HF1.375"	HF1.5"	HF1.5"	HF2.0"			**9**	**H3J**
	HF0.75"	HF1.1875"	HF1.4375"	HF1.625"	HF1.625"	HF1.9375"			**9**	**H3K**
		HF1.0"	HF1.25"	HF1.4375"	HF1.4375"	HF1.75"			**9**	**H3L**
		-	HF1.1875"	HF1.375"	HF1.375"	HF1.625"			**9**	**H3M**
Splined hollow shaft		N30	N35	N35	N45	N50	−40 ... +60 °C		**9**	**H4A**
Gearbox size	**109**	**129**	**149**	**169**	**189**			2KJ33..- ■ ....-....**-Z** 2KJ34..- ■ ....-....**-Z**		Order code
Solid shaft	V60 x 120	V70 x 140	V90 x 170	V110 x 210	V120 x 210		−40 ... +60 °C		**1**	**–**
	V80 x 170	V90 x 170	V100 x 210	V120 x 210	V140 x 250				**3**	**–**
Solid shaft without feather key [1]	VG60 x 120								**9**	**H1G**
Solid shaft, both ends [1] [2]	VD60 x 120	VD70 x 140	VD90 x 170	VD110 x 210	VD120x210				**9**	**H5A**
Solid shaft, both ends without feather key [1] [2]	VDG60 x 120								**9**	**H5B**
Solid shaft, inches	V2.375“ x 4.72"	V2.875" x 5.51"	V3.625" x 6.69"	V4.375" x 8. 27"	V4.75" x 8.27"				**9**	**H6A**
Solid shaft VLplus	VM70 x 140	VM90 x 170	VM100 x 210	VM120 x 210					**9**	**H1C**

[1] Can only be selected in conjunction with foot-mounted or housing flange design.
[2] Restricted motor frame sizes in conjunction with shaft extensions at both ends; for precise dimensioning, use the functionality of the SPC.

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Shaft designs

Selection and ordering data

Shaft design	Dimensions mm					Ambient temperature range	8th position of the Article No. An order code is required when **9** appears in the 8th position of the Article No.			
Parallel shaft gearboxes F										
Gearbox size	**109**	**129**	**149**	**169**	**189**		2KJ33..- ■ ....-....**-Z** 2KJ34..- ■ ....-....**-Z**			Order code
Hollow shaft	H60	H70	H90	H100	H120	−40 ... +60 °C		**5**		**–**
			H80	H110				**6**		**–**
	H70							**7**		**–**
Hollow shaft, inches	H2.375"	H2.75"	H3.625"	H4"	H4.5"			**9**		**H7A**
Hollow shaft VLplus	HM60	HM70	HM90	HM100				**9**		**H2F**
Hollow shaft with shrink disk	HS65	HS75	HS95	HS105	HS125			**9**		**H3A**
			HS90					**9**		**H3B**
	HS70							**9**		**H3C**
Splined hollow shaft	N65	N70	N85	N90	N110			**9**		**H4A**

Bevel gearboxes B								
Gearbox size	**19**	**29**	**39**	**49**		2KJ35..- ■ ....-....**-Z**		Order code
Solid shaft	V20 x 40	V20 x 40	V30 x 60	V35 x 70	−40 ... +60 °C		**1**	**–**
Solid shaft without feather key	VG20 x 40	VG20 x 40	VG30 x 60	VG35 x 70			**9**	**H1G**
Solid shaft, both ends [2]	VD20 x 40	VD20 x 40	VD30 x 60	VD35 x 70			**9**	**H5A**
Solid shaft, inches	V0.75" x 1.57"	V0.75" x 1.57"	V1" x 1.97"	V1.375" x 2.76"			**9**	**H6A**
Hollow shaft	H20	H20	H30	H40			**5**	**–**
		H25	H35	H35			**6**	**–**
			H40				**7**	**–**
Hollow shaft, inches	H0.75"	H0.75"	H1.25"	H1.5"			**9**	**H7A**
Hollow shaft with shrink disk	HS20	HS20	HS35	HS40	−40 ... +60 °C		**9**	**H3A**
ShaftMount assembly system, metric		HF25	HF30	HF35	−20 ... +60 °C		**9**	**H3G**
		HF20	HF25	HF30			**9**	**H3H**
				HF40			**9**	**H3P**
ShaftMount assembly system, inches		HF1.0"	HF1.25"	HF1.375"			**9**	**H3J**
		HF0.75"	HF1.1875"	HF1.4375"			**9**	**H3K**
			HF1.0"	HF1.25"			**9**	**H3L**
				HF1.1875"			**9**	**H3M**
				HF1.625"			**9**	**H3N**

Bevel gearboxes K								
Gearbox size	**39**	**49**	**69**	**79**	**89**	2KJ35..- ■ ....-....**-Z**		Order code
Solid shaft	V25 x 50	V30 x 60	V35 x 70	V40 x 80	V50 x 100	−40 ... +60 °C	**1**	**–**
	V35 x 70	V40 x 80		V50 x 100			**3**	**–**
Solid shaft without feather key	VG25 x 50	VG30 x 60	VG35 x 70	VG40 x 80	VG50 x 100		**9**	**H1G**
Solid shaft, both ends [1]	VD25 x 50	VD30 x 60	VD35 x 70	VD40 x 80	VD50 x 100		**9**	**H5A**
Solid shaft, both ends without feather key[1]		VDG30 x 60	VDG35 x 70	VDG40 x 80	VDG50 x 100		**9**	**H5B**
Solid shaft, inches	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.625" x 3.15"	V2" x 3.94"		**9**	**H6A**
Solid shaft VLplus					VM60 x 120		**9**	**H1C**
Hollow shaft	H30	H35	H40	H40	H50		**5**	**–**
	H25	H30					**6**	**–**
Hollow shaft, inches	H1.25"	H1.375"	H1.5"	H1.5"	H2"		**9**	**H7A**
Hollow shaft VLplus					HM50		**9**	**H2F**
Hollow shaft with shrink disk	HS30	HS35	HS40	HS40	HS50		**9**	**H3A**
ShaftMount assembly system, metric	HF30	HF35	HF40	HF40	HF50	−20 ... +60 °C	**9**	**H3G**
	HF25	HF30	HF35	HF35	HF40		**9**	**H3H**
ShaftMount assembly system, inches	HF1.25"	HF1.375"	HF1.5"	HF1.5"	HF2.0"		**9**	**H3J**
	HF1.1875"	HF1.4375"	HF1.625"	HF1.625"	HF1.9375"		**9**	**H3K**
	HF1.0"	HF1.25"	HF1.4375"	HF1.4375"	HF1.75"		**9**	**H3L**
		HF1.1875"	HF1.375"	HF1.375"	HF1.625"		**9**	**H3M**
Splined hollow shaft	N30	N35	N35	N45	N50	−40 ... +60 °C	**9**	**H4A**

[1] Can only be selected in conjunction with foot-mounted or housing flange design.
[2] Can only be selected in conjunction with foot-mounted design.

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Selection and ordering data

Shaft design	Dimensions mm					Ambient temperature range	8th position of the Article No. An order code is required when **9** appears in the 8th position of the Article No.			
Bevel gearboxes K										
Gearbox size	**109**	**129**	**149**	**169**	**189**		2KJ35..-	■	....-....**-Z**	Order code
Solid shaft	V60 x 120	V70 x 140	V90 x 170	V110 x 210	V120 x 210	−40 ... +60 °C		**1**		**–**
	V80 x 170	V90 x 170	V100 x 210	V120 x 210	V140 x 250			**3**		**–**
Solid shaft without feather key	VG60 x 120							**9**		**H1G**
Solid shaft, both ends [1]	VD60 x 120	VD70 x 140	VD90 x 170	VD110 x 210	VD120 x 210			**9**		**H5A**
Solid shaft, both ends without feather key[1]	VDG60 x 120							**9**		**H5B**
Solid shaft, inches	V2.375" x 4.72"	V2.875" x 5.51"	V3.625" x 6.69"	V4.375" x 8.27"	V4.75" x 8.27"			**9**		**H6A**
Solid shaft VLplus	VM70 x 140	VM90 x 170	VM100 x 210	VM120 x 210				**9**		**H1C**
Hollow shaft	H60	H70	H90	H100	H120			**5**		**–**
			H80					**6**		**–**
	H70			H110				**7**		**–**
Hollow shaft, inches	H2.375"	H2.75"	H3.625"	H4"	H4.5"			**9**		**H7A**
Hollow shaft VLplus	HM60	HM70	HM90	HM100				**9**		**H2F**
Hollow shaft with shrink disk	HS65	HS75	HS95	HS105	HS125			**9**		**H3A**
			HS90					**9**		**H3B**
	HS70							**9**		**H3C**
Splined hollow shaft	N65	N70	N85	N90	N110			**9**		**H4A**
Helical worm gearboxes C										
Gearbox size	**29**	**39A**	**49**	**69**	**89**		2KJ36..-	■	....-....**-Z**	Order code
Solid shaft	V20 x 40	V25 x 50	V30 x 60	V35 x 70	V45 x 90	−40 ... +60 °C		**1**		**–**
				V40 x 80 [1]	V50 x 100 [1]			**2**		**–**
		V35 x 70 [1]	V40 x 80 [1]	V50 x 100 [1]	V70 x 140 [1]			**3**		**–**
Solid shaft without feather key	VG20 x 40	VG25 x 50	VG30 x 60	VG35 x 70	VG45 x 90			**9**		**H1G**
Solid shaft, both ends [1]	VD20 x 40	VD25 x 50	VD30 x 60	VD35 x 70	VD45 x 90			**9**		**H5A**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.75" x 3.54"			**9**		**H6A**
Hollow shaft	H20	H25	H30	H40	H50			**5**		**–**
		H30	H35	H45	H60			**6**		**–**
Hollow shaft, inches	H0.75"	H1.25"	H1.375"	H1.5"	H2"			**9**		**H7A**
Hollow shaft with shrink disk	HS20	HS30	HS35	HS40	HS50			**9**		**H3A**
				HS50	HS60			**9**		**H3C**
ShaftMount assembly system, metric	HF25	HF30	HF35	HF40	HF50	−20 ... +60 °C		**9**		**H3G**
	HF20	HF25	HF30	HF35	HF40			**9**		**H3H**
ShaftMount assembly system, inches	HF1.0"	HF1.25"	HF1.375"	HF1.5"	HF2.0"			**9**		**H3J**
	HF0.75"	HF1.1875"	HF1.4375"	HF1.625"	HF1.9375"			**9**		**H3K**
		HF1.0"	HF1.25"	HF1.4375"	HF1.75"			**9**		**H3L**
			HF1.1875"	HF1.375"	HF1.625"			**9**		**H3M**

Worm gearboxes S						
Gearbox size	**09**	**19**	**29**	2KJ37..-	■	....-....**-Z**	Order code
Solid shaft	V16 x 40	V20 x 40	V20 x 40	−20 ... +60 °C	**1**		**–**
	V14 x 30	V18 x 40	V25 x 50		**3**		**–**
Solid shaft, both ends [2]	VD16 x 40	VD20 x 40	VD20 x 40		**9**		**H5A**
Hollow shaft	H16	H18	H20		**5**		**–**
	H14	H20	H25		**6**		**–**
Hollow shaft stainless steel	HX16	HX20	HX20		**9**		**H8A**
Plug-in shaft	VE16 x 40	VE20 x 40	VE20 x 40		**7**		**–**

Electric-monorail gearboxes EHB										
Gearbox size	**BH29**	**BH39**	**KHF49**	**KHF69**	**KHF79**		2KJ38..-	■	....-....**-Z**	Order code
Solid shaft	V25 x 35	V25 x 35	V30 x 60	V45 x 90	V55 x 110	−40 ... +60 °C		**1**		**–**
		V30 x 50	V35 x 70					**2**		**–**
Solid shaft without feather key	VG25 x 35	VG25 x 35	VG30 x 60	VG45 x 90	VG55 x 110			**9**		**H1G**
		VG30 x 50	VG35 x 70					**9**		**H1H**

[1] Can only be selected in conjunction with foot-mounted or housing flange design.
[2] Can only be selected in conjunction with foot-mounted design.

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ShaftMount assembly system

The ShaftMount assembly system offers a low-cost, easy-to-fit alternative to conventional shaft connections for gearboxes in a shaft-mounted design.

Use of the ShaftMount system provides a friction-locked connection of the machine shaft to the hollow shaft in the gearbox.

Components of the ShaftMount assembly system

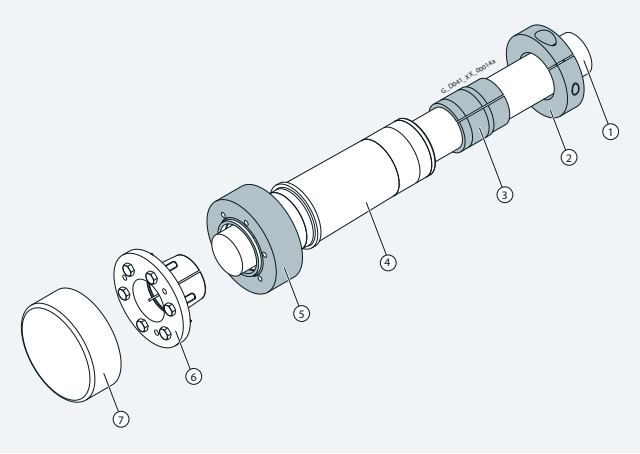

Fig. 10-13 ShaftMount assembly system

① Machine shaft
② Clamping ring
③ Bronze bushing
④ Hollow shaft of gearbox
⑤ Thrust collar
⑥ Taper bushing
⑦ Rotating protective cover

Benefits

Cost reduction

- The drive shaft of the motor can be made of low-cost, drawn shaft material of grade h11 or lower.
- The shaft is cheaper to machine because there is no need to machine the shaft seat and a keyway is not required.

Quick and easy mounting

- Easy to mount and dismantle thanks to adequate clearance between the motor shaft and hollow shaft. The press fit is not made until the taper bushing is inserted.
- The press fit reduces the formation of fretting corrosion. The taper bushing can be removed easily in order to separate the press-fit connection.
- No tight fits need to be overcome when the gearbox is slided onto the motor shaft.

Variability

- Fast and simple adaptation of the gearbox to different machine shaft diameters. Only the taper and bronze bushing has to be replaced to achieve this
- Easy conversion from metric to inch dimensions and vice versa.

The ShaftMount assembly system can be supplied for shaft-mounted designs of the parallel shaft, bevel and helical worm gearbox. 2 metric versions and 2 to 4 inch versions are available for all sizes.

Note:
The gearbox is shipped with a ShaftMount hollow shaft. The diameter-specific components are supplied as a separate assembly kit. The unit is supplied with preassembled rotating protective cover. The stationary protective cover can be ordered as an option.

Hollow shaft cover

Sealing cap

The bore of the hollow shaft is sealed using a plastic sealing cap.

Gearboxes in size 39 and larger with hollow shaft and shrink disk have a rotating protective cap.

The dimensions of the rotating protective cap can be seen in the dimensional drawings provided in the gearbox chapters.

For safety reasons, stationary protective covers may be required.

The sealing cap is not approved for the ATEX version.

Protective cover

For sizes 19 to 189, a stationary protective cover for the hollow shaft or hollow shaft with shrink disk versions can be selected.

The dimensions of the protective cover can be seen in the separate dimensional drawing provided in the gearbox chapters.

The protective cover is approved for the ATEX version.

Note:
Protective covers made of plastic are generally not painted.

Hollow shaft cover	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Protective cover [1]		**G60**

[1] The protective cover can be selected from size 169 for bevel gearboxes with foot-mounted design.

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Reinforced output shaft bearings

The gearboxes can be supplied with the standard design or with a reinforced output shaft bearing design. The reinforced bearings allow higher radial and combined forces (radial and axial) to be absorbed.

Design	Possible for													Additional identification code **-Z** with order code	
Helical gearboxes Z and D															
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**	2KJ31.. -.....-....**-Z** 2KJ32.. -.....-....**-Z**	Order code
Radially reinforced output shaft bearings						✓	✓	✓	✓	✓	✓				**G20**
VLplus reinforced bearing system [2]								✓	✓	✓	✓	✓			**G30**
XLplus reinforced bearing system [2]								✓	✓	✓	✓	✓			**G31**
Cooling tower gearboxes															
Gearbox size	**EKF89 ... EKF 149**			**ZKF89**		**ZKF109**		**ZKF129**		**ZKF149**		**ZKF169**	**ZKF189**	2KJ305. -.....-....**-Z** 2KJ315. -.....-....**-Z** 2KJ316. -.....-....**-Z**	Order code
Radially reinforced output shaft bearings				✓		✓		✓		✓					**G20**
XLplus reinforced bearing system [2]				✓		✓		✓		✓		✓			**G31**
Parallel shaft gearboxes F															
Gearbox size	**29**		**39**	**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**		2KJ33.. -.....-....**-Z** 2KJ34.. -.....-....**-Z**	Order code
Radially reinforced output shaft bearings				✓[1]	✓	✓	✓	✓	✓	✓	✓	✓			**G20**
VLplus reinforced bearing system [2]							✓	✓	✓	✓	✓				**G30**
Bevel gearboxes K															
Gearbox size	**39**		**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**			2KJ35.. -.....-....**-Z**	Order code
Radially reinforced output shaft bearings			✓[1]	✓	✓	✓	✓	✓	✓	✓	✓				**G20**
VLplus reinforced bearing system [2]						✓	✓	✓	✓	✓					**G30**

[1] Not possible for flange-mounted design with solid shaft (gearbox type FZF, FDF, KF)
[2] VLplus and XLplus reinforced bearing systems can only be selected with flange-mounted design.

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Accessories for VLplus reinforced bearing systems

Drywell

To offer increased protection against escaping gearbox oil in the event of a leak, the VLplus version can be selected with the Drywell option. Any oil that escapes in the event of a leak at the oil chamber is captured and conveyed to an indicator.

The indicator is an oil sight glass. As an option, the version with a capacitive sensor is available, which responds in the event of an oil leak.

A disconnector approved for use in ATEX applications must be provided for explosion-protected (ATEX) gearboxes. This must be installed outside the hazardous area.

The Drywell system can be used at the following ambient temperatures:

- Drywell with oil sight glass −30 to +60 °C
- Drywell with oil sensor −25 to +45 °C
- Drywell with ATEX oil sensor −20 to +40 °C

For different ambient temperatures, please contact Innomotics.

Drywell is available for the following mounting positions:

Gearbox type	Mounting position
Helical gearboxes ZF/DF with VLplus	M4
Parallel shaft gearboxes FZF/FDF with VLplus	M4
Bevel gearboxes KF with VLplus	M5-A / M6-B

Accessories for VLplus reinforced bearing systems	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z G30**	Order code
Drywell with oil sight glass		**G89**
Drywell with oil sensor		**G90**
Drywell with ATEX oil sensor		**G91**
24 V Drywell disconnector		**G88**

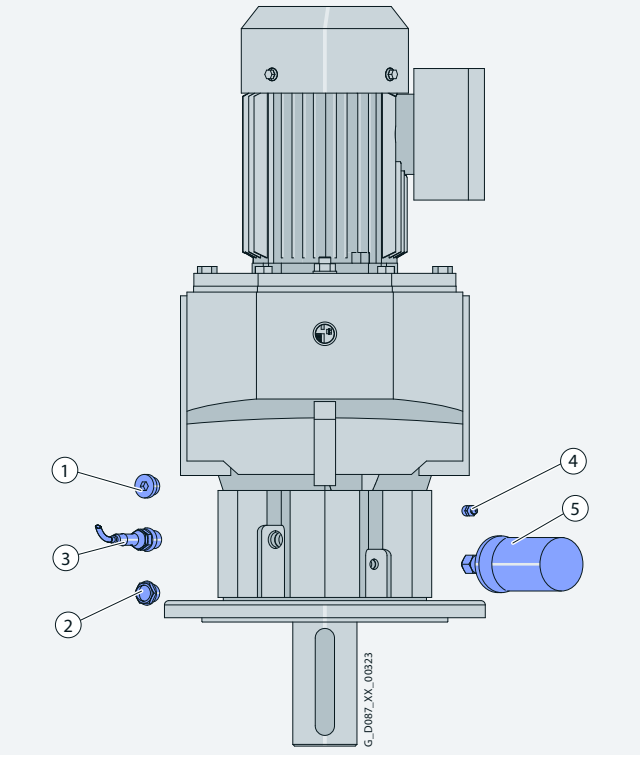

Fig. 10-14 VLplus version with Drywell / grease cartridge

① Screw plug (standard)
② Drywell with oil sight glass
③ Drywell with oil sensor
④ Grease nipple / regreasing device (standard)
⑤ Grease cartridge / automatic regreasing device

Grease cartridge

The output bearing of the flange must be lubricated regularly. A grease cartridge (automatic regreasing device) can be used for this with the VLplus version.
This ensures a continuous supply and prevents the bearing from being provided with too little or too much grease.

The grease cartridge can be used at ambient temperatures between −20 and +55 °C. For different ambient temperatures, please contact Innomotics.

Accessories for VLplus reinforced bearing systems	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z G30**	Order code
Grease cartridge		**G93**

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Overview

The Innomotics SG electric-monorail gearboxes have a mechanical clutch which safely engages and disengages power transmission by interrupting the force flow between the input and output.

Clutch for light-load applications

The position and operating travel of the clutch lever are designed in accordance with VDI guideline 3643 on sizes BH.29 and BH.39.

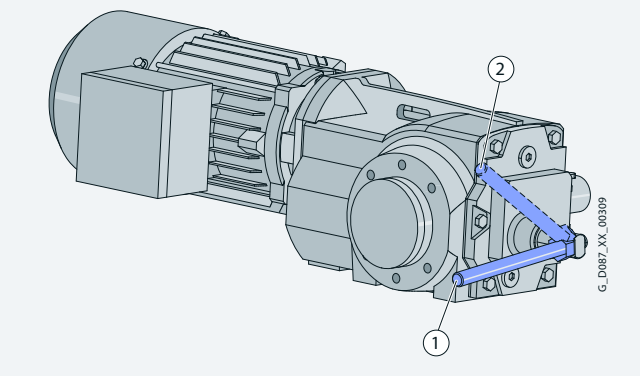

Fig. 10-15 Clutch on BH.29 and BH.39

① Clutch engaged
② Clutch disengaged

Clutch for heavy-load applications

Position 1 is the standard clutch position on sizes KHF49 to KHF79.

The end stop bolt (position 4) limits the operating travel from position 1 to 2, or from position 1 to 3. The operating travel can be altered by changing the thread position. The position of the operating travel is specified with the order.

Furthermore, a short version of the clutch lever is also available. The relevant dimensions can be seen in the dimensional drawings provided in the gearbox chapter.

Clutch for heavy-load applications	Additional identification code **-Z** with order code	
	2KJ38.. -.....-....**-Z**	Order code
Clutch operating travel 1-3		**H21**
Clutch operating travel 1-2		**H22**
Standard clutch lever		**–**
Short clutch lever		**H23**
Clutch lever facing outwards (position A)		**–**
Clutch lever facing inwards (position B)		**H25**

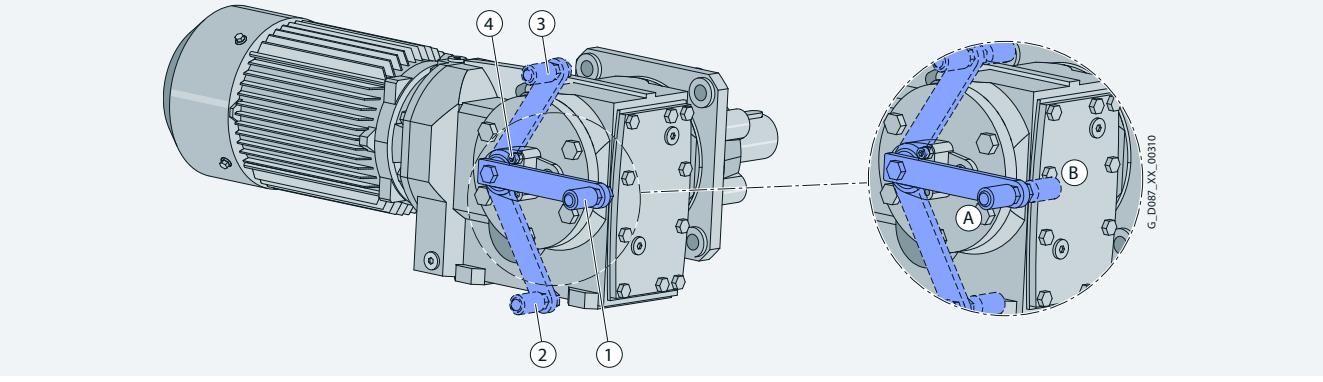

Fig. 10-16 Clutches for KHF49 to KHF79

① Clutch engaged
② Clutch disengaged
③ Clutch disengaged
④ End stop bolt
Ⓐ Clutch lever facing outwards (position A)
Ⓑ Clutch lever facing inwards (position B)

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Gearbox options

Overview

Gearboxes can be used for different applications. The following lubricants and sealing systems can be selected to ensure an optimum configuration.

The temperature rise of the gearbox during operation increases the oil sump temperature. When selecting the oil, pay attention to the upper limit of the recommended oil sump temperature.

To calculate the oil sump temperature, we recommend a thermal calculation or use of electrical oil temperature monitoring Pt100 (order code **G69**).

Note:

- For ambient conditions with a high air humidity and salt-laden atmosphere, we recommend that only mineral or PAO oils are used.
- For gearboxes of sizes 169 and 189 with a service factor f_B <1.2, we recommend use of CLP ISO PG oils.
- For gearboxes with CLP ISO PG oils for applications in the USA, the approval must be checked. Alternatively, a different type of oil must be used (e.g. CLP ISO PAO oil).
- When using the gearboxes and geared motors in the extended ambient temperature range (order codes **K92, K96, K97, K98**), a continuous operating state is a prerequisite to ensure sufficient heating of the gearbox and motor lubricants.

Lubrication

The gearboxes are initially filled at the factory with a high-quality lubricant. Lubricants permitted for the various gearbox types and applications are listed in the lubricant table.

Other oils from various lubricant manufacturers that have been approved by Innomotics can be found on the internet in the Service and Support pages in the List of approved and recommended gear lubricants NT 7300.

Oil quantities

The lubricant quantity depends on the gearbox type, size and mounting position. The corresponding oil quantities are specified in the operating instructions and on the rating plate of the geared motor.

Sealing

The standard models of gearbox are supplied with high-quality radial shaft sealing rings with dust protection lips. This sealing design is reliable for a wide range of applications.

Special application areas and environmental conditions require special radial shaft sealing rings and materials, which are coordinated with the particular gearbox oil and environment. This coordinated sealing system results in a high reliability and availability of the plant.

When compared to standard sealing systems, the maintenance intervals can be extended. This therefore reduces maintenance costs.

Selection of lubricant

Applications	Oil type Marking according to DIN 51502	Permissible oil sump temperature range in operation [°C]	Additional identification code **-Z** with order code 2KJ3… -…..-…..	Order code **-Z**	Standard ambient temperature range [°C] **–**	**K95**	Extended ambient temperature range [°C] **K90**	**K91**	**K92**	**K96**	**K97**	**K98**
Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K												
					–15 … +40	**–20 … +40**	**–20 … +60**	**–20 … +50**	**–20 … +45**	**–25 … +40**	**–30 … +40**	**–40 … +40**
Standard	CLP ISO VG220	–15 … +80		**K06**	✓							
	CLP ISO PAO VG220	–30 … +100		**K12**	✓	✓	✓	✓	✓	✓	✓	✓[1]
	CLP ISO PAO VG68	–40 … +60		**K13**						✓	✓	✓
	CLP ISO PG VG460	–25 … +110		**K08**	✓	✓	✓	✓	✓	✓		
	CLP ISO PG VG220	–25 … +110		**K07**	✓	✓	✓	✓	✓	✓		
Foodstuff area	CLP ISO H1 VG460	–25 … +100		**K11**	✓	✓	✓	✓	✓	✓		
	CLP ISO H1 VG100	–30 … +90		**K14**	✓	✓	✓	✓	✓	✓	✓	
Biodegradable oil	CLP ISO E VG220	–20 … +100		**K10**	✓	✓	✓	✓	✓			

[1] To ensure optimum lubrication properties, we recommend preheating the drive up to an operating temperature of above –30 °C.

CLP = mineral oil
CLP PG = polyglycol oil
E = ester oil, organic oil (bio oil / risk of water pollution, class WGK1)
PAO = poly-alpha-olefin oil
CLP H1 = physiologically safe oil (USDA-H1 approval)

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Selection of lubricant

Applications	Oil type Marking according to DIN 51502	Permissible oil sump temperature range in operation [°C]	Additional identification code -Z with order code Order code 2KJ3… -…..-….-Z	Standard ambient temperature range [°C] –	K95	Extended ambient temperature range [°C] K90	K91	K92	K96	K97	K98
Bevel gearboxes B and helical worm gearboxes C											
				–20 … +40	**–**	**–20 … +60**	**–20 … +50**	**–20 … +45**	**–25 … +40**	**–30 … +40**	**–40 … +40**
Standard	CLP ISO PG VG220	–25 … +110	**K07**	✓		✓	✓	✓	✓		
	CLP ISO PAO VG220	–30 … +100	**K12**	✓		✓	✓	✓	✓	✓	✓[1]
	CLP ISO PAO VG460	–25 … +110	**K16**	✓		✓	✓	✓	✓		
	CLP ISO PAO VG68	–40 … +60	**K13**						✓	✓	✓
	CLP ISO PG VG460	–25 … +110	**K08**	✓		✓	✓	✓	✓		
Foodstuff area	CLP ISO H1 VG460	–25 … +100	**K11**	✓		✓	✓	✓	✓		
	CLP ISO H1 VG100	–30 … +90	**K14**	✓		✓	✓	✓	✓		
Worm gearboxes S											
				–20 … +40							
Standard	CLP ISO PG VG220	–25 … +110	**K07**	✓							
	CLP ISO PG VG460	–25 … +110	**K08**	✓							
Foodstuff area	CLP ISO H1 VG460	–25 … +100	**K11**	✓							
	CLP ISO H1 VG100	–30 … +90	**K14**	✓							
Electric-monorail gearboxes BH. for light-load applications											
				–20 … +40	**–20 … +40**	**–20 … +60**	**–20 … +50**	**–20 … +45**	**–25 … +40**		
Standard	CLP ISO PG VG220	–25 … +110	**K07**	✓		✓	✓	✓	✓		
	CLP ISO PAO VG220	–30 … +100	**K12**	✓		✓	✓	✓	✓		
	CLP ISO PAO VG460	–25 … +110	**K16**	✓		✓	✓	✓	✓		
	CLP ISO PAO VG68	–40 … +60	**K13**						✓		
	CLP ISO PG VG460	–25 … +110	**K08**	✓		✓	✓	✓	✓		
Foodstuff area	CLP ISO H1 VG460	–25 … +100	**K11**	✓		✓	✓	✓	✓		
	CLP ISO H1 VG100	–30 … +90	**K14**	✓		✓	✓	✓	✓		
Electric-monorail gearboxes KH. for heavy-load applications											
				–15 … +40	**–20 … +40**	**–20 … +60**	**–20 … +50**	**–20 … +45**	**–25 … +40**	**–30 … +40**	**–40 … +40**
Standard	CLP ISO VG220	–15 … +80	**K06**	✓							
	CLP ISO PAO VG220	–30 … +100	**K12**	✓	✓	✓	✓	✓	✓	✓	✓[1]
	CLP ISO PAO VG68	–40 … +60	**K13**						✓	✓	✓
	CLP ISO PG VG460	–25 … +110	**K08**	✓	✓	✓	✓	✓	✓		
	CLP ISO PG VG220	–25 … +110	**K07**	✓	✓	✓	✓	✓	✓		
Foodstuff area	CLP ISO H1 VG460	–25 … +100	**K11**	✓	✓	✓	✓	✓	✓		
	CLP ISO H1 VG100	–30 … +90	**K14**	✓	✓	✓	✓	✓	✓	✓	
Biodegradable oil	CLP ISO E VG220	–20 … +100	**K10**	✓	✓	✓	✓	✓			

[1] To ensure optimum lubrication properties, we recommend preheating the drive up to an operating temperature of above –30 °C.

CLP = mineral oil
CLP PG = polyglycol oil
E = ester oil, organic oil (bio oil / risk of water pollution, class WGK[1])
PAO = poly-alpha-olefin oil
CLP H1 = physiologically safe oil (USDA-H1 approval)

Roller bearing greases for gearboxes and motors

The roller bearings of gearboxes and motors are lubricated in the factory with a roller bearing grease that is coordinated with the selected application area. The quantity of grease between the rolling elements and the space in front of the bearing depends on the operating conditions and the gearbox mounting position. For operation in the selected application areas, it is not necessary to relubricate the roller bearings.

We recommend that the grease filling of the roller bearings is also changed when the oil or shaft sealing rings are replaced.

Other greases supplied by different lubricant manufacturers that have been approved by Innomotics are specified in the List of approved and recommended gearbox lubricants NT 7300.

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Gearbox options

Sealing system

Overview

Output shaft sealing	Description	Ambient condition	Additional identification code **-Z** with order code	
			2KJ3… -…..-….**-Z**	Order code
Normal environmental stress				
Standard seal	High-quality NBR radial shaft sealing ring with dust protection lip.	Environment with low dust and pollution levels with low moisture.		**-**
Longer service life				
Seal with longer service life	The radial shaft sealing ring with protection lip is designed with an additional seal on the internal gearbox side. The sealing system has a high degree of reliability due to its resistance to impurities in the oil.	Environment with low dust and pollution levels with low moisture.		**G23**
Longer service life and increased environmental stress				
Seal for increased environmental stress	This seal is equipped with an additional fiber disk. In addition to the longer service life, it also provides increased protection against higher environmental stress as a result of dust and dirt deposits. As a consequence, the sealing system has a high degree of reliability. For additional environmental stress, e.g. water jets or significant levels of pollution as a result of production materials, please contact your local Innomotics office.	Environments with increased pollution and dust levels as well as low moisture. Typical applications: Production areas with increased pollution and dust, such as wood chips, dusts or granulate as well as occasional spray water.		**G24**
High temperature-resistant				
Seal for high temperatures	High-quality FKM radial shaft sealing ring with dust protection lip.	Environment with low dust and pollution levels with low moisture.		**G25**

Selection of seal

Seal	Permissible oil sump temperature range in operation [°C]	Additional identification code **-Z** with order code		Standard ambient temperature range [°C]		Extended ambient temperature range [°C]					
		2KJ3… -…..-….**-Z**	Order code	**-**	**K95**	**K90**	**K91**	**K92**	**K96**	**K97**	**K98**
Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K				**–15 … +40**	**–20 … +40**	**–20 … +60**	**–20 … +50**	**–20 … +45**	**–25 … +40**	**–30 … +40**	**–40 … +40**
Standard seal	–40 … +80		**–**	✓	✓	✓	✓	✓	✓	✓	✓
Seal for a longer service life	–40 … +100		**G23**	✓	✓	✓	✓	✓	✓	✓	✓
Seal for increased environmental stress	–40 … +80		**G24** [1]	✓	✓	✓	✓	✓	✓	✓	✓
Seal, high temperature-resistant	–25 … +110		**G25**	✓	✓	✓	✓	✓	✓		
Bevel gearboxes B and helical worm gearboxes C				**–20 … +40**		**–20 … +60**	**–20 … +50**	**–20 … +45**	**–25 … +40**	**–30 … +40**	**–40 … +40**
Standard	–40 … +80		**–**	✓		✓	✓	✓	✓	✓	✓
Seal for a longer service life	–40 … +100		**G23** [2]	✓		✓	✓	✓	✓	✓	✓
Seal for increased environmental stress	–40 … +80		**G24** [1] [2]	✓		✓	✓	✓			
Seal, high temperature-resistant	–25 … +110		**G25**	✓		✓	✓	✓	✓		
Worm gearboxes S				**–20 … +40**							
Standard seal	–40 … +80		**–**	✓							
Seal, high temperature-resistant	–25 … +110		**G25**	✓							
Electric-monorail gearboxes BH. for light-load applications				**–20 … +40**		**–20 … +60**	**–20 … +50**	**–20 … +45**	**–25 … +40**		
Standard seal	–40 … +80		**–**	✓							
Seal, high temperature-resistant	–25 … +110		**G25**	✓		✓	✓	✓	✓		
Electric-monorail gearboxes KH. for heavy-load applications				**–15 … +40**	**–20 … +40**	**–20 … +60**	**–20 … +50**	**–20 … +45**	**–25 … +40**	**–30 … +40**	**–40 … +40**
Standard seal	–40 … +80		**–**	✓							
Seal, high temperature-resistant	–25 … +110		**G25**	✓	✓	✓	✓	✓	✓		

[1] Not admissible in conjunction with food oils and biodegradable oils
[2] Not possible with bevel gearbox B19

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Overview

Gearboxes from size 39 for standard mounting positions are supplied as standard with pressure breather valve, oil level control and drain screw.

Gearbox sizes 19 and 29 are supplied ready for operation, lubricated for life and can be operated in mounting positions M1, M3, M5 and M6 without requiring a pressure breather valve. For mounting positions M2 and M4, they are equipped with a pressure breather valve.

Possible venting and oil level control options

Design	Possible for													Additional identification code **-Z** with order code		More information
Helical gearboxes Z and D																
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**	2KJ31.. -.....-....**-Z** 2KJ32.. -.....-....**-Z**	Order code	
Lubricated for life	✓	✓													**-**	
Pressure breather valve			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G45**	Page 10/64
Pressure breather valve, stainless steel			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G49**	Page 10/64
Oil expansion unit			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G47**	Page 10/65
Oil sight glass with reflector				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G34**	Page 10/67
Magnetic oil drain screw			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G53**	Page 10/67
Oil drain valve, straight			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G54**	Page 10/67
Oil drain valve, angled			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G55**	Page 10/67
Oil level sensor								✓	✓	✓	✓	✓	✓		**G37**	Page 10/69
Oil level sensor ATEX								✓	✓	✓	✓	✓	✓		**G38**	Page 10/69
Pt100 electrical temperature monitoring				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G69**	Page 10/68

Helical gearboxes E										
Gearbox size	**39**	**49**	**69**	**89**	**109**	**129**	**149**	2KJ30.. -.....-....**-Z**	Order code	
Pressure breather valve	✓	✓	✓	✓	✓	✓	✓		**G45**	Page 10/64
Pressure breather valve, stainless steel	✓	✓	✓	✓	✓	✓	✓		**G49**	Page 10/64
Oil expansion unit	✓	✓	✓	✓	✓	✓	✓		**G47**	Page 10/65
Oil sight glass with reflector	✓	✓	✓	✓	✓	✓	✓		**G34**	Page 10/67
Magnetic oil drain screw	✓	✓	✓	✓	✓	✓	✓		**G53**	Page 10/67
Oil drain valve, straight	✓	✓	✓	✓	✓	✓	✓		**G54**	Page 10/67
Oil drain valve, angled	✓	✓	✓	✓	✓	✓	✓		**G55**	Page 10/67
Oil level sensor				✓	✓	✓	✓		**G37**	Page 10/69
Oil level sensor ATEX				✓	✓	✓	✓		**G38**	Page 10/69
Pt100 electrical temperature monitoring		✓	✓	✓	✓	✓	✓		**G69**	Page 10/68

Cooling tower gearboxes												
Gearbox size	**EKF**				**ZKF**						2KJ305. -.....-....**-Z** 2KJ315. -.....-....**-Z** 2KJ316. -.....-....**-Z**	Order code	
	89	**109**	**129**	**149**	**89**	**109**	**129**	**149**	**169**	**189**			
Pressure breather valve	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G45**	Page 10/64
Pressure breather valve, stainless steel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G49**	Page 10/64
Oil dipstick	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G48**	Page 10/10
Oil expansion unit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G47**	Page 10/65
Oil sight glass with reflector	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G34**	Page 10/67
Magnetic oil drain screw	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G53**	Page 10/67
Oil drain valve, straight	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G54**	Page 10/67
Oil drain valve, angled	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G55**	Page 10/67
Pt100 electrical temperature monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G69**	Page 10/68

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Gearbox options

Venting

Overview

Possible venting and oil level control options

Design	Possible for											Additional identification code -Z with order code		More information
Parallel shaft gearboxes F														
Gearbox size	**29**	**39**	**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**	2KJ33.. -.....-....**-Z** 2KJ34.. -.....-....**-Z**	Order code	
Lubricated for life	✓												**–**	
Pressure breather valve		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G45**	Page 10/64
Pressure breather valve, stainless steel		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G49**	Page 10/64
Oil expansion unit		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G47**	Page 10/65
Oil sight glass with reflector			✓	✓	✓	✓	✓	✓	✓	✓	✓		**G34**	Page 10/67
Magnetic oil drain screw		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G53**	Page 10/67
Oil drain valve, straight		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G54**	Page 10/67
Oil drain valve, angled		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G55**	Page 10/67
Oil level sensor						✓	✓	✓	✓	✓	✓		**G37**	Page 10/69
Oil level sensor ATEX						✓	✓	✓	✓	✓	✓		**G38**	Page 10/69
Pt100 electrical temperature monitoring			✓	✓	✓	✓	✓	✓	✓	✓	✓		**G69**	Page 10/68

Bevel gearboxes B														
Gearbox size	**19**		**29**			**39**			**49**			2KJ35.. -.....-....**-Z**	Order code	
Lubricated for life	✓		✓										**–**	
Pressure breather valve	✓		✓			✓			✓				**G45**	Page 10/64
Pressure breather valve, stainless steel	✓		✓			✓			✓				**G49**	Page 10/64
Oil expansion unit			✓			✓			✓				**G47**	Page 10/65
Oil sight glass with reflector									✓				**G34**	Page 10/67
Oil sight glass with reflector on both sides									✓				**G35**	Page 10/67
Magnetic oil drain screw						✓			✓				**G53**	Page 10/67
Oil drain valve, straight						✓			✓				**G54**	Page 10/67
Oil drain valve, angled						✓			✓				**G55**	Page 10/67
Pt100 electrical temperature monitoring									✓				**G69**	Page 10/68

Bevel gearboxes K													
Gearbox size	**39**	**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**	2KJ35.. -.....-....**-Z**	Order code	
Pressure breather valve	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G45**	Page 10/64
Pressure breather valve, stainless steel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G49**	Page 10/64
Oil expansion unit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G47**	Page 10/65
Oil sight glass with reflector		✓	✓	✓	✓	✓	✓	✓	✓	✓		**G34**	Page 10/67
Oil sight glass with reflector on both sides		✓	✓	✓	✓	✓	✓	✓	✓	✓		**G35**	Page 10/67
Magnetic oil drain screw	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G53**	Page 10/67
Oil drain valve, straight	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G54**	Page 10/67
Oil drain valve, angled	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G55**	Page 10/67
Oil level sensor					✓	✓	✓	✓	✓	✓		**G37**	Page 10/69
Oil level sensor ATEX					✓	✓	✓	✓	✓	✓		**G38**	Page 10/69
Pt100 electrical temperature monitoring		✓	✓	✓	✓	✓	✓	✓	✓	✓		**G69**	Page 10/68

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Overview

Possible venting and oil level control options

Design	Possible for					Additional identification code **-Z** with order code		More information
Helical worm gearboxes C								
Gearbox size	**29**	**39A**	**49**	**69**	**89**	2KJ36.. -.....-....**-Z**	Order code	
Lubricated for life	✓[1]						**–**	
Pressure breather valve	✓	✓	✓	✓	✓		**G45**	Page 10/64
Pressure breather valve, stainless steel	✓	✓	✓	✓	✓		**G49**	Page 10/64
Oil expansion unit		✓	✓	✓	✓		**G47**	Page 10/65
Oil sight glass with reflector			✓	✓	✓		**G34**	Page 10/67
Oil sight glass with reflector on both sides			✓	✓	✓		**G35**	Page 10/67
Magnetic oil drain screw		✓	✓	✓	✓		**G53**	Page 10/67
Oil drain valve, straight		✓	✓	✓	✓		**G54**	Page 10/67
Oil drain valve, angled		✓	✓	✓	✓		**G55**	Page 10/67
Pt100 electrical temperature monitoring			✓	✓	✓		**G69**	Page 10/68

Worm gearboxes S					
Size	**09**	**19**	**29**	2KJ37.. -.....-....**-Z**	Order code	
Lubricated for life	✓	✓	✓		**–**	**–**

Electric-monorail gearboxes EHB								
Gearbox size	**BH29**	**BH39**	**KHF49**	**KHF69**	**KHF79**	2KJ38.. -.....-....**-Z**	Order code	
Lubricated for life	✓						**–**	
Pressure breather valve	✓[2]	✓	✓	✓	✓		**G45**	Page 10/64
Pressure breather valve, stainless steel	✓[2]	✓	✓	✓	✓		**G49**	Page 10/64
Oil sight glass with reflector			✓	✓	✓		**G34**	Page 10/67
Magnetic oil drain screw		✓	✓	✓	✓		**G53**	Page 10/67

[1] Helical worm gearboxes for all mounting positions are equipped with a pressure breather valve.
[2] Pressure breather valve can be selected only for mounting positions M2 and M4.

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Gearbox options

Venting

Pressure breather valve

Gearboxes from size 39 are supplied with an installed pressure breather valve; this is suitable for both indoors and outdoors use.

Gearbox sizes 19 and 29 can be operated in mounting positions M1, M3, M5, and M6 without requiring a pressure breather valve. For mounting positions M2 and M4, they are equipped with a pressure breather valve.

A stainless-steel version of the pressure breather valve is also available for use in special ambient conditions.

Venting	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Pressure breather valve		**G45**
Pressure breather valve, stainless steel		**G49**

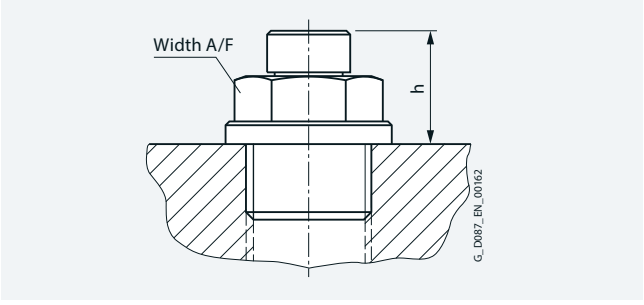

Fig. 10-17 Pressure breather valve

Technical specifications

Size	Width across flats Width A/F	Thread	Dimension h mm
Helical gearboxes Z and D			
19, 29	12	G 1/8 A	17
39	12	G 1/8 A	17
49 … 79	13	G 1/4 A	17
89 … 129	17	G 3/8 A	17
149 … 189	24	G 3/4 A	20
Helical gearboxes E			
39	12	G 1/8 A	17
49 … 69	13	G 1/4 A	17
89 … 129	17	G 3/8 A	17
149	24	G 3/4 A	20
Cooling tower gearboxes ZKF			
89 … 129	17	G 3/8 A	17
149 … 189	24	G 3/4 A	20
Cooling tower gearboxes EKF			
89 … 129	17	G 3/8 A	17
149	24	G 3/4 A	20
Parallel shaft gearboxes F			
29	12	G 1/8 A	17
39	12	G 1/8 A	17
49 … 79	13	G 1/4 A	17
89 … 129	17	G 3/8 A	17
149 … 189	24	G 3/4 A	20
Bevel gearboxes B			
19, 29	12	G 1/8 A	17
39	12	G 1/8 A	17
49	13	G 1/4 A	17
Bevel gearboxes K			
39	12	G 1/8 A	17
49 … 89	13	G 1/4 A	17
109 … 129	17	G 3/8 A	17
149 … 189	24	G 3/4 A	20
Helical worm gearboxes C			
29	12	G 1/8 A	17
39A	12	G 1/8 A	17
49 … 89	13	G 1/4 A	17
Electric-monorail gearboxes EHB			
BH29, BH39	13	G 1/4 A	17
KHF49 … 79	13	G 1/4 A	17

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Oil expansion unit

The oil expansion unit increases the expansion space for the lubricant. For certain types of construction and at high operating temperatures, this avoids that lubricant escapes.

The expansion unit is supplied as a mounting kit, and can be mounted onto the geared motor vertically or at an angle.

The oil expansion unit can be used at the following ambient temperatures:

_ Oil expansion unit type 1 −40 to +120 °C
_ Oil expansion unit type 2 and type 3 −25 to +100 °C

For different ambient temperatures, please contact Innomotics.

Venting	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Oil expansion unit		**G47**

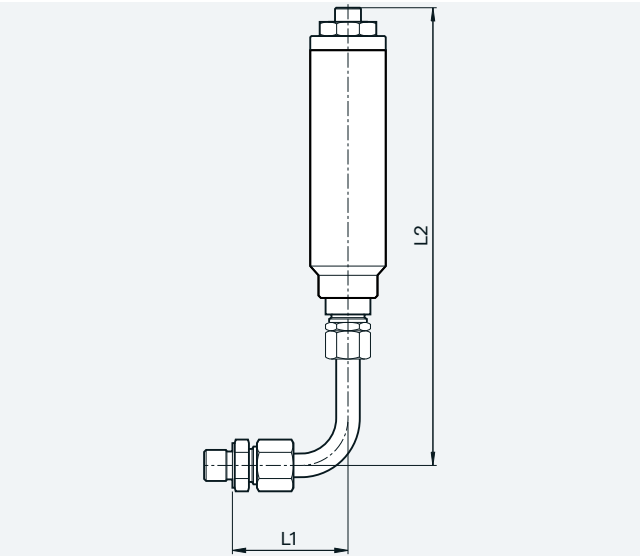

Fig. 10-18 Oil expansion unit type 1

Technical specifications

Size	Motor frame size	Width across flats Width A/F	Thread	Dimension L1 mm	Dimension L2 mm
Helical gearboxes Z and D					
39	63…90	17/19	G1/8A	49	194
	100…112			71	172
49 … 69	63…90	19/19	G1/4A	49	194
	100…112			49	194
	132			71	172
79	80…90	19/19	G1/4A	49	194
	100…132			71	172
	160			99	194
89	100…132	22/19	G3/8A	49	194
	160			71	172
	180			71	172
Helical gearboxes E					
39	63…90	17/19	G1/8A	49	194
	100…112			71	172
49	63…90	19/19	G1/4A	49	194
	100…112			49	194
	132			71	172

Technical specifications

Size	Motor frame size	Width across flats Width A/F	Thread	Dimension L1 mm	Dimension L2 mm
Helical gearboxes E					
69	71…90	19/19	G1/4A	49	194
	100…112			71	172
	132…160			99	194
89	100…132	22/19	G3/8A	49	194
	160			71	172
	180			71	172
Cooling tower gearboxes ZKF					
89	100…132	22/19	G3/8A	49	194
	160			71	172
	180			71	172
Cooling tower gearboxes EKF					
89	100…132	22/19	G3/8A	49	194
	160			71	172
	180			71	172
Parallel shaft gearboxes F					
39	63…90	17/19	G1/8A	49	194
	100…112			71	172
49 … 69	63…90	19/19	G1/4A	49	194
	100…112			49	194
	132			71	172
79	80…90	19/19	G1/4A	49	194
	100…132			71	172
	160			99	194
89	100…132	22/19	G3/8A	49	194
	160			71	172
	180			71	172
Bevel gearboxes B					
29	63…90	17/19	G1/8A	49	194
	100			71	172
39	63…90	17/19	G1/8A	49	194
	100…112			71	172
49	63…90	19/19	G1/4A	49	194
	100…112			49	194
	132			71	172
Bevel gearboxes K					
39	63…90	17/19	G1/8A	49	194
	100…112			71	172
49	63…90	19/19	G1/4A	49	194
	100…112			49	194
69	71…90	19/19	G1/4A	49	194
	100…112			49	194
	132			71	172
79	71…90	19/19	G1/4A	49	194
	100…132			71	172
89	80…90	19/19	G1/4A	49	194
	100…132			71	172
	160			99	194
109	100…132	22/19	G3/8A	49	194
	160			71	172
	180			71	172
Helical worm gearboxes C					
39A	63…90	17/19	G1/8A	49	194
	100			71	172
49 … 69	63…90	19/19	G1/4A	49	194
	100…112			49	194
	132			71	172
89	80…90	19/19	G1/4A	49	194
	100…132			49	194
	132			71	172

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Gearbox options

Oil expansion unit

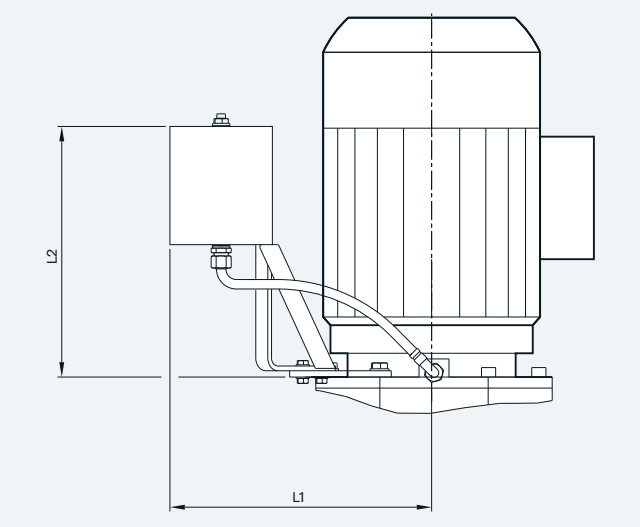

Fig. 10-19 Oil expansion unit type 2

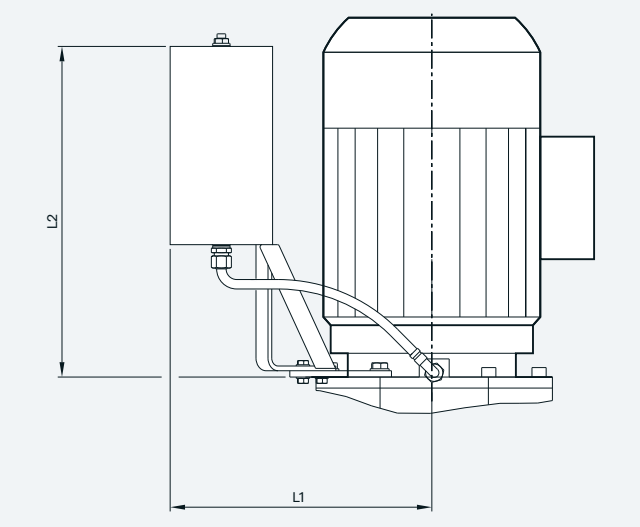

Fig. 10-20 Oil expansion unit type 3

Technical specifications

Size	Motor frame size	Type	Thread	Dimension L1 mm	Dimension L2 mm
Helical gearboxes Z and D					
109	90 ... 225	2	G3/8A	406	334
129	90 ... 250	2	G3/8A	442	334
149	100 ... 250	3	G3/4A	465	505
169	112 ... 250	3	G3/4A	493	505
189	112 ... 250	3	G3/4A	493	505
Helical gearboxes E					
109	90 ... 225	2	G3/8A	406	334
129	90 ... 250	2	G3/8A	442	334
149	100 ... 250	3	G3/4A	465	505
Cooling tower gearboxes ZKF					
109	90 ... 225	2	G3/8A	406	334
129	90 ... 250	2	G3/8A	442	334
149	100 ... 250	3	G3/4A	465	505
169	112 ... 250	3	G3/4A	493	505
189	112 ... 250	3	G3/4A	493	505
Cooling tower gearboxes EKF					
109	90 ... 225	2	G3/8A	406	334
129	90 ... 250	2	G3/8A	442	334
149	100 ... 250	3	G3/4A	465	505
Parallel shaft gearboxes F					
109	90 ... 225	2	G3/8A	406	334
129	90 ... 250	2	G3/8A	442	334
149	100 ... 250	3	G3/4A	465	505
169	112 ... 250	3	G3/4A	493	505
189	112 ... 250	3	G3/4A	493	505
Bevel gearboxes K					
129	90 ... 225	2	G3/8A	406	334
149	90 ... 250	2	G3/4A (G3/8A)	442	334
169	100 ... 250	3	G3/4A	465	505
189	112 ... 250	3	G3/4A	493	505

Value in parenthesis applies to mounting position M4.

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Oil level checking screw

For gearbox sizes 49 and higher, the oil level is checked using the oil level checking screw. The oil sight glass is available with a reflector to facilitate visual monitoring.

The oil sight glass on both sides is also available for the following gearboxes in mounting position M2 and M4:

- Bevel geared motor B49
- Bevel geared motor K49 to K189
- Helical worm geared motor C49 to C89

Oil level control	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Oil sight glass with reflector		**G34**
Oil sight glass with reflector on both sides (not possible for tandem geared motors)		**G35**

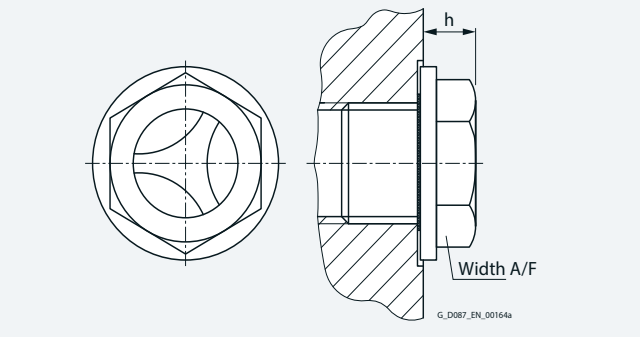

Fig. 10-21 Oil sight glass with reflector

Technical specifications

Size	Width across flats Width A/F	Thread	Dimension h mm
Helical gearboxes Z and D			
49 … 79	16	G 1/4 A	10
89 … 129	19	G 3/8 A	9
149 … 189	24	G 3/4 A	10
Helical gearboxes E			
49 … 69	16	G 1/4 A	10
89 …. 129	19	G 3/8 A	9
149	24	G 3/4 A	10
Cooling tower gearboxes ZKF			
89 … 129	19	G 3/8 A	9
149 … 189	24	G 3/4 A	10
Cooling tower gearboxes EKF			
89 …. 129	19	G 3/8 A	9
149	24	G 3/4 A	10
Parallel shaft gearboxes F			
49 … 79	16	G 1/4 A	10
89 … 129	19	G 3/8 A	9
149 … 189	24	G 3/4 A	10
Bevel gearboxes B			
49	16	G 1/4 A	10
Bevel gearboxes K			
49 … 89	16	G 1/4 A	10
109 … 129	19	G 3/8 A	9
149 … 189	24	G 3/4 A	10
Helical worm gearboxes C			
49 … 89	16	G 1/4 A	10
Electric-monorail gearboxes EHB			
BH29, BH39	16	G 1/4 A	10
KHF49 … 79	16	G 1/4 A	10

Oil drain

Magnetic oil drain screw

For gearboxes from size 39, a magnetic oil drain screw is available that is inserted in the oil drain hole. This serves to collect any metal particles in the gearbox oil.

Oil level control	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Magnetic oil drain screw		**G53**

Oil drain valve

For gearboxes from size 39, an oil drain valve is available in either a straight or angled design.

The oil drain valve is supplied complete with screw plug as a kit.

Oil level control	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Oil drain valve, straight		**G54**
Oil drain valve, angled		**G55**

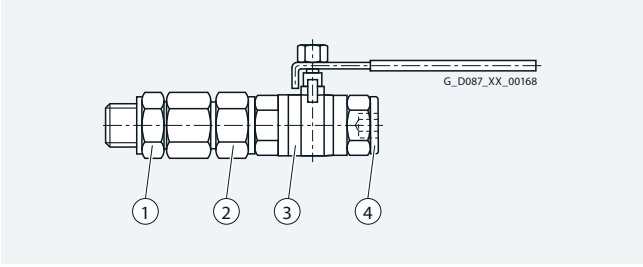

Fig. 10-22 Oil drain valve, straight

① Oil drain valve, straight
② Screw gland
③ Screw gland
④ Screw plug

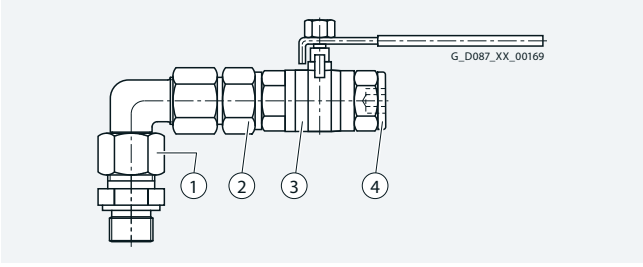

Fig. 10-23 Oil drain valve, angled

① Oil drain valve, angled
② Screw gland
③ Screw gland
④ Screw plug

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Gearbox options

Pt100 electrical oil temperature monitoring

From size 49, the Pt100 electrical oil temperature monitoring function is available for monitoring the oil temperature in the gearbox.

The Pt100 temperature sensor can be used both in hazardous and non-hazardous areas. In hazardous areas, the sensor may only be operated in conjunction with a disconnector (temperature transmitter).

Note:
The Pt100 temperature sensor is not available for parallel shaft gearbox FZ/FD49 to FZ/FD79 in mounting position M1.

Oil level control	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Pt100 electrical temperature monitoring		**G69**

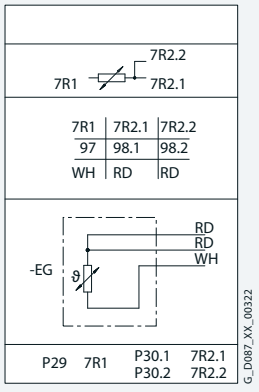

Fig. 10-24 Sensor circuit diagram for Pt100 electrical oil temperature monitoring

Technical specifications

Pt100 electrical temperature monitoring	
Measuring circuit	1Pt100 in 3-wire circuit
Tolerance	Class B ±0.3 °C at 0 °C according to EN 60751
Connecting cable	Hose cable 1x [3 x AWG 22/7-Cu-silver-plated/PTFE/PTFE, 0.36 mm²]
Recommended measuring current	0.3 … 1.0 mA
Max. operational current	25 mA
Max. operating voltage	10 V DC
Cable length	2000 mm, open ends
Degree of protection	IP68
Type of protection	II 2G Ex ia IIC Gb II 2D Ex ia IIIC Db

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Electrical oil level monitoring system

If the area in which the gearbox is installed is difficult to access, the gearbox oil level will need to be monitored remotely by means of a capacitive sensor.

The capacitive sensor is supplied with a 2 m long cable. The oil level can be monitored only when the gearbox is stationary (i.e. monitoring prior to startup).

A disconnector approved for use in ATEX applications must be provided for explosion-protected (ATEX) gearboxes. This must be installed outside the hazardous area.

The oil level sensor can be used at the following ambient temperatures:

_ Oil level sensor −25 to +45 °C
_ Oil level sensor ATEX −20 to +40 °C

For different ambient temperatures, please contact Innomotics.

Oil level control	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Oil level sensor		**G37**
Oil level sensor ATEX version		**G38**
24 V disconnector		**G40**

The electrical oil level monitoring system is available for the following gearboxes

Gearbox size	Mounting position					
	M1	M2	M3	M4	M5	M6
Helical gearboxes Z						
89… 169	✓	✓	✓	✓	✓	✓
189		✓			✓	✓
Helical gearboxes D						
89	✓	✓	✓	✓	✓	
109 … 169	✓	✓	✓	✓	✓	✓
189		✓			✓	✓
Helical gearboxes E						
89	✓	✓	✓	✓		
109	✓	✓		✓		
129 … 149	✓	✓	✓	✓	✓	✓
Parallel shaft gearboxes F						
89 … 189	✓	✓	✓	✓	✓	✓
Bevel gearboxes K						
109 … 189	✓	✓	✓	✓	✓	✓

The electrical oil level monitoring system in an ATEX version is available for the following gearboxes

Gearbox size	Mounting position					
	M1	M2	M3	M4	M5	M6
Helical gearboxes Z/ZB						
89… 129		✓			✓	✓
149		✓		✓	✓	✓
169	✓	✓	✓	✓	✓	✓
Helical gearboxes ZF						
89		✓			✓	✓
109 … 129		✓			✓	✓
149		✓		✓	✓	✓
169	✓	✓	✓	✓	✓	✓
Helical gearboxes D/DB						
89		✓			✓	
109 … 129		✓			✓	✓
149		✓		✓	✓	
169	✓	✓	✓	✓	✓	
Helical gearboxes DF						
89		✓		✓	✓	
109 … 129		✓		✓	✓	✓
149		✓		✓	✓	
169	✓	✓	✓	✓	✓	
Helical gearboxes E						
89				✓		
109		✓				
129	✓		✓	✓		
149	✓	✓	✓	✓	✓	✓
Parallel shaft gearboxes F						
89 … 129		✓		✓	✓	✓
149	✓	✓	✓	✓	✓	✓
169 … 189		✓		✓	✓	✓
Bevel gearboxes K						
109	✓		✓		✓	
129	✓	✓	✓	✓	✓	
149 … 189	✓	✓	✓	✓	✓	✓

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Gearbox options

Overview

Reduced-backlash version

Gearboxes with reduced backlash are required to perform highprecision positioning tasks and to achieve a high level of control quality. A minimal torsional backlash also has a favorable effect on torque spikes during startup and on load switching in the drive train. With this version, all machine elements in the gearbox that are in the power flow are designed with reduced backlash. As a result, this version also has the option "Shrink-glued output gearwheel".

To ensure that the entire driven machine can be designed with minimum possible backlash, it is advisable to select the solution with integral motor mounting (without adapter), output shafts with shrink disk connection or with smooth shafts (without feather key). In this case, only backlash-free power transmission elements should be used.

The specified torsional backlash in minutes of the angle ['] is based on the maximum rotation angle of the output shaft (no load, max. 1 % of rated output torque) with stationary input shaft.

Refer to the "Torques and transmission ratios" tables for precise values. If no values are specified in the tables, this means that a reduced-backlash version is not available for the specific version.

The dimensions of the reduced-backlash gearboxes are identical to those of the standard versions.

Special version	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Reduced-backlash version		**G99**

Shrink-glued output gearwheel

The gearbox output stage is subjected to particular high levels of mechanical stress during rigorous reversing duty or acceleration of high mass moments of inertia. The shrink-glued output gearwheel option ensures the load-bearing capacity of the shaft/hub connection in the event of dynamic load.

Special version	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Shrink-glued output gearwheel		**G97**

The following gearboxes are available for the reduced-backlash version and the shrink-glued output gearwheel

Gearbox	Gearbox size													
	09	19	29	39	49	59	69	79	89	109	129	149	169	189
Helical gearboxes Z and D		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Helical gearboxes E	On request													
Parallel shaft gearboxes F			✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Bevel gearboxes B		✓	✓	✓	✓									
Bevel gearboxes K				✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Helical worm gearboxes C	Not possible													
Worm gearboxes S	Not possible													
Electric-monorail gearboxes BH. and KHF	Not possible													

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Motor options

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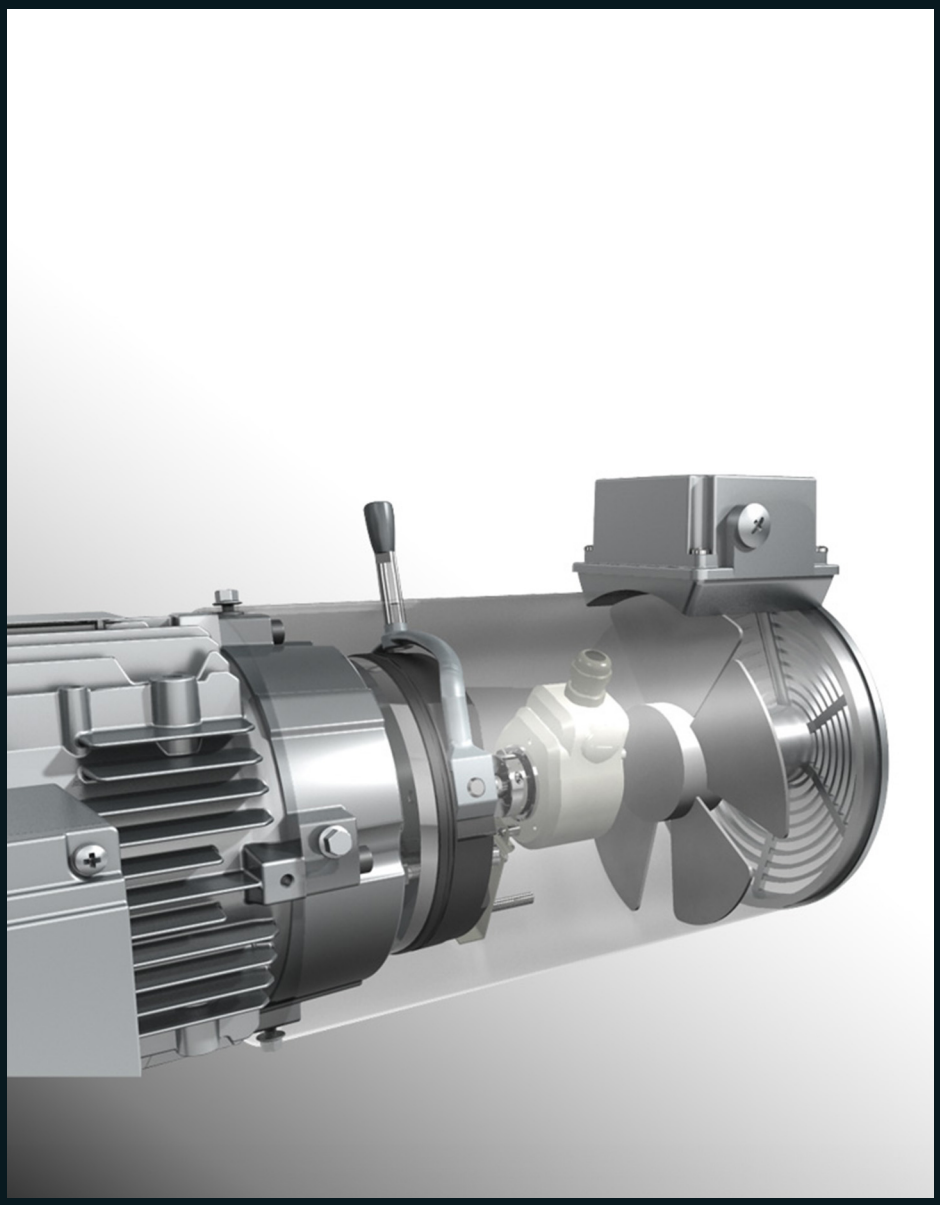

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Duty types

Line operation

The three-phase motors are designed for duty type S1 according to IEC 60034 (continuous duty).

Converter operation

For converter operation (order codes **P91** and **P92**), the motors with the applicable voltages are also stamped with duty type Inv. Duty.

Depending on the selected voltage, the technical specifications for the operating points at 50 Hz, 60 Hz, 87 Hz and 104 Hz are stated on the rating plate.

Converter operation for explosion-protected motors

The SINAMICS frequency converters for explosion-protected motors are categorized into 4 product groups. Each product group is a data set with motor operating data each assigned to one converter. The converter type is stamped on the additional rating plate.
More information on the product groups is provided in chapter Configuring guide on page page 2/38.

Note:
The selection of the duty types is not necessary or not possible for the Converter World Motors. For more information, see page 11/11.

Duty types	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Line operation		
Duty type S1		**–**
Converter operation		
Duty type S1//Inv. Duty		**P91**
Duty type Inv. Duty (VSD10 / synchronous reluctance motors)		**P92**
Converter operation for explosion-protected motors		
Product group 1 Version for converter operation in the basic version with operating data SINAMICS G120 with PM240-2		**P94**
Product group 2 Version for converter operation in the basic version with operating data SINAMICS S120 (ALM)		**P95**
Product group 3 Version for converter operation in the basic version with operating data SINAMICS G120D PM250		**P96**
Product group 4 Version for converter operation with performance data at the PWM converter		**P97**

Standard voltages

Three-phase motors are available for rated voltages ranging from 200 up to 690 V.

Motor frame sizes 63 up to 112 are generally supplied for the voltage range 230/400 V at 50 Hz. For motor frame sizes from 132 and above, the standard version is 400/690 V at 50 Hz.

Further selection of voltages is not possible for the Converter World Motors. For more information, see page 11/11.

At the customer's request, we can stamp a tolerance of ±10 % on the rating plate for our standard voltages.
The ±10 % voltage tolerance cannot be selected in conjunction with explosion protected motors (MB motors) or worm geared motors S.

Voltage tolerance	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Voltage tolerance ±10 %		**P80**

Standard motor voltages for line and converter operation

Frequency	Voltages	Power	Possible specifications						Motor frame size		13th position of the Article No. An order code is required when **9** appears in the 13th position of the Article No.		Additional order code required for converter operation	
Hz	V		CE, UKCA	UL-R/ CSA	China	EAC	BIS	Export[1]	63 … 112	132 … 250	2KJ3…-…..- ■ …**-Z**	Order code	**P91**	**P92**
Voltages for 50/60 Hz														
Voltages for 50/60 Hz, 50 Hz power														
50 Hz	230 V Δ/400 V Y	P_{50}	✓	✓	✓	✓	✓	✓ [2]	✓	–	**4**	**–**	✓	–
60 Hz	460 V Y	P_{50}							–	✓	**9**	**N3A**		
50 Hz	400 V Δ/690 V Y	P_{50}	✓	✓	–	✓	✓	✓ [2]	–	✓	**4**	**–**	–	–
60 Hz	460 V Δ	P_{50}							✓	–	**9**	**N3B**		
50 Hz	220 V Δ/380 V Y [2]	P_{50}	✓	✓	✓	✓	✓	✓	✓	✓	**9**	**N3C**	✓	–
60 Hz	440 V Y [2]	P_{50}												
Voltages for 50/60 Hz, 60 Hz power														
50 Hz	230 V Δ/400 V Y	P_{50}	✓	✓	✓	✓	✓	✓	✓	–	**2**	**–**	✓	–
60 Hz	460 V Y	P_{60}							–	✓	**9**	**N2A**		
50 Hz	400 V Δ/690 V Y	P_{50}	✓	✓	–	✓	✓	✓ [2]	–	✓	**2**	**–**	–	–
60 Hz	460 V Δ	P_{60}							✓	–	**9**	**N2B** [3]		
50 Hz	220 V Δ/380 V Y	P_{50}	✓	✓	✓	✓	✓	✓	✓	✓	**9**	**N2C** [3]	✓	✓
60 Hz	440 V Y	P_{60}												

[1] With motor power 0.75 kW or higher.

[2] Cannot be selected for worm gearboxes S.

[3] Voltages in Standard Efficiency IE1 and High Efficiency IE2 are available

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Standard voltages

Standard motor voltages for line and converter operation

Frequency	Voltages	Power	Possible specifications						Motor frame size		13th position of the Article No. An order code is required when **9** appears in the 13th position of the Article No.			Additional order code required for converter operation	
Hz	V		CE, UKCA	UL-R/ CSA	China	EAC	BIS	Export[1]	63 ... 112	132 ... 250	2KJ3...-.....- ■ ...**-Z**		Order code	**P91**	**P92**
Voltages for 50 Hz															
50/ 87 Hz	230 V Δ/400 V Δ	P_{50}/ P_{87}	✓	–	–	✓	✓	–	✓	✓		**9**	**N6A**[9]	✓	–
50 Hz	500 V Y	P_{50}	✓	–	–	✓	–	✓	✓[3]	✓		**9**	**N1C**	✓	–
50 Hz	500 V Δ[4]	P_{50}	✓	–	–	✓	–	✓	✓[2]	✓		**9**	**N1D**	✓	–
50 Hz	380 V Δ/660 V Y	P_{50}	✓	–	✓[8]	✓	✓	✓	■	■		**9**	**N1S**	–	✓
50 Hz +3/-5 %	240 V Δ/415 V Y	P_{50}	✓	–	–	✓	✓	✓	■	■		**9**	**N1T**	✓	–
50 Hz +3/-5 %	415 V Δ	P_{50}	✓	–	–	✓	✓	✓	■	■		**9**	**N1U**	✓	–
50 Hz	200 V Δ	P_{50}	✓	–	–	✓	–	✓	■	■		**9**	**N1K**	✓	–
Voltages for 60 Hz															
Voltages for 60 Hz, 50 Hz power															
60 Hz	220 V Δ/380 V Y	P_{50}	✓	✓	–	✓	–	–	■	■		**9**	**N4C**	✓	–
60 Hz	380 V Δ/660 V Y	P_{50}	✓	–	–	✓	–	–	■	■		**9**	**N4D**	–	–
60 Hz	440 V Δ	P_{50}	✓	✓	–	✓	–	–	■	■		**9**	**N4F**	✓	–
60 Hz	575 V Y[7]	P_{50}	✓	✓	–	✓	–	–	■[3]	■		**9**	**N4L**	✓	–
60 Hz	575 V Δ[7]	P_{50}	✓	✓	–	✓	–	–	■[2]	■		**9**	**N4M**	✓	–
60 Hz	230 V YY/460 V Y	P_{50}	✓	✓	–	✓	–	–	■	■		**9**	**N4N**	✓	–
60 Hz	230 V Δ/400 V Y	P_{50}	✓	✓	–	✓	–	–	■	■		**9**	**N4A**	✓	–
60 Hz	400 V Δ/690 V Y	P_{50}	✓	–	–	✓	–	–	■	■		**9**	**N4B**	✓	–
60 Hz	200 V Δ	P_{50}	✓	–	–	✓	–	–	■	■		**9**	**N4P**	✓	–
60 Hz	208 V Δ	P_{50}	✓	✓	–	✓	–	–	■	■		**9**	**N4Q**	✓	–
Voltages for 60 Hz, 60 Hz power															
60 Hz	220 V Δ/380 V Y	P_{60}	✓	–	–	✓	–	–	■	■		**9**	**N5C**[5]	✓	–
60 Hz	380 V Δ/660 V Y	P_{60}	✓	–	–	✓	–	–	■	■		**9**	**N5D**[5]	–	–
60 Hz	440 V Y	P_{60}	✓	–	✓	✓	–	–	■	■		**9**	**N5E**[5]	✓	–
60 Hz	440 V Δ	P_{60}	✓	–	–	✓	–	–	■	■		**9**	**N5F**[5]	✓	–
60 Hz	460 V Y	P_{60}	✓	✓	✓	✓	–	–	✓	✓		**9**	**N5H**[5]	✓	–
60 Hz	460 V Δ	P_{60}	✓	✓	–	✓	–	–	✓	✓		**9**	**N5J**[5]	✓	–
60 Hz	575 V Y[7]	P_{60}	✓	✓	–	✓	–	–	■[3]	■		**9**	**N5L**	✓	–
60 Hz	575 V Δ[7]	P_{60}	✓	✓	–	✓	–	–	■[2]	■		**9**	**N5M**	✓	–
60 Hz	230 V YY/460 V Y	P_{60}	✓	✓	–	✓	–	–	■	■		**9**	**N5N**[5]	✓	–
Voltages for brake motors with function rectifier[4]															
Voltages for 60 Hz, 50 Hz power															
60 Hz	440 V Δ	P_{60}	✓	–	–	✓	–	–	✓	✓[6]		**9**	**N5G**	–	–
60 Hz	460 V Δ	P_{60}	✓	–	–	✓	–	–	✓	✓[6]		**9**	**N5K**	–	–

■ With additional price

1) With motor power 0.75 kW or higher.
2) Can be selected for motor frame size 100 or higher.
3) Motor frame sizes 63 and 80 are not available.
4) Cannot be selected for worm gearboxes S.
5) Voltages in Standard Efficiency IE1 and High Efficiency IE2 are available.
6) Can be selected for motor frame sizes up to 200.
7) Voltages can only be selected in conjunction with UL/CSA specification.
8) More information for the CEL China Energy Label on page 1/25
9) Not available for 2-pole motors.

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Voltages and frequencies

Standard voltages

Standard motor voltages for converter operation

Frequency	Voltages	Power	Possible specifications					Motor frame size		13th position of the Article No. An order code is required when **9** appears in the 13th position of the Article No.		Additional order code required for converter operation	
Hz	V		CE, UKCA	UL-R/ CSA	China	EAC	Export[1]	63 ... 112	132 ... 250	2KJ3...-.....- ■ ...-Z	Order code	P91	P92
Voltages for VSD10 line motors for converter operation [4]													
Voltages for 50//60 Hz, 60 Hz power													
50 Hz	220 V Δ/380 V Y	P_{50}	✓	✓		✓	✓	✓ [2]	✓	**9**	**N2C** [4]	✓	✓
60 Hz	440 V Y	P_{60}			–								
50 Hz	277 V Δ/480 V Y	P_{50}	✓	–	–	✓	✓	■ [2]	■	**9**	**N2G**	–	✓
60 Hz	550 V Y	P_{60}											
50 Hz	380 V Y	P_{50}	✓	✓	–	✓	✓	✓ [2]	✓	**9**	**N2H** [5]	–	✓
60 Hz	440 V Y	P_{60}											
Voltages for 50 Hz													
50 Hz	380 V Y	P_{50}	✓	✓	–	✓	✓	✓ [2]	-	**9**	**N1N**	–	✓
50 Hz	380 V Δ/660 V Y	P_{50}	✓	–	–	✓	✓	■ [2]	■	**9**	**N1S**	–	✓
50 Hz	220 V Δ	P_{50}	✓	✓	–	✓	✓	✓ [2]	✓	**9**	**N1V** [5]	–	✓
Voltages for synchronous reluctance motors for converter operation [3] [6]													
Voltages for 50 Hz													
50 Hz	380 V Y	P_{50}	✓	✓	–	–	✓	✓	–	**9**	**N1N**	–	✓
Voltages for 50/60 Hz, 50 Hz power													
50 Hz	220 V Δ/380 V Y	P_{50}	✓	✓	–	✓	✓	✓	–	**9**	**N3C**	–	✓
60 Hz	440 V Y	P_{50}											
Voltages for 50//60 Hz, 60 Hz power													
50 Hz	220 V Δ/380 V Y	P_{50}	✓	✓	–	✓	✓	✓	–	**9**	**N2C**	–	✓
60 Hz	440 V Y	P_{60}											
Voltages for 87Hz, 87 Hz power													
87 Hz	380 V Δ	P_{87}	✓	✓	–		✓	✓	–	**9**	**N6K**	–	✓

■ With additional price

1) With motor power 0.75 kW or higher.
2) Can be selected for motor frame size 100 or higher.
3) Cannot be selected for worm gearboxes S.
4) Voltages in Standard Efficiency IE1 and High Efficiency IE2 are available.
5) Voltage can only be selected in conjunction with HAN K4/4, HAN Q8 and HAN Q8 motor plug with cable.
6) Synchronous reluctance motors available in motor frame sizes 80, 90 and 112.

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Standard voltages

Standard voltages for converter operation with explosion-protected motors

Frequency	Voltages	Power	Possible specifications			Motor frame size		13th position of the Article No. An order code is required when **9** appears in the 13th position of the Article No.		Additional order code required for converter operation			
Hz	V		CE, UKCA	China	ATEX	63 ... 112	132 ... 250	2KJ3...-.....- ■ ...-Z	Order code	P94	P95	P96	P97
Voltages for 50/60 Hz													
Voltages for 50/60 Hz, 50 Hz power													
50 Hz	230 V Δ/400 V Y	P_{50}	✓	✓	✓	✓	–	**4**	**–**	✓	✓	✓	✓
60 Hz	460 V Y	P_{50}				–	✓	**9**	**N3A**				
50 Hz	400 V Δ/690 V Y	P_{50}	✓	–	✓	–	✓	**4**	**–**	–	–	–	–
60 Hz	460 V Δ	P_{50}				✓	–	**9**	**N3B**				
50 Hz	220 V Δ/380 V Y [1]	P_{50}	✓	✓	✓	✓	✓	**9**	**N3C**	–	–	–	✓
60 Hz	440 V Y [1]	P_{50}											
Voltages for 50/60 Hz, 60 Hz power													
50 Hz	230 V Δ/400 V Y	P_{50}	✓	✓	✓	✓	–	**2**	**–**	✓	✓	✓	–
60 Hz	460 V Y	P_{60}				–	✓	**9**	**N2A**				
50 Hz	400 V Δ/690 V Y	P_{50}	✓	–	✓	–	✓	**2**	**–**	–	–	–	–
60 Hz	460 V Δ	P_{60}				✓	–	**9**	**N2B** [4]				
50 Hz	220 V Δ/380 V Y	P_{50}	✓	✓	✓	✓	✓	**9**	**N2C** [4]	✓	✓	✓	–
60 Hz	440 V Y	P_{60}											
Voltages for 50 Hz													
87 Hz	400 V Δ [1]	P_{87}	✓	✓	✓	✓	✓	**9**	**N6L**	✓	✓	✓ [3]	✓ [3]
50 Hz	500 V Y	P_{50}	✓	–	✓	✓ [2]	✓	**9**	**N1C**	✓	–	✓	–
50 Hz	500 V Δ [1]	P_{50}	✓	–	✓ [3]	✓ [3]	✓	**9**	**N1D**	✓ [3]	–	✓ [3]	–
Voltages for 60 Hz													
Voltages for 60 Hz, 50 Hz power													
60 Hz	220 V Δ/380 V Y	P_{50}	✓	–	✓	■	■	**9**	**N4C**	–	–	–	–
60 Hz	380 V Δ/660 V Y	P_{50}	✓	–	✓	■	■	**9**	**N4D**	–	–	–	–
60 Hz	440 V Δ	P_{50}	✓	–	✓	■	■	**9**	**N4F**	✓	✓	✓	✓
60 Hz	575 V Y [5]	P_{50}	✓	–	✓	■ [2]	■	**9**	**N4L**	–	–	–	–
60 Hz	575 V Δ [5]	P_{50}	✓	–	✓	■ [3]	■	**9**	**N4M**	–	–	–	–
60 Hz	230 V Δ/400 V Y	P_{50}	✓	–	✓	■	■	**9**	**N4A**	–	–	–	–
60 Hz	400 V Δ/690 V Y	P_{50}	✓	–	✓	■	■	**9**	**N4B**	–	–	–	–
Voltages for 60 Hz, 60 Hz power													
60 Hz	220 V Δ/380 V Y	P_{60}	✓	–	✓	■	■	**9**	**N5C** [4]	–	–	–	–
60 Hz	380 V Δ/660 V Y	P_{60}	✓	–	✓	■	■	**9**	**N5D** [4]	–	–	–	–
60 Hz	440 V Y	P_{60}	✓	✓	✓	■	■	**9**	**N5E** [4]	✓	✓	✓	✓
60 Hz	440 V Δ	P_{60}	✓	–	✓	■	■	**9**	**N5F** [4]	✓	✓	✓	✓
60 Hz	460 V Y	P_{60}	✓	✓	✓	✓	✓	**9**	**N5H** [4]	✓	✓	✓	✓
60 Hz	460 V Δ	P_{60}	✓	–	✓	✓	✓	**9**	**N5J** [4]	✓	✓	✓	✓
60 Hz	575 V Y [5]	P_{60}	✓	–	✓	■ [2]	■	**9**	**N5L**	–	–	–	–
60 Hz	575 V Δ [5]	P_{60}	✓	–	✓	■ [3]	■	**9**	**N5M**	–	–	–	–

■ With additional price

1) Cannot be selected for worm gearboxes S.
2) Motor frame sizes 63 and 80 are not available.
3) Can be selected for motor frame size 100 or higher.
4) Voltages in High Efficiency IE2 are available.
5) Voltages can only be selected in conjunction with UL/CSA specification.

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Temperature sensor

The temperature sensor is a **positive temperature coefficient** (PTC) **thermistor** which offers comprehensive protection against thermal motor overload. The temperature of the winding can be accurately monitored thanks to its low thermal capacity and the excellent heat contact with the winding. The PTC thermistor exhibits a sudden change in resistance when a rated response temperature (NAT) is reached.

A tripping unit is used to evaluate the change in resistance and to open auxiliary circuits via auxiliary contacts.

The switching hysteresis of the PTC thermistor is low, which facilitates fast restarting of the drive. Motors with this type of protection are recommended for heavy duty starting, intermittent duty, extreme changes in load, high ambient temperatures, or fluctuating supply systems.

The selected motor protection depends on the motor frame size and motor type. The motor protection available is listed in the "Selection and ordering data" on page 11/9.

Motor protection	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
PTC thermistor for disconnection		**M10**
PTC thermistor for warning and disconnection [1]		**M11**

[1] Not possible for worm geared motors S

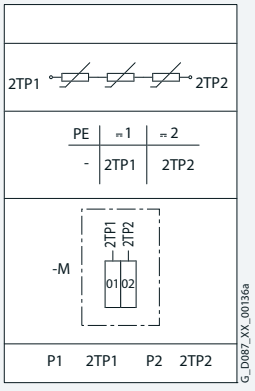

Fig. 11-1 Connection circuit diagram

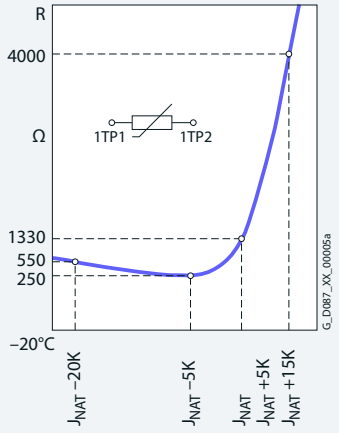

Fig. 11-2 Temperature sensor characteristic

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Temperature switch

The temperature switch is a **winding thermostat** (NC contact) and is suitable as a protection device for slowly increasing motor temperatures. When the rated response temperature (NAT) is reached, it can open an auxiliary circuit. When the motor temperature decreases, the winding thermostat closes again as soon as the temperature falls significantly below the rated response temperature.

When the motor current rises quickly (e.g. with a locked rotor), these switches are not suitable due to their large thermal time constants.

The temperature switch provides safety isolation in accordance with EN 61800-5-1 up to max. 500 V.

It is not possible to use the temperature switch in combination with a functionally safe rotary encoder.

The selected motor protection depends on the motor frame size and motor type. The motor protection available is listed in the "Selection and ordering data" on page 11/9.

Motor protection	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Winding thermostat for disconnection		**M12**

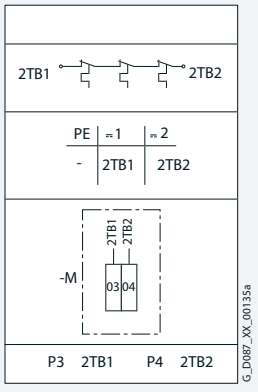

Fig. 11-3 Connection circuit diagram

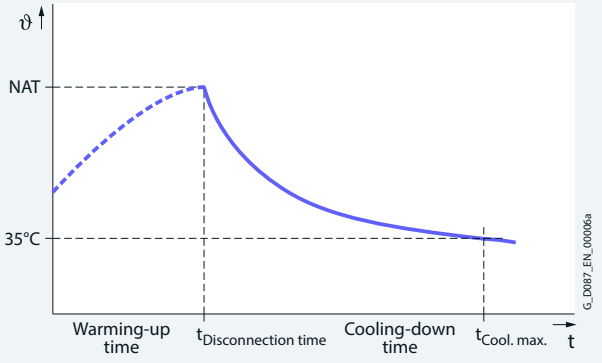

Fig. 11-4 Temperature switch characteristic

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Pt1000 resistance thermometer

The resistance thermometer has a chip for a temperature sensor, the resistance of which changes in relation to temperature according to a series of reproducible basic values. The changes in resistance are transferred as changes in current. At 0 °C, the measurement resistances are adjusted to 1000 Ω for the Pt1000, and correspond to the accuracy class B (i.e. the relationship between resistance and temperature). The limit deviation is ±0.3 °C, and the admissible deviations are defined in EN 60751.

With the Pt1000, just like with the other resistance thermometers presented so far, the temperature dependence of the electrical resistance of conductors is used to measure the temperature.

Pure metals undergo larger changes in resistance than alloys and have relatively constant temperature coefficients.

The Pt1000 already meets the requirements, protective separation/safety isolation according to IEC 61800-5-1. For line operation, the 3RS10 temperature monitoring relay, which forms part of the protection equipment, can be ordered separately.

The selected motor protection depends on the motor frame size and motor type. The motor protection available is listed in the "Selection and ordering data" (see table).

Motor protection	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Pt1000 resistance thermometer		**M17**

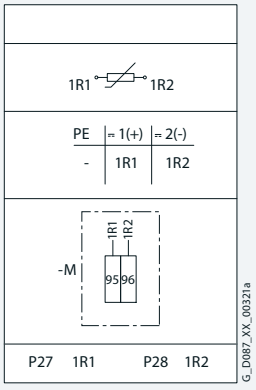

Fig. 11-5 Connection circuit diagram

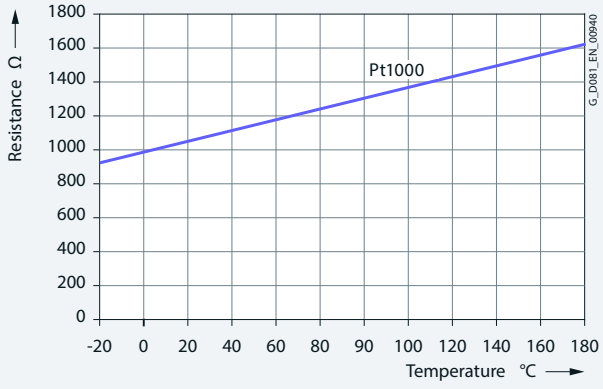

Fig. 11-6 Pt1000 resistance thermometer characteristic

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Selection and ordering data

For the Converter World Motor and the synchronous reluctance motor, the resistance thermometer Pt1000 is already integrated and therefore cannot be selected. No other motor protection is available.

Motor protection	**Motor frame size**												Additional identification code **-Z** with order code	
	63	71	80	90	100	112	132	160	180	200	225	250	2KJ3… -…..-….**-Z**	Order code
PTC thermistor, disconnection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**M10**
PTC thermistor for warning and disconnection [1]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**M11**
Winding thermostat, disconnection [2]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**M12**
Pt1000 resistance thermometer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**M17**
Motor protection for VSD10 line motors														
PTC thermistor, disconnection						✓	✓	✓	✓	✓	✓	✓		**M10**
Winding thermostat, disconnection [2]						✓	✓	✓	✓	✓	✓	✓		**M12**
Pt1000 resistance thermometer					✓	✓	✓	✓	✓	✓	✓	✓		**M17**
Motor protection for explosion-protected motors (MB motors)														
PTC thermistor, disconnection		✓	✓	✓	✓	✓	✓	✓	✓					**M10**
Pt1000 resistance thermometer		✓	✓	✓	✓	✓	✓	✓	✓					**M17**

[1] Not possible for worm geared motors.
[2] Not possible with the functionally safe rotary encoder.

Protective devices

Number of windings	**Example**	**Function**	**Number of temperature-dependent protective devices**	**Number of terminals**
1	Motors with one pole number	Disconnection	3 or 1 (motor frame sizes 80 and 90)	2

The following applies to explosion-protected motors (MB motors):

In order to achieve full thermal protection, it is necessary to combine a thermally delayed overcurrent release and a PTC thermistor. For full motor protection implemented only with PTC thermistors, please inquire.

The SIRIUS 3RN2 thermistor motor protection device for protecting motors against overheating by means of direct temperature measurement, also for hazardous zones with ATEX approval, can be ordered separately.

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Anti-condensation heating

Motors whose windings are at risk of condensation due to the climatic conditions, e.g. non-operational motors in humid atmospheres or motors that are subjected to widely fluctuating temperatures, can be equipped with anti-condensation heaters. Anti-condensation heating must not be switched on during operation.

Instead of an anti-condensation heater, another possibility is to connect a voltage that is approximately 4 to 10 % of the rated motor voltage to stator terminals U1 and V1; 20 to 30 % of rated motor current is sufficient to heat the motor.

Anti-condensation heating cannot be selected in conjunction with the following motors and options:

- Explosion-protected motors (MB motors)
- Motor plugs

Motor protection	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
115 V anti-condensation heating		**M40**
230 V anti-condensation heating		**M41**

Technical specifications

Motor frame size	**Heating power**
	W
63 … 80 [1]	12.5
90 … 112	25
132 … 200	50
225 … 250	92

[1] Only possible for worm geared motors S in motor frame size 71

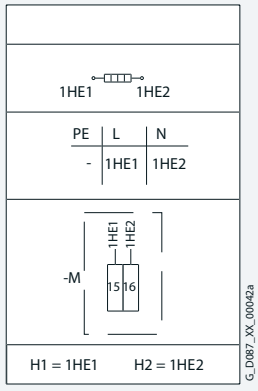

Fig. 11-7 Connection circuit diagram for the anti-condensation heating

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Converter operation

All motors used in Innomotics SG geared motors are equipped with innovative insulation systems, consisting of high-quality enamel wires and insulating sheet materials in conjunction with highly temperature-resistant impregnations.

The motors can be operated on controlled and uncontrolled converters provided that the permissible voltage peaks are not exceeded.

Continuous operation while utilizing the admissible voltage tolerances must be avoided, and is not recommended according to IEC 60034-1 2011 chapter 7.3.

Preferred supply system configurations are TT systems and TN systems with neutral-point grounding. In the case of a fault when connected to an IT system (ground fault), the insulation is excessively stressed. In this case, the process should be terminated as quickly as possible (t < 2 h), and the fault resolved. We do not recommend operation on TN systems with transition-point grounding.

Note:
When motors are operated with converters, additional losses occur which, depending on the admissible winding overtemperature, can make it necessary to reduce the torque. The permissible torque values can be obtained from the TIA Selection Tool engineering tool. The lowest frequency specified there is 5 Hz. For stationary converter operation at lower frequencies, particularly in the case of frame sizes < 100, it is necessary to contact the Quotation Center.

For converter operation with the outputs specified in the catalog, the motors are utilized according to temperature class 155 (F), i.e. normally, in this case, neither a service factor > 1 nor an increased coolant temperature is possible.

Insulation systems for converter operation > 480 V/500 V

The standard version of the motors can be operated on converters without additional filters up to a maximum converter input voltage of 500 V 3 AC on uncontrolled infeeds and up to 480 V 3 AC on controlled infeeds. The specific configuration guidelines for motors and converters must be observed.

For higher converter input voltages > 480 V/500 V 3 AC (max. 690 V), a special insulation system of the motor is required (PREMIUM).

This is available for converter motors such as low voltage motors GP/SD VSD10, DP crane motors, FD motors and the converter-capable SD Pro motors.

For IE3 standard motors, the PREMIUM insulation system is available depending on the type.

Converter World Motor

The Converter World Motors are asynchronous motors and have been developed and optimized for operation with converters. When operating with most converters, automated commissioning is possible using motor, gearbox and encoder codes via the Startdrive software. This requires at least firmware V5.2 SP3 for SINAMICS S120, for example.

As standard, the Converter World Motors include a winding optimized for the converter, which can be operated between 380 V and 480 V.

Therefore, the extended voltage variants and duty types cannot be selected.

Insulation

The motors can be operated with converters up to line voltages of 480 V when the permissible voltage peaks are complied with ($\hat{U}_{LL} \leq 3200$ V, $\hat{U}_{LE} \leq 2800$ V).

The following gearbox types are available for the Converter World Motor:

Gearbox type	Gearbox size
Helical gearboxes Z and D	19 ... 189
Helical gearboxes E	39 ... 149
Parallel shaft gearboxes F	29 ... 189
Bevel gearboxes B	19 ... 49
Bevel gearboxes K	39 ... 189
Helical worm gearboxes C	29 ... 89
Electric-monorail gearboxes EHB	29 ... 79
Worm gearboxes S	not possible

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Reluctance motors specifically for converter operation

The essential difference between synchronous reluctance motors and induction motors is the rotor. In contrast to an induction motor, a reluctance motor has a rotor where no current flows through the squirrel cage. Therefore, it is not capable of starting up directly on the line supply and a converter will always be needed to control it.

Thanks to intelligent control by converters and the low losses in the rotor, the motor has a significantly optimized thermal response and therefore also a higher efficiency. The efficiency exceeds the IE4 efficiency requirements in accordance with IEC 60034-30-2, particularly in partial load operation, but also at the rated operating point.

The thermal reserves (as a result of the cooler rotor) of the reluctance motor allow a continuous overload capability of up to 200 %. A smaller motor can be used if no increased short-term overload capability is required in these cases. The only thing needed is a converter that can provide the required load current.

The converters facilitate closed-loop speed control without requiring an encoder (encoderless operation).

For the synchronous reluctance motor, the resistance thermometer Pt1000 is already integrated.

The dynamic response of the synchronous reluctance motor is also considerably higher than that of a comparable induction motor with IE3 efficiency thanks to the lower intrinsic moment of inertia of the rotor.

System connection

Innomotics SG gearboxes with synchronous reluctance motors can be operated with the following SINAMICS converters:

Converter compatibility		Control Unit	Power Module	Operator panel
G120				
Modular	≥ FW4.7 SP6	CU240E-2	PM240-2	BOP-2
	≥ FW4.7 SP9	CU230P-2	PM240P-2	IOP & IOP-2
Distributed	≥ FW4.7 SP9	G120D only CU240D-2		
S120				
	≥ FW4.8	CU310-2	PM240-2	BOP20
		CU320-2	Booksize	

_ The converter is operated with a rated pulse frequency of at least 4 kHz.

_ The converter can provide the rated voltage as listed in the catalog.

For SINAMICS G120 converters (from firmware version 4.7) the GP/SD synchronous reluctance motors can be selected in the SINAMICS converter via the STARTER software or the operator panel at the converter (Basic Operator Panel (BOP), Intelligent Operator Panel (IOP)) as motor category and can be addressed using the motor code number.

Rated voltage

The tolerance for the rated voltage is in accordance with EN 60034-1. A rated voltage range is not specified. The rated motor voltages are selected so that when operated with a converter, the available voltage is optimally utilized.

Insulation

The motors can be operated with converters up to line voltages of 480 V when the permissible voltage peaks are complied with ($\hat{U}_{LL} \leq 3200$ V, $\hat{U}_{LE} \leq 2800$ V).

When operated with a converter with the powers specified in the catalog, the motors in accordance with temperature class 155 (F) are utilized in accordance with temperature class 130 (B) (service factor 1.2).

Preferred supply system configurations are TT systems and TN systems with neutral-point grounding.

Noise

The max. sound pressure levels can be found in the "Selection and ordering data" in the Motors chapter on page 9/10.

The following gearbox types are available for the synchronous reluctance motor:

Gearbox type	Gearbox size
Helical gearboxes Z and D	19 … 189
Helical gearboxes E	39 … 149
Parallel shaft gearboxes F	29 … 189
Bevel gearboxes B	19 … 49
Bevel gearboxes K	39 … 189
Helical worm gearboxes C	29 … 89
Electric-monorail gearboxes EHB	29 … 79
Worm gearboxes S	not possible

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Impulse Voltage Insulation Class (IVIC) – Category C (strong)

The insulation system of the motors meets the requirements of EN 60034-18-41:2014 according to stress category C (strong).

The insulation systems of the motors are optimized for operation with converters. The permissible voltage peaks specified in the table must not be exceeded.

Thanks to the high-quality insulation systems, the requirements of IVIC C are significantly exceeded; see the comparison in the table. This also means that significantly more stringent requirements can be met by the system operator.

The table below shows a comparison between the maximum admissible peak-peak voltage at the motor terminal as stipulated by EN 60034-18-41 and the peak-peak voltage tolerance of insulation systems.

Line voltage for standard insulation

	Line voltage U_N			
	400 V		480 V	
Standard	IVIC C	Innomotics	IVIC C	Innomotics
$\hat{U}_{phase\text{-}ground}$	1680	2200	2016	2200
$\hat{U}_{phase\text{-}phase}$	2360	3000	2832	3000

Line voltage for reinforced insulation (Advanced)

	Line voltage U_N					
	400 V		480 V		500 V	
Advanced	IVIC C	Innomotics	IVIC C	Innomotics	IVIC C	Innomotics
$\hat{U}_{phase\text{-}ground}$	1680	2800	2016	2800	2100	2800
$\hat{U}_{phase\text{-}phase}$	2360	3200	2832	3200	2950	3200

The following applies for the voltage rise time: $T_a > 0.3 \pm 0.2$ µs.

The voltages specified are peak-peak values (Vpk/pk).

Overview of the insulation at line voltage 330 V to 690 V

Motor frame size	**Converter World Motor**	**Synchronous reluctance motor**	**Motor with Premium Efficiency IE3**
63	–	–	Standard
71	Advanced	–	Standard
80	Advanced	Advanced	Standard
90	Advanced	Advanced	Standard
100	Advanced	–	Standard
112	Advanced	Advanced	Standard
132	Advanced	–	Standard
160	Advanced	–	Standard
180	Advanced	–	Advanced
200	Advanced	–	Advanced
225	Advanced	–	Advanced
250	Advanced	–	Advanced

In addition, the following applies to motors with Premium Efficiency IE3:

- 500 V and 575 V line voltages always have reinforced insulation
- 400/690 V line voltage has no reinforced insulation from motor size 63 to 160
- If the operating mode S1//Inv. Duty (order code **P91**) is selected, there is no effect on the insulation.

Example of how to design a drive system for a line voltage of 400 V in compliance with the specifications for the motor and converter

When Innomotics SG geared motors are operated with converters, reflections may cause voltage peaks in excess of the upper tolerance limits. These effects may also be influenced by the design and length of the cables used.

A = standard power cable (NYCWY)

B = power cable with symmetrical shield (e.g. Protoflex)

In the example below, various motor configurations are assessed on the basis of the following general conditions:

- Configuration with a single motor:
  Each motor has its own Motor Module with a separate infeed for each module
- Configuration with multiple motors:
  Each motor has its own Motor Module; these modules are interconnected via a common DC link which is supplied by an Active Line Module combined with an Active Interface Module (AIM).
- TN system $U_k = 5$ %
- $U_{DC\ Link} = 1.5 \times U_{Line}$ with a modulation depth $ALM_{max} < 0.97$ and $U_{DC,max}$
- Motor Modules in the booksize format
- Active Line Module (ALM) with matching Active Interface Module (AIM)
- No parallel connection of Active Line Modules
- Pulse frequencies set to factory settings

On this basis, the maximum recommended cable lengths *m* are:

Rated power kW	**Rated voltage *U*Line = 400 V ± 10 % (DC link voltage *U*DC Link = 640 V_{DC})**			
	Multi-motor operation		**Single-motor operation**	
	Cable type A	Cable type B	Cable type A	Cable type B
0.09 … 4	50 [1]	50 [1]	50 [1]	50 [1]
5.5 … 7.5	55	70 [1]	70 [1]	70 [1]
11 … 18.5	50	75	100 [1]	100 [1]
22 … 45	100 [1]	100 [1]		
55 … 90	85			

[1] Cable length limitation by Motor Module

Provided that the cables do not exceed the recommended lengths and on the basis of the specified constraints, it can be assumed that the system will operate in compliance with the product specifications.

Other cable lengths may be used, but the potential voltage peaks and front times must be checked separately according to the table for compliance with the product specifications.

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DURIGNIT IR 2000 insulation

The DURIGNIT IR 2000 insulating system consists of high-quality enamel wires and insulating sheet materials in conjunction with temperature-resistant resin impregnation.

This ensures that these motors will have a high mechanical and electrical strength, high service value and a long service life. The insulating system protects the winding to a large degree against aggressive gases, vapors, dust, oil and increased air humidity. It can withstand the usual vibration stress.

The insulation is suitable up to an absolute air humidity of 30 g water per m³ of air. Condensation should be prevented from forming on the winding.

Please inquire about extreme applications.

Temperature class

All motors are designed for temperature class 155 (F). They are utilized to temperature class 130 (B). At an ambient temperature of 60 °C, temperature class 130 (B) may be slightly exceeded by a few kelvin.

The 4-pole motors can be optionally implemented for temperature class 180 (H). The winding is utilized to temperature class 155 (F).

Temperature class 180 (H) cannot be selected in conjunction with the following motors and gearbox types:

- VSD10 line motors
- Converter World Motor
- Explosion-protected motors (MB motors)
- Worm geared motors S

Motor protection	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Temperature class 180 (H)		**M08**

Increased air humidity/temperature with 30 to 60 g water per m³ of air

The motors in the standard range are designed for up to 30 g water per m³. A design for increased air humidity in the range between 30 and 60 g water per m³ of air as a function of the temperature is possible, as shown in the following table.

The increased air humidity/temperature with 30 to 60 g water per m³ of air cannot be selected in conjunction with explosion-protected motors (MB motors) or worm geared motors S.

Motor protection	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Increased air humidity/temperature with 30 to 60 g water per m³ of air		**N54**

Relative humidity	**Temperature**						
	+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C
10 %	2	3	5	8	13	20	29
15 %	3	5	8	12	19	30	44
20 %	3	6	10	17	26	39	58
25 %	4	8	13	21	32	49	
30 %	5	9	15	25	39	59	
35 %	6	11	18	29	45		
40 %	7	12	20	33	52		
45 %	8	14	23	38	58		
50 %	9	15	26	41			
55 %	10	17	28	46			
60 %	10	19	31	50			
65 %	11	20	33	54			
70 %	12	21	36	58			
75 %	13	23	38				
80 %	14	24	41				
85 %	15	26	43				
90 %	16	27	46				
95 %	16	29	49				
100 %	17	30	51				

Increased air humidity/temperature with 30 to 60 g water per m³ of air

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Overview

The degree of protection only applies to the electrical equipment (motor, brake, encoder). Depending on the application area, the applicable measures must be applied to the gearbox.

Available degrees of protection

Degree of protection	Motor options that can be mounted	Additional identification code **-Z** with order code	
		2KJ3… -…..-….**-Z**	Order code
IP55	No restrictions		**K01**
IP56 [1) 2)]	Possible with separately driven fan, incremental encoder and absolute encoder.		**K02**
IP65 [1) 3)]	Possible with a brake, backstop, separately driven fan, incremental encoder, absolute encoder and motor plug.		**K03**

1) Not possible for worm geared motors S
2) Not possible for electric-monorail geared motors
3) For explosion-protected motors in Zone 2

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Overview

The motors have radial-flow fans, which cool regardless of the direction of rotation of the motor (cooling method IC 411, IEC 60034-6). The air flows from the non-drive end (NDE) to the drive end (DE).

Self ventilation

The motor fan can either be a standard fan, metal fan or high inertia fan.

Note:
Standard fans made of plastic are not suitable for ambient temperatures below −25 °C. For lower temperatures, metal fans (order code **M21**) or high inertia fans (order code **M22**) must be used.

The explosion-protected motors (MB motors) for Zone 22 are equipped as standard with a metal fan; motors for Zone 2, with a standard plastic fan. For explosion-protected motors in Zone 2, alternatively, a metal fan (order code **M21**) can be selected.

Standard fan

As standard, the motors are equipped with a plastic fan. This can be used for the entire standard ambient temperature range.

Metal fan

As an alternative to the standard plastic fans, aluminum fans are available for the motors. Metal fans are used for specific environmental conditions, e.g.:

- If there are solid or dirt particles, such as wood chips, textile fibers in the cooling air
- Special motor designs for increased ambient temperatures exceeding +60 °C
- At temperatures below −25 °C

High inertia fan

When required, 4-pole motors in frame sizes 71 to 132 can be equipped with a high inertia fan.

High inertia fans as an additional inertia are finely balanced according to ISO 1940. Typical applications are drives for traveling gear, conveying equipment, or in general for supporting soft starting and/or soft braking in line operation.

It is not possible to use a high inertia fan in conjunction with converter motors (Converter World Motor, VSD10 line motors or synchronous reluctance motors).

A high inertia fan increases the moment of inertia of the motor according to the table below.

Motor frame size	J_Z 10^{-4} kgm²	m_{fan} kg
71	17.1	1.38
80	27.9	1.75
90	54.0	2.55
100	116.0	3.30
112	230.0	5.30
132	562.0	9.10

Overview, self ventilation

Motor frame size	**Fan**	**Material**		**Motor type**			Additional identification code **-Z** with order code	
		Fan	Fan cover	LE71 ... LES250	MB71 ... MB180			
					Zone 22	Zone 2	2KJ3… -…..-….**-Z**	Order code
63 ... 90	Standard fan	Plastic	Sheet metal	✓	–	✓		**–**
	Metal fan	Aluminum	Sheet metal	✓	✓	✓		**M21**
	High inertia fan	Steel core with plastic fan blades	Sheet metal	✓	–	–		**M22** [1]
100 ... 132	Standard fan	Plastic	Sheet metal	✓	–	✓		**–**
	Metal fan	Aluminum	Sheet metal	✓	✓	✓		**M21**
	High inertia fan	Cast iron	Sheet metal	✓	–	–		**M22** [1]
160	Standard fan	Plastic	Sheet metal	✓	–	✓		**–**
	Metal fan	Aluminum	Sheet metal	✓	✓	✓		**M21**
180 ... 200	Standard fan	Plastic	Sheet metal	✓	–	✓		**–**
	Metal fan	Steel	Sheet metal	✓	✓	✓		**M21**
225 ... 250	Standard fan	Plastic	Plastic / sheet metal [2]	✓	–	–		**–**
	Metal fan	Steel	Plastic / sheet metal [2]	✓	–	–		**M21**

[1] Cannot be selected for worm geared motors S and converter motors.
[2] The fan cover is made of sheet metal for motors with brake.

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Forced ventilation

Forced ventilation (separately driven fan) can be combined with almost all brakes and encoders as required.

Note:
Forced ventilation is not suitable for ambient temperatures below −25 °C.

Cooling and ventilation	Additional identification code **-Z** with order code	
	2KJ3… -…..-…..**-Z**	Order code
Separately driven fan (Not possible for worm geared motors)		**M23**

Technical specifications

Motor frame size	Frequency	Rated voltage range			Rated current	Power consumption	Volume flow	Weight
	Hz	Phase	V	Connec-tion	A	W	m^3/h	kg
71	50	1 AC	230 … 277	⊥(Δ)	0.18	48.0	78	1.45
		3 AC	200 … 303/346 … 525	Δ/Y	0.15/0.09	29.0		
	60	1 AC	230 … 277	⊥(Δ)	0.21	56.0	99	
		3 AC	220 … 332/380 … 575	Δ/Y	0.13/0.07	28.0		
80	50	1 AC	230 … 277	⊥(Δ)	0.19	48.0	128	1.50
		3 AC	200 … 303/346 … 525	Δ/Y	0.16/0.09	33.0		
	60	1 AC	230 … 277	⊥(Δ)	0.22	59.0	151	
		3 AC	220 … 332/380 … 575	Δ/Y	0.13/0.07	36.0		
90	50	1 AC	220 … 277	⊥(Δ)	0.29	59.0	216	1.90
		3 AC	200 … 303/346 … 525	Δ/Y	0.39/0.22	78.0		
	60	1 AC	220 … 277	⊥(Δ)	0.23	61.0	258	
		3 AC	220 … 332/380 … 575	Δ/Y	0.32/0.18	71.0		
100	50	1 AC	220 … 277	⊥(Δ)	0.29	62.0	278	2.05
		3 AC	200 … 303/346 … 525	Δ/Y	0.37/0.21	80.0		
	60	1 AC	220 … 277	⊥(Δ)	0.29	73.0	328	
		3 AC	220 … 332/380 … 575	Δ/Y	0.30/0.18	80.0		
112	50	1 AC	220 … 277	⊥(Δ)	0.27	64.0	355	2.15
		3 AC	200 … 303/346 … 525	Δ/Y	0.35/0.20	87.0		
	60	1 AC	220 … 277	⊥(Δ)	0.35	88.0	418	
		3 AC	220 … 332/380 … 575	Δ/Y	0.29/0.17	93.0		
132	50	1 AC	230 … 277	⊥(Δ)	0.52	125.0	550	3.00
		3 AC	200 … 303/346 … 525	Δ/Y	0.64/0.37	160.0		
	60	1 AC	230 … 277	⊥(Δ)	0.61	163.0	650	
		3 AC	220 … 332/380 … 575	Δ/Y	0.55/0.32	180.0		
160	50	1 AC	230 … 277	⊥(Δ)	0.74	246.0	980	4.20
		3 AC	200 … 303 / 346… 525	Δ/Y	1.28 / 0.74	314.0		
	60	1 AC	230 … 277	⊥(Δ)	1.52	390.0	1160	
		3 AC	220 … 332 / 380… 575	Δ/Y	1.08 / 0.62	391.0		
180	50	1 AC	230 … 277	⊥(Δ)	0.74	246.0	1200	8.15
		3 AC	200 … 303 / 346… 525	Δ/Y	1.28 / 0.74	314.0		
	60	1 AC	230 … 277	⊥(Δ)	1.52	390.0	1379	
		3 AC	220 … 332 / 380… 575	Δ/Y	1.08 / 0.62	391.0		
200	50	1 AC	230 … 277	⊥(Δ)	0.74	246.0	1324	9.75
		3 AC	200 … 303 / 346… 525	Δ/Y	1.28 / 0.74	314.0		
	60	1 AC	230 … 277	⊥(Δ)	1.52	390.0	1575	
		3 AC	220 … 332 / 380… 575	Δ/Y	1.08 / 0.62	391.0		
225 … 250	50	3 AC	220 … 240 / 380 … 420	Δ/Y	2.0 / 1.15	450.0	On request	22.0
	60		440 … 480	Y	1.05	520.0		

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Motor options

Forced ventilation

Forced ventilation for explosion-protected motors

Forced ventilation is available for frame sizes 100 to 180 for explosion-protected motors (MB motors).

Forced ventilation for explosion-protected motors can only be selected in conjunction with a PTC thermistor (order code **M10**). When the forced ventilation develops a fault, the PTC thermistor must guarantee that the drive system is safely and reliably shut down.

Note:
For MB motors, forced ventilation is not suitable for ambient temperatures below −20 °C.

Cooling and ventilation	Additional identification code **-Z** with order code	
	2KJ3… -…..-…..**-Z**	Order code
Separately driven fan for explosion-protected motors		**M23 + M10**

Technical specifications for explosion-protected motors (MB motors)

Motor frame size	Frequency	Rated voltage range			Rated current	Power consumption
	Hz	Phase	V	Connection	A	W
100	50	1 AC	220 … 277	⊥(Δ)	0.28	66.0
		3 AC	200 … 303/346 … 525	Δ/Y	0.37/0.22	91.0
	60	1 AC	220 … 277	⊥(Δ)	0.30	75.0
		3 AC	220 … 332/380 … 575	Δ/Y	0.31/0.18	87.0
112	50	1 AC	220 … 277	⊥(Δ)	0.28	71.0
		3 AC	200 … 303/346 … 525	Δ/Y	0.35/0.20	97.0
	60	1 AC	220 … 277	⊥(Δ)	0.37	94.0
		3 AC	220 … 332/380 … 575	Δ/Y	0.31/0.18	103.0
132	50	1 AC	230 … 277	⊥(Δ)	0.40	98.0
		3 AC	200 … 303/346 … 525	Δ/Y	0.58/0.33	124.0
	60	1 AC	230 … 277	⊥(Δ)	0.57	149.0
		3 AC	220 … 332/380 … 575	Δ/Y	0.44/0.25	148.0
160	50	1 AC	230 … 277	⊥(Δ)	0.97	253.0
		3 AC	200 … 303 / 346… 525	Δ/Y	0.87 / 0.50	247.0
	60	3 AC	220 … 332 / 380… 575	Δ/Y	0.93 / 0.56	360.0
180	50	1 AC	230 … 277	⊥(Δ)	0.97	253.0
		3 AC	200 … 303 / 346… 525	Δ/Y	0.87 / 0.50	247.0
	60	3 AC	220 … 332 / 380… 575	Δ/Y	0.93 / 0.56	360.0

Modular system in combination with self ventilation and forced ventilation for motor frame size 63 to 200

Cooling method	Motor plug	Encoder						Brake				Back-stop	2nd shaft extension
		Incremental encoder		Absolute encoder		Encoder under cover [2]	Encoder accessories	Without manual release	With manual release	Microswitch			
		Functionally safe		Functionally safe						Brake release monitoring [1]	Wear monitoring		
		No	Yes	No	Yes								
Self ventilation													
Standard fan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	On request	✓	✓
Metal fan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
High inertia fan [2][3]	✓	✓	–	✓	–	✓	✓	✓	✓	✓		✓	✓
Canopy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	–
Forced ventilation [2] [3]													
Canopy	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	On request	✓	–

[1] Can be selected from brake type L32 or higher.
[2] Can be selected for motor frame size 71 or higher.
[3] Not possible for worm geared motors S.

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Connection, circuit and terminal boxes

Location and position of the terminal box

The terminal box of the motor can be mounted in four different locations or positions. The position of the terminal box is always when viewing the drive end (DE) of the motor.

The standard position of the terminal box is on the right-hand side, with the cable entry from below (1A).

The terminal box is always located at the non-drive end (NDE) of the motor.

Selection data, cable entry for motor frame sizes 63 to 250

Terminal box position	**Position of the cable entry**	Additional identification code **-Z** with order code	
		2KJ3… -…..-….**-Z**	Order code
1	A		**M55**
	B		**M56**
	C		**M57**
	D		**M58**
2	A		**M59**
	B		**M60**
	C		**M61**
	D		**M62**
3	A		**M63**
	B		**M64**
	C		**M65**
	D		**M66**
4	A		**M67**
	B		**M68**
	C		**M69**
	D		**M70** [1]

[1] Not possible for worm geared motors S

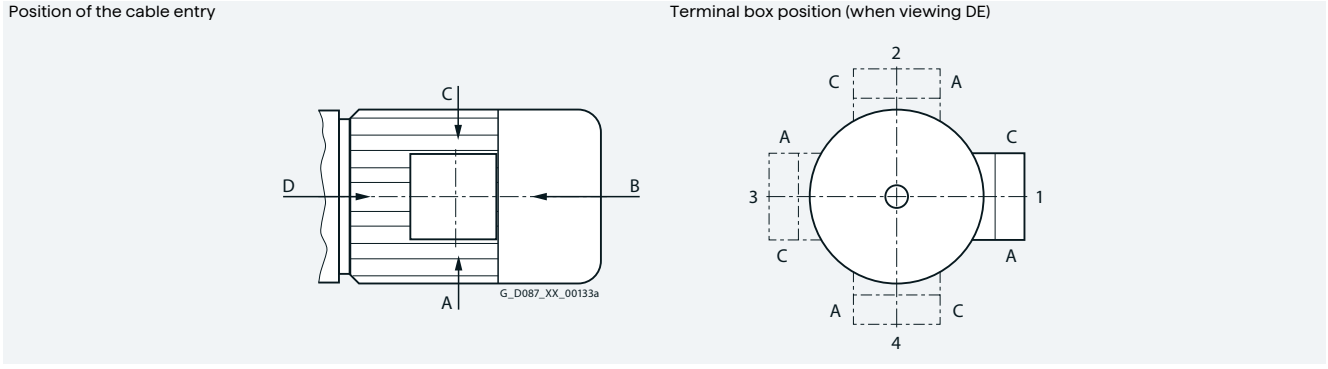

Fig. 11-8 Terminal box position and cable entry

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Motor options

Motor connection and terminal boxes

Motor connection

The number of winding ends depends on the winding design. Three-phase AC motors are connected to the three phase conductors L1, L2, and L3 of a three-phase line supply. The motor rated voltage in the operating connection must match the phase conductor voltages of the line supply.

When the three phases operate in sequence and are connected to the terminals of the motor in alphabetical order U1, V1 and W1, the motor rotates clockwise when viewing the DE motor shaft.

The direction of rotation of the motor can be reversed if two connecting cables are interchanged. Labeled terminals are provided to connect the protective conductor.

The connections for a brake, anti-condensation heating or thermal motor protection are also located in the terminal box.

Note:
Different terminal box sizes are used depending on the connections required.
Additional notes see “Terminal box type” on page 11/23

Before commissioning the Innomotics SG geared motors with the Converter World Motor, please observe the notes in the operating instructions BA 2330.

Connection when shipped

Motors, frame sizes 63 to 200, can be supplied from the factory with the connection (star or delta) selected. In the factory, the terminal board is connected up in the star or delta connection for shipping. Option "Connection when shipped" can only be selected in combination with motor plug HAN K4/4 or motor plug HAN Q8.

In addition to the motor plugs, the following options are available:

_ Brakes
_ Motor protection
_ UL/CSA and CCC certification

Connection when shipped	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Star connection when shipped		**M01**
Delta connection when shipped		**M02**

Note:
The connection type of the Converter World Motor is already encoded in the Article No. Therefore the connection when shipped (order code **M01** and **M02**) cannot be selected.

Converter World Motor	11th and 13th position of the Article No.			
	2KJ3… -…	■	- ■	…**-Z**
Converter World Motor, star connection		**1**	**6**	
Converter World Motor, delta connection		**1**	**7**	

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Connection, circuit and terminal boxes

Motor connection Δ/Y

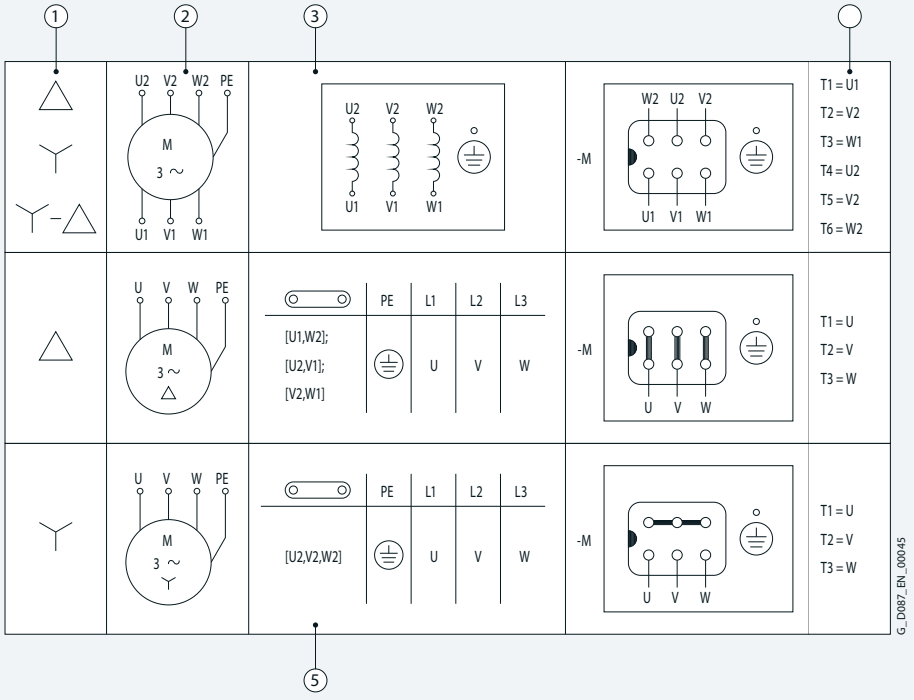

Fig. 11-9 Connection circuit diagram, motor connection Δ/Y

① Motor connection
② Circuit diagram symbols
③ Winding arrangement in the motor
④ Comparison:
Terminal designation acc. to NEMA MG1/acc. to IEC 60034-8
⑤ Location of the jumpers on the terminal board and juxtaposition of the line connection with the motor connection

Motor connection Y

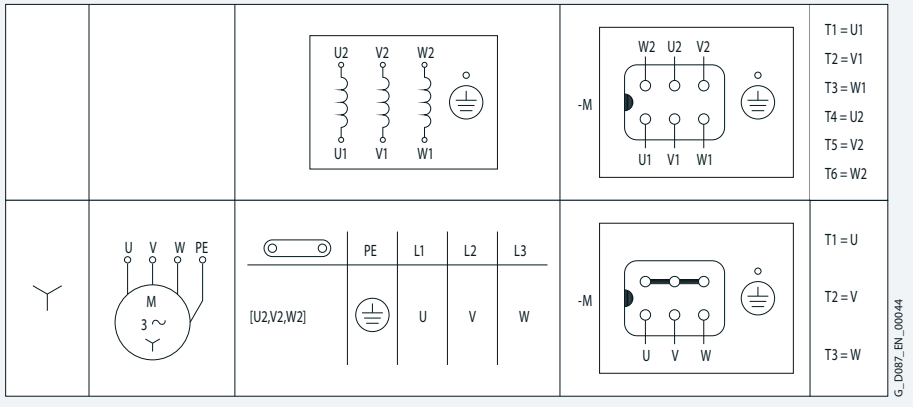

Fig. 11-10 Connection circuit diagram, motor connection Y

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Connection, circuit and terminal boxes

Motor connection YY/Y

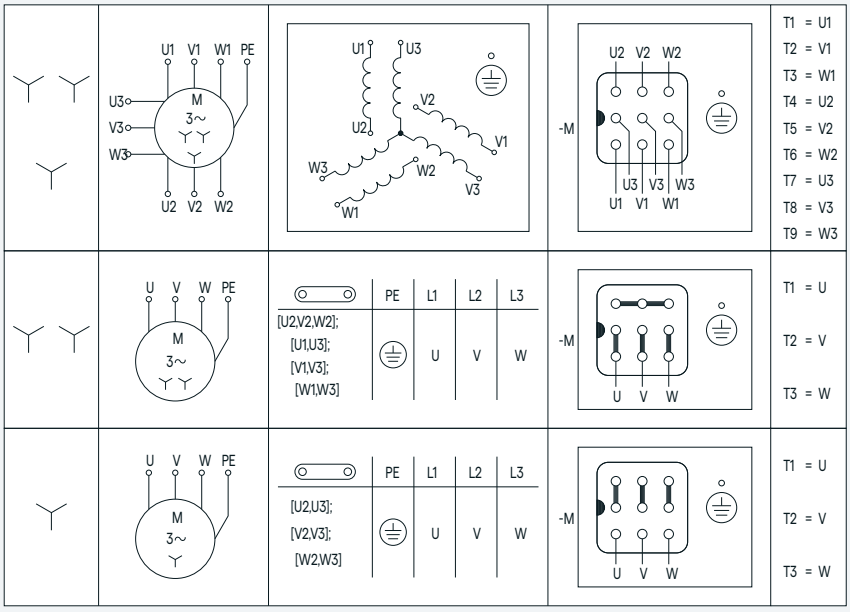

Fig. 11-11 Connection circuit diagram, motor connection YY/Y

Terminal connection

The terminal board accommodates the terminals that are connected to the leads to the motor windings.

The terminals are designed so that up to frame size 160, the external (line) connections can be established without requiring cable lugs.

Terminal box assignment

Motor frame size	Terminals			Number of cable entries	Terminal box material	Line feeder cable connection	Auxiliary terminals	
	Number	Contact screw thread	Max. connectable conductor mm²				Max. number	Max. connectable conductor mm²
63	6 (9 for YY/Y motor connection)	M4	1.5 (2.5 with cable lug)	2 cable entries with screw plugs	Aluminum alloy	With or without cable lug	8	2.5
71								
80								
90								
100			4				10	
112								
132			6					
160		M5	16					
180		M6	25		Cast iron	With cable lug		
200								
225		M8	35					
		M10	120					
250								
		M12	240					

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Connection, circuit and terminal boxes

Terminal box type

The terminal box contains all the electrical connections that are installed in the motor. Different terminal box sizes are used depending on the connections required.

The dimensions of terminal boxes can be found in chapter "Motors" from page 9/46.

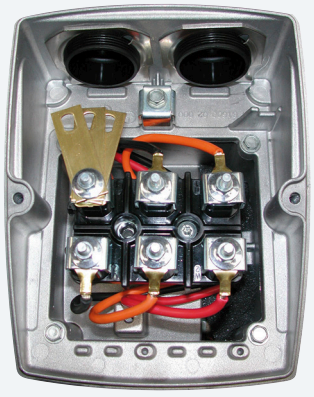

Fig. 11-12 Terminal box type gk030, TB1E00, TB1F00, TB1H00, TB1J00

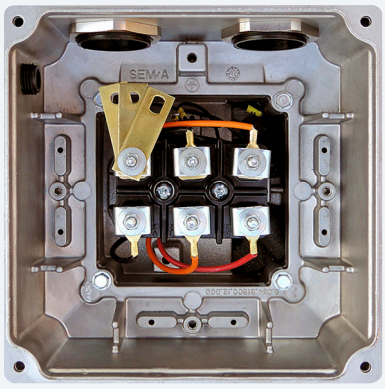

Fig. 11-13 Terminal box type gk127, TB1E10, TB1F10, TB1H10, TB1J10, TB1K01, TB1L01, TB1N01

Cable entry metric

Motor frame size	Motor options				Cable entry metric	Terminal box type
	Brake	Winding protection	Heating	Application terminal box		
63... 71	Without	PTC thermistor for disconnection	Without	Without	1 x M25 x 1.5 + 1 x M20 x 1.5	gk030 [1] TB1B00 [2] TB1C10 [3]
		Winding thermostat for disconnection				
		Pt1000 resistance thermometer				
		Without	With			
	With	No restriction				gk127 [1] [4] TB1B10 [2] / TB1C10 [3]
80 ... 90	Without	PTC thermistor for disconnection	No restriction	Without		TB1E00
		Winding thermostat for disconnection				
		Pt1000 resistance thermometer				
	With	No restriction				TB1E10
100... 112	Without	PTC thermistor for disconnection	No restriction	Without	2 x M32 x 1.5	TB1F00
		Winding thermostat for disconnection				
		Pt1000 resistance thermometer				
	With	No restriction				TB1F10
132	Without	PTC thermistor for disconnection	No restriction	Without		TB1H00
		Winding thermostat for disconnection				
		Pt1000 resistance thermometer				
	With	No restriction				TB1H10
160	Without	PTC thermistor for disconnection	No restriction	Without	2 x M40 x 1.5	TB1J00
		Winding thermostat for disconnection				
		Pt1000 resistance thermometer				
	With	No restriction				TB1J10
180	Without	No restriction				TB1K01
	With					TB1J01 [2]
200	Without	No restriction			2 x M50 x 1.5	TB1L01
	With					
225	Without	No restriction		–		TB1L01
	With			–		TB1N01
250	Without	No restriction		–	2 x M63 x 1.5	TB1N01
	With			–		

[1] Terminal boxes with 9 terminals (circuit YY/Y) terminal box type TB1E10
[2] Terminal box type for explosion-protected motors in Zone 22
[3] Terminal box type for explosion-protected motors in Zone 2
[4] Brake motors in UL-R and CSA version, terminal box type TB1E10

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Connection, circuit and terminal boxes

Cable entry NPT

The cable entry with national pipe thread (NPT) can be ordered as an option. The dimensions of terminal boxes can be found in chapter "Motors" from page 9/46.

Note:
The cable entry with NPT thread cannot be selected for explosion-protected motors (MB motors).

Terminal box option	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Cable entry NPT		**M45**

Motor frame size	Cable entry NPT	Terminal box type
63… 71	2 x 1/2"	gk127 [1] [2]
80… 90		TB1E10
100… 112	3/4" + 1/2"	TB1F10
132		TB1H10
160	1 1/4" x 1/2"	TB1J10
180	1 1/2" x 1/2"	TB1K01
200… 225		TB1L01
250	2 1/2" x 1/2"	TB1N01

1) For terminal boxes with 9 terminals (circuit YY/Y) terminal box type TB1E10
2) For brake motors in UL-R and CSA version, terminal box type TB1E10

Terminal box cast

Motors can be supplied with the bottom half of the terminal box cast onto the motor housing in order to prevent water ingress into the housing.

In this case, no further changes can be made to the position of the terminal box.

Note:
The terminal box cast cannot be selected in conjunction with explosion-protected motors (MB motors) or worm geared motors S.

Terminal box option	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Terminal box cast		**M53**

External grounding

Standard IEC 60034 specifies additional external grounding for motors with ratings of 100 kW and higher. For motors, frame sizes 63 up to 160, this is optionally available.

Motors in frame sizes 180 to 250 and explosion-protected motors in frame sizes MB71 to MB180 are supplied as standard with external grounding.

Terminal box option	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
External grounding		**N53**

Maximum conductor connection for external grounding

Motor frame size	Thread size
63… 90	M4
100… 112	M5
132… 180	M6
200	2 x M6
225… 250	2 x M8

Modular system in combination with motor connection and terminal box

Modular system	Encoder system	Brake					Self ventilation Forced ventilation	Backstop	Second shaft extension
		Without	With manual release		Microswitch				
		Manual brake release	Without locking mechanism	With locking mechanism [1]	Brake release monitoring [2]	Wear monitoring			
Terminal box	✓	✓	✓	✓	✓	On request	✓	✓	✓
Motor plug	✓	✓	✓	✓	–	On request	✓	✓	✓

1) Only manual brake release with locking mechanism can be selected for motor frame sizes 225 and 250.
2) Can be selected from brake type L32 or higher.

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Overview

The motor plug is supplied ready for use, and replaces the terminal box with terminal board.

Motor plugs are also available in an EMC design. A counterplug can also be provided.

In the basic design, the motor plug is in position B, see page 11/19. The dimensions depend on the motor frame size.

Particularly in cases where a brake with a manual release lever is used in the direction of the non-drive end (NDE), a check must be made to ensure that the motor plug does not collide with the manual release lever in the direction of the drive end (DE).

The main advantages of a motor plug over a terminal box with terminals are as follows:

- Peripheral equipment can be quickly installed
- Reduction of installation and repair times for end users
- No wiring errors as a result of the plug system
- Replacement of a geared motor without having to make any intervention in the electronics

The winding connections and, optionally, the power supply for the brake and the signal cables for the temperature sensors are connected in the plug housing.

Note:
It is not possible to use a motor plug with explosion-protected motors.

HAN 10E motor plug

The motor plug is compatible with the products from the ECOFAST field device system. It is available for motor frame sizes 63 to 132 and can be used for line voltages at the motor plug ≤ 500 V and rated currents ≤ 16 A.

The motor plug can be used in the ambient temperature range from –40 up to +60 °C. A special design is required for higher temperatures.

The motor connection (star or delta connection) is selected by the customer.

Technical specifications

Number of contacts	10 + e
Max. voltage	500 V
Max. current load per PIN	16 A
Degree of protection	IP65

Motor plug	Additional identification code **-Z** with order code	
	2KJ3… -…..-…..**-Z**	Order code
HAN 10E motor plug (2 brackets) [1]		**N00**
HAN 10E motor plug (2 brackets) EMC [1]		**N01**
HAN 10E motor plug (1 bracket) [1]		**N04**
HAN 10E motor plug (1 bracket) EMC [1]		**N06**
HAN 10E counterplug [1]		**N18**

[1] Not possible for worm geared motors S

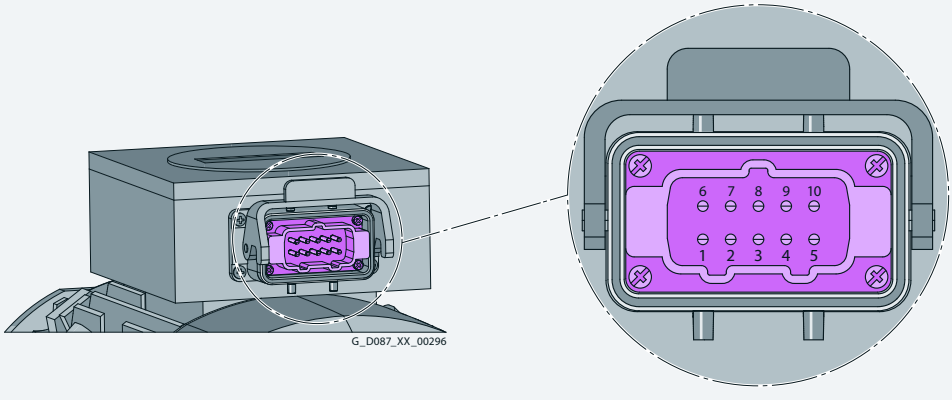

Fig. 11-14 HAN 10E motor plug with pin assignments

Connection assignment

PIN	1	2	3	4	5	6	7	8	9	10	PE
Connection	U1	V1	W1	Brake	Brake	W2	U2	V2	Temperature-dependent winding protection		Protective conductor

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Motor plug

HAN 10E motor plug

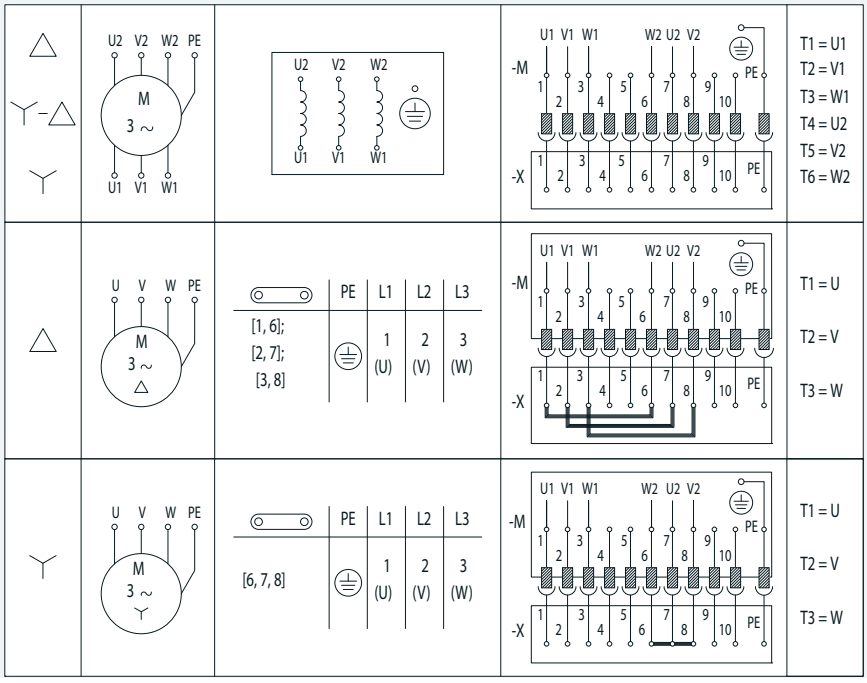

Fig. 11-15 Connection circuit diagram for motor winding

HAN K4/4 motor plug

The motor plug is available for motor frame sizes 132 up to 200, and can be used for line voltages ≤ 690 V at the power connection and ≤ 250 V at the control connection – as well as rated currents ≤ 63 A at the power connection and ≤ 16 A at the control connection. The jumpers are connected to the terminal board at the factory depending on the selected circuit or voltage.

Technical specifications

Number of contacts	4 + 4 + e
Max. voltage, power range	690 V (pollution degree [3])
Max. voltage, power range in the UL/CSA version	600 V (pollution degree [3])
Max. current load, power range per PIN	63 A
Max. voltage, control range	250 V (pollution degree [3])
Max. voltage, control range in the UL/CSA version	230 V (pollution degree [3])
Max. current load, control range per PIN	16 A
Degree of protection (interlocked)	IP65

Motor plug	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
HAN K4/4 motor plug (1 bracket) [1]		**N08**
HAN K4/4 motor plug (1 bracket) EMC [1]		**N09**
HAN K4/4 motor plug (2 brackets) [1]		**N10**
HAN K4/4 motor plug (2 brackets) EMC [1]		**N11**
HAN K4/4 counterplug [1]		**N19**

[1] Not possible for worm geared motors S

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HAN K4/4 motor plug

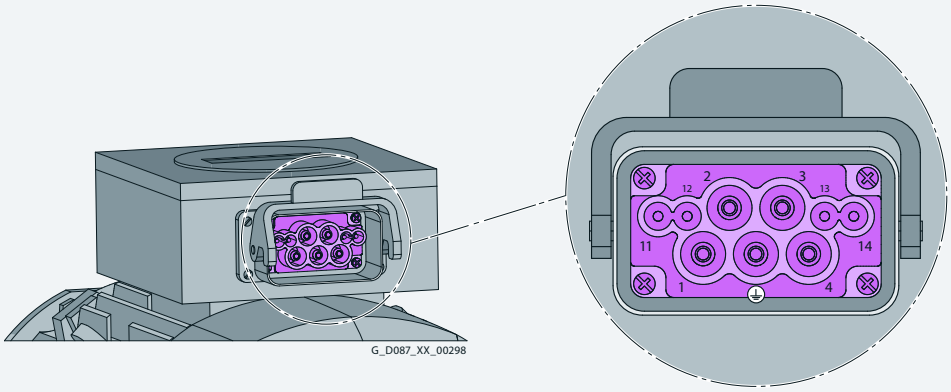

Fig. 11-16 HAN K4/4 motor plug with pin assignments

Connection assignment

PIN	1	2	3	4	11	12	13 14	PE
Connection	U	V	W	–	Brake	Brake	Temperature-dependent winding protection	Protective conductor

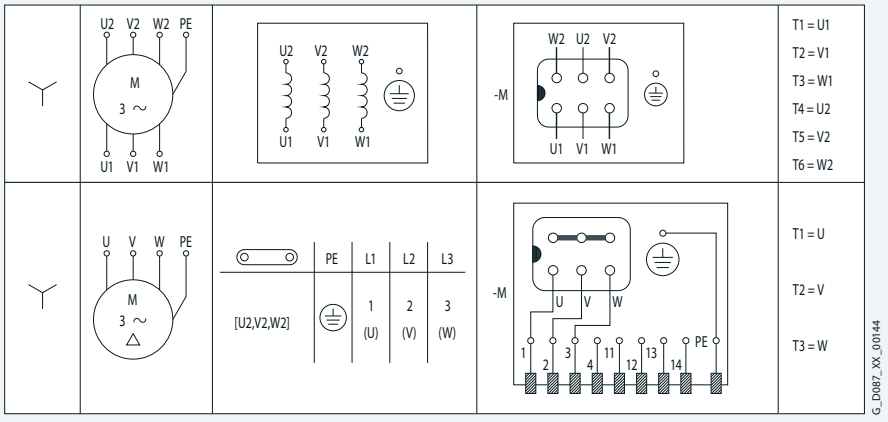

Fig. 11-17 Connection circuit diagram for motor winding Y connection

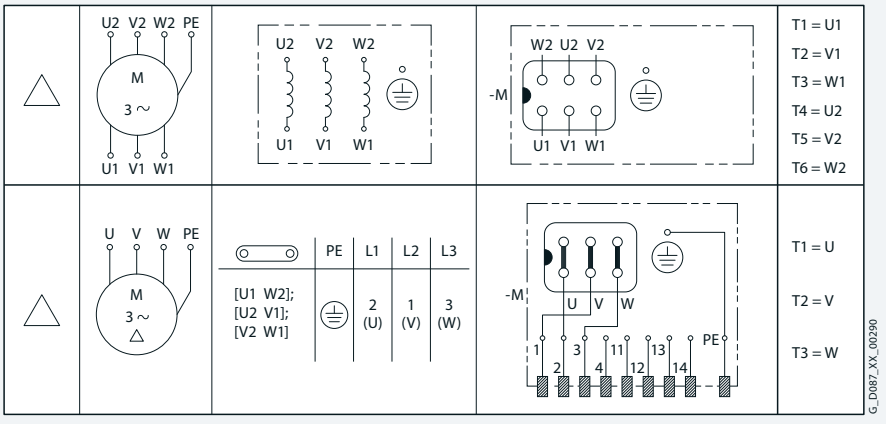

Fig. 11-18 Connection circuit diagram for motor winding Δ connection

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HAN Q8 motor plug

The motor plug is available for motor frame sizes 63 to 132 and can be used for line voltages ≤ 500 V as well as rated currents ≤ 16 A. The jumpers are connected to the terminal board at the factory depending on the selected circuit or voltage.

Motor plug	Additional identification code **-Z** with order code	
	2KJ3… -…..-…..**-Z**	Order code
HAN Q8 motor plug (1 bracket) EMC [1]		**N12**

[1] Not possible for worm geared motors S

Technical specifications

Number of contacts	8 + e
Max. voltage	500 V (pollution degree 3)
Max. current load per PIN	16 A
Degree of protection (interlocked)	IP65

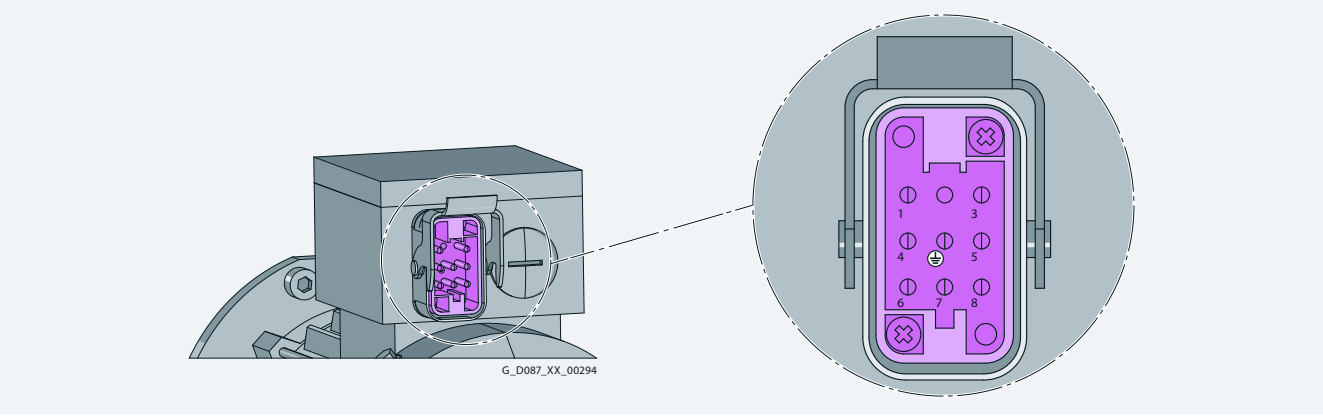

Fig. 11-19 HAN Q8 motor plug with pin assignments for motor frame sizes 63 and 71

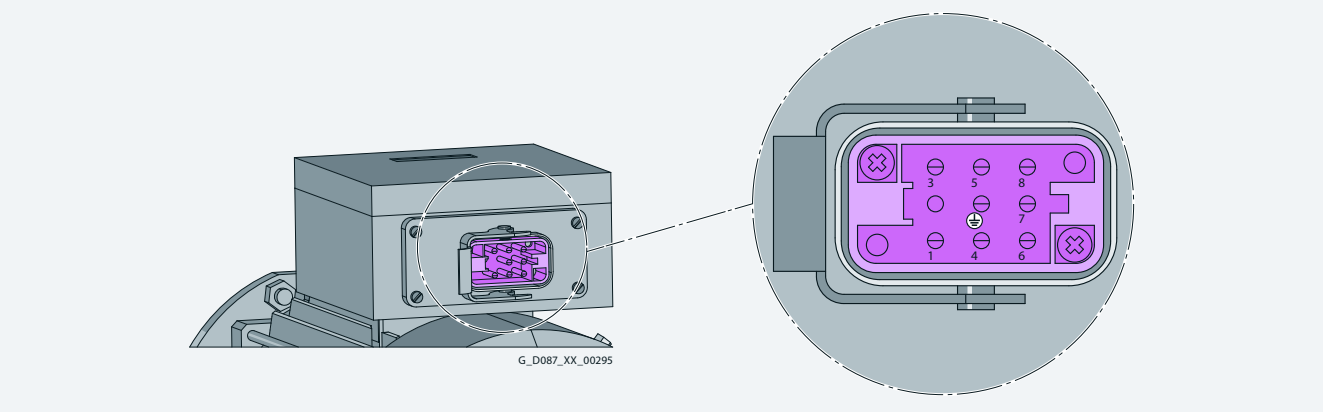

Fig. 11-20 HAN Q8 motor plug with pin assignments for motor frame sizes 80 to 132

Connection assignment

PIN	1	2	3	4	5	6	7	8	PE
Connection	U	–	W	Brake	Temperature-dependent motor protection	Brake	V	Temperature-dependent motor protection	Protective conductor

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HAN Q8 motor plug

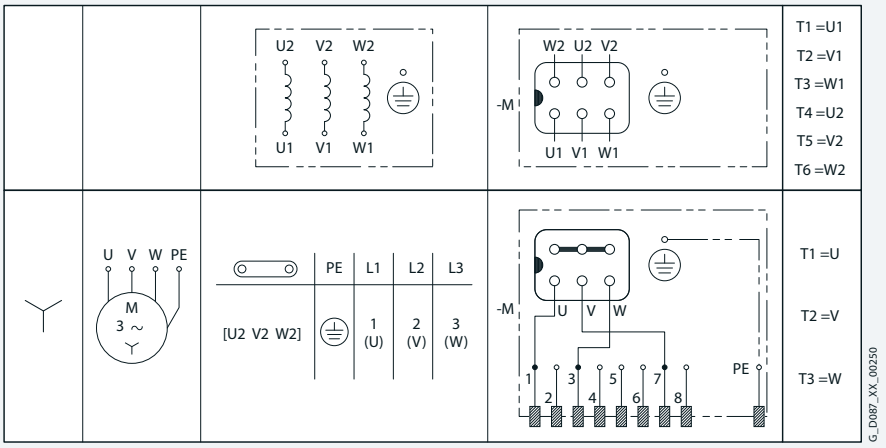

Fig. 11-21 Connection circuit diagram for motor winding Y connection

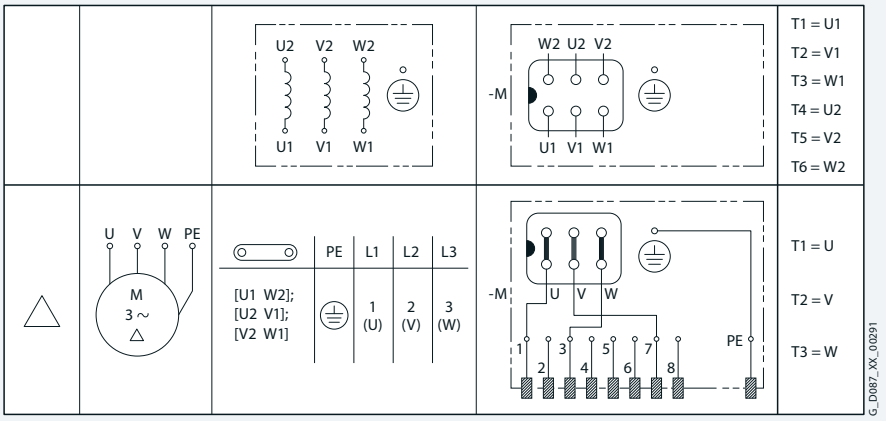

Fig. 11-22 Connection circuit diagram for motor winding Δ connection

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HAN Q8 motor plug with cable

The motor plug with cable is available for motor frame sizes 63 to 112 and can be used for line voltages ≤ 500 V as well as rated currents ≤ 16 A.

The jumpers are connected to the terminal board at the factory depending on the selected circuit or voltage.

Technical specifications

Motor plug	
Number of contacts	8 + e
Max. voltage	500 V / UL 600 V + 10 % (pollution degree 3)
Max. current load per PIN	16 A
Degree of protection (interlocked)	IP65
Cable suitable for cable carriers	
Rated voltage	
_ Power conductors U_0/U	600 / 1000 V
_ Signal conductors U_0/U	300 V
Operating temperature on the surface	
_ Permanently installed	−50 °C ... +90 °C
_ Moving	−30 °C ... +80 °C
Smallest bending radius	
_ Permanently installed	5 x outer diameter
_ Moving	12 x outer diameter
Bending operations	Typ. 2 x 10^6 cycles
Oil resistance	DIN VDE 0282 Part 10 + HD22.10
Outer jacket	Polyurethane (PUR)
Design	4x1.5 mm^2+2x(2x0.75 mm^2) (shielded)
Outer diameter	11.7 ... 12.7 mm

Note:
For the HAN Q8 motor plug version with 0.5 m cable (order code **K50**), the plug insert is rotated through 180° in the plug housing, see Fig. 11-24.

Note:
At ambient temperatures below −30 °C, the HAN Q8 motor plugs with cables can only be used with permanently installed cables.

Note:

Motor plug	Additional identification code **-Z** with order code	
	2KJ3... -.....-....**-Z**	Order code
HAN Q8 motor plug with 0.5 m cable (plug insert rotated through 180°)		**K50**
HAN Q8 motor plug with 1 m cable		**K51**
HAN Q8 motor plug with 2 m cable		**K52**
HAN Q8 motor plug with 3 m cable		**K53**
HAN Q8 motor plug with 4 m cable		**K54**
HAN Q8 motor plug with 5 m cable		**K55**

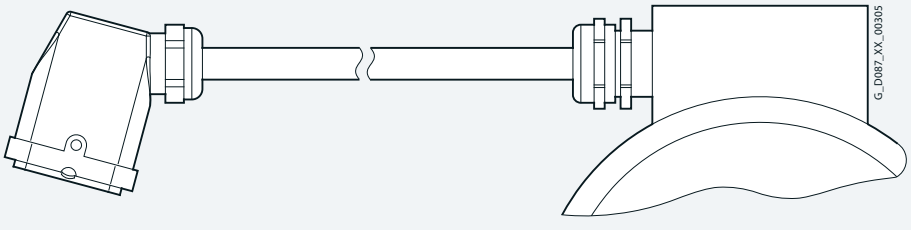

Fig. 11-23 HAN Q8 motor plug with cable

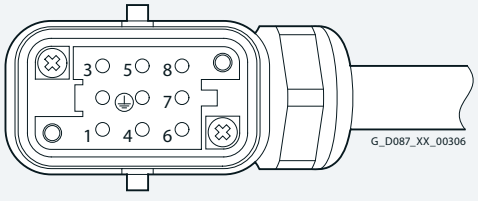

Fig. 11-24 Pin assignments for motor plug with 0.5 m cable, plug insert rotated by 180°

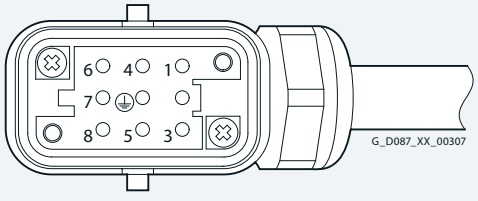

Fig. 11-25 Pin assignments for motor plug with 1 m to 5 m cable, plug insert rotated by 0°

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HAN Q8 motor plug with cable

Connection assignment

PIN	1	2	3	4	5	6	7	8	PE
Connection	U	–	W	Brake	Temperature-dependent motor protection	Brake	V	Temperature-dependent motor protection	Protective conductor

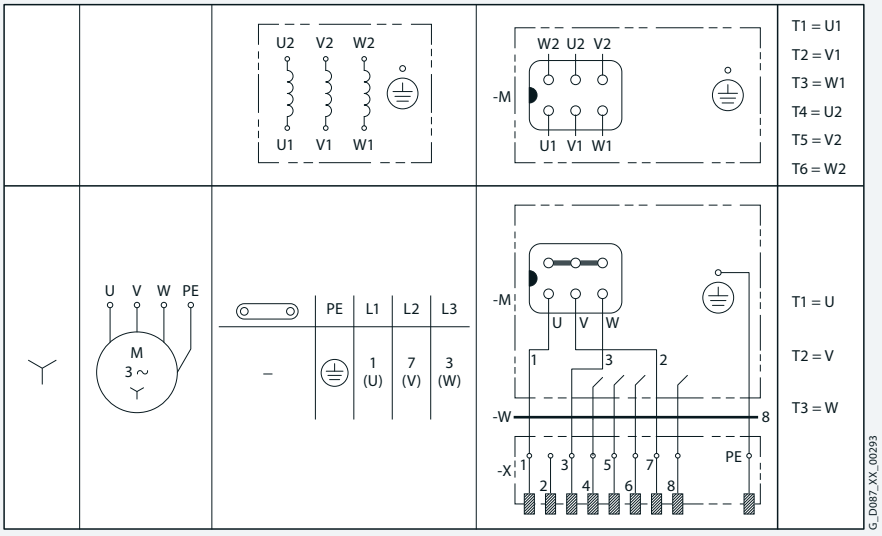

Fig. 11-26 Connection circuit diagram for motor winding Y connection

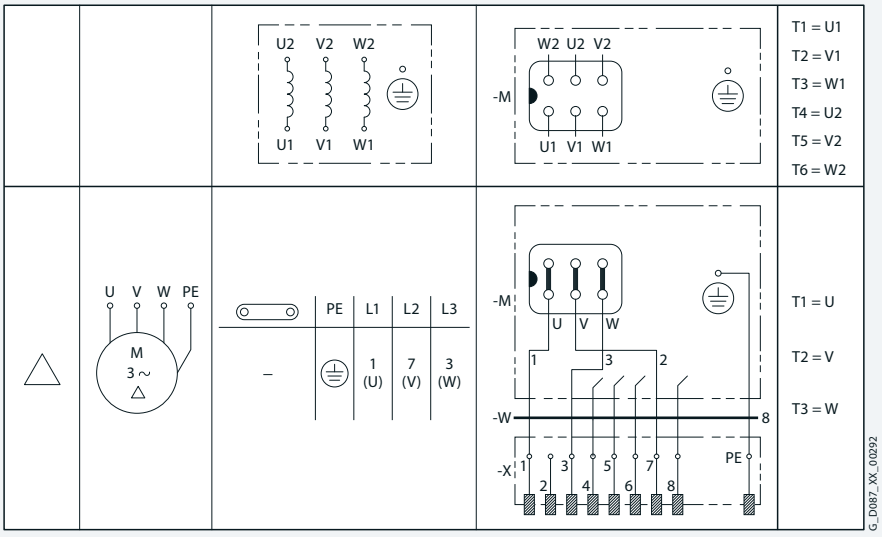

Fig. 11-27 Connection circuit diagram for motor winding Δ connection

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HAN Q12 motor plug

The motor plug is available for motor frame sizes 63 to 90 and can be used for line voltages ≤ 400 V as well as rated currents ≤ 10 A. The customer selects the motor connection (star or delta connection).

Motor plug	Additional identification code **-Z** with order code	
	2KJ3… -…..-…..**-Z**	Order code
HAN Q12 motor plug (1 bracket) EMC [1]		**N13**

[1] Not possible for worm geared motors S

Technical specifications

Number of contacts	12 + e
Max. voltage	400 V (pollution degree [3])
Max. current load per PIN	10 A
Degree of protection (interlocked)	IP65

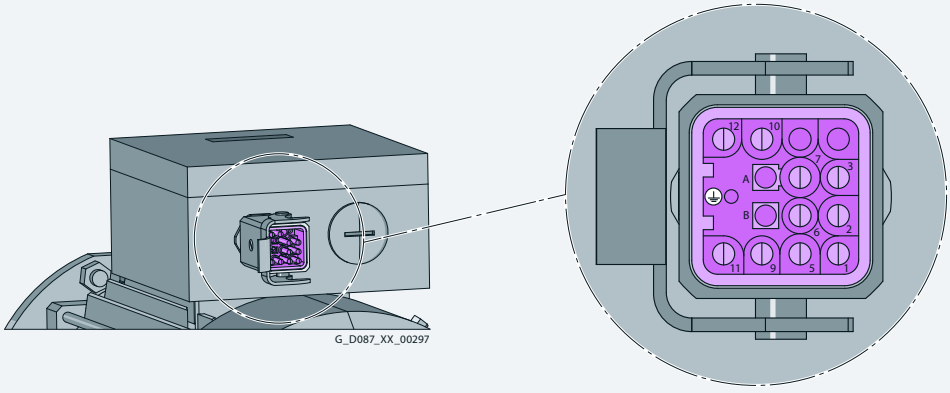

Fig. 11-28 HAN Q12 motor plug with pin assignments

Connection assignment

PIN	1	2	3	4	5	6	7	8	9	10	11	12	PE
Connection	U1	V1	W1	–	W2	U2	V2	–	Brake	Temperature-dependent winding protection	Brake	Temperature-dependent winding protection	Protective conductor

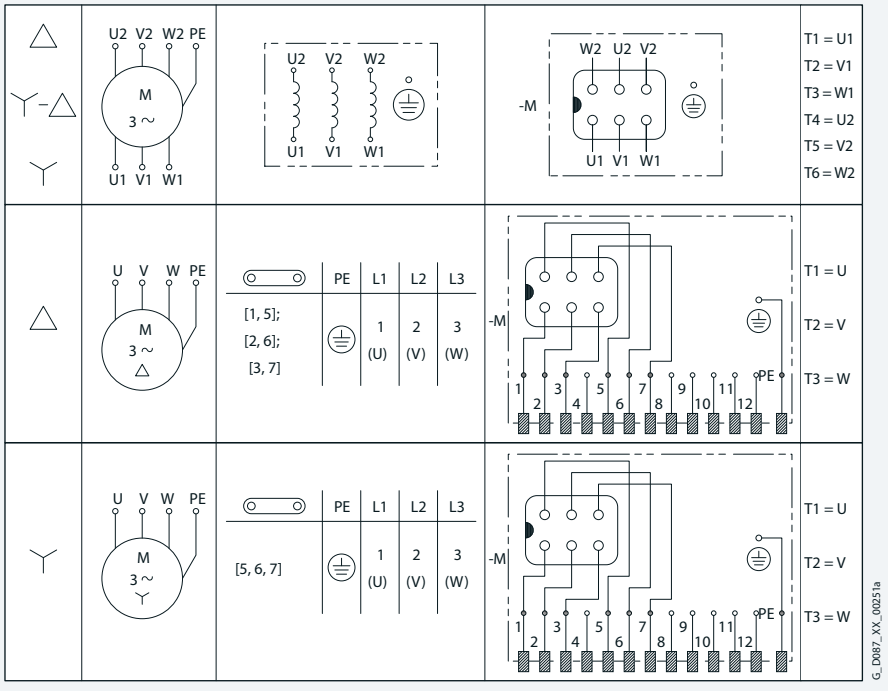

Fig. 11-29 Connection circuit diagram for motor winding

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Overview

The Innomotics SG geared motors can be supplied with electrically releasable spring-loaded brakes in order to reduce the motor run-on time or to hold loads, for example.

Design and principle of operation

The spring-loaded brakes have two friction surfaces. When the brake is in a zero current state, a braking torque is generated using several springs.

The brake is released electromagnetically. When the motor brakes, the rotor, which can be axially shifted on the hub or the shaft, is pressed via the armature disk against the friction surface by means of the springs. In the braked state, there is a gap between the armature disk and the solenoid component.

To release the brake, the solenoid is energized with DC voltage. The resulting magnetic force attracts the armature disk onto the solenoid component against the spring force.

The spring force is then no longer applied to the rotor, which can now rotate freely.

Our MODULOG modular system allows several brake sizes to be used with one motor frame size. This chapter specifies the assignment to the motor frame sizes and possible brake options.

Note:
The standard design L brakes are not suitable for ambient temperatures below −20 °C. To use them at lower temperatures, the increased corrosion protection option (order code **C10**) must be selected, see page 11/43.

L brakes can also be designed as functionally safe LS brakes (order code **C09**).
The selection of the LS brakes can be found in the table "Brake assignment of the LS brakes with functional safety" on page 11/35.

Operation at ambient temperatures above 45 °C requires a reduction in the switch-on duration of the brake.

For FDX brakes, a fast switching rectifier must always be used to ensure reliable control and to increase the wear reserve. The brake is released with twice the nominal voltage. The current-carrying capacity and the ambient conditions (especially in the high-temperature range >45 °C) must be taken into account.

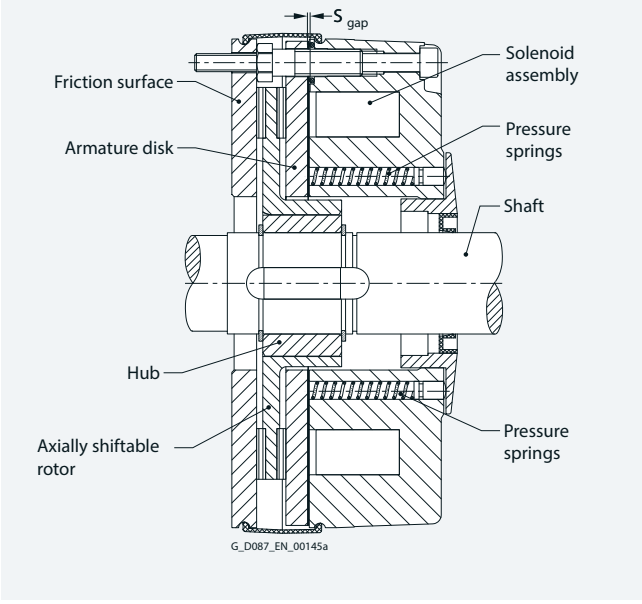

Fig. 11-30 L brake

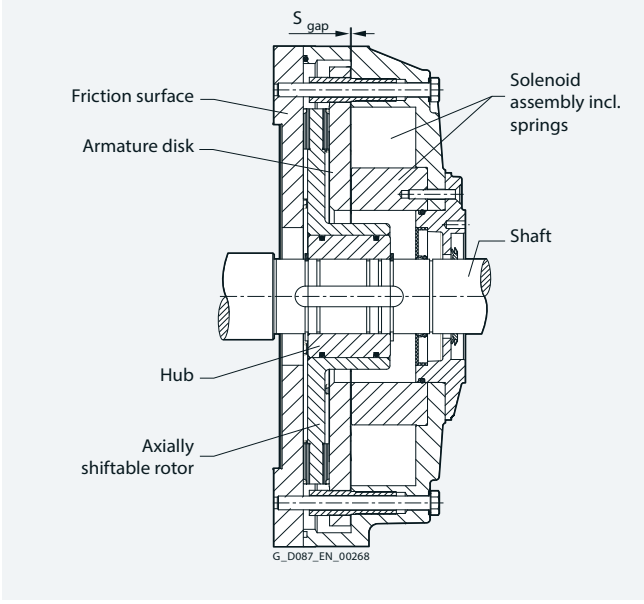

Fig. 11-31 FDX brake

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Selecting the brakes

Our MODULOG modular system allows several brake sizes to be used with one motor frame size. In the following tables, you can see the respective assignment of the L, FDX and LS brakes with functional safety

Brake assignment of the L brakes

Brake type	Braking torque M_2	Motor frame size												Additional identification code **-Z** with order code	
	Nm	63	71	80	90	100	112	132	160	180	200	225	250	2KJ3… -…..-….-**Z**	Order code
L4/1.4	1.4	❍	❍	❍											**B01**
L4/2	2	❍	❍	❍											**B02**
L4/3	3	❍	❍	❍											**B03**
L4	4	❑	❑	❍											**B00**
L4/5	5	❍	❍/EX	❍											**B57**
L8/3	3		❍ [1]	❍	❍										**B05**
L8/4	4		❍ [1]	❍	❍										**B06**
L8/5	5		❍ [1]	❍	❍										**B07**
L8/6.3	6.3		❍ [1]	❍	❍										**B08**
L8	8		❍ [1]	❑	❍										**B04**
L8/10	10		❍ [1]	❍/ EX	❍										**B09**
L16/8	8			❍	❍	❍									**B14**
L16/10	10			❍	❍	❍									**B11**
L16/13	13			❍	❍	❍									**B12**
L16	16			●	❑	❍									**B10**
L16/20	20				❍/ EX	❍									**B13**
L32/14	14				❍	❍	❍								**B66**
L32/18	18				❍	❍	❍								**B16**
L32/23	23				❍	❍	❍								**B17**
L32	32				❍	❑	❑								**B15**
L32/40	40					❍/ EX	❍								**B18**
L60/25	25					❍	❍								**B67**
L60/38	38					❍	❍								**B20**
L60/50	50					❍	❍								**B21**
L60	60						❍/ EX								**B19**
L80/25	25							❍							**B24**
L80/35	35							❍							**B25**
L80/50	50							❍							**B26**
L80/63	63							❍							**B27**
L80	80							❑							**B22**
L80/100	100							❍/ EX							**B23**
L150/45	45							❍	❍						**B43** [3]
L150/60	60							❍	❍						**B31**
L150/80	80							❍	❍						**B32**
L150/100	100							❍	❍						**B29**
L150/125	125							❍	❍						**B30**
L150	150							❍	❑						**B28**
L260/80	80								❍	❍	❍				**B44** [3]
L260/100	100								❍	❍	❍				**B34**
L260/145	145								❍	❍	❍				**B35**
L260/180	180								❍	❍	❍				**B36**
L260/200	200								❍	❍	❍				**B37**
L260/240	240								❍	❍	❍				**B38**
L260	260								❍/ EX	❑	❑				**B33**
L260/315	315									❍/ EX [2]	❍				**B58**
L400/145	145										❍	❍			**B45** [3]
L400/175	175										❍	❍			**B46** [3]
L400/265	265										❍	❍			**B40**
L400/300	300										❍	❍			**B41**
L400/360	360										❍	❍			**B42**
L400	400										❍	❍			**B39**
L400/600	600										●	●			**B59**

❑ Standard assignment
❍ Working brake and holding brake
● Can only be used as holding brake

[1] Not possible for worm geared motors S
[2] Holding brake for explosion-protected motors in Zone 2
[3] Limited supply voltages, see page 11/36 for more information
EX brake available for explosion-protected motors

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Selecting the brakes

Brake assignment of the FDX brakes

Brake type	Braking torque M_2	Motor frame size		Additional identification code **-Z** with order code	
	Nm	225	250	2KJ3… -…..-….**-Z**	Order code
FDX30/265	265	❍	❍		**B50**
FDX30/300	300	❍	❍		**B51**
FDX30/360	360	❍	❍		**B52**
FDX30/400	400	❑	❍		**B53**
FDX30/500	500	❍	❍		**B54**
FDX30/650	650	❍	❍		**B55**
FDX30/750	750		❍		**B56**
FDX30/850	850		❍		**B64**
FDX40/650	650		❍		**B60**
FDX40/750	750		❍		**B61**
FDX40/850	850		❑		**B62**
FDX40/1000	1 000		❍		**B63**

❑ Standard assignment
❍ Working brake and holding brake

Brake assignment of the LS brakes with functional safety

Brake	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Functionally safe brake/LS brake (Not possible for worm geared motors S)		**C09**

Brake type	Braking torque M_4	Motor frame size									Additional identification code **-Z** with order code	
	Nm	71	80	90	100	112	132	160	180	200	2KJ3… -…..-….**-Z**	Order code
LS4/3	2.4	●	●									**B03 + C09**
LS4	3.2	❑	●									**B00 + C09**
LS4/5	4.0	●	●									**B57 + C09**
LS8/6.3	5.0	●	●	●								**B08 + C09**
LS8	6.4	●	❑	●								**B04 + C09**
LS8/10	8.0	●	●	●								**B09 + C09**
LS16/10	8.0		●	●	●							**B11 + C09**
LS16/13	10.4		●	●	●							**B12 + C09**
LS16	12.8		●	❑	●							**B10 + C09**
LS16/20	16.0			●	●							**B13 + C09**
LS32/18	14.4			●	●	●						**B16 + C09**
LS32/23	18.4			●	●	●						**B17 + C09**
LS32	25.6			●	❑	❑						**B15 + C09**
LS32/40	32.0				●	●						**B18 + C09**
LS60/38	30.4				●	●						**B20 + C09**
LS60/50	40.0				●	●						**B21 + C09**
LS60	48.0					●						**B19 + C09**
LS80/50	40.0						●					**B26 + C09**
LS80/63	50.4						●					**B27 + C09**
LS80	64.0						❑					**B22 + C09**
LS80/100	80.0						●					**B23 + C09**
LS150/100	80						●	●				**B29 + C09**
LS150/125	100						●	●				**B30 + C09**
LS150	120						●	❑				**B28 + C09**
LS260/180	144							●	●	●		**B36 + C09**
LS260/200	160							●	●	●		**B37 + C09**
LS260/240	192							●	●	●		**B38 + C09**
LS260	208							●	❑	❑		**B33 + C09**
LS260/315	252								●	●		**B58 + C09**
LS400/265	212.0									●		**B40 + C09**
LS400/300	240									●		**B41 + C09**
LS400/360	288									●		**B42 + C09**
LS400	320									●		**B39 + C09**
LS400/600	480									●		**B59 + C09**

❑ Standard assignment (holding brake)
● Holding brake

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Connecting the brake

Labeled terminals are provided in the main terminal box of the motor to connect the brake.

Connection circuit diagram with AC or DC control

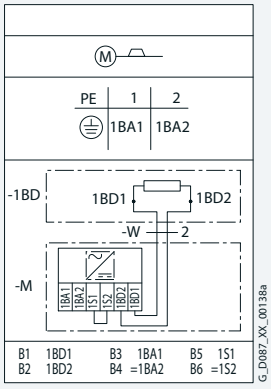

Fig. 11-32 Connection circuit diagram with AC control voltage

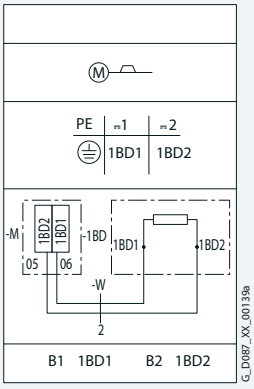

Fig. 11-33 Connection circuit diagram with DC control voltage

Function diagram of a brake switched on the AC or DC and AC sides

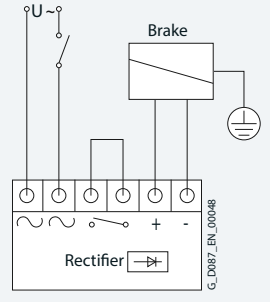

Fig. 11-34 Function diagram of a brake switched on the AC side

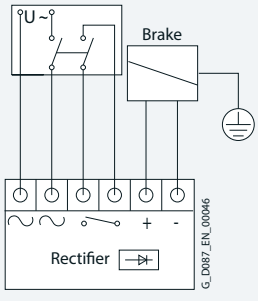

Fig. 11-35 Function diagram of a brake switched on the DC and AC sides

Supply voltages

The following supply voltages are available for brakes.

Supply voltage	Possible specifications for geared motors					Brake type		Rectifier		Coil voltage		Additional identification code **-Z** with order code	
	CE, UKCA	UL-R/ CSA	China, EAC, BIS	Ex-port [1]	ATEX	L/LS	FDX	L/LS brake	FDX brake	L/LS brake	FDX brake	2KJ3… -…..-….**-Z**	Order code
DC voltages													
24 V DC ± 10 %	✓	✓	✓	✓	✓	✓	–	–	–	–	–		**C66** [5]
103 V DC ± 10 %	✓	✓	✓	✓		✓	✓	–	–	–	–		**C52** [5]
180 V DC ± 10 %	✓	✓	✓	✓	✓	✓	✓	–	–	–	–		**C53**
205 V DC ± 10 %	✓	✓	✓	✓	✓	✓	✓	–	–	–	–		**C64**
AC voltages [2] [3]													
200 V AC ± 10 %	✓	✓ [1]	✓	✓		✓	✓	Rectifier bridge	Rectifier PMG	180 V DC	103 V DC		**C45**
230 V AC ± 10 %	✓	✓ [1]	✓	✓		✓	✓	Half-wave rectifier		103 V DC	103 V DC		**C46** [5]
380 V AC ± 10 %	✓	✓ [1]	✓	✓		✓	✓			180 V DC	180 V DC		**C48**
400 V AC ± 10 %	✓	✓ [1]	✓	✓		✓	✓			180 V DC	180 V DC		**C47**
415 V AC ± 10 %	✓	✓ [1]	✓	✓		✓	✓			180 V DC	180 V DC		**C50**
460 V AC ± 10 %	✓	✓ [1]	✓	✓		✓	✓			205 V DC	205 V DC		**C63**
AC voltages with function rectifier with disconnection on the DC side using current or voltage sensing [2] [4]													
230 V AC ± 10 %	✓	✓	✓	✓		✓	–	Function rectifier	–	103 V DC	–		**C72** [5]
400 V AC ± 10 %	✓	✓	✓	✓		✓	–		–	205 V DC	–		**C47**
460 V AC ± 10 %	✓	✓	✓	✓		✓	–		–	215 V DC	–		**C74** [5]

[1] Not possible for worm geared motors S.
[2] AC voltages for the functionally safe brake (LS brake) are not available.
[3] AC voltages are available for ambient temperatures up to 45 °C.
[4] For the AC voltages with function rectifier, for the current sensing, order code **C59** must be specified or for voltage sensing, order code **C60**. More information for the current and voltage sensing is provided on page 11/38.
[5] Supply voltages are not available for **B43**, **B44**, **B45** and **B46** brakes.

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Brake control

The brakes are released by DC voltage. The brake is controlled by the DC supply voltage in systems without a rectifier, or by the AC supply voltage in systems with a rectifier. Half-wave rectifiers or rectifier bridges are used as rectifiers.

Note:
For deviating ambient temperatures, we recommend the use of a rectifier in the control cabinet.

Explosion-protected motors (MB motors) are supplied without a rectifier. When using a rectifier, it is recommended that this is installed in the control cabinet.

Overview

Brake type	DC voltages	AC voltages	Switching frequency	Ambient temperature
L brake	Without rectifier	Rectifier	No restriction	−30 °C ... +45 °C [1]
	Without rectifier	Function rectifier	See section "Function rectifier" on page 11/38	See section "Function rectifier" on page 11/38
LS brake	Without rectifier	–	No restriction	−20 °C ... +40 °C
FDX brake	Without rectifier	PMG rectifier	See table "Switching frequency of PMG rectifiers"	−40 °C ... +45 °C [1]

[1] Reduced switch-on duration above 45 °C: at 50 °C: S3–85 %; at 60 °C: S3–70 %

Switching frequency of PMG rectifiers

Duty cycle/switching frequency for the 205 V DC brake solenoid

Supply voltage	Switching frequency s/h^{-1}														
V_{AC}	1	10	20	30	40	50	60	70	80	90	100	110	120	130	140
410 ... 480 V AC															
410	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
420	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
440	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.40	98.53	97.66	96.80	95.93	95.06
460	98.08	97.21	96.34	95.48	94.61	93.74	92.88	92.01	91.14	90.28	89.41	88.54	87.68	86.81	85.94
480	90.07	89.21	88.34	87.47	86.61	85.74	84.87	84.01	83.14	82.27	81.41	80.54	79.67	78.81	77.94

Duty cycle/switching frequency for the 180 V DC brake solenoid

Supply voltage	Switching frequency s/h^{-1}														
V_{AC}	1	10	20	30	40	50	60	70	80	90	100	110	120	130	140
380 ... 440 V AC															
380	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.54	98.67
400	100.00	99.13	98.27	97.40	96.53	95.67	94.80	93.93	93.07	92.20	91.33	90.47	89.60	88.73	87.87
410	95.18	94.31	93.45	92.58	91.71	90.85	89.98	89.11	88.25	87.38	86.51	85.65	84.78	83.91	83.05
420	90.70	89.84	88.97	88.10	87.24	86.37	85.50	84.64	83.77	82.90	82.04	81.17	80.30	79.44	78.57
440	82.64	81.78	80.91	80.04	79.18	78.31	77.44	76.58	75.71	74.84	73.98	73.11	72.24	71.38	70.51

Duty cycle/switching frequency for the 103 V DC brake solenoid

Supply voltage	Switching frequency s/h^{-1}														
V_{AC}	1	10	20	30	40	50	60	70	80	90	100	110	120	130	140
190 ... 240 V AC															
190	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
200	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
210	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
220	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.58	98.71	97.84	96.98	96.11
230	99.04	98.17	97.30	96.44	95.57	94.70	93.84	92.97	92.10	91.24	90.37	89.50	88.64	87.77	86.90
240	90.96	90.09	89.22	88.36	87.49	86.62	85.76	84.89	84.02	83.16	82.29	81.42	80.56	79.69	78.82

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Function rectifier

The following table provides an overview of brake control with function rectifiers.

Function rectifier	**High-speed rectifier + disconnection on the DC side using**	
Technical specifications	**Current sensing** [4]	**Voltage sensing** [4]
Supply voltage	220 ... 460 V_{AC} ± 10 %	220 ... 500 V_{AC} ± 10 %
Supply frequency	40 ... 60 Hz	40 ... 60 Hz
Max. output current up to an ambient temperature of +40 °C [1]	1.2 A_{DC}	1.2 A_{DC}
Ambient temperature range	Specification CE, UKCA: −25 ... +60 °C Specification UL: −25 ... +45 °C	Specification CE, UKCA: −30 ... +60 °C Specification UL: −30 ... +45 °C
Output voltage V_{DC}	0.445 x supply voltage (0.89 − max. 8 %) x supply voltage	0.445 x supply voltage (0.89 − max. 8 %) x supply voltage
Permissible continuous current of the current sensor	0.27 ... 34 A_{DC}	–
Max. switching frequency [2] [3]	76 rpm	76 rpm
Supported motors	Max. motor current 34 A	No restrictions
Supported brakes	L4 ... L400	L4 ... L400 (up to motor frame sizes 200)
Suitable for	Braking operation for fast brake release + application	Braking operation for fast brake release + application
Converter operation	Not suitable	Separate power supply required
Line operation	Direct-on-line starting	Direct-on-line Y/Δ starting
Motor starters	Not suitable	No restrictions
Operation with driving loads and/or high moment of inertia	No restrictions	Separate power supply required
Suppressor circuit	Spark suppressor	Spark suppressor
Additional identification code **-Z** with order code	**Order code**	
2KJ3... -.....-....**-Z**	**C59** [5]	**C60**

1) At higher ambient temperatures the output current decreases.
2) The specified maximum switching frequencies are upper limit values. The switching frequencies are essentially dependent on the braking power and the permissible operating energy of the brakes.
3) The maximum switching frequency is obtained from the overexcitation times and recovery times as well as switching-off in holding operation.
4) Not possible in conjunction with the functionally safe rotary encoder or the functionally safe brake (LS brake).
5) The function rectifier (order code **C59**) is connected to the terminal board at the factory depending on the selected circuit or voltage.

Duty cycle of brake motors with function rectifier

The high-speed rectifier releases the brake with overexcitation and thus reduces the maximum duty cycle (on-load factor) of the brake.

Depending on the supply voltage and the switching frequency, the maximum duty cycle of the brake solenoid can be taken from the following diagrams and tables.

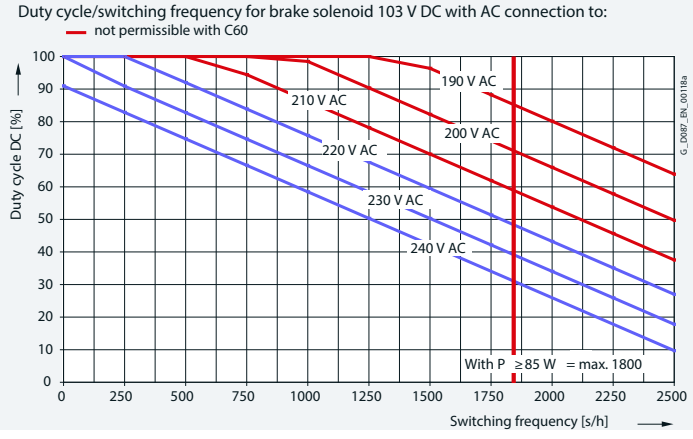

Fig. 11-36 Duty cycle/switching frequency for the 103 V DC brake solenoid

Supply voltage	**Switching frequency**										
	s/h^{-1}								up to brake size L80		
V_{AC}	1	250	500	750	1000	1250	1500	1750	2000	2250	2500
220 ... 240 V AC for separate power supply											
220	100	100	91	83	75	67	59	51	43	35	26
230	100	90	82	74	66	58	50	42	34	25	17
240	100	82	74	66	58	50	42	34	25	17	9

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Function rectifier

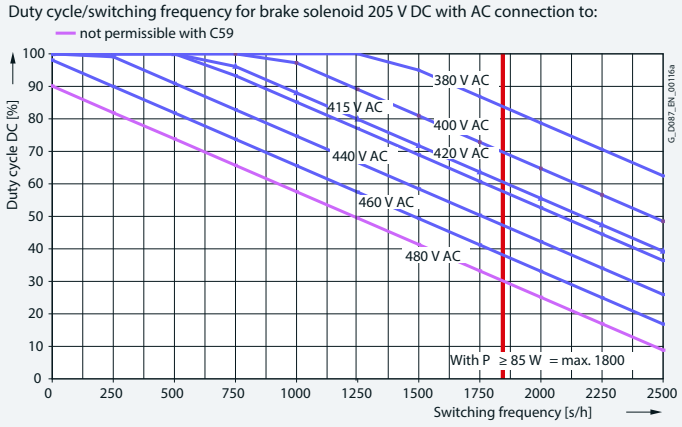

Fig. 11-37 Duty cycle/switching frequency for the 205 V DC brake solenoid

Supply voltage	Switching frequency s/h^{-1}								up to brake size L80		
V_{AC}	1	250	500	750	1000	1250	1500	1750	2000	2250	2500
400 V AC for connection at the motor terminal board											
380	100	100	100	100	100	100	94	86	78	70	62
400	100	100	100	100	97	89	80	72	64	56	48
420	100	100	100	93	85	77	68	60	52	44	36
380 ... 440 V AC for separate power supply											
380	100	100	100	100	100	100	94	86	78	70	62
400	100	100	100	100	97	89	80	72	64	56	48
440	100	99	90	82	74	66	58	50	42	34	25

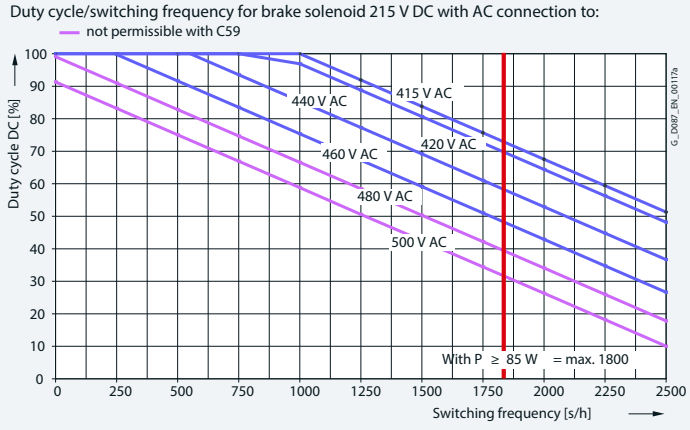

Fig. 11-38 Duty cycle/switching frequency for the 215 V DC brake solenoid

Supply voltage	Switching frequency s/h^{-1}								up to brake size L80		
V_{AC}	1	250	500	750	1000	1250	1500	1750	2000	2250	2500
410 ... 480 V AC for separate power supply [1)]											
410	100	100	100	100	100	95	87	78	70	62	54
460	100	99	91	83	75	67	59	51	42	34	26
480	100	90	82	74	66	58	50	42	34	25	17

[1)] The brake power supply voltage can be limited by the rectifier.

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Brake options

Manual brake release

The L/LS brakes can be supplied with a manual brake release lever. The manual brake release lever can be used to release the brake at zero current. When the brake has been released, the motor shaft can rotate freely in order to bring the output shaft to a certain position or for use as an emergency release in the event of a power failure, for example.

The manual brake release lever can be fixed in the released position using an additional locking mechanism mounted on the brake.

Only the manual brake release lever with locking mechanism can be selected for FDX brakes.

The manual brake release lever can be mounted in various positions. The position of the manual brake release lever relates to the standard design of the motor. The standard position is "2".

Brake options	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Manual brake release lever		**C02**
Manual brake release lever with locking mechanism		**C03**

Note:
Manual brake release lever with locking mechanism (order code **C03**) cannot be selected in conjunction with the following options:

- Explosion-protected motors (MB motors)
- Worm geared motors S

For explosion-protected motors (MB motors), it is only permissible that the manual brake release lever (order code **C02**) is mounted at the side or facing downward.
Use the functionality of the SPC for the precise dimensioning.

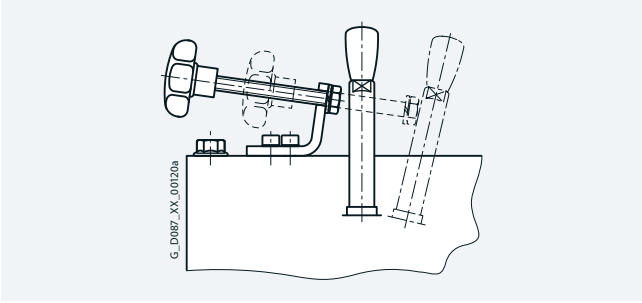

Fig. 11-39 Example of manual brake release lever with locking mechanism for L/LS brake

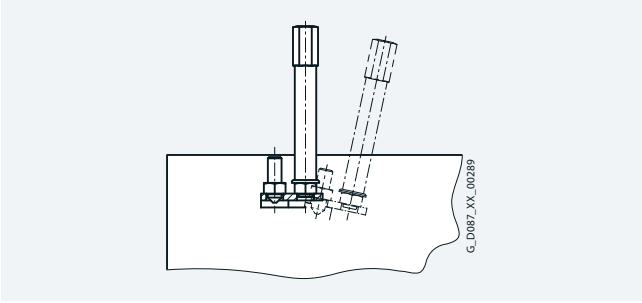

Fig. 11-40 Example of manual brake release lever with locking mechanism for FDX brake

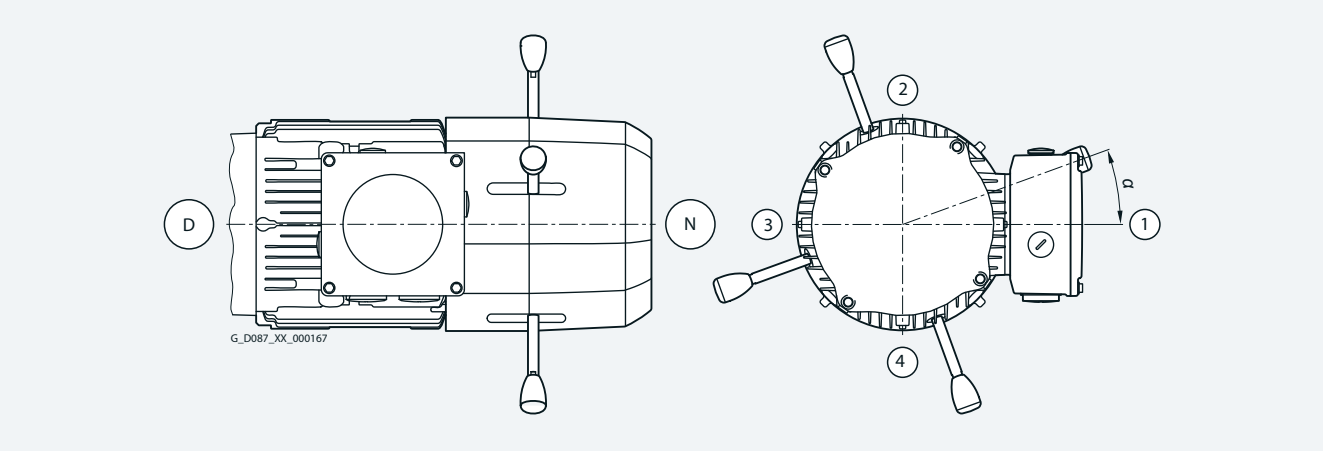

Fig. 11-41 Manual brake release lever position

Manual brake release lever position	Motor frame size														Additional identification code **-Z** with order code	
	63 [1]	71 [1]	63	71	80	90	100	112	132	160	180	200	225	250	2KJ3… -…..-….**-Z**	Order code
	Angle α															
1	0°	0°	0°	10°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°		**C26**
2	90°	90°	90°	100°	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°		**C27**
3	180°	180°	180°	190°	180°	180°	180°	180°	180°	180°	180°	180°	180°	180°		**C28**
4	–	–	270°	280°	270°	270°	270°	270°	270°	270°	270°	270°	270°	270°		**C29**

[1] Only for worm geared motors S

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Brake options

The dimensions of the manual brake release lever depend on the frame size.

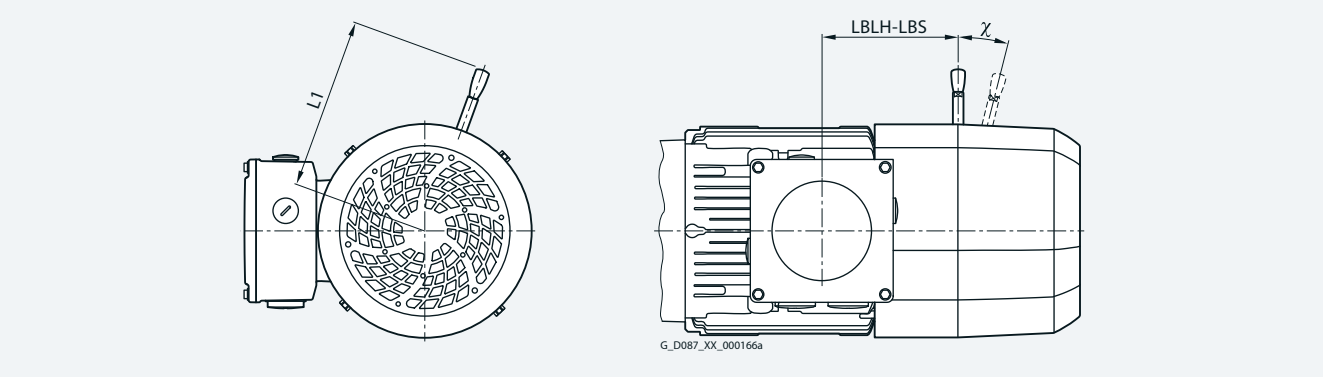

Fig. 11-42 Dimensions, manual brake release lever

Motor frame size	Brake type	Terminal box position	Distance				Angle, manual brake release lever	Thread, manual brake release lever
			Centerline of the motor up to the outermost position of the manual brake release lever		Center of the terminal box up to the center of the manual brake release lever		With the brake released	
			Without locking mechanism	With locking mechanism	Standard corrosion protection	Increased corrosion protection		
			mm	mm	mm	mm	Tolerance +3°	
			L1	**L1**	**LBLH-LBS**	**LBLH-LBS**	**χ**	
63 [1]	L4 / LS4	1A, 2A, 3A, 4A	107	–	97.4	97.4	12°	M5
71 [1]	L4 / LS4	1A, 2A, 3A, 4A	107	–	130.8	130.8	12°	M5
63	L4 / LS4	1A, 2A, 3A, 4A	107	127	83.3	83.3	12°	M5
71	L4 / LS4	1A, 2A, 3A, 4A	107	127	71.8	71.8	12°	M5
	L8 / LS8	1A, 2A, 3A, 4A	116	136	72.3	72.3	10°	M5
80	L4 / LS4	1A, 2A, 3A, 4A	107	127	97.3	97.3	12°	M5
	L8 / LS8	1A, 2A, 3A, 4A	116	136	97.8	97.8	10°	M5
	L16 / LS16	1A, 2A, 3A, 4A	132	151	108.9	108.9	9°	M6
90	L8 / LS8	1A, 2A, 3A, 4A	116	136	102.8	102.8	10°	M5
	L16 / LS16	1A, 2A, 3A, 4A	132	151	113.9	113.9	9°	M6
	L32 / LS32	1A, 2A, 3A, 4A	161	161	115.9	115.9	10°	M6
100	L16 / LS16	1A, 2A, 3A, 4A	132	151	126.9	126.9	9°	M6
	L32 / LS32	1A, 2A, 3A, 4A	161	161	128.9	128.9	10°	M6
	L60 / LS60	1A, 2A, 3A, 4A	195	195	132.5	132.5	9°	M8
112	L32 / LS32	1A, 2A, 3A, 4A	161	161	128.9	128.9	10°	M6
	L60 / LS60	1A, 2A, 3A, 4A	195	195	132.5	132.5	9°	M8
132	L80 / LS80	1A, 2A, 3A, 4A	240	240	158.0	158.0	10°	M8
	L150 / LS150	1A, 2A, 3A, 4A	279	279	171.1	171.1	9°	M10
132Z	L80 / LS80	1A, 2A, 3A, 4A	240	240	158.0	158.0	10°	M8
	L150 / LS150	1A, 2A, 3A, 4A	279	279	171.1	171.1	9°	M10
160	L150 / LS150	1A, 2A, 3A, 4A	279	279	204.1	204.1	9°	M10
	L260 / LS260	1A, 2A, 3A, 4A	319	319	210.6	210.6	10°	M10
180	L260 / LS260	1A, 2A, 3A, 4A	319	319	198.6	209.6	10°	M10
200	L260 / LS260	1A, 2A, 3A, 4A	319	319	207.6	218.6	10°	M10
	L400 / LS400	1A, 2A, 3A, 4A	445	445	217.7	230.2	10°	M12
225	L400 / LS400	1A, 2A, 3A, 4A	445	445	269.2	269.2	10°	M12
	FDX30	1A, 2A, 3A, 4A	330	330	270.0	270.0	12°	M12
250	FDX30	1A, 2A, 3A, 4A	330	330	273.0	273.0	12°	M12
	FDX40	1A, 2A, 3A, 4A	377	377	273.0	273.0	10°	M12

[1] Only for worm geared motors S

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Brake options

Monitoring

Brake with microswitch to monitor the release

The air gap s_{gap} of the brake is monitored by a microswitch mounted on the base plate of the solenoid assembly.

The motor does not start up until the brake has been fully released (s_{gap} = 0) and the armature disk is in contact with the solenoid assembly. The microswitch is actuated and controls the motor contactor.

When the brake is switched off, the armature disk reaches the maximum air gap s_{gapmax} and the microswitch opens. This means that the motor contactor is not controlled and the motor does not start.

This method is used for machines and units which require a precisely defined starting and braking procedure, as well as for fault monitoring of faulty rectifiers, interrupted connecting cables, faulty solenoids, and excessively large air gaps (brake solenoid cannot fully attract the armature disk).

The microswitch for air gap monitoring is available for brakes in sizes L/LS32 to L/LS400 and FDX30 and FDX40.

Note:
The mechanical components of the microswitch must be protected against icing at low temperatures.

The microswitch for checking the air gap of the brake (order code **C04**) cannot be selected in conjunction with the explosion-proof motors (MB motors) and the brakes with order code **B43**, **B44**, **B45** and **B46**.

When using the LS brake and the microswitch for brake release monitoring (order code **C04**), it should be noted that the microswitch is not covered by the safety certificate provided.

Brake options	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Microswitch for monitoring brake release		**C04**

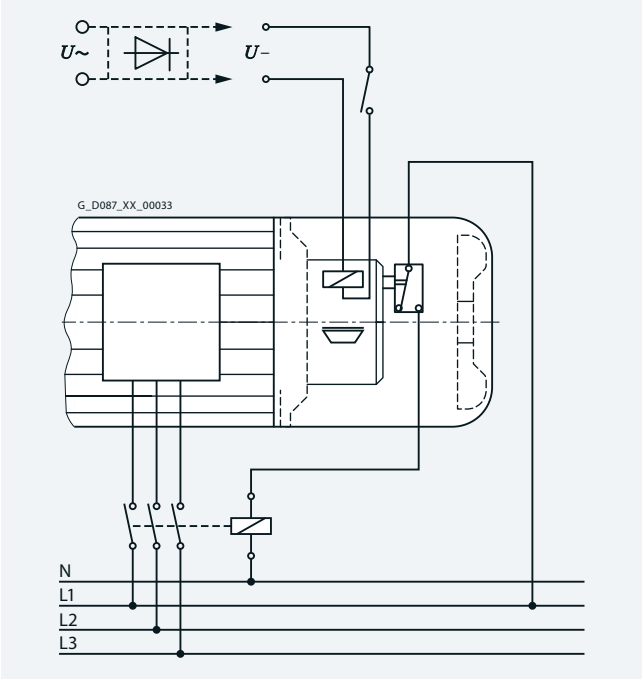

Fig. 11-43 Circuit principle with microswitch

Enclosed brake

The L/LS brakes can be supplied as enclosed brakes.
This version is standard for FDX brakes.

Enclosed brakes include a dust protection ring around the circumference and an integrated shaft sealing ring at the shaft outlet. This prevents the release and penetration of dust, moisture, and other pollution. Other advantages are reduced noise when applying the brake as well as, in combination with a motor anti-condensation heater, a reduced risk of the rotor freezing on the friction surfaces.

In addition, a condensation drain hole can be incorporated in the dust protection ring for L/LS brakes.

The enclosed brake can also be shipped in combination with a manual brake release lever and a manual brake release lever with locking mechanism.

The enclosed brake with condensation drain hole (order code **C11**) cannot be selected in conjunction with explosion-protected motors (MB motors).

Brake options	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Enclosed brake		**C01**
Enclosed brake with condensation drain hole		**C11**

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Brake options

Corrosion protection

The L brakes are supplied as standard with corrosion protection. A friction plate or adapter flange is always mounted between the mating friction surface (end shield on the ventilation side) and the rotor. The rotor is made of a rustproof material.

Brake with increased corrosion protection

The adapter flanges and armature disks of the brakes are chromium-plated for increased protection against corrosion. This prevents the friction surfaces from seizing up.

Increased corrosion protection is employed when a motor is used in corrosive environmental conditions (high air humidity, dripping water, crane systems, for example) and/or during prolonged standstill periods or at ambient temperatures below −20 °C.

The FDX brakes are supplied as standard with increased corrosion protection.

The increased corrosion protection (order code **C10**) cannot be selected in conjunction with explosion-protected motors (MB motors) or the functionally safe brake (LS brake).

Brake options	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Increased corrosion protection		**C10**

Corrosion protection		**Brake type**										
Design	Material	**L4**	**L8**	**L16**	**L32**	**L60**	**L80**	**L150**	**L260**	**L400**	**FDX30**	**FDX40**
Standard corrosion protection												
Friction surface to the motor	Friction plate of stainless steel	✓	✓	✓	✓	✓	✓					
	Adapter flange with thin zinc film							✓	✓	✓		
	End shield								✓	✓		
Armature disk	Gas-nitrided	✓	✓	✓	✓							
	Thin zinc film					✓	✓	✓	✓	✓		
Increased corrosion protection												
Friction surface to the motor	Friction plate of stainless steel	✓	✓	✓	✓	✓	✓					
	Chromium-plated adapter flange							✓	✓	✓	✓	✓
Armature disk	Chromium-plated	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Brake cable protection

The brake cable of the geared motors is normally routed through the cable gland of the terminal box.

For motor frame sizes 63 to 132, we are offering an optional version of brake cable routing which ensures enhanced protection for the brake cable. In this version, the brake cable is brought into the motor directly under the fan cover through a hole in the base of the terminal box. This arrangement ensures that most of the cable is covered and protected against mechanical damage.

Brake cable protection (order code **C80**) cannot be selected in conjunction with explosion-protected motors (MB motors) or worm geared motors S.

Brake options	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Brake cable protection		**C80**

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Brake options

Reduced-noise rotor-hub connection

The brakes are supplied with a reduced-noise rotor-hub connection. This reduces rattling noise of the rotor, particularly at low speeds and in converter operation.

Wear-resistant friction lining

The wear-resistant friction lining is suitable for a large number of braking operations with low utilization of the permissible Q_{1max} at moderate speeds. The option is only recommended for the brake types L4 to L16.

The maximum permissible speeds apply to the brakes, depending on their size and options. When operating the drive, especially in frequency converter operation, care must be taken to ensure compliance with the limit speeds.

The wear-resistant friction lining (order code **C06**) cannot be selected in conjunction with the following motors or options

- Explosion-proof motors (MB motors)
- Functionally safe brake (LS brake)
- Brakes with order code **B43**, **B44**, **B45** and **B46**

Brake options	Additional identification code **-Z** with order code	
	2KJ3… -…..-…..**-Z**	Order code
Wear-resistant friction lining		**C06**

Brake options for motor frame sizes 63 to 250

Option	Brake type										
L and FDX brake	**L4**	**L8**	**L16**	**L32**	**L60**	**L80**	**L150**	**L260**	**L400**	**FDX30**	**FDX40**
Without rectifier	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rectifier for disconnection on the DC and AC sides	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Function rectifier for quick brake release and application	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–
Standard friction lining	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑
Wear-resistant friction lining [1]	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–
Microswitch for monitoring brake release [1]	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓
Manual brake release	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–
Manual brake release with locking mechanism	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Standard corrosion protection	❑	❑	❑	❑	❑	❑	❑	❑	❑	–	–
Increased corrosion protection	✓	✓	✓	✓	✓	✓	✓	✓	✓	❑	❑
Enclosed brake	✓	✓	✓	✓	✓	✓	✓	✓	✓	❑	❑
Enclosed brake with condensation drain hole	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–
Brake cable protection	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–
LS brake [1]	**LS4**	**LS8**	**LS16**	**LS32**	**LS60**	**LS80**	**LS150**	**LS260**	**LS400**		
Without rectifier	❑	❑	❑	❑	❑	❑	❑	❑	❑		
Standard friction lining	❑	❑	❑	❑	❑	❑	❑	❑	❑		
Microswitch for monitoring brake release	–	–	–	✓	✓	✓	✓	✓	✓		
Manual brake release	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Manual brake release with locking mechanism	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Standard corrosion protection	❑	❑	❑	❑	❑	❑	❑	❑	❑		
Enclosed brake	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Enclosed brake with condensation drain hole	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Brake cable protection	✓	✓	✓	✓	✓	✓	✓	✓	–		

❑ Standard design

[1] Not available for brakes with order codes B43, B44, B45 and B46.

Possible modular system in combination with brake for motor frame sizes 63 to 250

Design	Motor plug	Encoder				Ventilation	Backstop	Second shaft extension
		Incremental encoder	Absolute encoder	Encoder under cover without canopy	Encoder accessories	Self ventilation Forced ventilation		
Brake	✓	✓	✓	✓	✓	✓		✓
Manual brake release								
_ Without locking mechanism	✓	✓	✓	✓	✓	✓	–	✓
_ With locking mechanism	✓	✓	✓	✓	✓	✓	–	✓
Microswitch								
_ Brake release monitoring [1]	✓	✓	✓	✓	✓	✓	–	✓

[1] Can be selected for brake type L32 or higher

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Technical specifications [1)]

Braking torques as a function of speed and permissible speed limits with operating brake

Brake type	Maximum permissible operating speed		Braking torque measured at rated braking torque at 100 rpm			
	Friction lining					
	Standard	Wear-resistant (**C06**)	1500 rpm	2500 rpm	3000 rpm	At max. speed
	rpm	rpm	%	%	%	%
L4	4000	3600	87	82	80	77
L8	4000	3600	85	79	78	75
L16	3600	3600	83	77	76	74
L32	3600	3600	81	76	74	72
L60	3600	3000	80	75	73	71
L80	3600	3000	79	73	72	69
L150	3600	1800 [1)]	77	71	70	67
L260	3600	1800 [1)]	75	69	68	66
L400	3000	1800 [1)]	73	67	66	65
FDX30	3000	–	73	67	66	66
FDX40	3000	–	70	64	63	63

[1)] Not available for 87/104 Hz operation and 2-pole motors.

Braking torques as a function of speed and permissible speed limits with holding brake and emergency stop function

Brake type	Max. permissible no-load speed with emergency stop function		Braking torque measured at rated braking torque at 100 rpm			
	Friction lining					
	Standard	Wear-resistant (**C06**)	1500 rpm	2500 rpm	3000 rpm	At max. speed
	rpm		%	%	%	%
L4 / LS4	6000	6000	87	82	80	73
L8 / LS8	5000	4500	85	79	78	72
L16 / LS16	4000	3600	83	77	76	73
L32 / LS32	3600	3600	81	76	74	72
L60 / LS60	3600	3000	80	75	73	71
L80 / LS80	3600	3000	79	73	72	69
L150 / LS150	3600	1800 [1)]	77	71	70	67
L260 / LS260	3600	1800 [1)]	75	69	68	66
L400 / LS400	3000	1800 [1)]	73	67	66	65
FDX30	6000	–	73	67	66	59
FDX40	6000	–	70	64	63	56

[1)] Not available for 87/104 Hz operation and 2-pole motors.

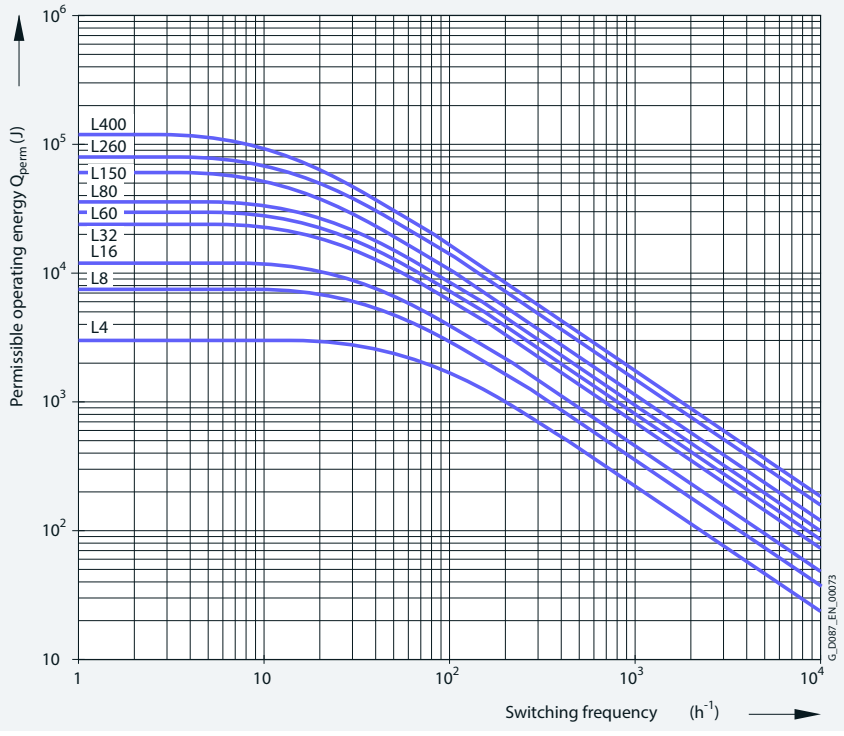

Fig. 11-44 Permissible operating energy

[1)] Values refer to brake in its delivery state

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Technical specifications [1)]

Braking torques as a function of the speed and permissible speed limits for explosion-protected motors

Brake type	Maximum permissible operating speed	Max. permissible no-load speed with emergency stop function	Braking torque measured at rated braking torque at 100 rpm		
			1500 rpm	2500 rpm	3000 rpm
	rpm	rpm	%	%	%
L4	3000	3000	87	82	80
L8	3000	3000	85	79	78
L16	3000	3000	83	77	76
L32	3000	3000	81	76	74
L60	3000	3000	80	75	73
L80	3000	3000	79	73	72
L150	3000	3000	77	71	70
L260	3000	3000	75	69	68

Permissible operating energy for explosion-protected motors (MB motors) in Zone 2 (gas)

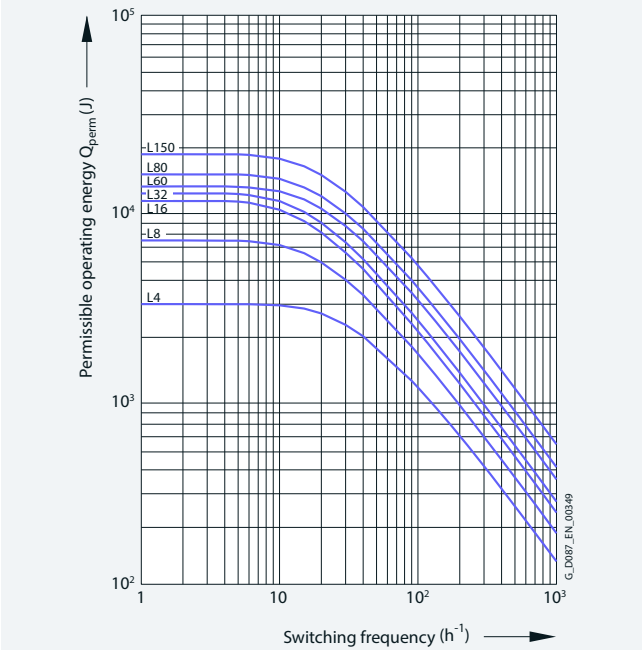

Fig. 11-45 Permissible operating energy in Zone 2 (gas) at 800 rpm

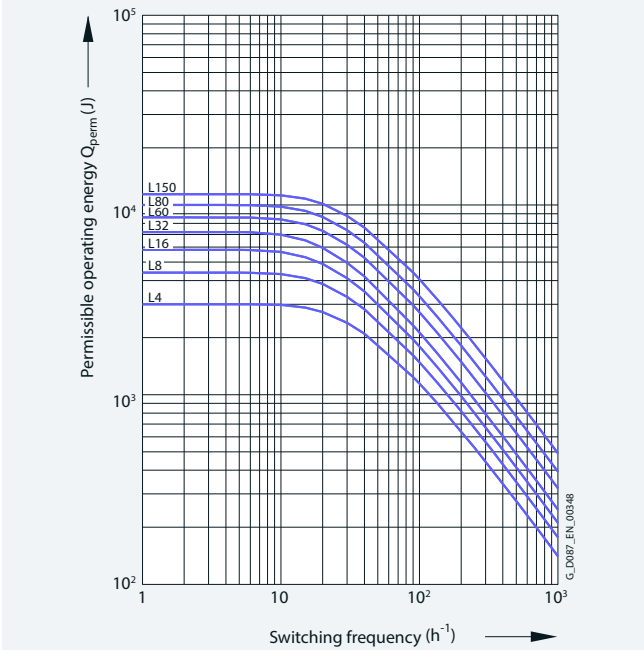

Fig. 11-46 Permissible operating energy in Zone 2 (gas) at 1500 rpm

[1)] Values refer to brake in its delivery state

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Technical specifications [1)]

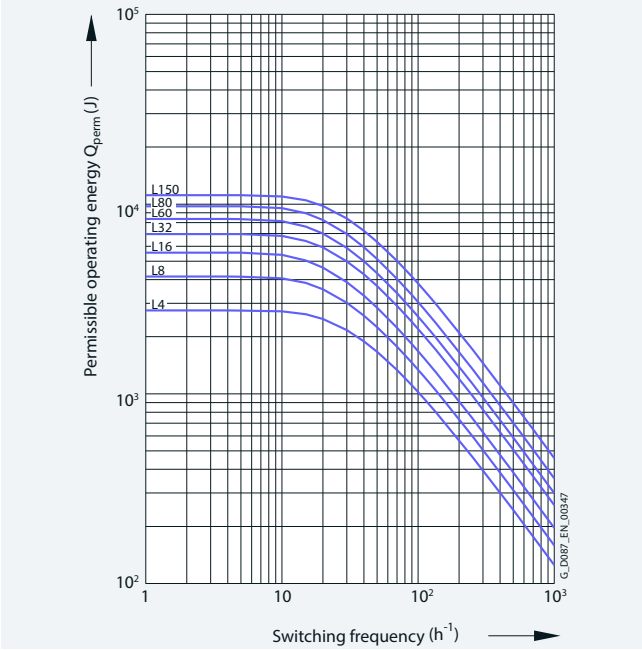

Fig. 11-47 Permissible operating energy in Zone 2 (gas) at 1800 rpm

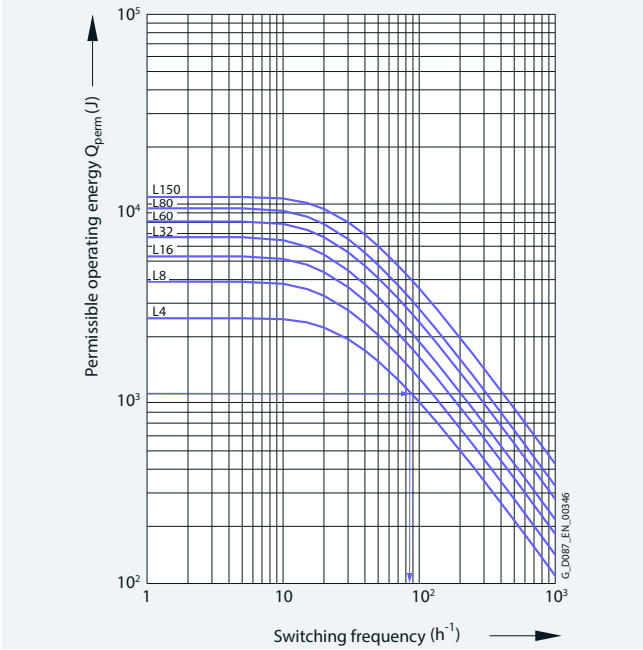

Fig. 11-48 Permissible operating energy in Zone 2 (gas) at 2500 rpm

11

[1)] Values refer to brake in its delivery state

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Technical specifications 1)

Permissible operating energy for explosion-protected motors (MB motors) in Zone 2 (gas)

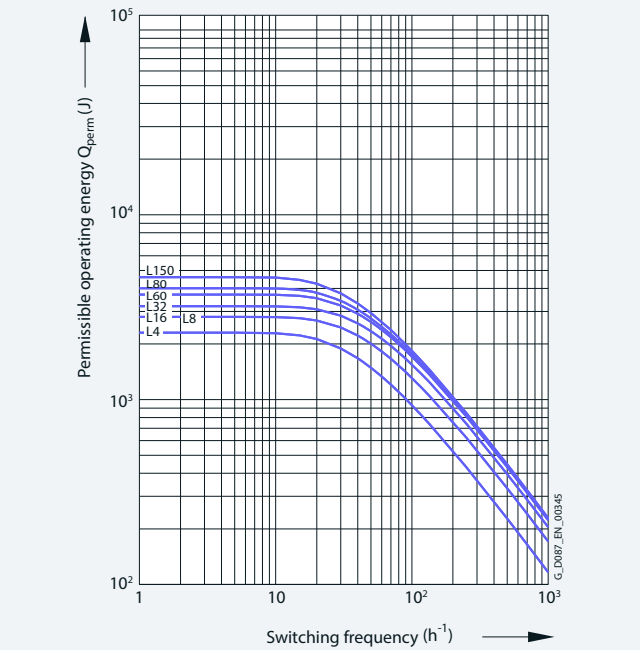

Fig. 11-49 Permissible operating energy in Zone 2 (Gas) at 3000 rpm

Permissible operating energy for explosion-protected motors (MB motors) in Zone 22 (dust)

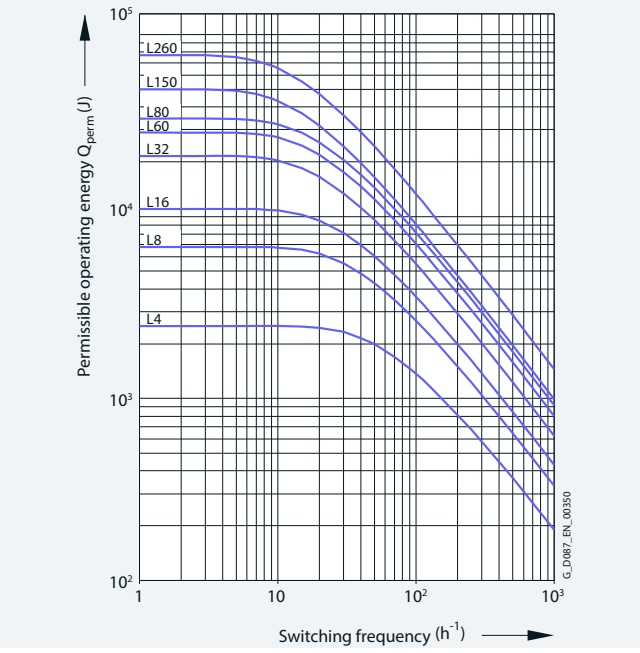

Fig. 11-50 Permissible operating energy for explosion-protected motors in Zone 22 (dust)

11

1) Values refer to brake in its delivery state

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Technical specifications [1)]

Disconnection times, application times and moments of inertia for L/LS brakes

Brake type		Rated braking torque T_{br}		Disconnection time t_2		Application time t_1 ($t_1 = t_{11} + t_{12}$)	Response time t_{11}	Rise time t_{12}	Application time t_1 ($t_1 = t_{11} + t_{12}$)	Response time t_{11}	Rise time t_{12}	Weight	Moment of inertia J_B	
Standard brake	Functionally safe brake	Rated torque M_2 at 100 rpm	Holding torque M_4	Standard excitation	Over-excitation	AC and DC switched or DC switched			AC switched					for wear-resistant lining
		Nm		ms	ms	ms	ms	ms	ms	ms	ms	kg	10^{-4} kgm^2	
L4/1.4		1.4	1.12	20	13	31	13.0	18.0	250	110	140	0.85	0.15	0.15
L4/2		2.0	1.6	27	17	22	9.0	13.0	175	77	98			
L4/3	LS4/3	3.0	2.4	29	18	30	12.0	18.0	230	101	129			
L4	LS4	4.0	3.2	45	28	28	15.0	13.0	190	120	70			
L4/5	LS4/5	5.0	4.0	56	35	25	13.0	12.0	158	100	58			
L8/3		3.0	2.4	21	12	65	39.0	26.0	510	326	184	1.5	0.61	0.61
L8/4		4.0	3.2	30	17	50	30.0	20.0	390	250	140			
L8/5		5.0	4.0	35	20	40	24.0	16.0	310	200	110			
L8/6.3	LS8/6.3	6.3	5.0	45	30	38	18.0	20.0	315	174	141			
L8	LS8	8.0	6.4	57	38	31	15.0	16.0	245	135	110			
L8/10	LS8/10	10.0	8.0	71	47	26	12.5	13.5	205	113	92			
L16/8		8.0	6.4	55	41	36	22.0	14.0	350	183	167	2.6	2	2
L16/10	LS16/10	10.0	8.0	48	36	58	35.0	23.0	680	355	325			
L16/13	LS16/13	13.0	10.4	60	34	50	30.0	20.0	560	293	267			
L16	LS16	16.0	12.8	76	48	47	28.0	19.0	460	240	220			
L16/20	LS16/20	20.0	16.0	93	59	38	23.0	15.0	390	204	186			
L32/14		14.0	11.2	65	50	46	27.0	19.0	400	210	290	3.9	4.5	4.5
L32/18	LS32/18	18.0	14.4	65	44	70	45.0	25.0	600	325	275			
L32/23	LS32/23	23.0	18.4	82	56	75	40.0	35.0	680	300	380			
L32	LS32	32.0	25.6	115	78	53	28.0	25.0	490	215	275			
L32/40	LS32/40	40.0	32.0	140	95	45	24.0	21.0	440	194	246			
L60/25		25.0	20.0	130	66	47	25.0	22.0	540	220	320	5.8	6.3	6.3
L60/38	LS60/38	38.0	30.4	140	60	60	24.0	36.0	800	290	510			
L60/50	LS60/50	50.0	40.0	175	75	50	20.0	30.0	665	240	425			
L60	LS60	60.0	48.0	210	90	42	17.0	25.0	580	210	370			
L80/25		25.0	20.0	95	56	103	48.0	55.0	1600	690	710	8.4	15	15
L80/35		35.0	28.0	128	75	73	34.0	39.0	1200	520	680			
L80/50	LS80/50	50.0	40.0	160	94	90	42.0	48.0	1920	830	1090			
L80/63	LS80/63	63.0	50.4	170	100	72	34.0	38.0	1550	670	880			
L80	LS80	80.0	64.0	220	130	57	27.0	30.0	1200	520	680			
L80/100	LS80/100	100.0	80.0	280	165	49	24.0	25.0	990	430	560			
L150/45		45.0	36.0	120	75	64	32.0	32.0	1110	570	540	12.5	29	–
L150/60		60.0	48.0	135	81	55	27.5	27.5	920	470	450			29
L150/80		80.0	64.0	180	108	40	20.0	20.0	690	350	340			
L150/100	LS150/100	100.0	80.0	180	108	93	48.0	45.0	1300	700	600			
L150/125	LS150/125	125.0	100.0	225	135	85	44.0	41.0	1200	650	550			
L150	LS150	150.0	120.0	270	160	78	33.0	45.0	1080	480	600			
L260/80		80.0	64.0	200	90	215	90.0	125.0	1900	700	1200	21.0	73	–
L260/100		100.0	80.0	210	95	205	82.0	123.0	1775	605	1170			73
L260/145		145.0	116.0	230	170	180	72.0	108.0	1200	440	790			
L260/180	LS260/180	180.0	144.0	230	100	185	73.0	112.0	2500	850	1650			
L260/200	LS260/200	200.0	160.0	260	120	178	70.0	108.0	2720	920	1800			
L260/240	LS260/240	240.0	192.0	312	140	170	67.0	103.0	2300	570	1530			
L260	LS260	260.0	208.0	340	150	165	65.0	100.0	2100	700	1400			
L260/315	LS260/315	315.0	252.0	410	180	150	60.0	90.0	1750	590	1160			
L400/145		145.0	116.0	311	155	239	152.0	88.0	1883	1115	768	32.0	200	–
L400/175		175.0	140.0	336	160	238	143.0	95.0	1819	1080	739			–
L400/265	LS400/265	265.0	212.0	260	140	275	155.0	120.0	3100	2000	1100			200
L400/300	LS400/300	300.0	240.0	290	150	260	125.0	135.0	2800	1540	1260			
L400/360	LS400/360	360.0	288.0	350	165	255	125.0	130.0	2660	1440	1220			
L400	LS400	400.0	320.0	390	185	230	110.0	120.0	2400	1300	1100			
L400/600	LS400/600	600.0	480.0	585	265	175	55.0	120.0	1400	300	1100			

[1)] Values refer to brake in its delivery state

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Technical specifications [1)]

Working capacity for L/LS brakes

Brake type		Power consumption	Working capacity				Working capacity with wear-resistant friction lining			
Standard brake	Functionally safe brake	At +20 °C	Per braking operation W_{1max}	Friction energy until the brake lining is replaced W_{tot}	Friction energy until the air gap is readjusted W_V	With over-excitation	Per braking operation W_{1max}	Friction energy until the brake lining is replaced W_{tot}	Friction energy until the air gap is readjusted W_V	With over-excitation
		W	kJ	MJ	MJ	MJ	kJ	MJ	MJ	MJ
L4/1,4		20	3	156	46.8	52	3	312	94	104
L4/2				176		59		351		117
L4/3	LS4/3			170	39.6	57		339	80	113
L4	LS4			180	36.0	60		360	72	120
L4/5	LS4/5			176	23.4	59		351	46	117
L8/3		25	7.5	324	86.4	108	7.5	648	173	216
L8/4										
L8/5					75.6				151	
L8/6,3	LS8/6,3							756		
L8	LS8				64.8			648	130	
L8/10	LS8/10				54.0				108	
L16/8		30	12	405	108	162	12	810	216	324
L16/10	LS16/10									
L16/13	LS16/13									
L16	LS16									
L16/20	LS16/20			396	80	158		792	160	317
L32/14		40	24	948	285	284	7	1896	570	568
L32/18	LS32/18					283				
L32/23	LS32/23				260			1885	518	
L32	LS32				212	284		1888	425	
L32/40	LS32/40				165			1893	331	
L60/25		50	30	1276	306	306	18	2560	612	612
L60/38	LS60/38				280			2553	560	
L60/50	LS60/50			1320	238	317		2640	476	635
L60	LS60			1322						
L80/25		55	36	2310	396	396	11	4536	792	792
L80/35										
L80/50	LS80/50									
L80/63	LS80/63									
L80	LS80									
L80/100	LS80/100				260	389			519	778
L150/45		85	60	2295	612	612	–	–	–	–
L150/60							36	4590	1224	1224
L150/80										
L150/100	LS150/100									
L150/125	LS150/125									
L150	LS150									
L260/80		100	80	4680	936	1287	–	–	–	–
L260/100							10	7020	1872	2574
L260/145										
L260/180	LS260/180			3510						
L260/200	LS260/200									
L260/240	LS260/240									
L260	LS260									
L260/315	LS260/315	130		3489	756	1279		6978	1512	2559
L400/145		110	120	6480	1440	1872	–	–	–	–
L400/175							–	–	–	–
L400/265	LS400/265						28	12960	2880	3744
L400/300	LS400/300									
L400/360	LS400/360									
L400	LS400									
L400/600	LS400/600				576				1152	

[1)] Values refer to brake in its delivery state

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Technical specifications [1)]

No-load switching frequency for L/LS brakes

Motor type	Power 4-pole At 50 Hz kW	Brake type Standard brake	Functionally safe brake	Overexcitation Without 1/h	With 1/h	Without 1/h	With 1/h	Without 1/h	With 1/h	Without 1/h	With 1/h
				No-load switching frequency (Z_A)							
				4-pole		2-pole		6-pole		8-pole	
LE63..	0.12	L4/5, L4		7800	9800	2500	3300	11500	14500	–	–
	0.18	L4/3, L4/2, L4/1,4		12500	13000	4000	4400	18000	19000	–	–
LE71..	0.25	L4/5, L4	LS4/5, LS4	7300	9500	2500	3200	10500	14000	14500	19000
	0.37	L4/3, L4/2, L4/1,4	LS4/3	12500	13500	4300	4500	18500	20000	25000	27000
		L8/10, L8, L8/6,3	LS8/10, LS8, LS8/6,3	6000	7600	1800	2500	9000	11000	12000	15000
		L8/5, L8/4		8900	11000	2900	3500	13000	16000	17500	22000
		L8/3		11000	12000	3500	4000	16500	18000	22000	24000
LE80.. LE80..E LE80..P	0.55	L4/5, L4	LS4/5, LS4	9000	9500	2900	3100	13500	14000	–	–
	0.75	L4/3, L4/2, L4/1,4	LS4/3	10500	11500	3500	3800	15500	16500	–	–
		L8/10, L8, L8/6,3	LS8/10, LS8, LS8/6,3	6300	7500	2100	2500	9400	11000	–	–
		L8/5, L8/4,L8/3		9500	10000	3100	3300	14000	15000	–	–
		L16	LS16	6500	7500	2100	2500	9700	11000	–	–
		L16/13, L16/10, L16/8	LS16/13, LS16/10	7500	8000	2500	2600	11000	12000	–	–
LE90.. LE90..E LE90..P	1.1	L8/10, L8, L8/6,3		6500	7000	2100	2300	9700	10500	–	–
	1.5	L8/5, L8/4,L8/3		8000	8500	2600	2800	12000	12500	–	–
		L16/20, L16	LS16/20, LS16	3200	4300	1000	1400	4800	6400	–	–
		L16/13, L16/10, L16/8	LS16/13, LS16/10	6500	7000	2100	2300	9700	10500	–	–
		L32	LS32	2200	3000	700	1000	3300	4500	–	–
		L32/23, L32/18	LS32/23, LS32/18	3300	4200	1100	1400	4900	6300	–	–
		L32/14		5500	6000	1800	2000	8200	12000	–	–
LE100.. LE100..E LE100..P	2.2	L16/20, L16		6000	6500	2000	2100	9000	9700	12000	13000
	3.0	L16/13, L16/10, L16/8		6500	7000	2100	2300	9700	10500	14000	14000
		L32/40, L32	LS32/40, LS32	3200	4600	1000	1500	4800	6900	6400	9200
		L32/23, L32/18, L32/14	LS32/23, LS32/18	6000	6500	2000	2100	9000	9700	12000	13000
		L60/50	LS60/50	1100	2100	350	700	1600	3100	2200	4200
		L60/38, L60/25	LS60/38	3200	4600	1000	1500	4800	6900	9200	9200
LE112.. LE112..E LE112..P	4.0	L32/40, L32	LS32/40, LS32	3300	3500	1100	1100	4900	5200	6600	7000
		L32/23, L32/18, L32/14	LS32/23, LS32/18	3600	3800	1200	1200	5400	5700	7600	7600
		L60, L60/50	LS60, LS60/50	2600	3200	850	1050	3900	4800	5200	6400
		L60/38, L60/25	LS60/38	3200	3600	1050	1200	4800	5400	7200	7200
LE132.. LE132..E LE132..P	5.5	L80/100, L80	LS80/100, LS80	1850	2050	600	6500	2700	3000	3700	4100
	7.5	L80/63, L80/50	LS80/63, LS80/50	2050	2200	650	700	3000	3300	4100	4400
		L80/35, L80/25		2200	2350	700	750	3300	3500	4400	4700
		L150, L150/125	LS150, LS150/125	1200	1500	400	500	1800	2200	2400	3000
		L150/100, L150/80, L150/60, L150/45	LS150/100	1900	2050	600	650	2800	3000	3800	4100
LE160.. LE160..E LE160..P	11.0	L150, L150/125	LS150, LS150/125	1400	1550	450	500	2100	2300	2800	3100
	15.0	L150/100, L150/80, L150/60, L150/45	LS150/100	1650	1750	550	550	2400	2600	3300	3500
		L260, L260/240	LS260, LS260/240	850	1200	250	400	1200	1800	1700	2400
		L260/200, L260/180	LS260/200, LS260/180	1050	1300	350	400	1500	1900	2100	2600
		L260/145, L260/100, L260/80		1450	1550	450	500	2100	2300	2900	3100
LES180..E	18.5	L260/315, L260, L260/240	LS260/315, LS260, LS260/240	500	550	320	330	750	800	1000	1100
	22.0	L260/200, L260/180, L260/145, L260/100, L260/80	LS260/200, LS260/180	550	600	174	200	800	900	1100	1200
LES200..E	30.0	L260/315, L260, L260/240	LS260/315, LS260, LS260/240	450	500	150	150	650	750	900	1000
		L260/200, L260/180, L260/145, L260/100, L260/80	LS260/200, LS260/180	500	525	150	175	750	750	1000	1050
		L400, L400/360, L400/300, L400/265, L400/175, L400/145	LS400, LS400/360, LS400/300, LS400/265	400	425	125	125	600	600	800	850

Conversion factors for no-load switching frequency:
60 Hz operation 0.75 x Z_A
IE3 motors 0.1 x Z_A

No-load switching frequencies for IE1 motors on request.

[1)] Values refer to brake in its delivery state

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Technical specifications [1)]

Disconnection times, application times and moments of inertia for FDX brakes

Brake type	Rated braking torque T_{br}	Solenoid voltage	Disconnection time t_2		Application time t_1 ($t_1 = t_{11} + t_{12}$)	Response time t_{11}	Rise time t_{12}	Application time t_1 ($t_1 = t_{11} + t_{12}$)	Response time t_{11}	Rise time t_{12}	Weight	Moment of inertia J_B
	At 100 rpm		Standard excitation	Over-excitation	AC and DC switched or DC switched			AC switched				
	Nm	V_{DC}	ms	ms	ms	ms	ms	ms	ms	ms	kg	10^{-4} kgm^2
FDX30/265	265	All	–	173	255	125	130	1710	1360	350	45	195
FDX30/300	300		–	180	250	120	130	1620	1270	350	45	195
FDX30/360	360		–	192	243	113	130	1460	1110	350	45	195
FDX30/400	400		–	200	235	105	130	1350	1000	350	45	195
FDX30/500	500		–	220	220	90	130	800	740	350	45	195
FDX30/650	650		–	250	200	70	130	690	340	350	45	195
FDX30/750	750	103	–	260	190	60	130	670	320	350	45	195
FDX30/750	750	180; 205	–	200	190	60	130	620	270	350	45	195
FDX30/850	850	103	–	270	180	50	130	600	250	350	45	195
FDX30/850	850	180; 205	–	210	180	50	130	550	200	350	45	195
FDX40/650	650	All	–	280	390	230	160	2600	2100	500	80	445
FDX40/750	750		–	315	370	210	160	2230	1730	500	80	445
FDX40/850	850		–	350	350	190	160	1860	1360	500	80	445
FDX40/1000	1000		–	400	320	160	160	1300	800	500	80	445

Working capacity for FDX brakes

Brake type	Rated braking torque	Solenoid voltage	Power consumption	Working capacity			
				per braking operation	Friction energy until the brake lining is replaced W_{tot}	Friction energy until the air gap is readjusted W_V	
	At 100 rpm		At +20 °C	W_{1max}			With overexcitation
	Nm	V_{DC}	W	kJ	MJ	MJ	MJ
FDX30/265	265	All	560/140	150	3700	–	–
FDX30/300	300		560/140	150	3700		
FDX30/360	360		560/140	150	3700		
FDX30/400	400		560/140	150	3700		
FDX30/500	500		560/140	150	3700		
FDX30/650	650		560/140	150	3700		
FDX30/750	750	103	560/140	150	3700		
FDX30/750	750	180; 205	880/220	150	3700		
FDX30/850	850	103	560/140	150	3700		
FDX30/850	850	180; 205	880/220	150	3700		
FDX40/650	650	All	560/140	200	4000	–	–
FDX40/750	750		560/140	200	4000		
FDX40/850	850		560/140	200	4000		
FDX40/1000	1000		560/140	200	4000		

[1)] Values refer to brake in its delivery state

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Overview

Note:
It is not possible to use encoders in conjunction with explosion-protected motors.

Encoder	Motor frame size												Additional identification code **-Z** with order code		**Additional information**
	63	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	2KJ3… -…..-….**-Z**	Order code	**→ page**
DRIVE-CLiQ encoders [1] [2]															
Without functional safety															
AS 22DQC		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q20**	page 11/54
AM 22DQC		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q21**	page 11/54
With functional safety															
AS 22DQC		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q22**	page 11/54
AM 22DQC		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q23**	page 11/54
Incremental encoders															
Incremental encoders															
TTL1024S/R KD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q44**	page 11/55
HTL1024S/R KD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q47**	page 11/55
HTL2048S/R KD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q48**	page 11/55
HTL2048S/R FD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q54**	page 11/55
Incremental encoders 1XP8022															
1XP8022-20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q56**	page 11/57
1XP8022-10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q59**	page 11/57
1XP8022-11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q60**	page 11/57
Absolute encoders															
1XP8024-21	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q79**	page 11/59
1XP8014-10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓[3]	✓[3]		**Q82**	page 11/58
1XP8024-10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓[3]	✓[3]		**Q83**	page 11/58
Rugged encoders															
Leine und Linde LL 861 900 220						✓	✓	✓	✓	✓	✓	✓		**Q92**	page 11/60
Hübner HOG 9 D 1024						✓	✓	✓	✓	✓	✓	✓		**Q93**	page 11/60
Hübner HOG 10 D 1024							✓	✓	✓	✓	✓	✓		**Q94**	page 11/61
Functionally safe rotary encoders [2]															
Incremental encoders IN 8.5834															
IN 8.5834FS2		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q42**	page 11/62
IN 8.5834FS3		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q43**	page 11/62
Absolute encoders IA 8.5883															
IA 8.5883FS2		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q77**	page 11/64
IA 8.5883FS3		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q78**	page 11/64
Mechanical protection															
Encoder under cover		✓	✓	✓	✓	✓	✓	✓	✓	✓				**Q95**	page 11/68

[1] Can only be selected for synchronous reluctance motors.
[2] Cannot be selected for electric-monorail geared motors.
[3] Can only be selected in combination with brake.

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Encoders

DRIVE-CLiQ encoders

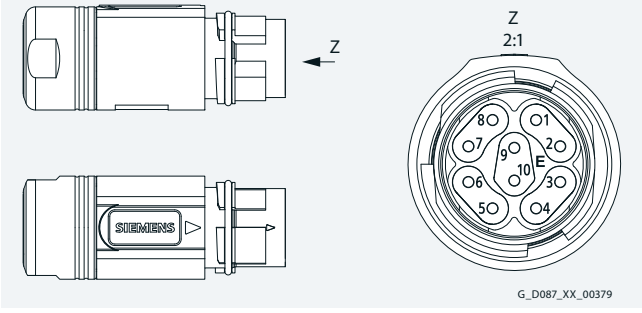
The DRIVE-CLiQ encoders are available for motor frame sizes 71 to 200.

The encoders are suitable for typical industrial environments, but not for harsh industrial conditions such as those typical of offshore or chemical industry applications.

Technical specifications

DRIVE-CLiQ encoder	AS 22DQC	AS 22DQC	AM 22DQC	AM 22DQC
Functional safety	No	Yes	No	Yes
Supply voltage U_B	20.4 ... 28.8 V_{DC}			
Resolution	22 bit (4.194.304)			
Absolute position	Yes, one revolution		Yes, 12 bit (4096 revolutions)	
Angular displacement	± 100"			
Moment of inertia of rotor	8.3 x 10^{-6} kgm^2			
Maximum mechanical speed	4500 rpm			
Vibration (10 ... 150 Hz)	≤ 200 m/s^2 (EN 60068-2-6)			
Shock resistance (11 ms)	≤ 500 m/s^2 (EN 60068-2-27)			
Degree of protection	IP 66 (EN 60529)			
Ambient temperature range	Motor frame size 71 and 80: –20 ... +50 °C Motor frame size 90 to 200:–30 ... +50 °C			
Connection system	1 m cable length with M17 10-pole Speed-connect-READY			
Weight, approx.	0.4 kg			
Safety values				
Classification	–	System S120, SIL2		System S120, SIL2
Relevant standards (compliance with applicable national and regional laws, standards, and regulations is also essential)		EN ISO 13849-1:2015 EN 61800-5-2:2017		EN ISO 13849-1:2015 EN 61800-5-2:2017
Additional identification code **-Z** with order code	**Order code**			
2KJ3... -.....-....**-Z**	**Q20**	**Q22**	**Q21**	**Q23**

Connection assignment



Signal connector M17 with DRIVE-CLiQ										
Signal	TX-P	TX-N	–	–	RX-P	RX-N	–	–	24 V	0 V
PIN	1	2	3	4	5	6	7	8	9	10

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Incremental encoders

Incremental encoders are available up to motor frame size 200.

The encoders are suitable for typical industrial environments, but not for harsh industrial conditions such as those typical of offshore or chemical industry applications.

Technical specifications

Incremental encoders	**HTL2048S/R KD**	**HTL1024S/R KD**	**TTL1024S/R KD**	**HTL2048S/R FD**
Pulses per revolution	2048	1024	1024	2048
Incremental signals	HTL	HTL	TTL	HTL
Supply voltage U_B	10 ... 30 V_{DC}	10 ... 30 V_{DC}	5 V_{DC} ±10 %	10 ... 30 V_{DC}
Maximum current consumption without load	typ. 50 mA; ≤ 100 mA	typ. 50 mA; ≤ 100 mA	typ. 40 mA; ≤ 90 mA	typ. 50 mA; ≤ 100 mA
Permissible load per output	I_{Load} ≤ ± 20 mA	I_{Load} ≤ ± 20 mA	I_{Load} ≤ ± 20 mA	I_{Load} ≤ ± 20 mA
Outputs	2 square-wave pulses A, B 2 square-wave pulses A, B Zero pulse 0 Zero pulse 0	2 square-wave pulses A, B 2 square-wave pulses A, B Zero pulse 0 Zero pulse 0	2 square-wave pulses A, B 2 square-wave pulses A, B Zero pulse 0 Zero pulse 0	2 square-wave pulses A, B 2 square-wave pulses A, B Zero pulse 0 Zero pulse 0
Signal level	U_{High} ≥ U_{Pmin} –1.0 V U_{Low} ≤ 0.5 V	U_{High} ≥ U_{Pmin} –1.0 V U_{Low} ≤ 0.5 V	U_{High} ≥ U_{Pmin}–2.5 V U_{Low} ≤ 0.5 V	U_{High} ≥ U_{Pmin} –1.0 V U_{Low} ≤ 0.5 V
Switching times (10 ... 90 %)	t_+ t_- ≤ 200 ns (with 1 m cable 1.2 kΩ load resistance)	t_+ t_- ≤ 200 ns (with 1 m cable1.2 kΩ load resistance)	t_+ t_- ≤ 30 ns (with 1 m cable 120 Ω connection resistance)	t_+ t_- ≤ 200 ns (with 1 m cable 1.2 kΩ load resistance)
Max. frequency –3 dB	300 kHz	300 kHz	300 kHz	300 kHz
Short-circuit strength	Yes (with correctly applied supply voltage)	Yes (with correctly applied supply voltage)	Yes (when the supply voltage is correctly connected/ Only a max. of one channel may be short-circuited: For +V = 5 V_{DC} a short-circuit to a channel, 0 V, or +V is permitted)	Yes (with correctly applied supply voltage)
Reverse polarity protection of the supply voltage	Yes	Yes	No	Yes
Starting torque	< 0.01 Nm			
Moment of inertia of rotor	6 x 10^{-6} kgm^2			
Maximum mechanical speed	5000 rpm			
Vibration (10 ... 2000 Hz)	≤ 300 m/s^2 (EN 60068-2-6)			
Shock resistance (6 ms)	≤ 3000 m/s^2 (EN 60068-2-27)			
Degree of protection	IP66/IP67			
Operating temperature range	–40 ...+40 °C (temperature class 180 (H)) / –40 ...+60 °C (temperature class 155 (F))			
Connection system → page 11/70	0.8 m cable (PUR) with 12-pole flange socket M23, 0° coding			12-pole flange socket M23, 0° coding
Weight, approx.	0.34 kg			0.22 kg
Additional identification code **-Z** with order code	**Order code**			
2KJ3... -.....-....**-Z**	**Q48**[1)]	**Q47**[1)]	**Q44**[1)]	**Q54**[1)]

[1)] For worm geared motors S, the incremental encoder is available only for motor frame size 71.

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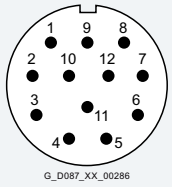
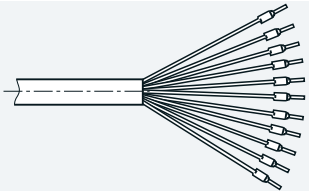
Encoders

Incremental encoders

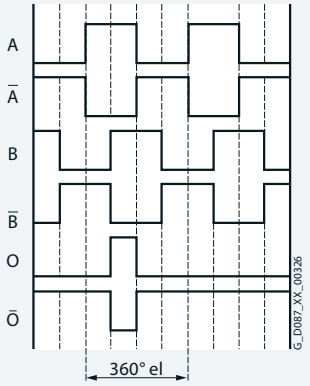
Connection assignment



For cable available as an option, see "Encoder accessories“ from page 11/71.



Signal



M23 connector, 12-pole												
Signal	B̄	+Vsens [1]	0	0̄	A	Ā		B		0 V	0Vsens [1]	+V [1]
PIN	1	2	3	4	5	6	7	8	9	10	11	12
Core color	pink	blue	red	black	brown	green	violet	gray	yellow	white/ green	white	brown/ green

[1] 0V and 0Vsens or +V and +Vsens are bridged internally in the rotary encoder (PCB).

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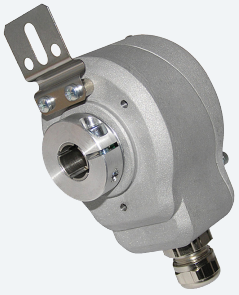
Incremental encoders

Incremental encoder 1XP8022

The incremental encoder is available up to motor frame size 200.

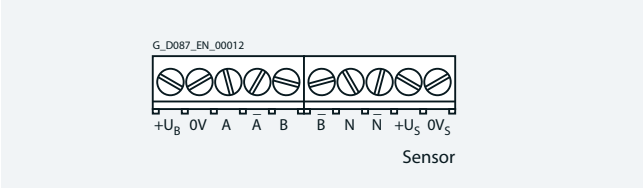


Technical specifications

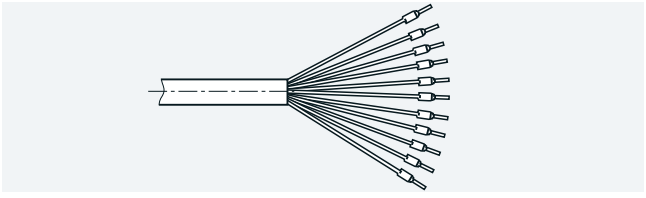
Incremental encoder 1XP8022	**-11**	**-10**	**-20**
Pulses per revolution	2048	1024	1024
Incremental signals	HTL		TTL
Supply voltage U_B	8 ... 30 V_{DC} (reverse-polarity protected)		5 V_{DC} ± 5 % (reverse-polarity protected)
Maximum current consumption without load	≤ 100 mA		
Permissible load per output	I_L ≤ 70 mA		
Outputs	2 square-wave pulses A, B 2 square-wave pulses A, B Zero pulse N Zero pulse N		
Signal level	U_{High} ≥ U_B – 3 V U_{Low} ≤ 1.5 V		U_{High} ≥ 2.5 V U_{Low} ≤ 0.5 V
Minimum edge interval	500 ns		≤ 200 ns
Switching times (10 ... 90 %)	≤ 1 µs		
Maximum frequency	120 kHz		
Moment of inertia of rotor	6 x 10^{-6} kgm^2		
Maximum mechanical speed	8000 rpm		
Vibration (55 ... 2000 Hz)	≤ 100 m/s^2 (EN 60068-2-6)		
Shock (11 ms)	≤ 1000 m/s^2 (EN 60068-2-27)		
Degree of protection	IP66		
Ambient temperature range	–20 ...+40 °C (temperature class 180 (H)) / –20 ...+45 °C (temperature class 155 (F))		
Connection system → page 11/70	Cable terminal box		
Weight, approx.	0.35 kg		
Additional identification code **-Z** with order code	Order code		
2KJ3... -.....-....**-Z**	**Q60** [1]	**Q59** [1]	**Q56** [1]

[1] For worm geared motors S, the incremental encoder is available only for motor frame size 71.

Connection assignment



For cable available as an option, see "Encoder accessories" from page 11/71.



	Connections									
Connection	$+U_B$	0V	A	$\bar{A}$	B	$\bar{B}$	N	$\bar{N}$	$+U_S$	$0V_S$
Cable terminal box										
Core color	red	blue	green	brown	gray	black	pink	white	yellow	violet

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Encoders

Absolute encoders 1XP8014 and 1XP8024

Absolute encoders are available up to motor frame size 250.

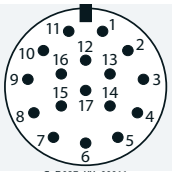
The multiturn absolute encoder can be shipped with EnDAT protocol or SSI protocol and mounted on the shaft.

Technical specifications

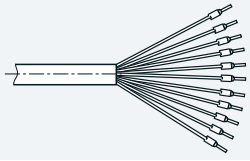
Absolute encoders	1XP8014-10	1XP8024-10
Supply voltage U_B	5 V ± 5 %	
Maximum current consumption without load	≤ 200 mA	
Absolute position values	EnDAT 2 1	
_ Code	Dual	
_ Positions per revolution	8192 (13 bit)	
_ Differentiable revolutions	4096	
Incremental signals	~1 V_{PP}	
_ Pulses per revolution	2048	
_ Outputs	Sine/cosine pulses A, B	
_ Limit frequency –3 dB	≥ 200 kHz	
_ Signal size	0.8 ... 1.2 V_{PP}	
Moment of inertia of rotor	4.3 x 10^{-6} kgm^2	
Maximum permissible mechanical speed	≤ 6 000 rpm	
Permissible electrical speed with system accuracy	≤ 1500 rpm/± 1 LSB ≤ 10000 rpm/± 50 LSB	
Vibration (55 ... 2000 Hz)	15 g	30 g
Shock (6 ms)	100 g	
Degree of protection	IP66	
Ambient temperature range	–40 ... +40 °C (temperature class 180 (H)) / –40 ...+60 °C (temperature class 155 (F))	
Connection system → page 11/70	Flange socket, 17-pole with 0° coding	1 m cable with coupling socket
Weight, approx.	0.3 kg	
Additional identification code **-Z** with order code	Order code	
2KJ3... -.....-....**-Z**	**Q82** [1]	**Q83** [1]

[1] For worm geared motors S, the absolute encoder is available only for motor frame size 71.

Connection assignment



For cable available as an option, see "Encoder accessories" from page 11/71.



	Voltage supply					Incremental signals				Absolute position values				Other signals	
Connection	U_P	Sensor U_P	0 V	Sensor 0 V	Inner shield	A+	A–	B+	B–	DATA	DATA	CLOCK	CLOCK	Rot. direc-tion	Zeros
Flange socket (SSI)	7	1	10	4	11	15	16	12	13	14	17	8	9	2	5
Core color	brown/ green	blue	white/ green	white		green/ black	yellow/ black	blue/ black	red/ black	gray	pink	violet	yellow	black	green

	Voltage supply					Incremental signals				Absolute position values					
Connection	U_P	Sensor U_P	0 V	Sensor 0 V	Inner shield	A+	A–	B+	B–	DATA	DATA	CLOCK	CLOCK	–	–
Flange socket (EnDAT 2 1)	7	1	10	4	11	15	16	12	13	14	17	8	9		
Core color	brown/ green	blue	white/ green	white		green/ black	yellow/ black	blue/ black	red/ black	gray	pink	violet	yellow	black	green

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Absolute encoder 1XP8024-21

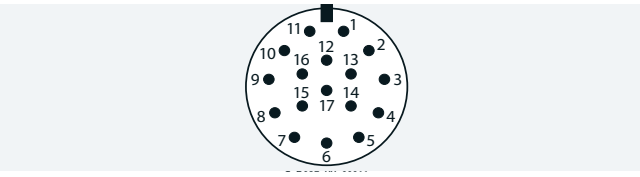
The absolute encoder is available with SSI protocol and HTL incremental signals up to motor frame size 200.

Technical specifications

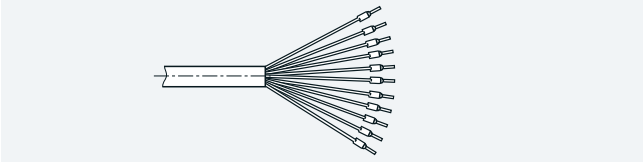
Absolute encoders	**1XP8024-21**
Supply voltage U_B	10 ... 30 V
Maximum current consumption without load	28 mA at 24 V
Absolute position values	SSI
_ Code	Gray
_ Positions per revolution	8192 (13 bit)
_ Differentiable revolutions	4096
_ Calculation time t_{cal}	≤ 5 µs
Incremental signals	HTL
_ Outputs	2 short-circuit-proof square-wave pulses U_{a1}, U_{a2} (maximum 1 min) 2 short-circuit-proof square-wave pulses $\overline{U_{a1}}$, $\overline{U_{a2}}$ (maximum 1 min)
_ Signal level	$U_{High} \geq U_P - 2.5$ V $I_{High} = 20$ mA $U_{Low} \leq 1.6$ V $I_{Low} = 20$ mA
_ Pulses per revolution	2048
_ Sampling rate	≥ 205 kHz
_ Edge interval	0.43 µs
Starting torque at 20 °C	≤ 0.01 Nm
Moment of inertia of rotor	4.3 x 10^{-6} kgm^2
Maximum permissible mechanical speed	≤ 6000 rpm
Vibration (55 ... 2000 Hz)	≤ 150 m/s^2 (EN 60068-2-6)
Shock (6 ms)	≤ 1000 m/s^2 (EN 60068-2-27)
Degree of protection	IP66
Ambient temperature range	−40 ...+40 °C (temperature class 180 (H)) / −40 ...+60 °C (temperature class 155 (F))
Connection system → page 11/70	1 m cable with 17-pole coupling socket, 0° coding
Weight, approx.	0.3 kg
Additional identification code **-Z** with order code	Order code
2KJ3... -.....-....**-Z**	**Q79** [1]

[1] For worm geared motors S, the absolute encoder can only be selected for motor frame size 71.

Connection assignment



For cable available as an option, see "Encoder accessories" from page 11/71.



	Voltage supply					**Incremental signals**				**Absolute position values**				**Other signals**	
Connection	U_P	Sensor U_P	0 V	Sensor 0 V	Inner shield	U_{a1}	$\overline{U_{a1}}$	U_{a2}	$\overline{U_{a2}}$	DATA	$\overline{DATA}$	CLOCK	$\overline{CLOCK}$	Count. direction	Zeros
Flange socket (SSI)	7	1	10	4	11	15	16	12	13	14	17	8	9	2	5
Core color	brown/ green	blue	white/ green	white		green/ black	yellow/ black	blue/ black	red/ black	gray	pink	violet	yellow	black	green

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Rugged encoders

Rotary pulse encoder LL 861 900 220

Fig. 11-51 Leine und Linde LL 861 900 220

With its rugged design, this rotary pulse encoder is also suitable for demanding operating environments. It is resistant to shock and vibration and has insulated bearings.

The rotary pulse encoder LL 861 900 220 is available in combination with self-ventilated motors in frame size 112 or larger, or in combination with forced-ventilated motors in frame size 160 or larger.

The version of the rotary pulse encoder with a diagnostics system (ADS) can be supplied by Leine und Linde.

Technical specifications

Supply voltage U_P	**+9 … +30 V**
Current consumption without load	max. 80 mA
Permissible load current per output	40 mA
Pulses per revolution	1024
Outputs	6 short-circuit-proof square-wave pulses A, A', B, B', 0, 0', high current HTL
Pulse offset between the two outputs	90° ± 25° electrical
Output amplitude	$U_{High} \geq U_B - 4$ V $U_{Low} \leq$ 2.5 V
Pulse duty factor	1:1 ± 10 %
Rate of change	50 V/µs (without load)
Maximum frequency	100 kHz for 350 m cable
Maximum speed	4000 rpm
Degree of protection	IP66
Ambient temperature range	–20 … +40°C
Maximum permissible radial cantilever force	300 N
Maximum permissible axial force	100 N
Connection system → page 11/70	Terminal strips in the encoder Cable connection, M20 x 1.5 radial
Weight, approx.	1.3 kg
Additional identification code **-Z** with order code	Order code
2KJ3… -…..-….**-Z**	**Q92**

Manufacturer:

Leine & Linde AB
Brooktorkai 20
20457 Hamburg, Germany
Phone: +49 (0) 40-3176758-60

www.leinelinde.com
email: info@leinelinde.de

Rotary pulse encoder HOG9 D 1024 I

Fig. 11-52 Hübner HOG9 D 1024 I

The encoder is equipped with insulated bearings.

The rotary pulse encoder HOG9 D 1024 I is available in combination with self-ventilated motors in frame size 112 or larger, or in combination with forced-ventilated motors in frame size 160 or larger.

Technical specifications

Supply voltage U_P	**+9 … +30 V**
Current consumption without load	50 … 100 mA
Permissible load current per output	60 mA, 300 mA peak
Pulses per revolution	1024
Outputs	4 short-circuit-proof square-wave pulses A, B and A', B'
Pulse offset between the two outputs	90° ± 20°
Output amplitude	$U_{High} \geq U_B - 3.5$ V $U_{Low} \leq$ 1.5 V
Pulse duty factor	1:1 ± 20 %
Rate of change	10 V/µs (without load)
Maximum frequency	120 kHz
Maximum speed	7000 rpm
Degree of protection	IP56
Ambient temperature range	–30 … +40 °C (temperature class 180 (H)) –30 … +60 °C (temperature class 155 (F))
Maximum permissible radial cantilever force	300 N
Maximum permissible axial force	200 N
Connection system → page 11/70	Radial connector (mating connector is part of the scope of delivery)
Mechanical design acc. to Hübner Ident. No.	73 522 E
Weight	0.7 kg
Additional identification code **-Z** with order code	Order code
2KJ3… -…..-….**-Z**	**Q93**

Manufacturer:

Baumer GmbH
Pfingstweide 28
61169 Friedberg, Germany
Phone: +49 (0) 6031-6007-0

www.baumer.com
email: sales.de@baumer.com

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Rugged encoders

Rotary pulse encoder HOG10 D 1024 I

Fig. 11-53 Hübner HOG10 D 1024 I

This encoder is extremely rugged and is therefore suitable for demanding operating conditions. It is equipped with insulated bearings.

The rotary pulse encoder HOG10 D 1024 I is available for motor frame size 132 and higher.

Technical specifications

Supply voltage U_P	**+9 ... +30 V**
Current consumption without load	approx. 100 mA
Permissible load current per output	60 mA, 300 mA peak
Pulses per revolution	1 024
Outputs	4 short-circuit-proof square-wave pulses A, B and A', B'
Pulse offset between the two outputs	90° ± 20 %
Output amplitude	$U_{High} \geq U_B - 3.5$ V $U_{Low} \leq$ 1.5 V
Pulse duty factor	1:1 ± 20 %
Rate of change	10 V/µs (without load)
Maximum frequency	120 kHz
Maximum speed	7000 rpm
Degree of protection	IP66
Ambient temperature range	–40 ... +40 °C (temperature class 180 (H)) –40 ... +60 °C (temperature class 155 (F))
Maximum permissible radial cantilever force	400 N
Maximum permissible axial force	250 N
Connection system → page 11/70	Terminals, cable connection M20 x 1.5
Mechanical design acc. to Hübner Ident. No.	74 055 E
Weight, approx.	1.6 kg
Additional identification code **-Z** with order code	Order code
2KJ3... -.....-....**-Z**	**Q94**

Manufacturer:

Baumer GmbH
Pfingstweide 28
61169 Friedberg, Germany
Phone: +49 (0) 6031-6007-0

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email: sales.de@baumer.com

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Functionally safe rotary encoders

Information about configuring and application of the functionally safe rotary encoders can be found in chapter "Configuring guide" on page 2/30.

Incremental encoder IN 8.5834

This incremental encoder is available for motor frame sizes 71 to 200.

Fig. 11-54 Incremental encoder IN 8.5834

Technical specifications

Incremental encoders	**IN 8.5834FS2**	**IN 8.5834FS3**
Pulses per revolution	1024	
Supply voltage U_B	5 V_{DC} ± 5 %	
Maximum current consumption without load	≤ 70 mA	
Reverse polarity protection for supply voltage	Yes	
Outputs	Sinusoidal/cosinusoidal	
_ Max. frequency –3dB	400 kHz	
_ Signal level	1 V_{PP} (± 10 %)	
_ Outputs	Sine signal: B, B_Inv Cosine signal: A, A_Inv	
_ Short-circuit strength	Yes (short-circuit proof to 0 V or output, only one channel at a time, when supply voltage is correctly applied)	
Starting torque (at 20 °C)	< 0.03 Nm	
Moment of inertia of rotor	7 x 10^{-6} kgm^2	
Max. permissible mechanical speed	≤ 3000 rpm	
Maximum permissible angular acceleration	≤ 4000 rad/s^2	
Vibration (10 ...150 Hz)	200 m/s^2 (EN 60068-2-6)	
Shock resistance (11 ms)	500 m/s^2 (EN 60068-2-27)	
Degree of protection	IP 65	
Ambient temperature range	–30 ... +50 °C	
Connection system	Tangential 1 m cable with coupling socket 12-pole, M23 with 0° coding	
Weight, approx.	0.45 kg	
Safety values		
Classification	PLd / SIL2	PLe / SIL3
System structure	2-channel (Cat. 3)	2-channel (Cat. 4)
PFH d value	2.16 x 10^{-8} h^{-1} (The specified value refers to a diagnostic coverage of 90 % that must be achieved with an encoder evaluation unit. The encoder evaluation unit must at least comply with the requirements for SIL2.)	1.09 x 10^{-8} h^{-1} (The specified value refers to a diagnostic coverage of 99 % that must be achieved with an encoder evaluation unit. The encoder evaluation unit must at least comply with the requirements for SIL3.)
Service life	20 years	20 years
Relevant standards (compliance with applicable national and regional laws, standards, and regulations is also essential)	EN ISO 13849-1:2008 EN ISO 13849-2:2012 EN 61800-5-2:2007	EN ISO 13849-1:2008 EN ISO 13849-2:2012 EN 61800-5-2:2007
Additional identification code **-Z** with order code	Order code	
2KJ3... -.....-....**-Z**	**Q42** [1]	**Q43** [1]

[1] The functionally safe rotary encoder is not compatible with worm geared motors S.

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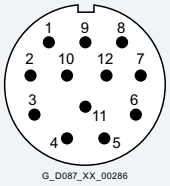
Functionally safe rotary encoders

Incremental encoder IN 8.5834

Connection assignment



Signal

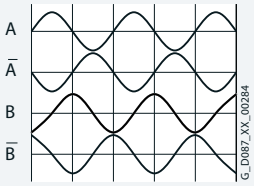


Fig. 11-55 Chart pattern with shaft rotating in clockwise direction (looking in direction of clamping ring)

	Voltage supply				**Incremental signals**			
Connection	U_P	Sensor U_P [1]	0 V	Sensor 0 V [1]	*A+*	*A–*	*B+*	*B–*
Flange socket	12	2	10	11	5	6	8	1

[1] Jumpers between sensor pins in rotary encoder

Manufacturer:

Fritz Kübler GmbH
Schubertstr. 47
78054 Villingen-Schwenningen, Germany

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Fax: +49 (0) 77 20 - 21 56 4

www.kuebler.com
email: info@kuebler.com

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Functionally safe rotary encoders

Absolute encoder IA 8.5883

This absolute encoder is available for motor frame sizes 71 to 200.

Fig. 11-56 Absolute encoder IA 8.5883

Technical specifications

Absolute encoders	**IA 8.5883FS2**	**IA 8.5883FS3**
Supply voltage U_B	5 V_{DC} ± 5 %	
Maximum current consumption without load	≤ 80 mA	
Reverse polarity protection for supply voltage	Yes	
Absolute position values	SSI	
_ Output driver	RS485 transceiver type	
_ Permitted load / channel	max. ± 20 mA	
_ Signal level	HIGH type 3.8 V LOW with I load = 20 mA type 1.3 V	
_ Positions per revolution	8192 (13 bit)	
_ Differentiable revolutions	4096 (12 bit)	
_ Code	Gray	
_ SSI clock rate	50 kHz ... 2 MHz	
_ Monoflop time	≤ 15 µs	
_ Data refresh rate	ST resolution ≤ 1 µs	
SinCos signals	~ 1 V_{PP}	
_ Max. frequency –3dB	400 kHz	
_ Signal level	1 V_{PP} (± 10 %)	
_ Short-circuit strength	Yes (short-circuit proof to 0 V or output, only one channel at a time, when supply voltage is correctly applied)	
_ Pulses per revolution	2 048	
_ Outputs	Sine signal: B, B_Inv Cosine signal: A, A_Inv	
Starting torque (at 20 °C)	< 0.03 Nm	
Moment of inertia of rotor	7 x 10^{-6} kgm^2	
Max. permissible mechanical speed	≤ 3000 rpm	
Maximum permissible angular acceleration	≤ 4000 rad/s^2	
Vibration (10 ... 150 Hz)	200 m/s^2 (EN 60068-2-6)	
Shock resistance (11 ms)	500 m/s^2 (EN 60068-2-27)	
Degree of protection	IP 65	
Ambient temperature range	–30 ... +50°C	
Connection system	Tangential 1 m cable with coupling socket 17-pole, M23 with 0° coding	
Weight, approx.	0.45 kg	
Additional identification code **-Z** with order code	Order code	
2KJ3... -.....-....**-Z**	**Q77** [1]	**Q78** [1]

[1] The functionally safe rotary encoder is not compatible with worm geared motors S.

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Functionally safe rotary encoders

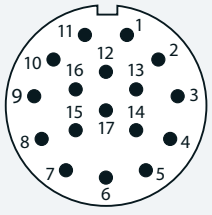
Absolute encoder IA 8.5883

Technical specifications

Absolute encoders	**IA 8.5883FS2**	**IA 8.5883FS3**
Safety values		
Classification	PLd / SIL2	PLe / SIL3
System structure	2-channel (Cat. 3)	2-channel (Cat. 4)
PFH d value	2.16 x 10^{-8} h^{-1} (The specified value refers to a diagnostic coverage of 90 % that must be achieved with an encoder evaluation unit. The encoder evaluation unit must at least comply with the requirements for SIL2.)	1.09 x 10^{-8} h^{-1} (The specified value refers to a diagnostic coverage of 99 % that must be achieved with an encoder evaluation unit. The encoder evaluation unit must at least comply with the requirements for SIL3.)
Service life	20 years	20 years
Relevant standards (compliance with applicable national and regional laws, standards, and regulations is also essential)	EN ISO 13849-1:2008 EN ISO 13849-2:2012 EN 61800-5-2:2007	EN ISO 13849-1:2008 EN ISO 13849-2:2012 EN 61800-5-2:2007
Additional identification code **-Z** with order code	Order code	
2KJ3… -…..-….**-Z**	**Q77** [1]	**Q78** [1]

[1] The functionally safe rotary encoder is not compatible with worm geared motors S.

Connection assignment



Signal

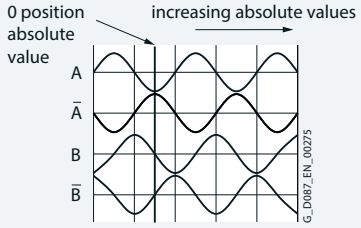


Fig. 11-57 Chart pattern with shaft rotating in clockwise direction (looking in direction of clamping ring)

	Voltage supply				**Incremental signals**					**Absolute position values**				**Other signals**	
Connection	U_P	Sensor U_P [1]	0 V	Sensor 0 V [1]	Inner shield [2]	A+	A−	B+	B−	DATA D+	$\overline{\text{DATA}}$ $\overline{\text{D−}}$	CLOCK C+	$\overline{\text{CLOCK}}$ $\overline{\text{C−}}$	Rot. direction DIR [3]	Zeros SET [4]
Flange socket (SSI)	7	1	10	4	11	15	16	12	13	14	17	8	9	2	5

[1] Sensor pins jumpered internally in connector
[2] No inner shield
[3] When the input is activated, the absolute values are counted backwards
[4] When the input is activated, the absolute value is set to zero

11

Manufacturer:

Fritz Kübler GmbH
Schubertstr. 47
78054 Villingen-Schwenningen, Germany

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Functionally safe rotary encoders

The maximum permissible air gaps for brake motors with functionally safe rotary encoder are different, see table.

Technical specifications of brake with functionally safe rotary encoder

Brake type	Rated braking torque T_{br} At 100 rpm	Working capacity Friction energy until the air gap is readjusted W_V	Rated air gap s_{LSN}	Max. rated air gap s_{LSM}
	Nm	MJ	mm	mm
L4/1.4	1.4	46.8	0.2	0.65
L4/2	2	46.8	0.2	0.6
L4/3	3	39.6	0.2	0.55
L4	4	36.0	0.2	0.5
L4/5	5	23.4	0.2	0.4
L8/3	3	86.4	0.2	0.6
L8/4	4	86.4	0.2	0.6
L8/5	5	75.6	0.2	0.6
L8/6.3	6.3	75.6	0.2	0.6
L8	8	64.8	0.2	0.5
L8/10	10	54	0.2	0.5
L16/4	4	108	0.2	0.6
L16/8	8	108	0.2	0.6
L16/10	10	108	0.2	0.6
L16/13	13	108	0.2	0.6
L16	16	108	0.2	0.6
L16/20	20	80	0.2	0.5
L32/8	8	190	0.3	0.7
L32/14	14	190	0.3	0.7
L32/18	18	190	0.3	0.7
L32/23	23	173	0.3	0.7
L32	32	141	0.3	0.6
L32/40	40	110	0.3	0.5
L60/25	25	204	0.3	0.7
L60/35	35	204	0.3	0.7
L60/38	38	187	0.3	0.7
L60/50	50	159	0.3	0.6
L60	60	159	0.3	0.6
L80/25	25	264	0.3	0.7
L80/35	35	264	0.3	0.7
L80/50	50	264	0.3	0.7
L80/63	63	264	0.3	0.7
L80	80	264	0.3	0.7
L80/100	100	173	0.3	0.6
L150/60	60	273	0.4	0.8
L150/80	80	273	0.4	0.8
L150/100	100	273	0.4	0.8
L150/125	125	273	0.4	0.8
L150	150	273	0.4	0.8
L260/100	100	418	0.4	0.8
L260/145	145	418	0.4	0.8
L260/180	180	418	0.4	0.8
L260/200	200	418	0.4	0.8
L260/240	240	418	0.4	0.8
L260	260	418	0.4	0.8
L260/315	315	338	0.4	0.7
L400/265	265	643	0.5	0.9
L400/300	300	643	0.5	0.9
L400/360	360	643	0.5	0.9
L400	400	643	0.5	0.9
L400/600	600	257	0.5	0.7

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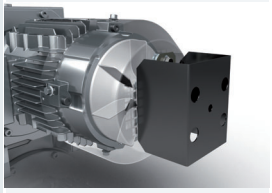
Mechanical protection

Versions

Protective plate

For self-ventilated motors up to frame size 90, the encoder is mounted outside the fan cover. In the standard version, the encoder is covered by a protective metal plate (painted red).

The protective plate is used for the following encoder types	Connection system	Image
HTL2048S/R FD (order code **Q54**)	Flange socket	
1XP8014-.. (order code **Q82**)		
1XP8022-.. (order codes **Q56, Q59, Q60**)	Cable terminal box	
TTL1024S/R KD (order code **Q44**) HTL1024S/R KD (order code **Q47**) HTL2048S/R KD (order code **Q48**)	0.8 m cable + coupling socket	
1XP8024-.. (order codes **Q79, Q83**)	1 m cable + coupling socket	

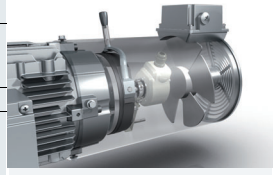
Canopy

From motor frame size 100, the encoder is protected by a canopy.

The canopy is used for the following encoder types	Connection system
HTL2048S/R FD (order code **Q54**)	Flange socket
1XP8014-.. (order code **Q82**)	
1XP8022-.. (order codes **Q56, Q59, Q60**)	Cable terminal box
TTL1024S/R KD (order code **Q44**) HTL1024S/R KD (order code **Q47**) HTL2048S/R KD (order code **Q48**)	0.8 m cable + coupling socket
1XP8024-.. (order codes **Q79, Q83**)	1 m cable + coupling socket
Leine und Linde LL 861 900 220 (order code **Q92**)	Cable terminal box
HOG9 D 1021 I (order code **Q93**)	Flange socket
HOG10 D 1021 I (order code **Q94**)	Cable terminal box

Fan cover of the motor (with separately driven fan)

For force-ventilated motors the encoder is mounted inside the fan cover.

The fan cover is used for the following encoder types	Connection system	Mounting the flange/coupling socket	Image
HTL2048S/R FD (order code **Q54**)	Flange socket (from motor frame size 132)		
1XP8014-.. (order code **Q82**)			
1XP8022-.. (order codes **Q56, Q59, Q60**)	Cable terminal box		
TTL1024S/R KD (order code **Q44**) HTL1024S/R KD (order code **Q47**) HTL2048S/R KD (order code **Q48**)	0.8 m cable + coupling socket	The coupling socket is attached to the motor cooling fins using a claw.	
1XP8024-.. (order codes **Q79, Q83**)	1 m cable + coupling socket	The cable is freely fed out of the fan cover.	
Leine und Linde LL 861 900 220 (order code **Q92**)	Cable terminal box		
HOG9 D 1021 I (order code **Q93**)	Flange socket		
HOG10 D 1021 I (order code **Q94**)	Cable terminal box		
IN 8.5834 (order codes **Q42, Q43**)	1 m cable + coupling socket	The coupling socket is attached to the motor cooling fins using a cable tie with claw.	
IA 8.5883 (order codes **Q77, Q78**)	1 m cable + coupling socket		

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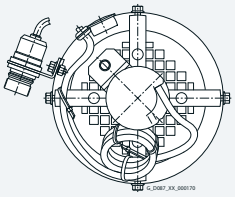
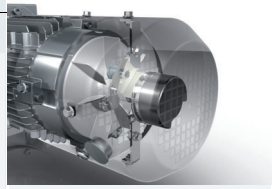
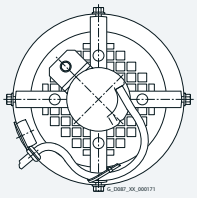
Mechanical protection

Versions					
Encoder under cover					
Optionally, for motor frame sizes 71 to 200, instead of the protective metal plate, a protective cover can be ordered. This provides additional mechanical protection for the encoder.					
The encoder under the cover can be used for the following encoder types	Connection system	Mounting the flange/coupling socket	Image	Additional identification code **-Z** with order code	
				2KJ3… -…..-….**-Z**	Order code
1XP8022-.. (order codes **Q56, Q59, Q60**)	Cable terminal box				**Q95**
TTL1024S/R KD (order code **Q44**) HTL1024S/R KD (order code **Q47**) HTL2048S/R KD (order code **Q48**)	0.8 m cable + coupling socket	The coupling socket is attached to the cover by a bracket. 			
1XP8024-.. (order codes **Q79, Q83**)	1 m cable + coupling socket	The cable is brought out through a cutout with protective envelope. 			
IN 8.5834 (order codes **Q42, Q43**)	1 m cable + coupling socket	The coupling socket is attached to the motor cooling fins using a cable tie with claw.			
IA 8.5883 (order codes **Q77, Q78**)	1 m cable + coupling socket				

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Motors prepared for encoder mounting

The interface for the modular encoder-mounting shaft is designed for a total maximum weight of m = 500 g. The connections and wiring for the encoder system must be selected such that the rotary encoder is not subjected to any additional forces. The encoder must be mounted in such a way that normal linear expansion does not subject the torque arm to any impermissible forces.

In the delivery state, the encoder-mounting shaft has a maximum radial runout of ≤ 0.1 mm. When the encoder is selected, it must be ensured that the minimum immersion depth of the solid shaft into the hollow shaft corresponds to the encoder manufacturer's specifications. The encoder manufacturer's instructions and recommendations must also be observed.

The interface "prepared for encoder mounting" is always shipped with an encoder protective device for protection during transport. The encoder protective device should be used in order to protect the mounted encoder and the mounting system against mechanical damage.

For the dimensions of the available mounting space and other dimensions, please refer to page 9/60.

This option is suitable for applications with medium shock and vibration requirements. At medium cycle frequencies of the application, speeds up to 3600 rpm are possible.

Encoders	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Prepared for encoder mounting (12 mm) (Not possible for worm geared motors S)		**N50**

MOTION-CONNECT signal cables

MOTION-CONNECT signal cables are available for connecting encoders to Siemens converters SINAMICS S110/120 and G120.

These cables can be ordered in precise 10 cm lengths.

Description	**Article No.**
DRIVE-CLiQ encoders	
Pre-assembled signal cable (Speed Connect, fixed routing)	**6FX5002-2DC40-■■■■**
Pre-assembled signal cable (screw thread, fixed routing)	**6FX5002-2DD40-■■■■**
Pre-assembled signal cable (Speed Connect, trailing type)	**6FX8002-2DC40-■■■■**
Pre-assembled signal cable (screw thread, trailing type)	**6FX8002-2DD40-■■■■**
Cable extensions for DRIVE-CLiQ encoders	
Pre-assembled signal cable (Speed Connect, fixed routing)	**6FX5002-2DC44-■■■■**
Pre-assembled signal cable (screw thread, fixed routing)	**6FX5002-2DD44-■■■■**
Pre-assembled signal cable (Speed Connect, trailing type)	**6FX8002-2DC44-■■■■**
Pre-assembled signal cable (screw thread, trailing type)	**6FX8002-2DD44-■■■■**
Incremental encoders HTL/TTL	
Pre-assembled signal cable (fixed routing/with Sub-D connector on control side)	**6FX5002-2CR00-■■■■**
Pre-assembled signal cable (fixed routing/ with bare wire ends on control side)	**6FX5002-2CA12-■■■■**
Pre-assembled signal cable (trailing type/ with bare wire ends on control side)	**6FX8002-2CA12-■■■■**
Absolute encoder (SSI) 1XP8024-21	
Pre-assembled signal cable (fixed routing)	**6FX5002-2CC06-■■■■**
Pre-assembled signal cable (trailing type)	**6FX8002-2CC06-■■■■**
Absolute encoder (EnDat 2.1) 1XP8014-10; 1XP8024-10	
Pre-assembled signal cable (fixed routing/ with Sub-D connector on control side)	**6FX5002-2CH00-■■■■**
Pre-assembled signal cable (trailing type/ with Sub-D connector on control side)	**6FX8002-2CH00-■■■■**
Functionally safe rotary encoder	
Connecting cable for incremental encoder IN 8.5834FS2, IN 8.5834FS3	**6FX5002-2CG00-■■■■**
Connecting cable for absolute encoder IA 8.5883FS2, IA 8.5883FS3	**6FX5002-2CH00-■■■■**

Further selection options and information about MOTION-CONNECT signal cables are available at: https://support.industry.siemens.com/cs/us/en/view/109747019

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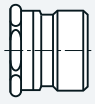
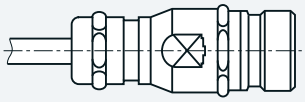
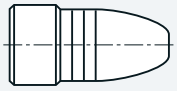
Encoder accessories

Connection system

Connection system	Description	Design
M23 flange socket		
	The flange socket is mounted directly on the encoder.	Pin contacts External thread
M23 coupling socket		
	The coupling socket is connected to the encoder via a cable.	Pin contacts External thread
M23 connector		
	The connector is connected to the flange/ coupling socket.	Socket contacts Union nut

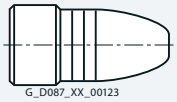
Technical specifications

	Cable suitable for cable carriers	Cable unsuitable for cable carriers
Operating temperature on the surface		
_ Permanently installed	–40 °C ... +80 °C	–40 °C ... +100 °C
_ Moving	–10 °C ... +80 °C	–30 °C ... +100 °C
Smallest bending radius		
_ Permanently installed	≥ 70 mm	≥ 35 mm
_ Moving	≥ 100 mm	≥ 70 mm
Bending operations	Typ. 5 x 10^6 cycles	–
Oil resistance	EN 50363-10-2	Oil-resistant
Outer jacket	Polyurethane (PUR)	Polyurethane (PUR)
Design	4x2x0.14+4x0.5 (for incremental encoder) 4x2x0.14+4x0.5+4x0.5 (for absolute encoder)	5x2x0.14 mm^2
Outer diameter	8 mm	7 mm ± 0.2 mm

Connector

A straight connector for shielded cables up to 8 mm in diameter is available for encoders with flange/coupling socket.

Selection table



Encoder type	Additional identification code **-Z** with order code	
	2KJ3... -.....-....**-Z**	Order code
M23 connector		
Incremental encoders TTL1024S/R KD, HTL1024S/R KD, HTL2048S/R KD, HTL2048S/R FD and IN 8.5834		**Q62** **FDU:55190000565002**
Absolute encoders 1XP8014, 1XP8024, IA 8.5883		**Q62** **FDU:55190000565003**

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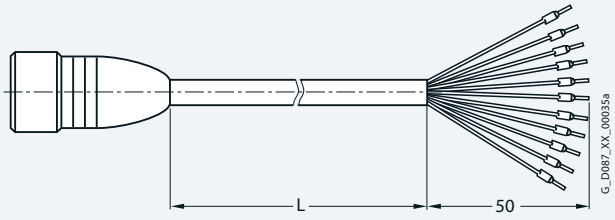
Encoder accessories

Cable with end sleeves

A pre-assembled cable with end sleeves and three different cable lengths can be supplied for the encoders.

Selection table

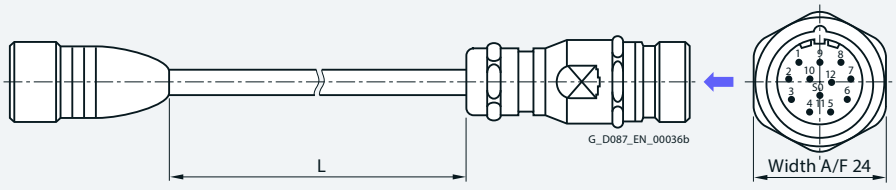


Encoder type	Suitable for cable carrier	Additional identification code **-Z** with order code	
	Yes / No	2KJ3… -…..-….**-Z**	Order code
Free cable length L			**2 m**
Incremental encoders TTL1024S/R KD, HTL1024S/R KD, HTL2048S/R KD and HTL2048S/R FD	Yes		**Q69** **FDU:70000004013446**
Absolute encoders 1XP8014 and 1XP8024	Yes		**Q69** **FDU:70000004013454**

Cable with coupling socket

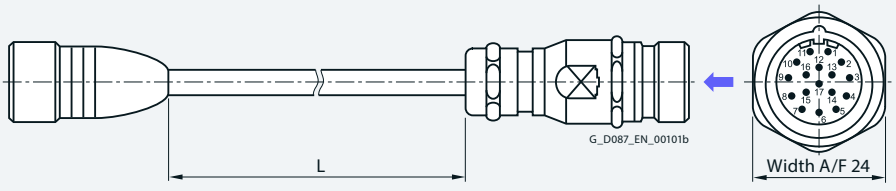
A cable with a straight coupling socket can be supplied for the encoders.

Selection table



Encoder type	Suitable for cable carrier	Additional identification code **-Z** with order code	
	Yes / No	2KJ3… -…..-….**-Z**	Order code
Free cable length L			**2 m**
Incremental encoders TTL1024S/R KD, HTL1024S/R KD, HTL2048S/R KD and HTL2048S/R FD	Yes		**Q72** **FDU:70000004013449**

For the connection assignment, see the encoder flange socket.



Encoder type	Suitable for cable carrier	Additional identification code **-Z** with order code	
	Yes / No	2KJ3… -…..-….**-Z**	Order code
Free cable length L			**2 m**
Absolute encoders 1XP8014 and 1XP8024	Yes		**Q72** **FDU:70000004013457**

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Encoder accessories

EnDAT gateways for absolute encoders

Using interface converters (gateways), EnDAT absolute encoders can be integrated in networks with a serial bus system (PROFIBUS DP, CANopen and DeviceNET).

Encoder accessories	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
PROFINET		**Q01**
PROFIBUS DP		**Q02**
CANopen		**Q03**
DeviceNET		**Q04**

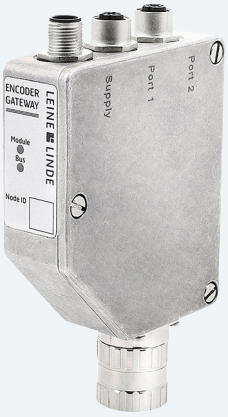

Fig. 11-58 EnDAT gateways

Technical specifications

Gateways [1] [2]	**PROFINET**	**PROFIBUS DP**	**CANopen**	**DeviceNET**
Supply voltage	9 … 36 V DC	9 … 30 V DC	9 … 30 V DC	9 … 30 V DC
Encoder data				
Connection	EnDat	EnDat	EnDat	EnDat
Supply voltage	5 V DC ± 5 %	5 V DC ± 5 %	5 V DC ± 5 %	5 V DC ± 5 %
Absolute encoders	1XP8014-10 (order code **Q82**) and 1XP8024-10 (order code **Q83**)			
Ambient temperature range	–40 … +60 °C	–40 … +60 °C	–30 … +60 °C	–30 … +60 °C
Accessories				
Cable with coupling socket	Order code **Q72**			

[1] Not possible for worm geared motors S.
[2] Not possible in conjunction with UL-R and CSA designs.

Manufacturer:

Leine & Linde AB
Brooktorkai 20
20457 Hamburg, Germany
Phone: +49 (0) 40-3176758-60

www.leinelinde.com
email: info@leinelinde.de

Application terminal box for sensors

The application terminal box contains the connections for the sensors in the motor (temperature measurement) and on the motor (encoder). This is used to isolate the connections for the power section from those for the sensor section.

The application terminal box is available for motor frame sizes 63 to 200.

The following encoders are possible in combination with the application terminal box:

_ Incremental encoder 1XP8022 (order code **Q59**)
_ Incremental encoder LL 861 900 220 (order code **Q92**)

Encoder accessories	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Application terminal box (Not possible for worm geared motors S)		**Q75**

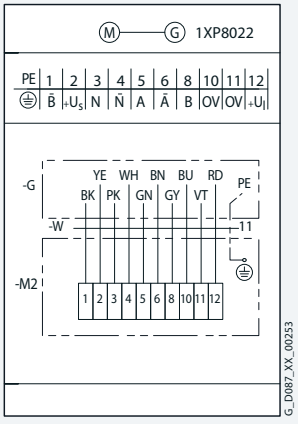

Fig. 11-59 Connection circuit diagram

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Encoder accessories

Modular system in combination with encoder systems

Encoder	Motor plug	Brake	Self ventilation			Forced ventilation[1)]	Backstop
			Standard fan	Metal fan	High inertia fan [1)]		
DRIVE-CLiQ encoders							
Without functional safety							
AS 22DQC	✓	✓	✓	✓	–	✓	–
AM 22DQC	✓	✓	✓	✓	–	✓	–
With functional safety							
AS 22DQC	✓	✓	✓	✓	–	✓	–
AM 22DQC	✓	✓	✓	✓	–	✓	–
Incremental encoders							
TTL1024S/R KD HTL1024S/R KD HTL2048S/R KD HTL2048S/R FD	✓	✓	✓	✓	✓	✓	✓
1XP8022-..	✓	✓	✓	✓	✓	✓	✓
Absolute encoders							
1XP8014-..	✓	✓	✓	✓	✓	✓	✓
1XP8024-..	✓	✓	✓	✓	✓	✓	✓
Rugged encoders							
LL 861 900 220	✓	-	✓	✓	✓	✓	✓
HOG9 D 1024 I	✓	-	✓	✓	✓	✓	✓
HOG10 D 1024 I	✓	-	✓	✓	✓	✓	✓
Functionally safe rotary encoders							
IN 8.5834...	✓	✓	✓	✓	✓	✓	–
IA 8.5883...	✓	✓	✓	✓	✓	✓	–

[1)] Can be selected for motor frame size 71 or higher

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Backstop

Motors in frame sizes 71 to 250 can be supplied with a backstop, which prevents them from rotating in the opposite direction to that used in operation.

Above the disengage speed, in the operational direction of rotation, there is no connection between the inner and outer rings of the backstop.

For starting and stopping below the disengage speed, the operating time may be a maximum of 20 s.

In the direction of rotation opposite to the operational direction of rotation, there is a fixed connection between the inner and outer rings of the backstop. This allows the rated backstop torque to be transmitted.

When selecting the backstop, the direction of rotation of the geared motor output shaft must be specified.

Please note that motor speeds that are lower (e.g. in converter operation) than the disengage speed can damage the backstop.

Note:
The backstop is not suitable for ambient temperatures under −25 °C. For different ambient temperatures, please contact Innomotics.

The backstop cannot be selected in conjunction with the following motors and/or gearbox types:

- Worm geared motors S
- Electric-monorail geared motors
- Explosion-protected motors (MB motors)

The direction of rotation of the output shaft cannot be selected for explosion-protected motors (MB motors) and electric-monorail geared motors.

Mounted components	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Backstop		**N23**
Output shaft direction of rotation, clockwise		**K18**
Output shaft direction of rotation, counterclockwise		**K19**

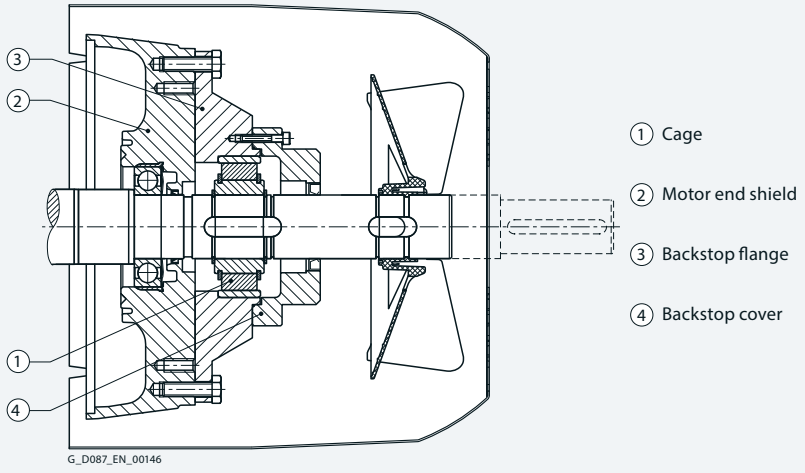

Fig. 11-60 Backstop

Technical specifications

Motor frame size	Rated torque	Disengage speed	Maximum speed	Weight	Moment of inertia of cage and inner ring
	T_{SP} Nm	n_{dis} rpm	n_{max} rpm	m_{Bstp} kg	J_{Bstp} 10^{-4} kgm²
71	100	890	5000	0.26	1.0
80	100	890	5000	0.26	1.0
90	150	860	5000	0.42	2.0
100	150	860	5000	0.42	2.0
112	150	860	5000	0.42	2.0
132	420	750	5000	1.16	8.0
160	800	700	5000	1.16	8.0
180	1050	670	5000	1.60	20.0
200	1050	670	5000	1.60	20.0
225	1350	630	5000	4.20	27.0
250	1350	630	5000	4.20	27.0

Modular system in combination with backstop

Modular system	Motor plug	Brake	Encoder	Self ventilation Forced ventilation	Second shaft extension
Backstop	✓	–	✓	✓	✓

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Second shaft extension and handwheel

Second shaft extension

For 4-pole motors a free, second shaft extension can be supplied on the non-drive end (NDE). The second shaft extension has a 60° centering hole to DIN 332, Part 2 with M3 to M24 threaded hole depending on the shaft diameter.

For a coupling output, the second shaft extension can transmit the full rated power. Please also inquire about the power that can be transmitted and permissible cantilever force if belt pulleys, chains or gear pinions are used on the second shaft extension.

The second shaft extension cannot be selected with the following options and/or gearbox types:

_ Worm geared motors S
_ Converter World Motors
_ Explosion-protected motors (MB motors)
_ Encoders
_ Forced ventilation

Mounted components	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Second shaft extension		**N39**

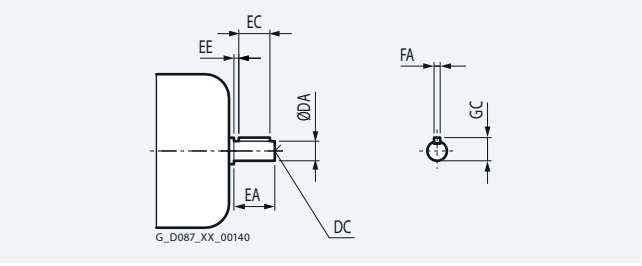

Fig. 11-61 Second motor shaft extension

Technical specifications

Motor frame size	DA	EA	Distance between fan cover and shaft shoulder	DC	EC	EE	FA	GC
63	–	–	–	–	–	–	–	–
71	14	30	4	M5	22	4	5	16.0
80	14	30	4	M5	22	4	5	16.0
90	19	40	5	M6	32	4	6	21.5
100	19	40	5	M6	32	4	6	21.5
112	24	50	6	M8	40	5	8	27.0
132	28	60	8	M10	50	5	8	31.0
160	38	80	8	M12	70	5	10	41.0
180	42	110	15	M16	90	10	12	45.0
200	48	110	20	M16	100	5	14	51.5
225	55	110	5	M20	100	5	16	59.0
250	60	140	5	M20	125	10	18	64.0

Handwheel

Motors of frame sizes 71 to 160 can be supplied with a second shaft extension and additionally with a handwheel.

The handwheel is a disk-type handwheel in accordance with DIN 3670. By mounting it on the second shaft extension of the motor, the geared motor can be rotated even when the motor winding is in a no-voltage state.

The handwheel in combination with a second shaft extension cannot be selected in conjunction with the following gearbox types and/or motors:

_ Worm geared motors S
_ Converter World Motors
_ Explosion-protected motors (MB motors)

Mounted components	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Handwheel		**N40**

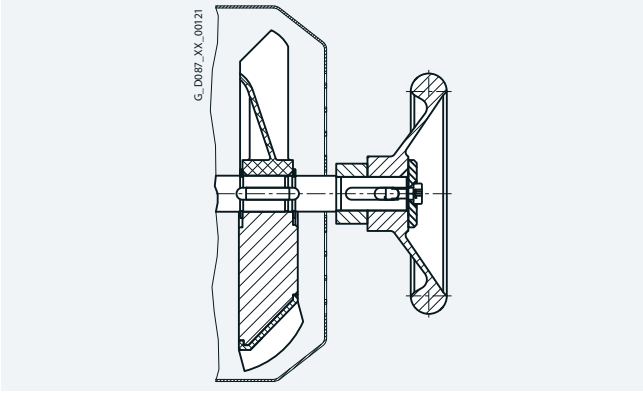

Fig. 11-62 Handwheel

Modular system in combination with second shaft extension

Modular system	Motor plug	Brake	Back-stop	Encoder	Self ventila-tion	Forced ventila-tion
Second shaft extension						
Without handwheel	✓	✓	✓	–	✓	–
With handwheel	✓	✓	✓	–	✓	–

Canopy

Geared motors with a vertical mounting position (motor at the top) can also be fitted with a canopy. The canopy prevents small items from falling into the geared motor; in the case of outdoors installation, its primary function is to serve as a rain canopy.

If the motor is to be used or stored in the open air, we recommend that it is kept under additional cover to protect it from prolonged exposure to direct sunlight, rain, snow, ice, or dust.

Mounted components	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Canopy		**N22**

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Condensation drain hole

Condensation can accumulate inside the motor as the result of environmental effects. This can result in corrosion and lower clearances and creepage distances.

The condensation is drained to the outside through the condensation drain hole. Depending on the mounting position, the drain holes are located at the DE and/or NDE of the motor.

Note:
The condensation drain hole cannot be selected in conjunction with explosion-protected motors (MB motors) or worm geared motors S.

Special ambient conditions	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Condensation drain hole		**N46**

The option "condensation drain hole" can only be used for the following applications under certain conditions:

Motor	**Gearbox type**								**Mounting position**	
	D./Z.	**E.**	**FD./FZ.**	**B**	**K**	**C**	**BH.**	**KHF**	**Possible**	**Not possible**
LE63, LE71	19	–	–	19	–	–	–	–	M2	M1, M3, M4, M5, M6
LE71	19 … 79	39 … 89	29 … 79	19 … 49	39 … 89	29 … 89	–	49 … 79	M4	M1, M2, M3, M5, M6
LE80	89	89	89	–	109	–	–	–	M2	M1, M3, M4, M5, M6
LE90	89 … 129	89 … 129	89 … 129	–	109 … 149	–	–	v	M1, M2, M3, M5, M6	M4
LE100	–	–	–	–	–	–	29 … 39	–	M2	M1, M3, M4, M5, M6
LE100	89 … 149	89 … 149	89 … 149	–	109 … 169	–	–	–	M1, M2, M3, M5, M6	M4
LE112	89 … 189	89 … 149	89 … 189	–	109 … 189	–	–	–	M1, M2, M3, M5, M6	M4
LE132	129 … 189	129 … 149	129 … 189	–	149 … 189	–	–	–	M1, M2, M3, M5, M6	M4
LE160	149 … 189	149	149 … 189	–	169 … 189	–	–	–	M1, M2, M3, M5, M6	M4
LES180	109 … 189	109 … 149	109 … 189	–	129 … 189	–	–	–	M1, M2, M3, M5, M6	M4
LES200	129 … 189	129 … 149	129 … 189	–	149 … 189	–	–	–	M1, M2, M3, M5, M6	M4
LES225	On request									
LES250	On request									

Internal stator corrosion protection

For special applications, it may be necessary to apply a protective coating to the inner surfaces of the stator as well.

Special ambient conditions	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Internal stator corrosion protection (Not possible for worm geared motors S)		**N41**

Increased corrosion protection for mounted motor components

For motors of frame sizes 63 to 200 with additional mounted components such as a enclosed brake or backstop, the "corrosion protection of mounted motor components" option can be selected for corrosivity category C3 and above.
As a result, the internal surfaces of the mounted motor components as well as the fan cover are also coated from the inside.

Special ambient conditions	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Corrosion protection for mounted motor components		**L06**

The increased corrosion protection for mounted motor components cannot be selected in conjunction with the following options and/or gearbox types:

_ Worm geared motors S
_ Electric-monorail geared motors
_ Explosion-protected motors (MB motors)
_ Functionally safe rotary encoders
_ Encoders under cover

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General options

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General options

Environmental conditions

Ambient temperatures of the geared motors

For the Innomotics SG geared motors, different ambient temperature ranges are available.

Overview

Ambient temperature	Gearbox type								Additional identification code **-Z** with order code	
	Helical gearboxes	Parallel shaft gearboxes	Bevel gearboxes	Bevel gearboxes	Helical worm gearboxes	Worm gearboxes S	Electric-monorail gearboxes		2KJ3… -…..-….**-Z**	Order code
	Z/D/E	FZ/FD	K	B	C	S	BH	KH		
Standard ambient temperature range										
–15 °C to +40 °C	✓	✓	✓	–	–	–	–	✓		**–**
–20 °C to +40 °C	✓	✓	✓	–	–	–	–	✓		**K95**[1]
–20 °C to +40 °C	–	–	–	✓	✓	✓	✓	–		**–**
Extended ambient temperature range										
–20 °C to +60 °C	✓	✓	✓	✓	✓	–	✓	✓		**K90**
–20 °C to +50 °C	✓	✓	✓	✓	✓	–	✓	✓		**K91**
–20 °C to +45 °C	✓	✓	✓	✓	✓	–	✓	✓		**K92**
–25 °C to +40 °C	✓	✓	✓	✓	✓	–	✓	✓		**K96**
–30 °C to +40 °C	✓	✓	✓	✓	✓	–	–	✓		**K97**
–40 °C to +40 °C	✓ [2]	✓ [3]	✓	–	✓ [3]	–	–	✓		**K98**

[1] For the helical, parallel shaft and bevel geared motors, an additional standard temperature range is available after selection of a synthetic oil.
[2] Can be selected for helical gearboxes Z and D from size 49.
[3] Can be selected for parallel shaft and helical worm gearboxes from size 39.

Extended ambient temperatures

For extended ambient temperatures, the choice of service factor and the shaft load must be considered. Self-heating during continuous duty of the gearboxes and geared motors is taken into account.

The following restrictions must be considered in conjunction with the extended ambient temperature range:

K90	Further information	**K91**	Further information	**K92**	Further information	**K96**	Further information	**K97**	Further information	**K98**	Further information
–20 °C to +60 °C		**–20 °C to +50 °C**		**–20 °C to +45 °C**		**–25 °C to +40 °C**		**–30 °C to +40 °C**		**–40 °C to +40 °C**	
Gearbox options		**Gearbox options**		**Gearbox options**		**Gearbox options**		**Gearbox options**		**Gearbox options**	
_ Lubrication and sealing	10/58	_ Lubrication and sealing	10/58	_ Lubrication and sealing	10/58	_ Shaft design	10/50	_ Shaft design	10/50	_ Mounting type	10/42
_ Venting and oil level control	10/61	_ Venting and oil level control	10/61	_ Venting and oil level control	10/61	_ Lubrication and sealing	10/58	_ Lubrication and sealing	10/58	_ Shaft design	10/50
_ Accessories for VLplus reinforced bearing systems	10/56	_ Accessories for VLplus reinforced bearing systems	10/56	_ Accessories for VLplus reinforced bearing systems	10/56	_ Oil level control	10/61	_ Venting and oil level control	10/61	_ Lubrication and sealing	10/58
						_ Accessories for VLplus reinforced bearing systems	10/56	_ Accessories for VLplus reinforced bearing systems	10/56	_ Venting and oil level control	10/61
										_ Accessories for VLplus reinforced bearing systems	10/56
Motor options		**Motor options**		**Motor options**		**Motor options**		**Motor options**		**Motor options**	
_ Brakes	11/33	_ Brakes	11/33	_ Brakes	11/33	_ Brakes	11/33	_ Cooling and ventilation	11/16	_ Cooling and ventilation	11/16
_ Encoder	11/53	_ Encoder	11/53	_ Encoder	11/53	_ Encoder	11/53	_ Brakes	11/33	_ Brakes	11/33
								_ Function rectifier for brakes	11/38	_ Function rectifier for brakes	11/38
								_ Brake supply voltages	11/36	_ Brake supply voltages	11/36
								_ Encoder	11/53	_ Encoder	11/53
								_ Backstop	11/74	_ Backstop	11/74
General options		**General options**		**General options**		**General options**		**General options**		**General options**	
_ Surface treatment	12/3	_ Surface treatment	12/3	–		_ Surface treatment	12/3	_ Surface treatment	12/3	_ Surface treatment	12/3
ATEX		**ATEX**		**ATEX**		**ATEX**		**ATEX**		**ATEX**	
–		–		–		_ Sales regulation according to ATEX-20		_ Sales regulation according to ATEX-20		_ Sales regulation according to ATEX-20	

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Surface treatment

To protect the drives against corrosion and external influences, five high-quality paint systems are available in various colors.

The corrosion protection system is designed in accordance with the corrosivity categories of Standard EN ISO 12944-2.

Geared motors, frame size 49 and higher, are painted in RAL 7016 (anthracite gray) to corrosivity category C1 as standard. This ensures that they are protected against corrosion for indoor use.

Geared motors, frame sizes 09 to 39 with an aluminum housing, are supplied unpainted as standard.

The shaft extensions and bare surfaces are treated with corrosion protection for 6 months.

Note:
Corrosivity category C1 is not suitable for ambient temperatures under −20 °C.

Parts made of plastic are generally not painted.

Surface pretreatment

For especially demanding applications, the drives can also be pretreated in order to ensure an optimum paint finish even in areas that are hidden or difficult to access.

Surface pretreatment	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Special pretreatment		**L19**

Corrosivity category	**Paint system**			**Description**	Additional identification code **-Z** with order code	
	Base coat	Intermediate coat	Top coat		2KJ3… -…..-….**-Z**	Order code
Surface protection						
Aluminum gearbox housing [1]						
Unpainted (standard)	–	–	–	_ Indoor installation _ Heated buildings with neutral atmospheres		**L00**
C1 Normal environmental stress	–	–	1-component hydro paint	_ Resistant to greases, conditionally resistant to mineral oils, aliphatic solvents _ Standard paint		**L02**
_ Layer thickness	–	–	60 µm			
Cast iron gearbox housing [2]						
C1 Normal environmental stress	–	–	1-component hydro paint	_ Indoor installation _ Heated buildings with neutral atmospheres _ Resistant to greases, conditionally resistant to mineral oils, aliphatic solvents _ Standard paint		**L02**
_ Layer thickness	–	–	60 µm			
All geared motors						
C2 Low environmental stress	2-component epoxy zinc phosphate	–	2-component polyurethane	_ Indoor and outdoor installation _ Unheated buildings with condensation, production areas with low humidity, e.g. warehouses and sports facilities _ Atmospheres with little pollution, rural areas _ Resistant to greases, mineral oils and sulfuric acid (10 %), caustic soda (10 %), and conditionally resistant to aliphatic solvents		**L03**
_ Layer thickness	–	–	100 µm			
C3 Average environmental stress	2-component epoxy zinc phosphate	–	2-component polyurethane	_ Indoor and outdoor installation _ Production areas with high humidity and some air pollution, e.g. food production areas, dairies, laundries, and breweries _ Urban and industrial atmospheres, moderate contamination from sulfur dioxide, coastal areas with low salt levels _ Resistant to greases, mineral oils, aliphatic solvents, sulfuric acid (10 %), caustic soda (10 %)		**L04**
_ Layer thickness	90 µm	–	100 µm			
C4 High environmental stress	2-component epoxy zinc phosphate	–	2-component polyurethane	_ Indoor and outdoor installation _ Chemical plants, swimming pools, wastewater treatment plants, electroplating shops, and boathouses above seawater _ Industrial areas and coastal areas with moderate salt levels _ Resistant to greases, mineral oils, aliphatic solvents, sulfuric acid (10 %), caustic soda (10 %)		**L20**
_ Layer thickness	90 µm	–	100 µm			
C5 Very high environmental stress	2-component epoxy zinc phosphate	2-component epoxy zinc phosphate	2-component polyurethane	_ Indoor and outdoor installation _ Buildings/areas with almost constant condensation and high degrees of pollution, e.g. malt factories and aseptic areas _ Industrial areas with high humidity and aggressive atmosphere, coastal areas and offshore environments with high salt levels _ Resistant to greases, mineral oils, aliphatic solvents, sulfuric acid (10 %), caustic soda (20 %)		**L05**
_ Layer thickness	90 µm	90 µm	100 µm			

[1] Helical gearboxes D/Z19 to D/Z39, parallel shaft gearboxes F29 and bevel gearboxes B29 and B39
[2] The bevel gearbox B49 is supplied painted

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General options

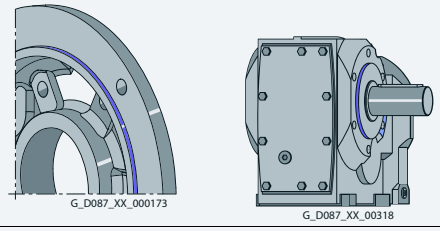
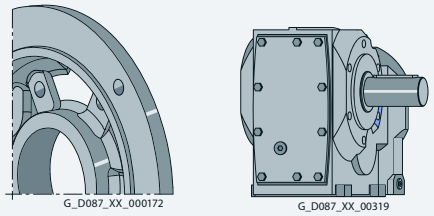
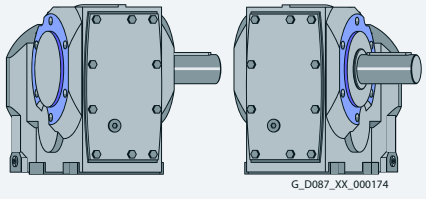
Surface treatment and preservation

Surface treatment

Corrosivity category	Paint system			Description	Additional identification code **-Z** with order code	
	Base coat	Intermediate coat	Top coat		2KJ3… -…..-….**-Z**	Order code
Primer				**Can be overpainted**		
C2 G	2-component polyurethane	–	–	_ 2-component polyurethane paint, 2-component epoxy paint and acid-hardening paint, 2-component acrylic paint		**L01**
C4 G	2-component epoxy zinc phosphate	–	–	_ 2-component polyurethane paint, 2-component epoxy paint and acid-hardening paint, 2-component acrylic paint		**L09**
Unpainted	–	–	–	_ Plastic paint, synthetic resin paint, oil paint, 2-component polyurethane paint, 2-component epoxy paint		**L00**

Painting flange surfaces

For flange-mounted or housing flange designs, the flange surface and centering are not painted at the selected output end. The versions listed in the table can be optionally selected.

Design	Possible for	Figure	Additional identification code **-Z** with order code	
		Surfaces marked blue are not painted	2KJ3… -…..-….**-Z**	Order code
Centering not painted	_ Flange-mounted design _ Housing flange design			**L11**
Flange completely painted	_ Flange-mounted design _ Housing flange design			**L12**
Centering flange not painted on both sides	_ Housing flange design for bevel gearbox and helical worm gearbox			**L27**

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Surface treatment

Colors

In addition to anthracite gray (RAL 7016), you can select from other standard colors.

RAL color	Designation	Color, example	Additional identification code **-Z** with order code 2KJ3… -…..-….**-Z** Order code
RAL 7016	Anthracite gray (standard)		**L75**
RAL 5015	Sky blue		**L50**
RAL 7030	Stone gray		**L55**
RAL 7031	Blue gray		**L53**
RAL 7012	Basalt gray		**L83**
Colors for conductive paint finish acc. to ATEX (corrosivity category C2 or higher)			
RAL 7016	Anthracite gray		**L75**
RAL 5003	Sapphire blue		**L40**
RAL 5015	Sky blue		**L50**
RAL 7031	Blue gray		**L53**
RAL 9011	Graphite black		**L80**

You can find additional colors in the SPC.

Note:
For light colors in corrosivity category C1 we recommend selection of surface treatment in the corrosivity category one level higher to ensure adequate and uniform coloring for the geared motor.

Preservation

All gearboxes and geared motors are preserved as standard for 6 months.

Long-term preservation up to 36 months

If the gearboxes are stored for longer than 6 months, then we recommend the "Long-term preservation" option. A VCI (volatile corrosion inhibitor) is added to the gearbox oil.

Until commissioning, it is not permissible that the gearbox is opened, as otherwise the VCI will vaporize. The oil level must be checked before commissioning. Corrosion protection is also applied to the flange contact surfaces and shaft extensions. We recommend that the gearbox is stored in the appropriate mounting position.

Storage conditions

Geared motors, stored in dry, dust-free and evenly tempered rooms do not require any special packaging.

In all other areas, the units must be packaged in foil with desiccant and moisture indicator. If required, protection must be provided against mold and termites. The storage location must be vibration- and shock-free. The storage conditions must be regularly checked.

Preservation	Additional identification code **-Z** with order code 2KJ3… -…..-….**-Z**	Order code
Long-term preservation up to 36 months		**K17**

For information about storage and commissioning please refer to the operating instructions.

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General options

Rating plate

Overview

The rating plates on the gearboxes and geared motors are normally manufactured out of coated aluminum foil. They are covered with a special masking film which ensures permanent resistance to UV radiation and media of all kinds (oils, greases, salt water, cleaning agents, etc.).

The adhesive and the material ensure firm adhesion and long-term legibility within the operating temperature range from −40 to +155 °C.

For geared motors, the rating plate is attached to a stainless steel plate on the motor.

For specific designs, additional rating plates are attached to the motor.

Customer-specific data can be indicated with option **Y00** and plain text (e.g. Y00:*LSF@plain text*).

Rating plate for helical, parallel shaft, bevel and helical worm geared motors

Geared motors with Converter World Motor

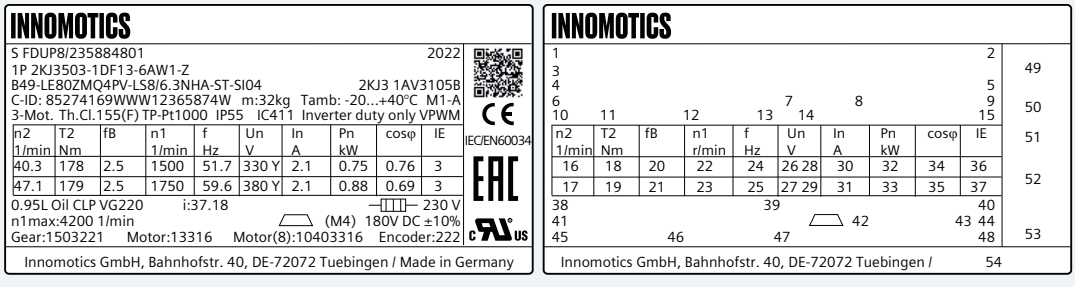

Fig. 12-1 Example of a Innomotics SG rating plate for geared motors with Converter World Motor

General data	
1	Article No.
2	Year of manufacture
3	Serial No. FDU: Innomotics GmbH, 72072 Tübingen, Germany
4	Type designation (with marking of the brake and/or encoder, if existing)
5	Geared motors type
6	Customer-specific data [1] (customer ID/free text), max. 20 characters
7	Weight m [kg]
8	Ambient temperature
9	Mounting position
10	Phase number and type of current for the motor
11	Temperature class Th.Cl.
12	Motor protection
13	Degree of protection according to IEC 60034-5
14	Ventilation method according to IEC 60034-6
15	Operating mode of the motor according to IEC 60034
16	Gearbox output speed n_2 [rpm] for the first rated operating point
17	Gearbox output speed n_2 [rpm] for the second rated operating point
18	Geared motor output torque T_2 [Nm] for the first rated operating point
19	Geared motor output torque T_2 [Nm] for the second rated operating point
20	Service factor f_B for the first rated operating point
21	Service factor f_B for the second rated operating point
22	Rated speed n_1 [rpm] for the first rated operating point
23	Rated speed n_1 [rpm] for the second rated operating point
24	Rated frequency f [Hz] for the first rated operating point
25	Rated frequency f [Hz] for the second rated operating point
26	Rated voltage U_n [V] for the first rated operating point
27	Rated voltage U_n [V] for the second rated operating point

General data	
28	Circuit, graphic symbols according to EN 60617 Part 6/ IEC 60617-6 for the first rated operating point
29	Circuit, graphic symbols according to EN 60617 Part 6/ IEC 60617-6 for the second rated operating point
30	Rated current I_N [A] for the first rated operating point
31	Rated current I_N [A] for the second rated operating point
32	Rated power P_N [kW] for the first rated operating point
33	Rated power P_N [kW] for the second rated operating point
34	Power factor cos φ for the first rated operating point
35	Power factor cos φ for the second rated operating point
36	Efficiency class according to IEC TS 60034-30-2 for the first rated operating point
37	Efficiency class according to IEC TS 60034-30-2 for the second rated operating point
38	Oil quantity [l], main gearbox/intermediate gearbox, oil type, oil viscosity ISO VG class according to DIN 51519/ISO 3448
39	Total transmission ratio i
40	Anti-condensation heating
41	Maximum permissible motor speed [rpm]
42	M4 rated braking torque T_{br} [Nm]
43	Brake supply voltage U [V]
44	Cyclic Duration Factor (CDF)
45	Gearbox code for SINAMICS converter
46	Motor code for SINAMICS converter of the 2nd generation
47	Motor code for SINAMICS converter of the 3rd generation
48	Encoder code for SINAMICS converter
49	QR code
50	CE marking
51	Applicable standard
52	EAC marking
52	Recognized Component mark for Canada and USA
54	Country of origin

When ordering a replacement/spare part, always specify the serial No.

[1] The customer-specific data are used to specify the customer ID/serial number. The following data are not permissible:
- Technical specifications for the geared motor (e.g. ambient temperature, voltage data, etc.)
- Details of Innomotics Article No. (MLFB)
- Unlawful texts

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Rating plate for helical, parallel shaft, bevel and helical worm geared motors

Geared motors not in UL/CSA design

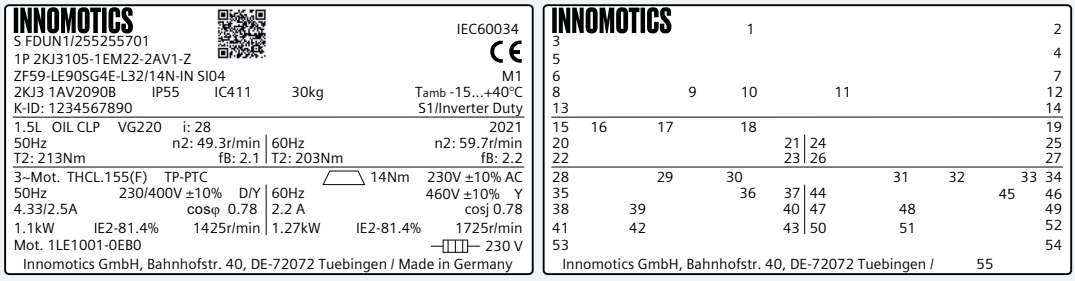

Fig. 12-2 Example of a Innomotics SG rating plate for non-UL/CSA geared motors

General data	
1	QR code
2	Applicable standard
3	Serial No. FDU: Innomotics GmbH, 72072 Tübingen, Germany
4	CE marking or other marking, if required
5	Article No.
6	Type designation with marking of the (functionally safe) rotary encoder
7	Mounting position
8	Geared motors type
9	Degree of protection according to IEC 60034-5
10	Ventilation method according to IEC 60034-6
11	Weight m [kg]
12	Ambient temperature
13	Customer-specific data [1] (customer ID/free text), max. 20 characters
14	Operating mode of the motor
15	Oil quantity [l] main gearbox/intermediate gearbox
16	Oil type
17	Oil viscosity ISO VG class according to DIN 51519/ISO 3448
18	Total transmission ratio i
19	Year of manufacture
Frequency 1	
20	Rated frequency f [Hz]
21	Gearbox output speed n_2 [rpm]
22	Geared motor output torque T_2 [Nm]
23	Service factor f_B
Frequency 2	
24	Rated frequency f [Hz]
25	Gearbox output speed n_2 [rpm]
26	Geared motor output torque T_2 [Nm]
27	Service factor f_B

Motor and brake data	
28	Phase number and type of current for the motor
29	Temperature class Th.Cl.
30	Motor protection
31	Symbols (IEC 60617-2): = brake
32	Rated braking torque T_{br} [Nm]
33	Brake supply voltage U [V]
34	Cyclic Duration Factor (CDF)
Frequency 1	
35	Rated frequency f [Hz]
36	Rated voltage range U [V]
37	Circuit, graphic symbols according to EN 60617 Part 6/ IEC 60617-6
38	Rated current I_N [A]
39	Operating mode for motor and brake (if ≠ S1)
40	Power factor cos φ
41	Rated power P_N [kW]
42	For induction motors: Efficiency class marking according to IEC 60034-30 with efficiency data For synchronous-reluctance motors: Efficiency class marking according to IEC TS 60034-30-2 without efficiency data
43	Rated speed n_N [rpm]
Frequency 2	
44	Rated frequency f [Hz]
45	Rated voltage range U [V]
46	Circuit, graphic symbols according to EN 60617 Part 6/ IEC 60617-6
47	Rated current I_N [A]
48	Operating mode for motor and brake (if ≠ S1)
49	Power factor cos φ
50	Rated power P_N [kW]
51	Efficiency class marking according to IEC 60034-30
52	Rated speed n_N [rpm]
53	Motor designation
54	Anti-condensation heating
55	Manufacturer's address and country of origin

When ordering a replacement/spare part, always specify the serial No.

[1] The customer-specific data are used to specify the customer ID/serial number. The following data are not permissible:
- Technical specifications for the geared motor (e.g. ambient temperature, voltage data, etc.)
- Details of Innomotics Article No. (MLFB)
- Unlawful texts

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General options

Rating plate

Rating plate for helical, parallel shaft, bevel and helical worm geared motors

Geared motors in UL/CSA design

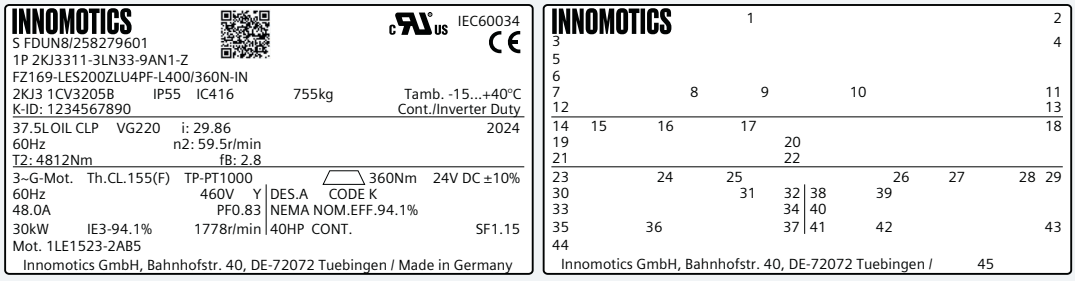

Fig. 12-3 Example of a Innomotics SG rating plate for geared motors with a UL/CSA design

General data	
1	QR code
2	Applicable standard
3	Serial No. FDU: Innomotics GmbH, 72072 Tübingen, Germany
4	CE marking or other marking, if required
5	Article No.
6	Type designation with marking of the (functionally safe) rotary encoder
7	Geared motors type
8	Degree of protection according to IEC 60034-5
9	Ventilation method
10	Weight m [kg]
11	Ambient temperature
12	Customer-specific data [1] (customer ID/free text), max. 20 characters
13	Operating mode of the motor according to UL
14	Oil quantity [l] main gearbox/intermediate gearbox
15	Oil type
16	Oil viscosity ISO VG class according to DIN 51519/ISO 3448
17	Total transmission ratio i
18	Year of manufacture
Frequency 1	
19	Rated frequency f [Hz]
20	Gearbox output speed n_2 [rpm]
21	Geared motor output torque T_2 [Nm]
22	Service factor f_B

Motor and brake data	
23	Phase number and type of current for the motor
24	Temperature class Th.Cl.
25	Motor protection
26	Symbols (IEC 60617-2): = brake
27	Rated braking torque T_{br} [Nm]
28	Brake supply voltage U [V]
29	Cyclic Duration Factor (CDF)
Frequency 1	
30	Rated frequency f [Hz]
31	Rated voltage range U [V]
32	Circuit, graphic symbols according to EN 60617 Part 6/ IEC 60617-6
33	Rated current I_N [A]
34	Performance factor
35	Rated power P_N [kW]
36	For induction motors: Efficiency class marking according to IEC 60034-30 with efficiency data For synchronous-reluctance motors: Efficiency class marking according to IEC TS 60034-30-2 without efficiency data
37	Rated speed n_N [rpm]
38	Design letter
39	Code letter
40	NEMA energy efficiency
41	Rated power P_N [kW]
42	NEMA operating mode
43	Service factor
44	Motor designation
45	Manufacturer's address and country of origin

When ordering a replacement/spare part, always specify the serial No.

[1] The customer-specific data are used to specify the customer ID/serial number. The following data are not permissible:
- Technical specifications for the geared motor (e.g. ambient temperature, voltage data, etc.)
- Details of Innomotics Article No. (MLFB)
- Unlawful texts

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Rating plate for helical, parallel shaft, bevel and helical worm geared motors

Geared motors for converter operation

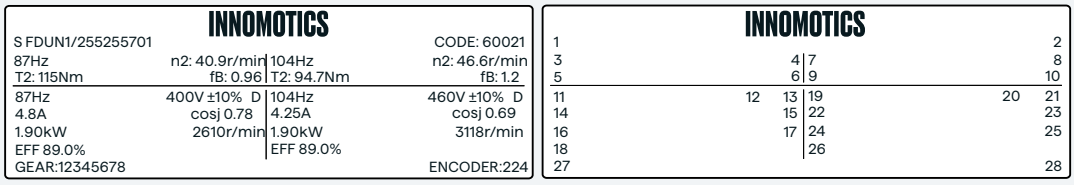

Fig. 12-4 Example of an additional Innomotics SG rating plate for geared motors for converter operation at 87 Hz and 104 Hz

General data	
1	Serial No. FDU: Innomotics GmbH, 72072 Tübingen, Germany
2	Motor code
Frequency 1	
3	Rated frequency f [Hz]
4	Gearbox output speed n_2 [rpm]
5	Geared motor output torque T_2 [Nm]
6	Service factor f_B
Frequency 2	
7	Rated frequency f [Hz]
8	Gearbox output speed n_2 [rpm]
9	Geared motor output torque T_2 [Nm]
10	Service factor f_B

Motor and brake data	
Frequency 1	
11	Rated frequency f [Hz]
12	Rated voltage range U [V]
13	Circuit, graphic symbols according to EN 60617 Part 6/ IEC 60617-6
14	Rated current I_N [A]
15	Power factor cos φ
16	Rated power P_N [kW],
17	Rated speed n_N [rpm]
18	Energy efficiency
Frequency 2	
19	Rated frequency f [Hz]
20	Rated voltage range U [V]
21	Circuit, graphic symbols according to EN 60617 Part 6/ IEC 60617-6
22	Rated current I_N [A]
23	Power factor cos φ
24	Rated power P_N [kW]
25	Rated speed n_N [rpm]
26	Energy efficiency
27	Gearbox code for SINAMICS converter
28	Encoder code for SINAMICS converter

When ordering a replacement/spare part, always specify the serial No.

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General options

Rating plate

Rating plate for helical, parallel shaft, bevel and helical worm geared motors

Geared motors with explosion-protected motors

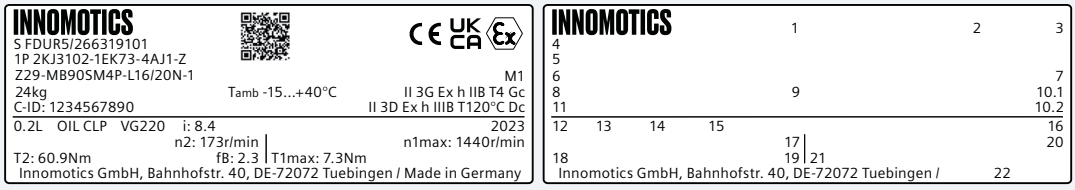

Fig. 12-5 Example of a Innomotics SG rating plate for geared motors equipped with an explosion-protected motor

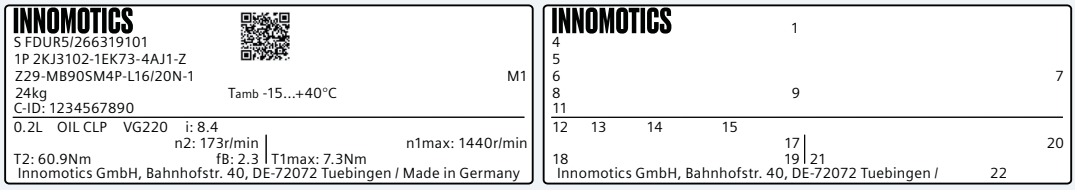

Fig. 12-6 Example of a Innomotics SG rating plate for geared motors equipped with an explosion-protected motor supplied loose

General data	
1	QR code
2	CE marking
3	Ex marking
4	Serial No. FDU: Innomotics GmbH, 72072 Tübingen, Germany
5	Article No.
6	Type designation
7	Mounting position
8	Weight m [kg]
9	Ambient temperature
10.1	Type of protection gas
10.2	Type of protection dust
11	Customer-specific data [1] (customer ID/free text), max. 20 characters
12	Oil quantity [l] main gearbox/intermediate gearbox
13	Oil type
14	Oil viscosity ISO VG class according to DIN 51519/ISO 3448
15	Total transmission ratio i
16	Year of manufacture
17	Gearbox output speed n_2 [rpm]
18	Geared motor output torque T_2 [Nm]
19	Service factor f_B
20	Maximum permissible tested input speed of the gearbox n_{1max} [rpm]
21	Maximum permissible tested gearbox input torque T_{1max} [Nm]
22	Manufacturer's address and country of origin

When ordering a replacement/spare part, always specify the serial No.

[1] The customer-specific data are used to specify the customer ID/serial number. The following data are not permissible:
- Technical specifications for the geared motor (e.g. ambient temperature, voltage data, etc.)
- Details of Innomotics Article No. (MLFB)
- Unlawful texts

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Rating plate for worm geared motor S

The worm geared motors S have separate rating plates for the gearbox side and the motor side.

Rating plate on the gearbox side

The rating plate on the gearbox side particularly contains the output data of the worm geared motor S.

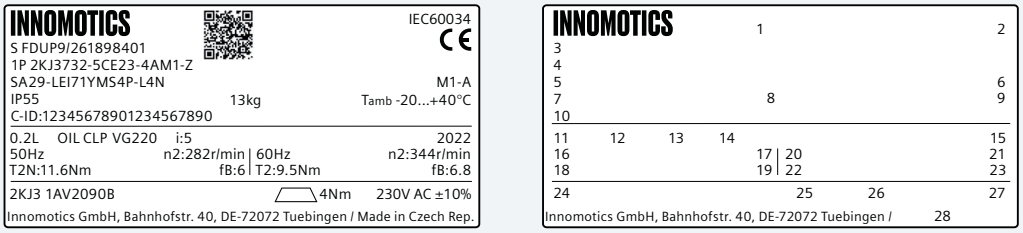

Fig. 12-7 Example of a rating plate on gearbox side on worm geared motor S

General data	
1	QR code
2	Applicable standard
3	Serial No.
4	Article No.
5	Type designation
6	Mounting position
7	Degree of protection according to IEC 60034-5 or IEC 60529
8	Weight m [kg]
9	Ambient temperature
10	Customer-specific data [1] (customer ID/free text), max. 20 characters
11	Oil quantity [l] main gearbox/intermediate gearbox
12	Oil type
13	Oil viscosity ISO VG class according to DIN 51519/ISO 3448
14	Total transmission ratio
15	Year of manufacture
Frequency 1	
16	Rated frequency f [Hz]
17	Gearbox output speed n_2 [rpm]
18	Geared motor output torque T_2 [Nm]
19	Service factor f_B

General data	
Frequency 2	
20	Rated frequency f [Hz]
21	Gearbox output speed n_2 [rpm]
22	Geared motor output torque T_2 [Nm]
23	Service factor f_B
24	Geared motors type
25	Symbols (IEC 60617-2): = brake
26	Rated braking torque T_{br} [Nm]
27	Brake supply voltage U [V]
28	Country of origin

When ordering a replacement/spare part, always specify the serial No.

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General options

Rating plate for worm geared motor S

Rating plate on the motor side

In addition a rating plate with the electrical data of the motor is attached to the motor on the worm geared motor S.

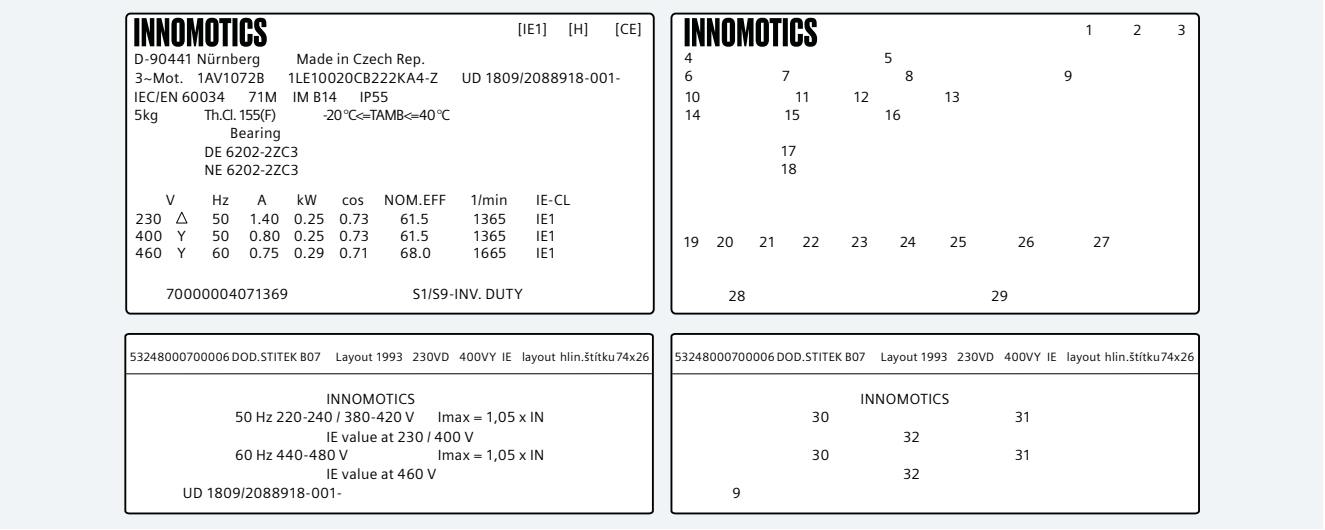

Fig. 12-8 Example of a rating plate on the motor side on worm geared motor S

Motor data	
1	IE efficiency class
2	Half-key balancing
3	Standards and regulations
4	Headquarters
5	Manufacturer's address
6	Machine type: three-phase low-voltage motor
7	Motor type number (MT)
8	Article No.
9	Date of manufacture YYMM / serial No.
10	Applicable standard
11	Frame size
12	Type of construction
13	Degree of protection
14	Weight m [kg]
15	Temperature class Th. Cl.
16	Ambient temperature

Motor data	
17	Bearing size DE
18	Bearing size NDE
19	Rated voltage [V]
20	Winding connections
21	Rated frequency f [Hz]
22	Rated current I_N [A]
23	Rated power P_N [kW]
24	Power factor cos φ
25	Efficiency
26	Rated speed n_N [rpm]
27	IE efficiency class
28	Material number
29	Duty type
30	Voltage range
31	Maximum current
32	IE value at specified voltage

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Rating plate for worm geared motor S

Rating plate on the motor side in CCC design

In addition a rating plate with the electrical data of the motor is attached to the motor on the worm geared motor S.

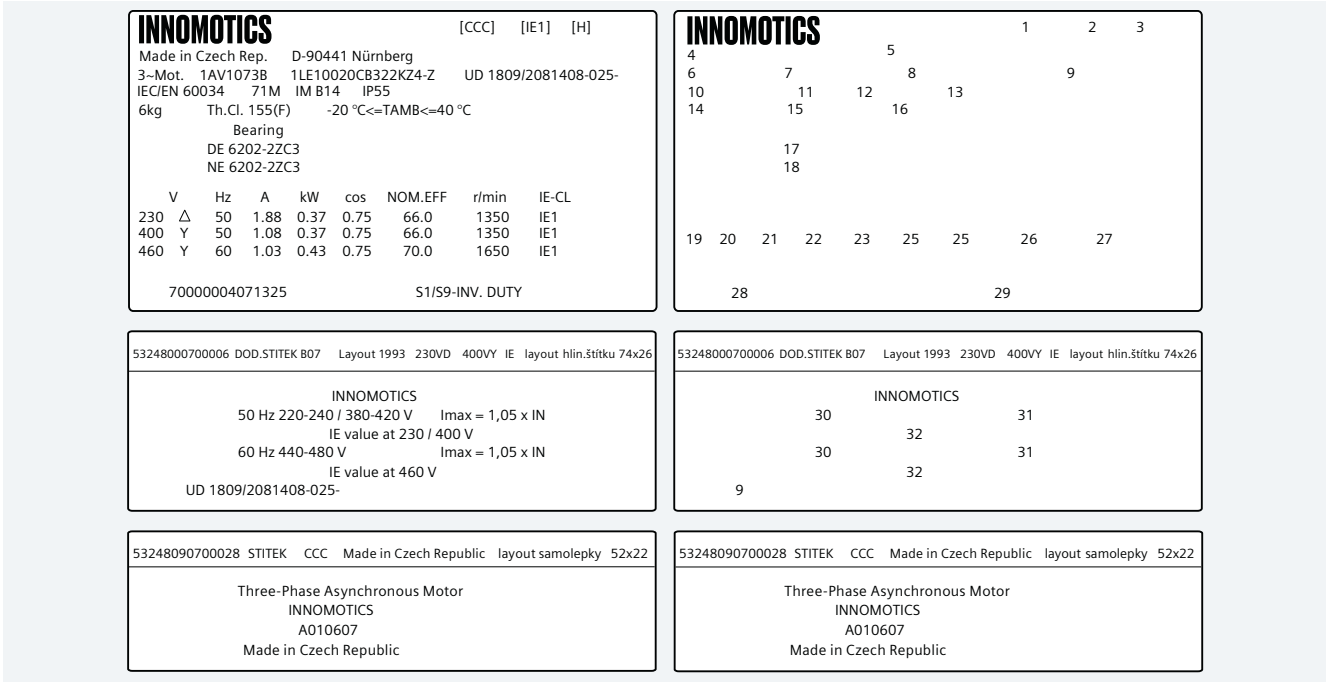

Fig. 12-9 Example of a rating plate on the motor side in CCC design on worm geared motor S

Motor data	
1	CCC marking
2	IE efficiency class
3	Half-key balancing
4	Headquarters
5	Manufacturer's address
6	Machine type: three-phase low-voltage motor
7	Motor type number (MT)
8	Article No.
9	Date of manufacture YYMM / serial No.
10	Applicable standard
11	Frame size
12	Type of construction
13	Degree of protection
14	Weight m [kg]
15	temperature class Th. Cl.
16	Ambient temperature

Motor data	
17	Bearing size DE
18	Bearing size NDE
19	Rated voltage [V]
20	Winding connections
21	Rated frequency f [Hz]
22	Rated current I_N [A]
23	Rated power P_N [kW]
24	Power factor cos φ
25	Efficiency
26	Rated speed n_N [rpm]
27	IE efficiency class
28	Material number
29	Duty type
30	Voltage range
31	Maximum current
32	IE value at specified voltage

Second rating plate

Second rating plate, supplied loose

For the gearboxes and geared motors, an additional rating plate can be supplied loose.

For worm geared motors the rating plate on the gearbox side is supplied.

Second rating plate	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Second rating plate, supplied loose		**K41**

Second rating plate, attached

When requested, a second rating plate can be attached to the motor.

Second rating plate	Additional identification code **-Z** with order code	
	2KJ3… -…..-….**-Z**	Order code
Second rating plate, attached (Not possible for worm geared motors S)		**K68**

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General options

Documentation

Safety instruction sheet and operating instructions

The geared motors are shipped with a multi-language safety instruction sheet for each delivery batch.

Every delivery batch of geared motors equipped with explosionprotected motors or functionally safe rotary encoders is delivered with a safety instruction sheet and a set of operating instructions in German and English.

The operating instructions include the following documents:

_ Replacement part drawings and lists
_ Mounting instructions
_ Declaration of incorporation of partly completed machinery according to the EC Machinery Directive 2006/42/EC (gearboxes)
_ EC Declaration of Conformity according to Directive 2014/35/EU (motors)

The latest versions of the operating instructions, the declaration of incorporation, and the Declaration of Conformity are available at:
https://innomotics.com/hub/de/search/entrypages/productinformation

Test certificates

Please contact Innomotics regarding test certificates for explosion-protected motors (MB motors).

On request, the following documents are available by email:

Additional documentation	**The following is checked:**	Additional identification code **-Z** with order code	
		2KJ3… -…..-….**-Z**	Order code
Declaration of compliance with the order EN 10204-2.1 and factory test report EN 10204-2.2, geared motor	–		**On request**
Factory test report EN 10204-2.2 for material	–		**On request**
Acceptance test certificate EN 10204-3.1 for the motor	_ Winding resistance _ No-load current of the 3 phases _ Power loss for no-load operation _ High-voltage test _ No-load speed		**W10**
Acceptance test certificate EN 10204-3.1 for gearboxes	_ Output shaft diameter _ Input shaft diameter (for gearboxes with adapter A only) _ No-load speed _ Noise (subjective assessment)		**W11**
Acceptance test certificate EN 10204-3.1 for paint finish	_ Paint film thickness		**W12**

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Overview

The geared motors are sent in a box as standard.

For countries that cannot be supplied by truck, geared motors up to frame size 109 are shipped in a carton suitable for sea and air freight – and from frame size 129, in an MC box.

The following packaging options are available.

Packaging option	Gearbox size	Can be selected for the following countries	Minimum order quantity	Additional identification code **-Z** with order code	
				2KJ3… -…..-….**-Z**	Order code
Individual packaging					
Box	19 … 89	Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Kosovo, Malta, the Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Republic of Srpska, Sweden, Switzerland, Slovenia, Spain	–		**W40**
MC box	129 … 189	Worldwide	–		**W44**
VCI corrosion inhibiting film	19 … 189	Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Kosovo, Malta, the Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Republic of Srpska, Sweden, Switzerland, Slovenia, Spain	–		**W47**
Collective packaging					
Overseas	19 … 109	Worldwide	–		**W46**
VCI corrosion inhibiting film	19 … 109	Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Kosovo, Malta, the Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Republic of Srpska, Sweden, Switzerland, Slovenia, Spain	–		**W52**
Neutral packaging ocean freight	19 … 189	Worldwide	–		**W49**

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General options

Fast track

Overview

For a faster delivery of our Innomotics SG geared motors outside the standard delivery times we offer a fast track option.

On request, geared motors can be delivered with a shortened delivery time (usually 2 to 5 work days).

The maximum order quantity is 5 units/order. The order must reach your Innomotics sales region by 3:00 p.m. (German local time).

The following product range is available for the fast track option:

- Innomotics SG gearbox sizes 09 to 189
- Innomotics SG motor frame sizes 63 to 200
- Paint finish in corrosivity category C1 to C3
- Design not according to ATEX and functionally safe rotary encoder

Note:
The fast track cannot be selected for the electric-monorail geared motors.

Fast track	Additional identification code **-Z** with order code	
	2KJ3… -…..-…..**-Z**	Order code
Fast track		**W50**

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Overview

For our Innomotics SG geared motors, we give you the option of extending existing liabilities for defects beyond the standard period of liability.

The standard liability for defects period, as listed in our standard conditions for the supply of services and products, is 12 months.

It is possible to select the extended period of liability for defects in connection with all of the geared motors and their options listed here in the catalog.

Extension of the liability for defects	Additional identification code **-Z** with order code	
	2KJ3… -…..-…..**-Z**	Order code
Extension of the liability for defects by 12 months to a total of 24 months from delivery		**W80**
Extension of the liability for defects by 24 months to a total of 36 months from delivery		**W82**

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Innomotics Moves!

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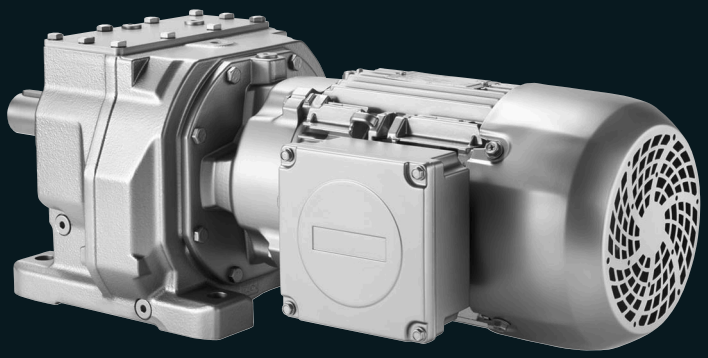

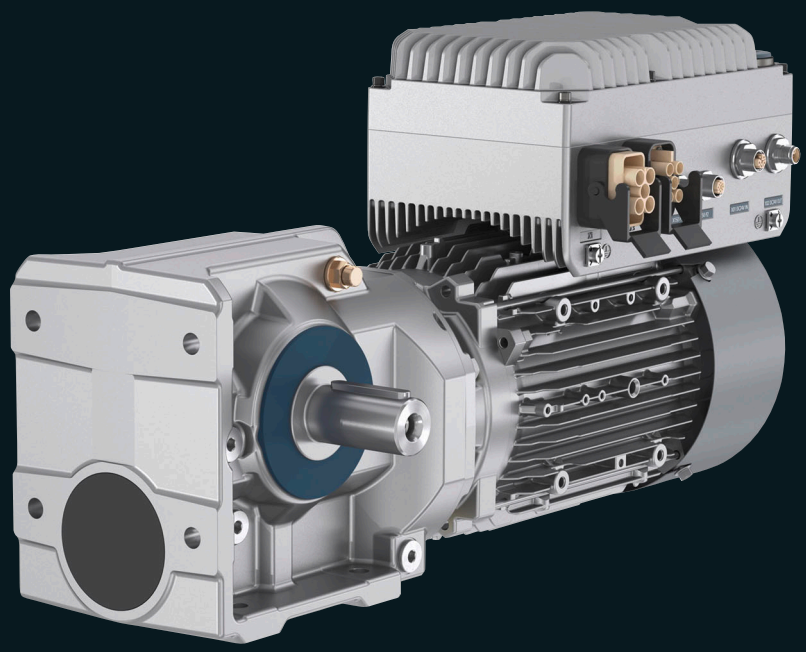

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13 Innomotics Moves!

13/2 Innomotics Geared Motors

13/2 Innomotics SG G115D - 2KJ8 distributed drive system

13/4 Innomotics Low Voltage Motors

13/4 Innomotics GP and SD low-voltage motors

13/4 Innomotics XP explosion-protected motors

13/6 Innomotics Drive Train

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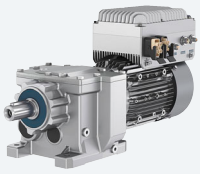
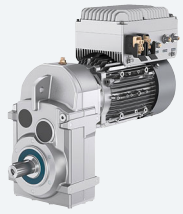
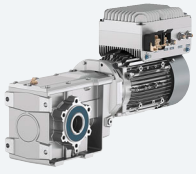
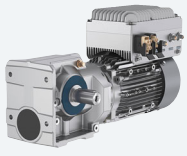
Geared motors		Features	Degree of protection	Gearbox designation (stages)
Innomotics SG G115D - 2KJ8 distributed drive system				
	**Helical geared motors**	1-stage, 2-stage and 3-stage Solid shaft designs	IP65	Z19 ... Z89 (2-stage) D19 ... D89 (3-stage) E39 ... E89 (1-stage)
	**Parallel shaft geared motors**	2-stage and 3-stage Hollow shaft designs Solid shaft designs	IP65	FZ29 ... FZ89 (2-stage) FD29 ... FD89 (3-stage)
	**Bevel geared motors**	2-stage and 3-stage Hollow shaft designs Solid shaft designs	IP65	B19 ... B49 (2-stage) K39 ... K109 (3-stage)
	**Helical worm geared motors**	2-stage Hollow shaft designs Solid shaft designs	IP65	C29 ... C89 (2-stage)

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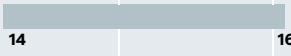
Gearbox size	Maximum output torque T_{2N} Nm 10 100 1000 10000 100000	Gearbox transmission ratio *i*	Catalog
19, 29, 39, 49, 59, 69, 79, 89		1.29 ... 330.23	**D 50.15**
29, 39, 49, 69, 79, 89		3.57 ... 357	
19, 29, 39, 49, 69, 79, 89, 109		3.47 ... 244.25	
29, 39A, 49, 69, 89		6.2 ... 363	

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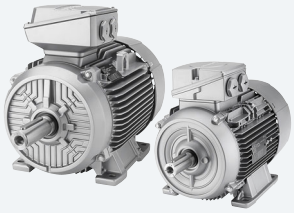
Innomotics Moves!

Motor type		Features	Degree of protection	Cooling method
Innomotics GP and SD low voltage motors				
	**Innomotics GP 1LE10 and VSD10 line 1LE10 standard motors Innomotics GP VSD4000 line 1FP10 reluctance motors**	For general purpose applications Motors with an aluminum housing	IP55	Natural cooling/ Forced ventilation
	Innomotics SD 1LE15, 1LE16, and VSD10 line 1LE15 standard motors Innomotics SD VSD4000 line 1FP15 reluctance motors	For severe duty applications Motors with cast-iron housing	IP55	Natural cooling

Motor type		Features	Type of protection	Cooling method
Innomotics XP explosion-protected motors				
	Innomotics XP 1MB10 explosion-protected motors	Seamless series of explosionprotected motors for gas and dust protection in harsh, hazardous areas Motors with an aluminum housing	Ex tb, Ex tc, Ex ec	Natural cooling
	Innomotics XP 1MB15, 1MB16, 1MB5 explosion-protected motors	Seamless series of explosionprotected motors for gas and dust protection in harsh, hazardous areas Motors with cast-iron housing	Ex tb, Ex tc, Ex ec	Natural cooling

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Shaft height (SH)	Rated power P_N for S1 duty type kW	Rated torque T_N	Catalog
63, 71, 80, 90, 100, 112, 132, 160, 180, 200	0.09 … 45	0.6 … 294 Nm	D 81.1
71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450	0.09 … 1000	1.0 … 8100 Nm	

Shaft height (SH)	Rated power P_N for S1 duty type kW	Rated torque T_N	Catalog
	0.01 … 0.1 … 1 … 10 … 100 … 1000 … 10000		
80, 90, 100, 112, 132, 160	0.37 … 18.5	2.5 … 109 Nm	D 81.1
71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315, 355, 400, 450	0.09 … 1000	1.2 … 8100 Nm	

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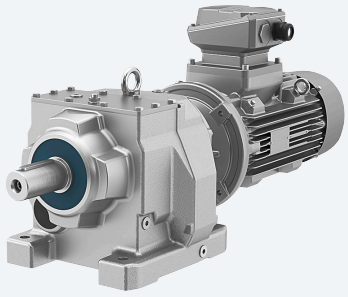
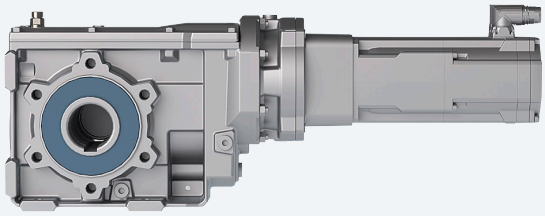
Innomotics Moves!

Innomotics Drive Train	Flexible combinations of		
	Motors	**Innomotics SG gearboxes**	**Innomotics SG adapters**
	Innomotics GP/SD low voltage motors Innomotics XP explosion-protected motors	Helical gearbox Parallel shaft gearbox Bevel gearbox Helical worm gearbox	K2 adapter K4 adapter KU adapter
	SIMOTICS S-1FK2 SIMOTICS S-1FK7 Siemens servomotors	Helical gearbox Parallel shaft gearbox Bevel gearbox Helical worm gearbox	KS adapter

Configuration is possible in the TIA Selection Tool.

More information on the TIA Selection Tool can be found at
www.siemens.com/tia-selection-tool

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Appendix

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14 Appendix

14/2 Lists

14/2 List of order codes

14/7 List of variables to dimension drives

14/11 Index of abbreviations

14/12 Innomotics Customer Service

14/12 Overview

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Appendix

List of order codes

Order code	Special version Designation	Detailed data Chapter/Page
Brake type		
B00 to B67	Brake types according to size and braking torque	11/34 … 11/35
Brake options		
C01	Enclosed brake	11/42
C02	Manual brake release lever	11/40
C03	Manual brake release lever with locking mechanism	11/40
C04	Microswitch for monitoring brake release	11/42
C06	Wear-resistant friction lining	11/44
C09	LS brake with functional safety	11/35
C10	Increased corrosion protection	11/43
C11	Enclosed brake with condensation drain hole	11/42
C80	Brake cable protection	11/43
Manual brake release lever position		
C26	1	11/40
C27	2	11/40
C28	3	11/40
C29	4	11/40
Brake supply voltage		
C45 … C74	Standard voltages, brake	11/36
Function rectifier		
C59	Function rectifier with disconnection on the DC side by sensing the current	11/38
C60	Function rectifier with disconnection on the DC side by sensing the voltage	11/38
Mounting positions		
D01 … D06	Mounting positions of the geared motors (helical, cooling tower, and parallel shaft gearboxes)	10/4 … 10/18
D11 … D16 and D21 … D26	Mounting position of the geared motors (bevel, helical worm and worm gearboxes and electric-monorail geared motors)	10/19 … 10/39
D10 and D20	Output side A or B worm gearbox	10/37
Special mounting positions		
E01 … E17	Y axis of rotation	10/41
E21 … E37	X axis of rotation	10/41
E41 … E57	Z axis of rotation	10/41
Shaft-mounted version helical worm gearbox		
G09	Figure 1	10/48
G10	Figure 2	10/48
Output shaft bearings		
G20	Radially reinforced output shaft bearings	10/55
G30	VLplus reinforced bearing system	10/55
G31	XLplus reinforced bearing system	10/55
Output sealing		
G23	Seal with longer service life	10/60
G24	Seal for increased environmental stress	10/60
G25	Seal for high temperatures	10/60
Oil level control		
G34	Oil sight glass with reflector	10/67
G35	Oil sight glass with reflector on both sides	10/67
G48	Oil dipstick	10/10, 10/12
Electrical oil level monitoring system		
G37	Oil level sensor	10/69
G38	Oil level sensor ATEX version	10/69
G40	24 V disconnector	10/69
Gearbox venting		
G45	Pressure breather valve	10/64
G49	Pressure breather valve, stainless steel	10/64
G47	Oil expansion unit	10/65 … 10/66
Oil drain		
G53	Magnetic oil drain screw	10/67
G54	Oil drain valve, straight	10/67
G55	Oil drain valve, angled	10/67

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Order code	Special version Designation	Detailed data Chapter/Page
Hollow shaft cover		
G60	Protective cover	10/54
Electrical oil temperature monitoring		
G69	Pt100 electrical oil temperature monitoring	10/68
Water drain holes		
G77	Water drain holes at the output flange	10/45
Output flange sealing		
G78	Output flange sealing	10/46
Accessories for VLplus reinforced bearing systems		
G88	24 V Drywell disconnector	10/56
G89	Drywell with oil sight glass	10/56
G90	Drywell with oil sensor	10/56
G91	Drywell with ATEX oil sensor	10/56
G93	Grease cartridge	10/56
Shrink-glued output gearwheel		
G97	Shrink-glued output gearwheel	10/70
Reduced-backlash version		
G99	Reduced-backlash version	10/70
Flange diameter		
H01 ... H11	Flange diameter	10/43 ... 10/44
Clutch for electric-monorail geared motors for heavy-load applications		
H21	Clutch operating travel 1-3	10/57
H22	Clutch operating travel 1-2	10/57
H23	Short clutch lever	10/57
H25	Clutch lever facing inwards (position B)	10/57
Degree of protection		
K01	IP55	11/15
K02	IP56	11/15
K03	IP65	11/15
Lubricants		
K06	CLP ISO VG220	10/58 ... 10/59
K07	CLP ISO PG VG220	10/58 ... 10/59
K08	CLP ISO PG VG460	10/58 ... 10/59
K10	CLP ISO E VG220	10/58 ... 10/59
K11	CLP ISO H1 VG460	10/58 ... 10/59
K12	CLP ISO PAO VG220	10/58 ... 10/59
K13	CLP ISO PAO VG68	10/58 ... 10/59
K14	CLP ISO H1 VG100	10/58 ... 10/59
K16	CLP ISO PAO VG460	10/58 ... 10/59
Long-term preservation		
K17	Long-term preservation up to 36 months	12/5
Direction of rotation of the output shaft (required with backstop)		
K18	Clockwise	1/33
K19	Counterclockwise	1/33
Rating plate and additional rating plates		
K41	Second rating plate, supplied loose	12/13
K68	Second rating plate, attached	12/13
Explosion-protected geared motors in Zone 2 and Zone 22		
K72	Explosive gas Zone 2	1/28
K74	Explosive dust Zone 22	1/28
Ambient temperature		
K92	-20 °C to +45 °C	12/2
K95	-20 °C to +40 °C	12/2
K96	-25 °C to +40 °C	12/2
K97	-30 °C to +40 °C	12/2
K98	-40 °C to +40 °C	12/2

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Appendix

List of order codes

Order code	Special version Designation	Detailed data Chapter/Page
Surface treatment		
L00	Unpainted	12/3
L01	Primer according to corrosivity category C2 G	12/4
L02	Surface protection for normal environmental stress C1	12/3
L03	Surface protection for low environmental stress C2	12/3
L04	Surface protection for average environmental stress C3	12/3
L05	Surface protection for very high environmental stress C5	12/3
L09	Primed according to corrosivity category C4 G	12/4
L11	Centering not painted	12/4
L12	Flange completely painted	12/4
L19	Special pretreatment	12/3
L20	Surface protection for high environmental stress C4	12/3
L27	Centering flange not painted on both sides	12/4
RAL colors		
L50	RAL 5015 sky blue	12/5
L53	RAL 7031 blue gray	12/5
L55	RAL 7030 stone gray	12/5
L75	RAL 7016 anthracite gray	12/5
L80	RAL 9011 graphite black	12/5
L83	RAL 7012 basalt gray	12/5
Insulating material class		
M08	Temperature class 180 (H)	11/14
N54	Increased air humidity/temperature with 30 to 60 g water per m^3 of air	11/14
Connection when shipped		
M01	Connected in star for dispatch	11/20
M02	Connected in delta for dispatch	11/20
Thermal motor protection		
M10	PTC thermistor for disconnection	11/6
M12	Winding thermostat for disconnection	11/7
M17	Pt1000 resistance thermometer	11/8
Fan		
M21	Metal fan	11/16
M22	High inertia fan	11/16
M23	Separately driven fan	11/17
Anti-condensation heating		
M40	115 V anti-condensation heating	11/10
M41	230 V anti-condensation heating	11/10
Terminal box position cable entry		
M45	Cable entry NPT	11/24
Terminal box cast		
M53	Terminal box cast	11/24
Terminal box position		
M55 ... M70	Location and position of the terminal box	11/19
Motor plug		
N00	HAN 10E motor plug (2 brackets)	11/25
N01	HAN 10E motor plug (2 brackets) EMC	11/25
N04	HAN 10E motor plug (1 bracket)	11/25
N06	HAN 10E motor plug (1 bracket) EMC	11/25
N08	HAN K4/4 motor plug (1 bracket)	11/26
N09	HAN K4/4 motor plug (1 bracket) EMC	11/26
N10	HAN K4/4 motor plug (2 brackets)	11/26
N11	HAN K4/4 motor plug (2 brackets) EMC	11/26
N12	HAN Q8 motor plug (1 bracket) EMC	11/28
N13	HAN Q12 motor plug (1 bracket) EMC	11/32
N18	HAN 10E counterplug	11/25
N19	HAN K4/4 counterplug	11/26
K50	HAN Q8 motor plug with 0.5 m cable (plug insert rotated by 180°)	11/30
K51 ... K55	HAN Q8 motor plug with 1 m to 5 m cable	11/30

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Order code	Special version Designation	Detailed data Chapter/Page
Canopy		
N22	Canopy	11/75
Backstop on motor		
N23	Backstop	11/74
Second shaft extension on motor		
N39	Second shaft extension	11/75
Handwheel		
N40	Handwheel	11/75
Geared motors for use worldwide		
N27	Design in accordance with BIS	1/25
N30	Design in accordance with EAC	1/25
N38	Design in accordance with UL-R and CSA	1/24
N67	Design for the Chinese market	1/25
N68	Without CE marking	1/24
Designs for special environmental conditions		
L06	Increased corrosion protection for mounted motor components	11/76
N41	Internal motor corrosion protection	11/76
N46	Condensation drain hole	11/76
External grounding		
N53	External grounding	11/24
Motors prepared for encoder mounting		
N50	Prepared for encoder mounting	11/69
Pole number of the motor		
P00	2-pole	Chapter 9
P01	6-pole	Chapter 9
P02	8-pole	Chapter 9
Voltage tolerance		
P80	Voltage tolerance ±10 %	11/2
Duty types		
P91	Duty type S1/Inv. Duty	11/2
P92	Duty type Inv. Duty	11/2
P94	Product group 1 (version for converter operation)	11/2
P95	Product group 2 (version for converter operation)	11/2
P96	Product group 3 (version for converter operation)	11/2
P97	Product group 4 (version for converter operation)	11/2
EnDAT gateways for absolute encoders		
Q01	Gateway EnDAT PROFINET	11/72
Q02	Gateway EnDAT PROFIBUS DP	11/72
Q03	Gateway EnDAT CANopen	11/72
Q04	Gateway EnDAT DeviceNET	11/72
Application terminal box for sensors		
Q75	Application terminal box	11/72
DRIVE-CLiQ encoders		
Q20	AS 22DQC without functional safety	11/54
Q21	AM 22DQC without functional safety	11/54
Q22	AS 22DQC with functional safety	11/54
Q23	AM 22DQC with functional safety	11/54
Incremental encoder		
Q42	Functionally safe rotary encoder IN 8.5834FS2	11/62
Q43	Functionally safe rotary encoder IN 8.5834FS3	11/62
Q44	Incremental encoder TTL1024S/R KD	11/55
Q47	Incremental encoder HTL1024S/R KD	11/55
Q48	Incremental encoder HTL2048S/R KD	11/55
Q54	Incremental encoder HTL2048S/R FD	11/55
Q56	Rotary pulse encoder 1XP8022-20 (IN 1024 TTL with cable box)	11/57
Q59	Rotary pulse encoder 1XP8022-10 (IN 1024 HTL with cable box)	11/57
Q60	Rotary pulse encoder 1XP8022-11 (IN 2048 HTL with cable box)	11/57

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Appendix

List of order codes

Order code	Special version Designation	Detailed data Chapter/Page
Modular set of cables for encoders TTL1024S/R KD, HTL1024S/R KD, HTL2048S/R KD, HTL2048S/R FD, 1XP8014 and 1XP8024		
Q62	Connector	11/70
Q69	Cable with connector and end sleeves, 2 m	11/71
Q72	Cable with coupling socket, 2 m	11/71
Absolute encoder IA		
Q77	Functionally safe rotary encoder IA 8.5883FS2	11/64
Q78	Functionally safe rotary encoder IA 8.5883FS3	11/64
Q79	Absolute encoder 1XP8024-21 (IA SSI protocol with coupling socket)	11/58
Q82	Absolute encoder 1XP8014-10 (IA EnDAT protocol with flange socket)	11/58
Q83	Absolute encoder 1XP8024-10 (IA EnDAT protocol cable with coupling socket)	11/58
Rugged encoders		
Q92	Rotary pulse encoder LL Leine und Linde	11/60
Q93	Rotary pulse encoder HOG 9	11/60
Q94	Rotary pulse encoder HOG 10	11/61
Mechanical protection		
Q95	Encoder under cover	11/68
Documentation		
W10	Acceptance test certificate EN 10204-3.1 for the motor	12/14
W11	Acceptance test certificate EN 10204-3.1 for gearboxes	12/14
W12	Acceptance test certificate EN 10204-3.1 for paint finish	12/14
Fast track		
W50	Fast track	12/16
Packaging options		
W40	Individual packaging box	12/15
W42	Individual packaging overseas	12/15
W44	Individual packaging MC box	12/15
W45	Collective packaging wire-mesh box	12/15
W46	Collective packaging ocean freight	12/15
W47	Individual packaging VCI corrosion inhibiting film	12/15
W48	Collective packaging neutral packaging surface freight	12/15
W49	Collective packaging neutral packaging ocean freight	12/15
W52	Collective packaging VCI corrosion inhibiting film	12/15
Extension of the liability for defects		
W80	Extension of the liability for defects by 12 months to a total of 24 months from delivery	12/17
W82	Extension of the liability for defects by 24 months to a total of 36 months from delivery	12/17

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Overview of data to dimension drives

Code	Description	Unit
a	Gearbox constant for calculating the radial force	kNmm
α	Force application angle	°
b, d, l, y, z	Gearbox constants	mm
C	Additional factor to calculate the radial force	-
cos φ	Power factor	-
d	Diameter of the input element	mm
$d0$	Average diameter of the mounted transmission element	mm
DC	Cyclic duration factor	%
η	Efficiency	%
f	Rated frequency	Hz
f_B	Service factor	-
f_{B1}	Required service factor	-
f_{Btot}	Service factor of the driven machine	-
f_{br}	Braking torque correction factor	-
f_{limit}	Limit frequency	Hz
f_N	Rated motor frequency	Hz
F_{ax}	Permissible axial force	N
F_G	Force due to weight	N
F_r	Radial force at the output shaft	N
F_{R2}	Permissible radial force at the center of shaft extension (l/2)	N
F_{R2max}	Maximum permissible radial force according to table	N
F_{Ravail}	Available radial force from the mounted transmission element	N
F_x	Permissible radial force from out of center force application point	N
F_{xperm1}	Permissible radial force, limited by the bearing service life, at a distance of x from the shaft shoulder	N
F_{xperm2}	Permissible radial force, limited by the shaft strength, at a distance of x from the shaft shoulder	N
H	Vertical distance between running wheel axis and center of gravity	mm
i	Transmission ratio	-
I_A	Starting current	A
I_N	Rated current	A
J_2	Moment of inertia referred to the output speed of the gearbox	kgm²
J_{AD}	Moment of inertia of the adapter	kgm²
J_{add}	Additional moment of inertia	kgm²
JB	Moment of inertia of the brake	kgm²
J_{Bstp}	Moment of inertia of cage and inner ring	kgm²
J_G	Moment of inertia of the gearbox reduced to the input shaft	kgm²
J_{mot}	Moment of inertia of the motor	kgm²
J_X	Moment of inertia of the load referred to the motor shaft	kgm²
J_Z	Additional moment of inertia of a high inertia fan	kgm²
k	Factor for taking into account operating conditions	-
k_{DC}	Factor for increased power	-
k_{FI}	Factor for taking into account the additional moment of inertia	-
k_{HT}	Factor for abnormal coolant temperature and installation altitude	-

Code	Description	Unit
k_M	Factor for taking into account the load torque while accelerating	-
k_P	Factor for taking into account the required power and duty cycle	-
L1	Distance between running wheels	mm
L2	Horizontal distance between running wheel and center of gravity	mm
L3	Distance between swivel joints	mm
L_{h10}	Nominal bearing service life	h
L_N	Service life of the brake lining until readjustment	h
L_{na}	Modified bearing service life	h
L_{nmax}	Service life of the brake lining until replacement	h
L_{pfA}	Measuring surface sound pressure level	dB (A)
L_{WA}	Sound power level	dB (A)
m	Drive weight without any oil	kg
m_{AF}	Mass acceleration factor	-
m_{Bstp}	Weight of the backstop	kg
m_{fan}	Fan weight	kg
m_{mot}	Motor weight (without end shield at DE)	kg
n_1	Input speed of the gearbox	rpm
n_2	Output speed of the gearbox	rpm
n_{dis}	Disengage speed	rpm
n_{br}	Braking speed	rpm
n_{max}	Maximum speed	rpm
n_N	Rated speed	rpm
P_1	Actual steady-state power of the motor	kW
P_{DC}	Power for the new duty cycle	kW
P_{req}	Required input power	kW
P_{mot}	Motor power	kW
P_N	Rated motor power	kW
P_{perm}	Permissible motor power	kW
P_S	Actual steady-state power of the motor	kW
Q_{perm}	Permissible operating energy	J
r	Radius of the output element	m
R_{ex}	Exact number of teeth ratio	-
RWC	Running wheel center	-
s_{br}	Braking distance	m
s_{gap}	Brake air gap	mm
s_{gapmax}	Maximum brake air gap	mm
S	Center of gravity	mm
t_1	Application time of the brake	ms
t_2	Disconnection time	ms
t_3	Slipping time	ms
t_{11}	Response time	ms
t_{12}	Rise time	ms
t_{br}	Braking time	s
t_R	Duty cycle (decimal)	-
t_s	Cycle duration	ms

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Appendix

Overview of data to dimension drives

Code	Description	Unit
T	Additional factor for ambient temperature	-
T_{1max}	Maximum permissible motor torque	Nm
T_2	Geared motor output torque	Nm
T_{2req}	Required output torque of the driven machine	Nm
T_{2N}	Maximum output torque of the gearbox	Nm
T_A	Acceleration torque of the motor	Nm
T_{Bk}	Breakdown torque	Nm
T_{br}	Rated braking torque	Nm
T_{DC}	Torque for the new duty cycle	Nm
T_N	Rated motor torque	Nm
T_{req}	Required torque	Nm
T_{SP}	Rated backstop torque	Nm
T_{St}	Relative starting torque	Nm
T_x	Reduced load torque	Nm
U	Rated voltage	V
v	Travel velocity	m/s
W_1	Friction energy per braking operation	J
W_{tot}	Friction energy until the brake lining is replaced	MJ
W_V	Friction energy until the brake is readjusted	MJ
x	Distance from the shaft shoulder up to the point where force is applied	mm
x1	Distance from the shaft shoulder up to the force application point at running wheel center for F_x	mm
Z	Switching frequency	1/h
Z_0	No-load switching frequency, motor without brake	1/h
Z_A	No-load switching frequency, motor with brake	1/h
Z_{perm}	Permissible switching frequency	1/h
ϑ_{amb}	Ambient temperature	°C

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Important drive technology variables

SI unit Size	Formula symbol		Unit symbol		Designation or Conversion factor *)
	SI	Previously	SI	Previously	
Length (distance)	l	L, s	m	m	1 km = 1 000 m
Surface	A	F	m^2	m^2	1 m^2 = 100 dm^2
Volume	V	V	m^3	m^3	1 m^3 = 1 000 dm^3 1 dm^3 = 1 l
Plane angle	α, β, γ	α, β, γ	rad,	Degrees °	1 rad = 1 m/m 1 L = π/2 rad 1° = π/180 rad
Rotation angle	ϕ	φ		Degrees °	1' = 1°/60; 1'' = 1'/60
Time					1 min = 60 s 1 h = 60 min
Time period/duration	*t*	t	s	s	1 d = 24 h
Frequency	*f*	f	Hz	1/s	1 Hz = 1/s
Speed	*n*	n	min^{-1}	rpm	Revolutions per minute
Velocity	*v*	v	m/s	m/s	1 km/h = $\frac{1}{3.6}$ m/s
Acceleration Acceleration due to gravity	*a* *g*	*b* *g*	m/s^2	m/s^2	g = 9.81 m/s^2
Angular velocity	ω	Ω	rad/s	1/s	
Angular acceleration	α	ς	rad/s^2	$1/s^2$	
Mass	*m*	*m*	kg	kg	1
Density		*d*	kg/dm^3	kg/dm^3	10^3
Force Force due to weight	*G* *G*	*P, K* *G*	N	kp	9.81 1 N = 1 kg · 1 m/s^2
Pressure	*p*	*p*	Pa		1 Pa = 1 N/m^2
			N/m^2	kp/cm^2	9.81 · 10^4
Mechanical tension	σ	σ	N/mm^2	kp/mm^2	9.81
Work	*W*	*A*		kpm	9.81
Energy	*W*	*E*	J	kcal	4187
Quantity of heat	*Q*	*Q*			1 J = 1 Nm = 1 Ws
Torque of a force Torque Bending torque	*T*	M_t M_d M_b	Nm	kpm	9.81 1 Nm = 1 J
Power	*P*	N	W	PS	735.5 1 W = 1J/s = 1 Nm/s = $\frac{kgm^2}{s^3}$
Moment of inertia	*J*	θ	kgm^2	kpm^2	9.81

*) The numerical value of a variable in previously used units multiplied by the conversion factor gives the numerical value of the variable in SI units.

Conversion from kW to hp:

1 kW = 1.34102 hp

1 hp = 0.745700 kW

1 hp = 1.01387 PS

hp = horse power (US)
PS = Pferdestärke (horse power in German)

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Appendix

Important drive technology variables

SI unit Size	Formula symbol		Unit symbol		Designation or Conversion factor *)
	SI	Previously	SI	Previously	
Dynamic viscosity	η	η	Pa · s	P	10^{-1}
Kinematic viscosity	υ	υ	m^2/s	St	10^{-4}
Electrical current	I	I	A	A	1 A = 1 W/V = 1 V/Ω
Electrical voltage	U	U	V	V	1 V = 1 W/A
Electrical resistance	R	R	W	W	1 Ω = 1 V/A = 1/S
Electrical conductance	G	G	S	S	1 S = 1/Ω
Electrical capacitance	C	C	F	F	1 F = 1 C/V
Electric charge	Q	Q	C	C	1 C = 1 A · s
Inductance	L	L	H	H	1 H = 1 Vs/A
Magnetic flux density Induction	B	B	T	G	10^4 1 T = 1 Wb/m^2
Magnetic field strength	H	H	A/m	A/m	
Magnetic flux	ϕ	φ	Wb	M	10^8 1 Wb = 1 V · s
Temperature	T(ϑ)	t	K(°C)	°C	0 K = -273.15 °C

*) The numerical value of a variable in previously used units multiplied by the conversion factor gives the numerical value of the variable in SI units.

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Appendix

List of abbreviations

Abbreviation	Meaning
AC	Alternating Current, three-phase
ATEX	Atmosphères explosibles
BIS	Bureau of Indian Standards
CAD	Computer-Aided Design
CCC	China Compulsory Certification
CEL	China Energy Label
CEMEP	Comité Européen de Constructeurs de Machines Électriques et d'Électronique de Puissance (European sector committee of manufacturers of electrical machines)
CONT	Continuous duty
CQC	China Quality Certification Center
CSA	Canadian Standard Association
CT	Coolant temperature
DC	Direct Current
DC	Duty cycle
DE	Drive end
DIN	German Institute for Standardization (Deutsches Institut für Normen e. V.)
EAC	Eurasian conformity
EBPG	Energy-related products directive
EC	European Community
ECL	Energy Conservation Law of PRC
EER	Energy Efficiency Regulations
EFF	Efficiency
EGE	European Size Unit (Europäische Größeneinheit)
EISA	Energy Independence and Security Act
EMC	Electromagnetic compatibility
EN	European standard
EPAct	Energy Policy Act
EU	European Union
EuP	Energy Using Products
FVA	Research Association for Drive Technology (Forschungsvereinigung Antriebstechnik e. V.)
HF	High frequency
HTL	High Transistor Logic
IDS	Integrated Drive Systems
IE	International Efficiency
IEC	International Electrotechnical Commission
IP	International Protection
ISO	International Organization of Standardization

Abbreviation	Meaning
MODULOG	Modular logistically optimized design (motor)
NAT	Rated response temperature
NDE	Non-drive end
NEE	NEMA Energy Efficient
NN	Sea level
NPT	National Pipe Thread
PAO	Polyalphaolefine
PDS	Power Drive System
PE	Protective Earth, grounding
PG	Polyglycol
PTC	Positive Temperature Coefficient
RoHS	Restriction of hazardous substances
SA	Installation altitude
SPC	Siemens Product Configurator
SSI	Simple Sensor Interface
TIA	Totally Integrated Automation
TIP	Totally Integrated Power
TR CU	Technical Regulation Customs Union
TTL	Transistor Transistor Logic
UL-R	Underwriters Laboratories Inc. -Recognition Mark
VDE	Association of Electrical Engineering, Electronics and Information Technology (Verband der Elektrotechnik Elektronik Informationstechnik e. V.)
VDI	Association of German Engineers (Verein Deutscher Ingenieure)
WEEE	Waste electrical and electronic equipment
WGK	Class, signifying risk of water pollution
Width A/F	Width across flats

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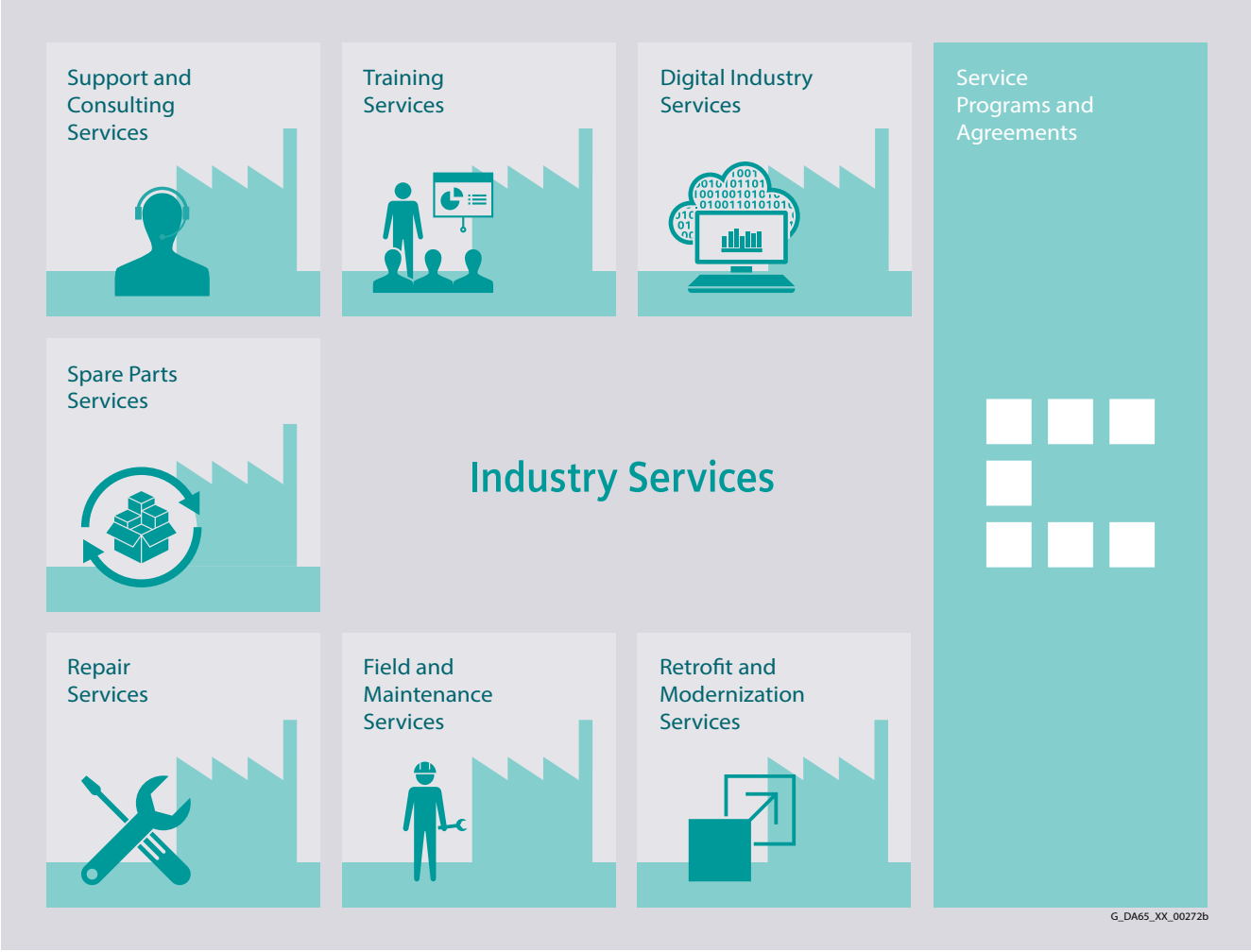
Appendix

Overview



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Overview

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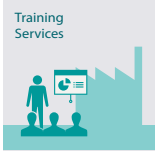

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