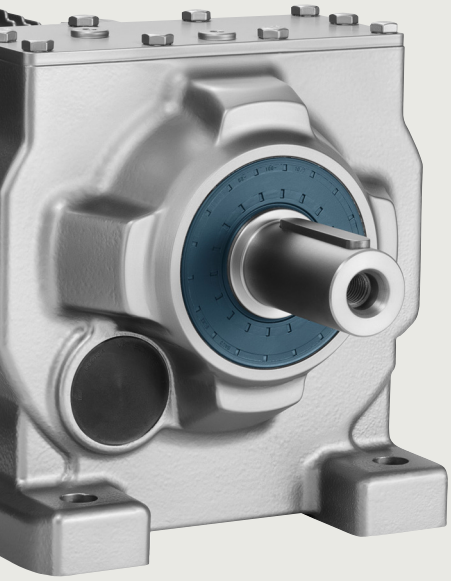
Gearbox options



10/2 Mounting position

10/2 Overview

Helical gearboxes Z and D

10/4 Foot-mounted design

10/6 Foot/flange-mounted design

10/8 Flange-mounted design or with housing flange

Helical gearboxes E

10/11 Foot-mounted design

10/12 Flange-mounted design or with housing flange

Parallel shaft gearboxes

10/13 Shaft-mounted design

10/15 Flange-mounted design or with housing flange

10/17 Foot-mounted design

Bevel gearboxes B

10/19 Foot-mounted design

10/21 Housing flange design and flange-mounted design

10/23 Shaft-mounted design

Bevel gearboxes K

10/25 Foot-mounted design

10/26 Housing flange design and flange-mounted design

10/27 Shaft-mounted design

Helical worm gearboxes

10/28 Shaft-mounted design

10/31 Housing flange design and flange-mounted design

10/34 Foot-mounted design

Worm gearboxes

10/37 Foot-mounted, flange-mounted, shaft-mounted and housing flange designs

Electric-monorail geared motors for light-load applications

10/38 Foot-mounted design and housing flange design

Electric-monorail geared motors for heavy-load applications

10/39 Flange-mounted design

10/40 Tandem gearboxes

10/41 Special mounting positions

10/42 Mounting

Mounting types

10/42 Overview

10/43 Flange-mounted designs

10/45 • Water drain holes at the output flange

10/46 • Output flange seal

10/46 Parallel shaft gearboxes F.AD. in a shaft-mounted design

10/46 Bevel gearboxes KAD. in a shaft-mounted design

10/46 Bevel gearboxes BAD. in a shaft-mounted design

10/47 Helical worm gearboxes CAD. in a shaft-mounted design

10/48 Worm gearboxes SAD in a shaft-mounted design

Mounting

Shaft designs

10/48 Selection and ordering data

10/52 SIMOLOC assembly system

10/52 Hollow shaft cover

10/53 Output shaft bearings

10/53 Reinforced output shaft bearings

10/54 Output side accessories

Accessories for VLplus reinforced bearing systems

10/54 Drywell

10/54 Grease cartridge

10/55 Electric-monorail gearboxes

Clutch

10/55 Clutch for light-load applications

10/55 Clutch for heavy-load applications

10/56 Lubrication and sealing

Overview

10/56 • Lubrication

10/56 • Oil quantities

10/56 • Sealing

10/56 Selection of lubricant

10/57 Roller bearing greases for gearboxes and motors

10/58 Sealing system

10/59 Venting and oil level control

Venting

10/59 Overview

10/62 Pressure breather valve

10/63 Oil expansion unit

Oil level control

10/65 Oil level checking screw

10/65 Oil drain

10/66 Pt100 electrical oil temperature monitoring

10/67 Electrical oil level monitoring system

10/68 Special version

Overview

10/68 • Reduced-backlash version

10/68 • Shrink-glued output gearwheel

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.

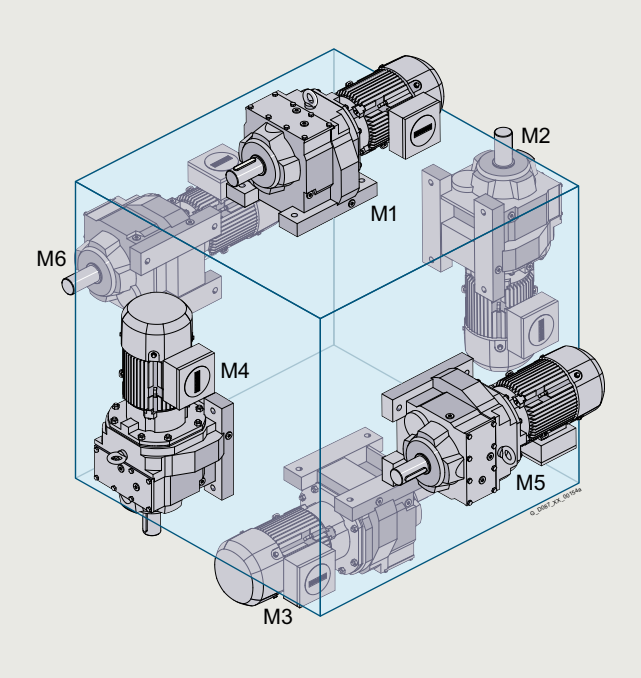


Fig. 10/1 Helical geared motors

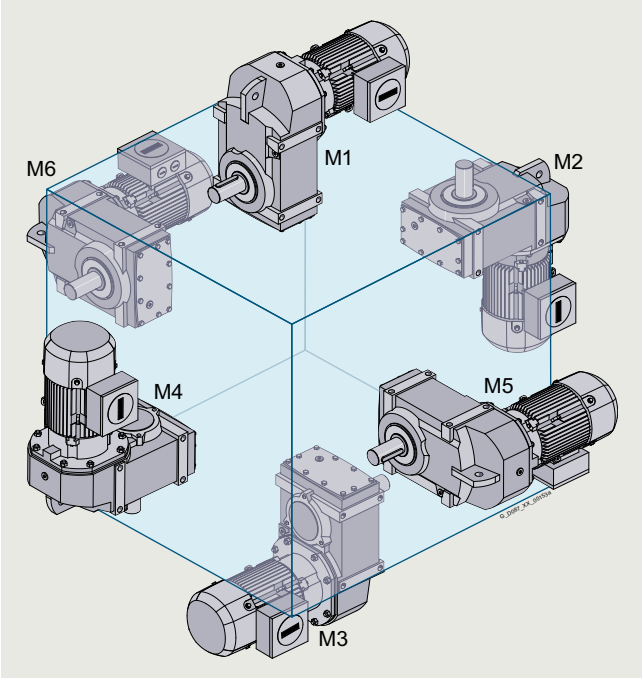


Fig. 10/2 Parallel shaft geared motors

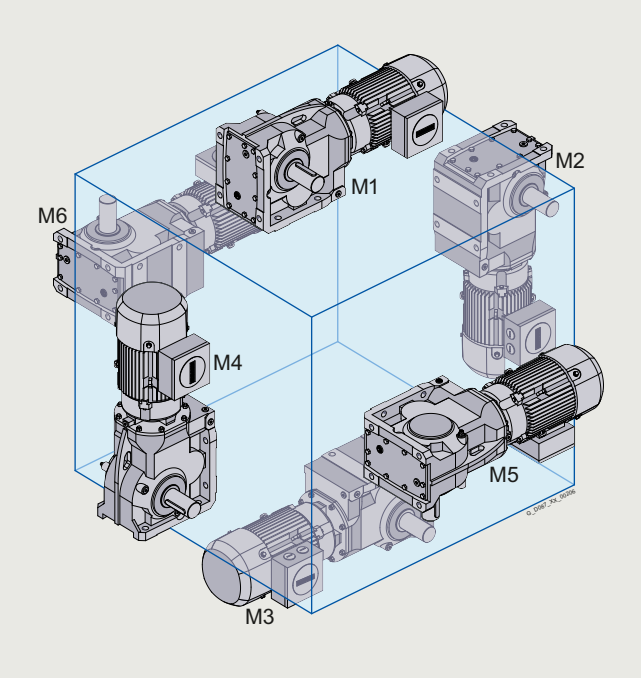


Fig. 10/3 Bevel geared motors

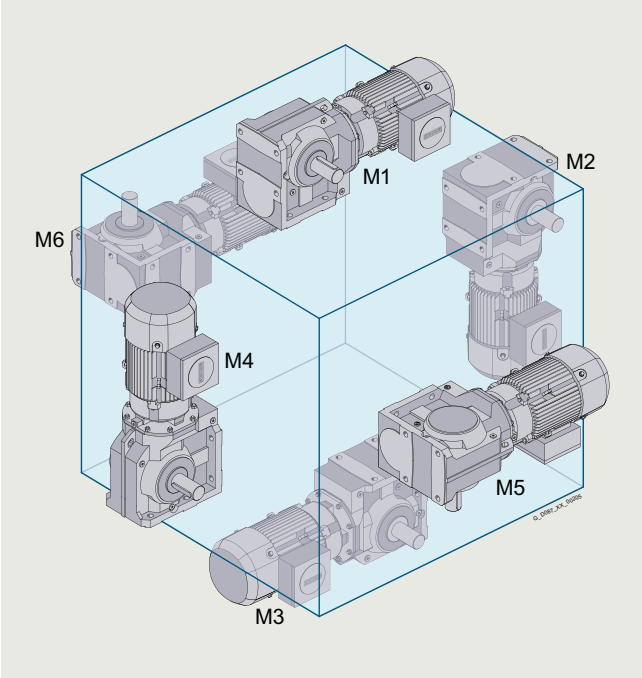


Fig. 10/4 Helical worm geared motors

Overview

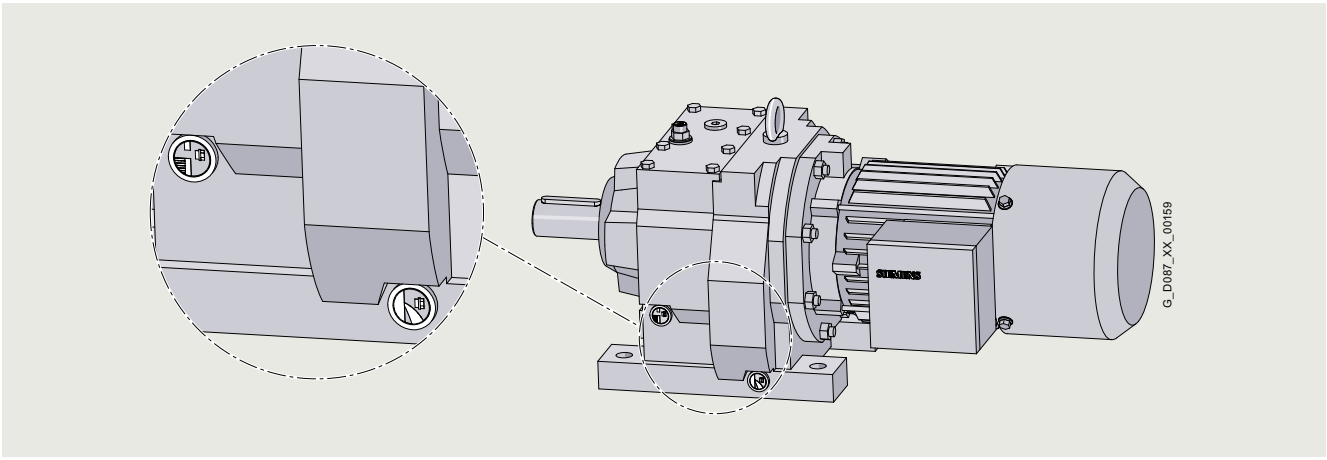


Fig. 10/5 Dimensional drawing from Siemens Product Configurator with details

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 Siemens Product Configurator can be used to configure SIMOGEAR geared motors.

The Siemens Product Configurator can be used on the internet without requiring any installation.

The Siemens Product Configurator can be found in SiePortal at the following address:
www.siemens.com/spc

For the selected mounting position, the 3D images show the exact position of the oil valves.

Foot-mounted design

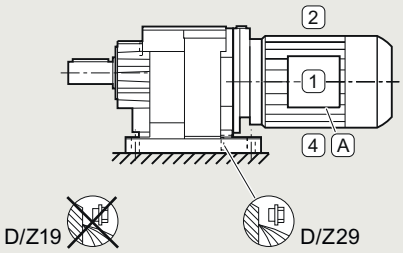
Helical gearboxes Z and D, sizes 19 and 29

Oil valves

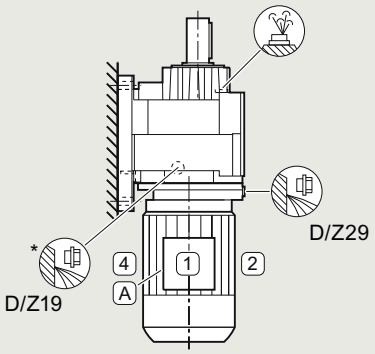
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see page 10/3.

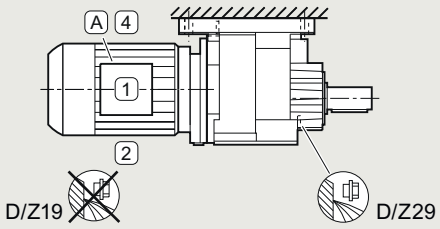
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D01**



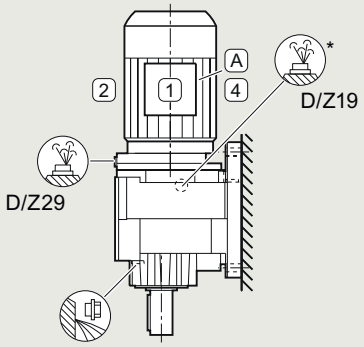
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D02**



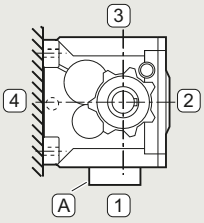
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D03**



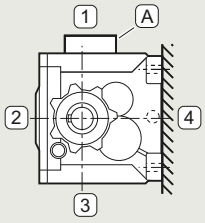
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D04**



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**



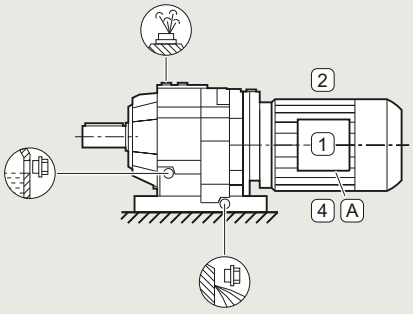
Foot-mounted design

Helical gearboxes Z and D, sizes 39 to 189

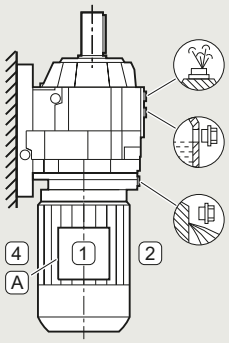
Oil valves

For an explanation of the symbols, see page 10/3.

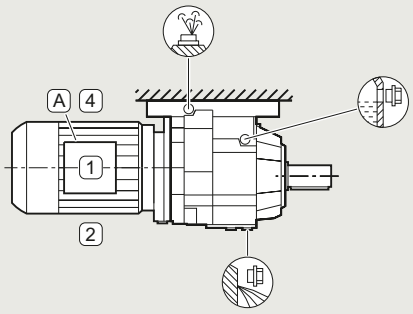
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D01**



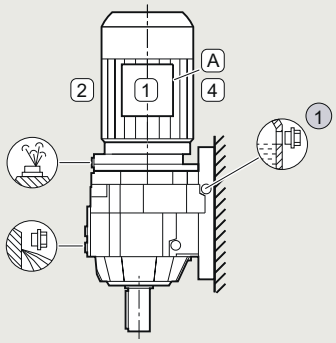
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D02**



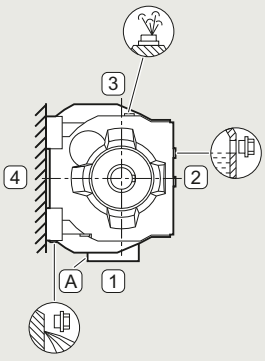
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D03**



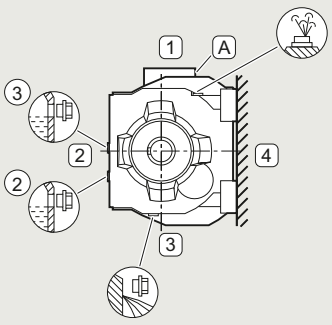
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ31.. -.....-.A..**-Z** 2KJ32.. -.....-.A..**-Z**	**D04**



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

Foot/flange-mounted design

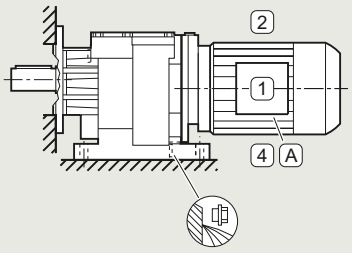
Helical gearboxes ZB and DB, size 29

Oil valves

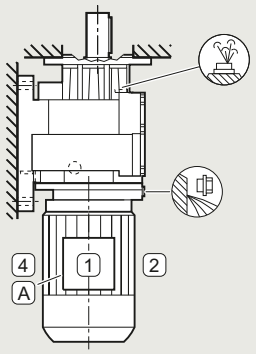
Size 29 is lubricated for life.

For an explanation of the symbols, see page 10/3.

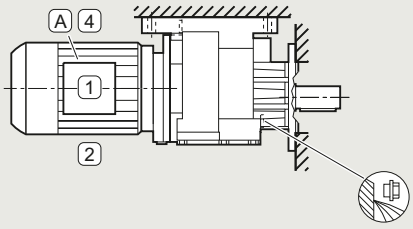
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ310 2 -.....-.B..**-Z** 2KJ320 2 -.....-.B..**-Z**	**D01**



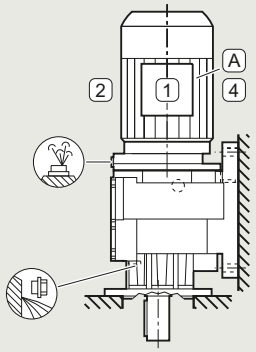
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ310 2 -.....-.B..**-Z** 2KJ320 2 -.....-.B..**-Z**	**D02**



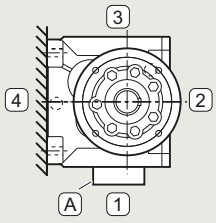
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ310 2 -.....-.B..**-Z** 2KJ320 2 -.....-.B..**-Z**	**D03**



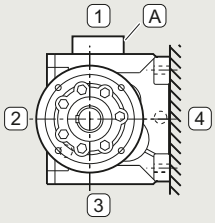
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ310 2 -.....-.B..**-Z** 2KJ320 2 -.....-.B..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ310 2 -.....-.B..**-Z** 2KJ320 2 -.....-.B..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ310 2 -.....-.B..**-Z** 2KJ320 2 -.....-.B..**-Z**	**D06**



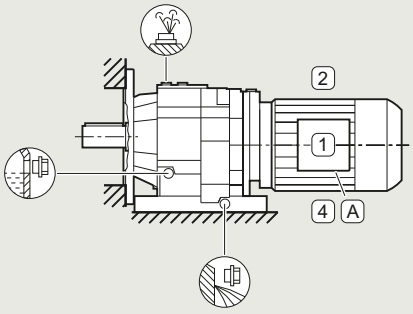
Foot/flange-mounted design

Helical gearboxes ZB and DB, sizes 39 to 89

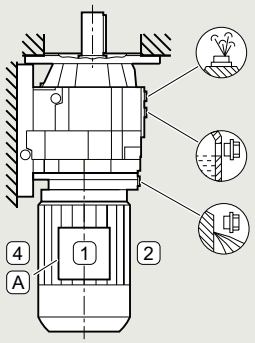
Oil valves

For an explanation of the symbols, see page 10/3.

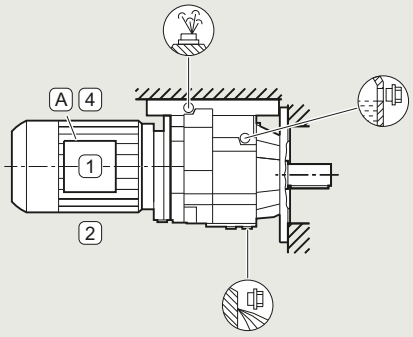
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D01**



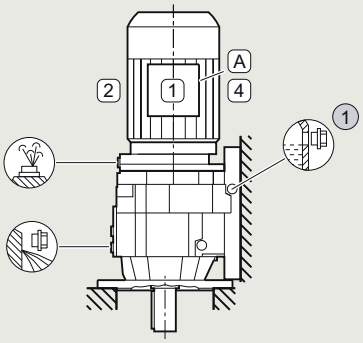
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D02**



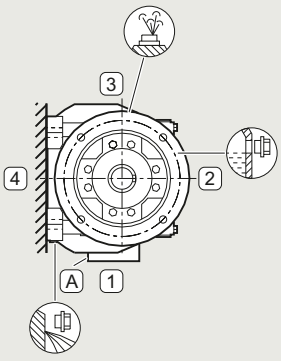
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D03**



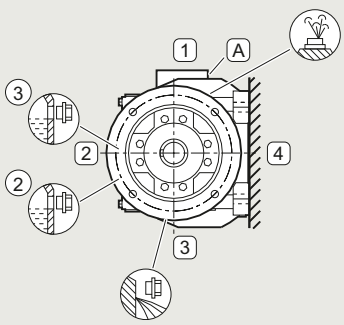
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ31.. -.....-.B..**-Z** 2KJ32.. -.....-.B..**-Z**	**D04**



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**



10

Flange-mounted design or with housing flange

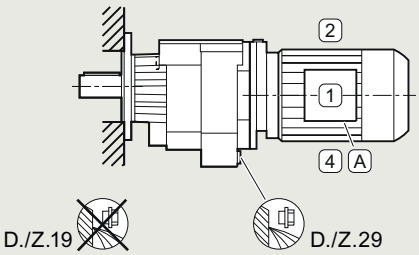
Helical gearboxes ZF and DF or ZZ and DZ, sizes 19 and 29

Oil valves

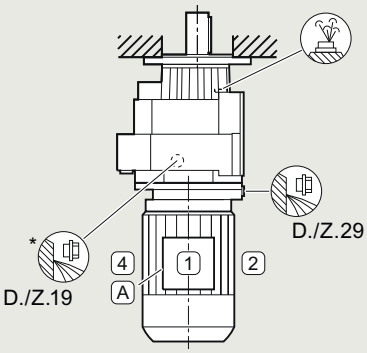
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see page 10/3.

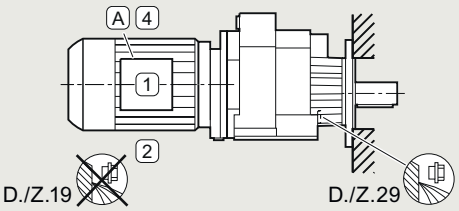
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D01**



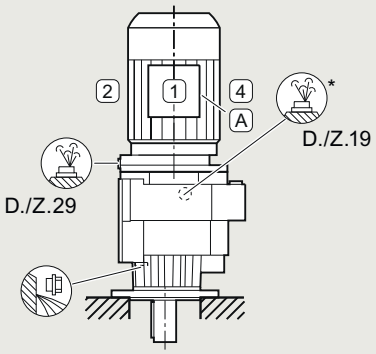
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D02**



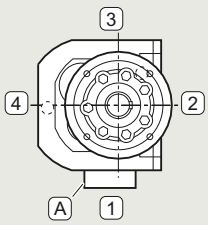
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D03**



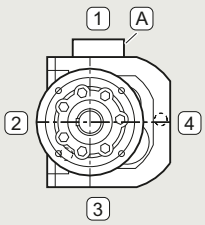
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D06**



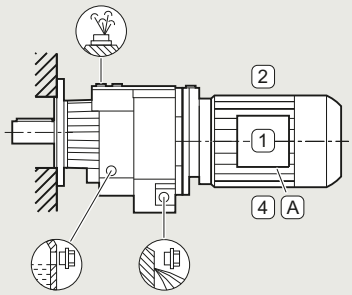
Flange-mounted design or with housing flange

Helical gearboxes ZF and DF or ZZ and DZ, size 39

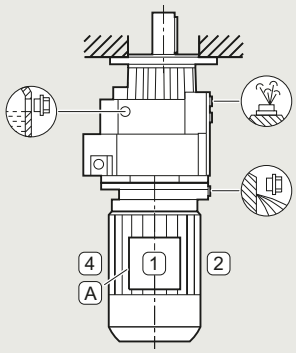
Oil valves

For an explanation of the symbols, see page 10/3.

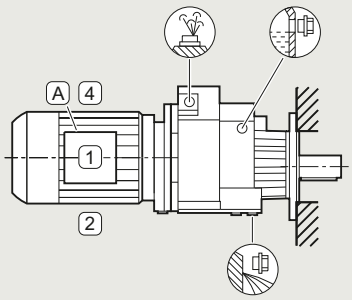
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ3103-.....-.F..**-Z**, 2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.F..**-Z**, 2KJ3203-.....-.H..**-Z**	**D01**



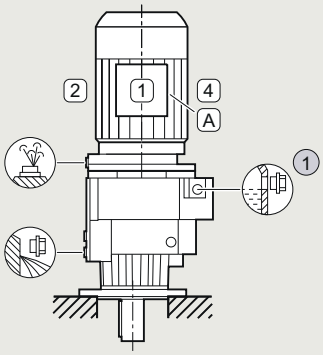
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ3103-.....-.F..**-Z**, 2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.F..**-Z**, 2KJ3203-.....-.H..**-Z**	**D02**



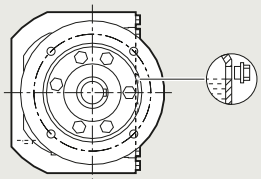
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ3103-.....-.F..**-Z**, 2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.F..**-Z**, 2KJ3203-.....-.H..**-Z**	**D03**



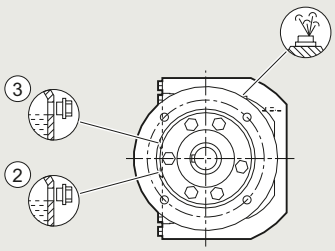
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ3103-.....-.F..**-Z**, 2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.F..**-Z**, 2KJ3203-.....-.H..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ3103-.....-.F..**-Z**, 2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.F..**-Z**, 2KJ3203-.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ3103-.....-.F..**-Z**, 2KJ3103-.....-.H..**-Z** 2KJ3203-.....-.F..**-Z**, 2KJ3203-.....-.H..**-Z**	**D06**



Flange-mounted design or with housing flange

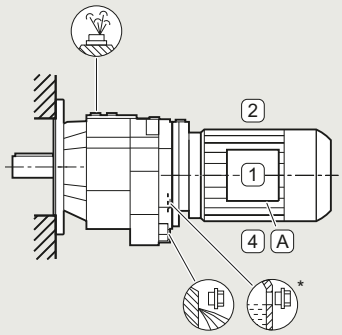
Helical gearboxes ZF and DF, sizes 49 to 189 or ZZ and DZ, sizes 49 to 129
Helical gearboxes ZF and DF with VLplus (G30) / XLplus (G31) reinforced bearing systems, sizes 89 to 169
Cooling tower gearboxes ZKF, sizes 89 to 189 (mounting positions M2 and M4)

Oil valves

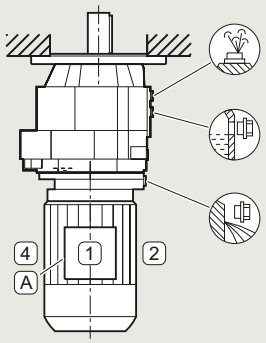
For an explanation of the symbols, see page 10/3.

An oil dipstick is available as an option for 2-stage helical gearboxes ZF89 to ZF189 and ZKF89 to ZKF189 with mounting position M4.

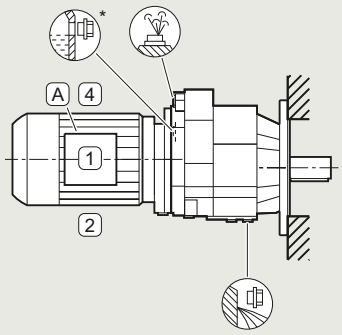
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D01**



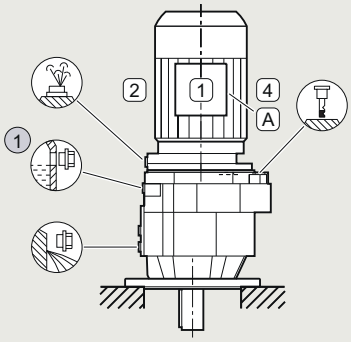
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D02**



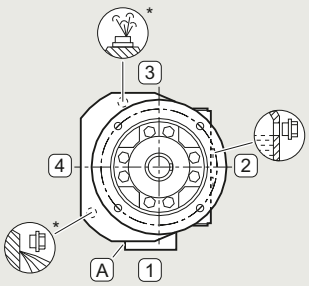
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D03**



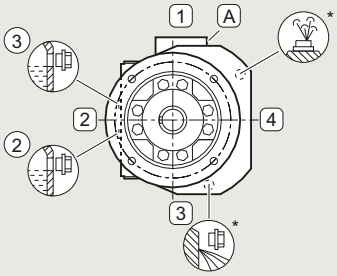
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D04**
Oil dipstick (only mounting position M4)	2KJ31.. -.....-....**-Z**	**G48 + D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ31.. -.....-.F..**-Z**, 2KJ31.. -.....-.H..**-Z** 2KJ32.. -.....-.F..**-Z**, 2KJ32.. -.....-.H..**-Z**	**D06**



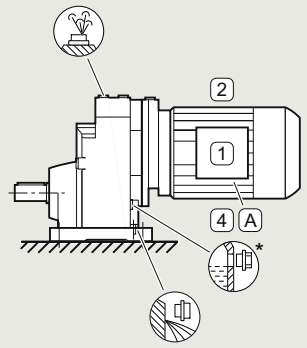
Foot-mounted design

Helical gearboxes E, sizes 39 to 149

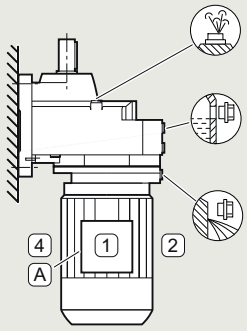
Oil valves

For an explanation of the symbols, see page 10/3.

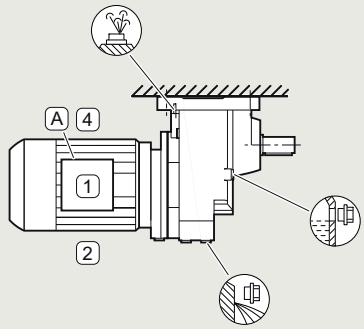
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ30. . -. . . . . -. A. . **-Z**	**D01**



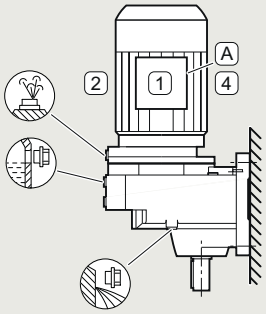
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ30. . -. . . . . -. A. . **-Z**	**D02**



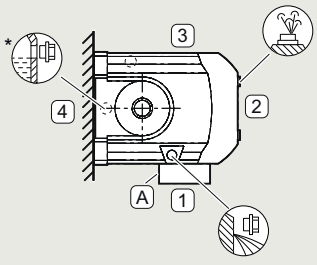
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ30. . -. . . . . -. A. . **-Z**	**D03**



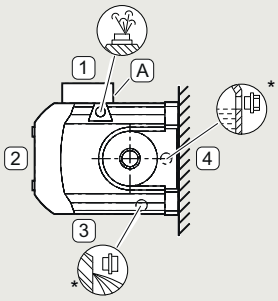
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ30. . -. . . . . -. A. . **-Z**	**D04**



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**



10

Flange-mounted design or with housing flange

Helical gearboxes EF, sizes 39 to 149 or EZ, sizes 39 to 149

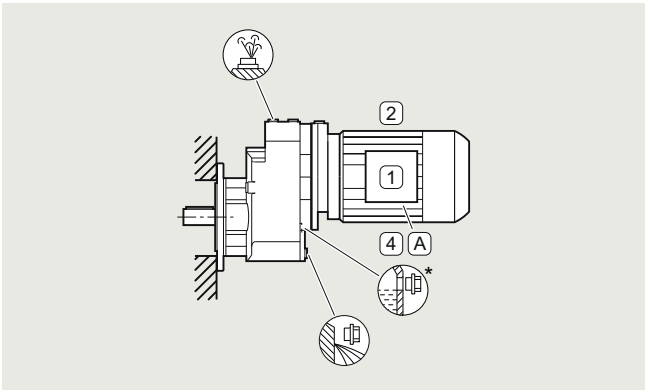
Cooling tower gearboxes EKF, sizes 89 to 149 (mounting positions M2 and M4)

Oil valves

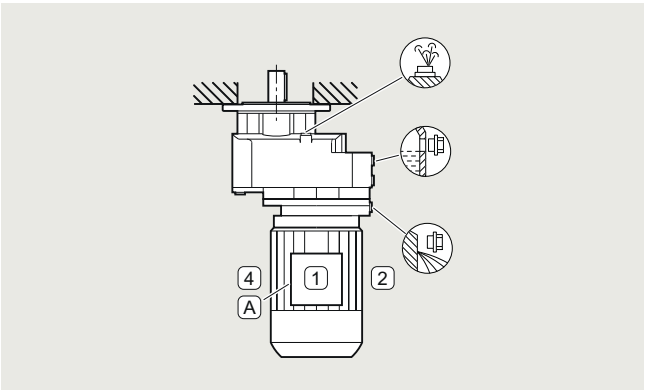
For an explanation of the symbols, see page 10/3.

An oil dipstick is available as an option for 1-stage helical gearboxes EF89 to EF149 and EKF89 to EKF149 with mounting position M4.

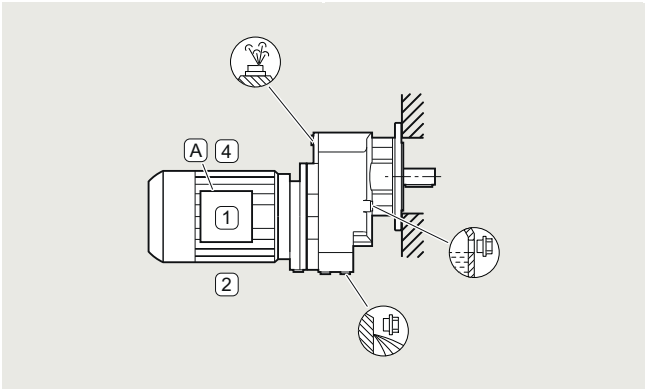
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ30.. -.....-.F..**-Z**, 2KJ30.. -.....-.H..**-Z**	**D01**



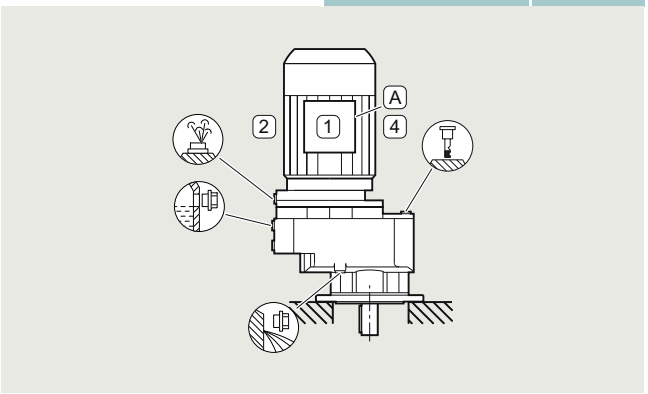
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ30.. -.....-.F..**-Z**, 2KJ30.. -.....-.H..**-Z**	**D02**



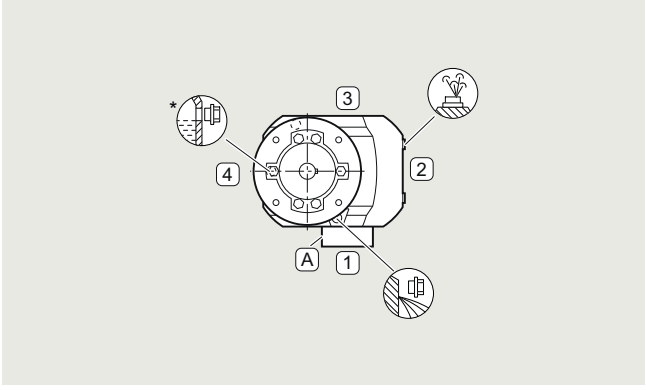
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ30.. -.....-.F..**-Z**, 2KJ30.. -.....-.H..**-Z**	**D03**



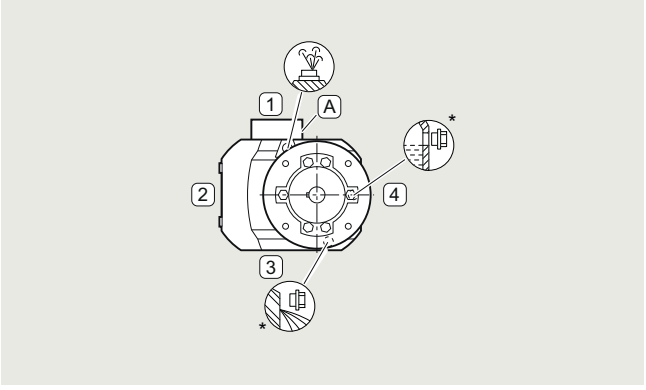
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ30.. -.....-.F..**-Z**, 2KJ30.. -.....-.H..**-Z**	**D04**
Oil dipstick (only mounting position M4)	2KJ30.. -.....-.F..**-Z**	**G48 + D04**



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**



Shaft-mounted design

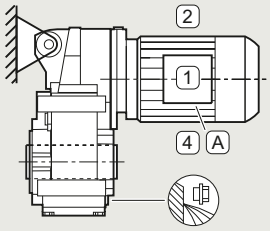
Parallel shaft gearboxes F.AD, size 29

Oil valves

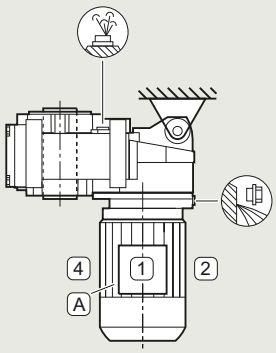
Size 29 is lubricated for life.

For an explanation of the symbols, see page 10/3.

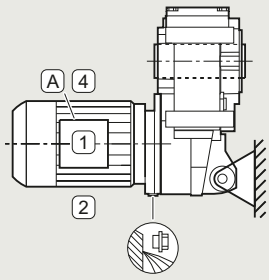
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D01**



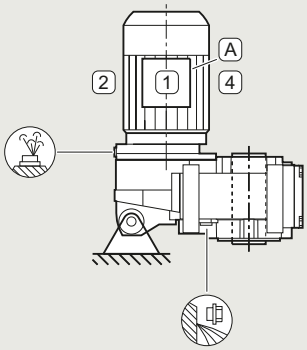
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D02**



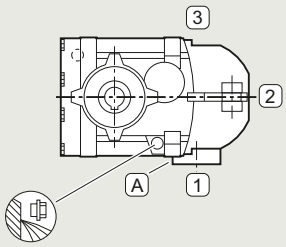
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D03**



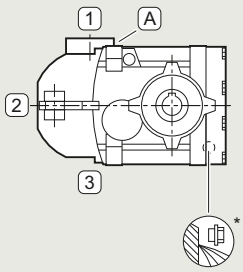
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ3301 -.....-.D..**-Z** 2KJ3401 -.....-.D..**-Z**	**D04**



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**



Parallel shaft gearboxes

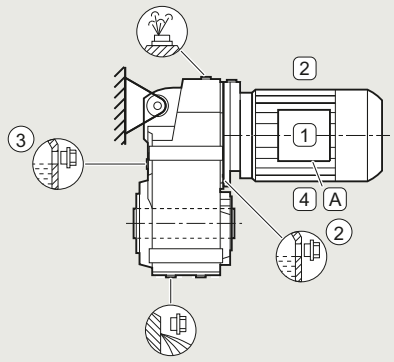
Shaft-mounted design

Parallel shaft gearboxes F.AD, sizes 39 to 189

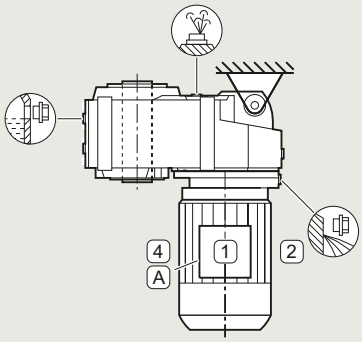
Oil valves

For an explanation of the symbols, see page 10/3.

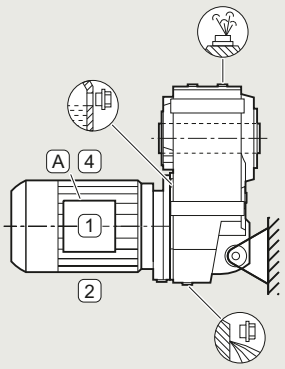
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D01**



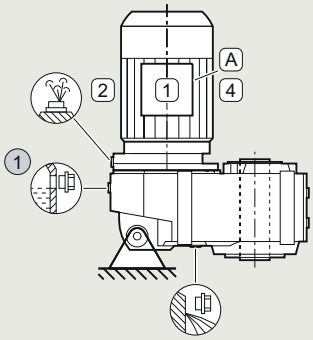
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D02**



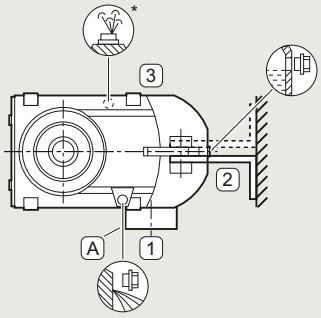
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D03**



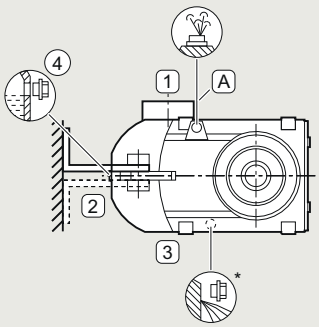
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ33.. -.....-.D..**-Z** 2KJ34.. -.....-.D..**-Z**	**D04**



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**



Flange-mounted design or with housing flange

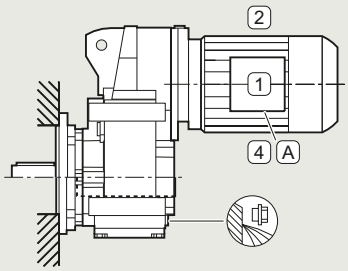
Parallel shaft gearboxes F..F or F..Z, size 29

Oil valves

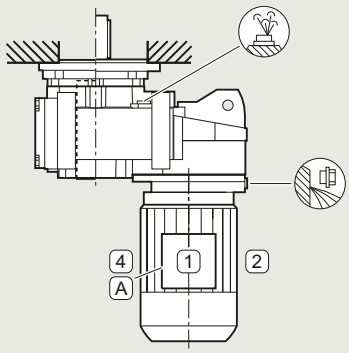
Size 29 is lubricated for life.

For an explanation of the symbols, see page 10/3.

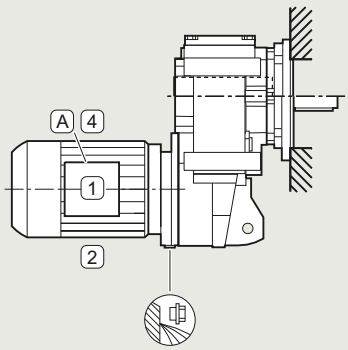
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ3301 -.....-.F..**-Z**, 2KJ3301 -.....-.H..**-Z** 2KJ3401 -.....-.F..**-Z**, 2KJ3401 -.....-.H..**-Z**	**D01**



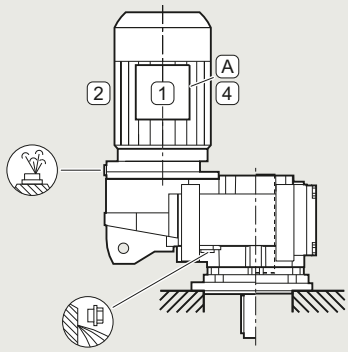
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ3301 -.....-.F..**-Z**, 2KJ3301 -.....-.H..**-Z** 2KJ3401 -.....-.F..**-Z**, 2KJ3401 -.....-.H..**-Z**	**D02**



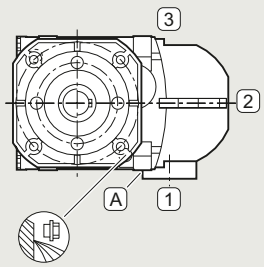
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ3301 -.....-.F..**-Z**, 2KJ3301 -.....-.H..**-Z** 2KJ3401 -.....-.F..**-Z**, 2KJ3401 -.....-.H..**-Z**	**D03**



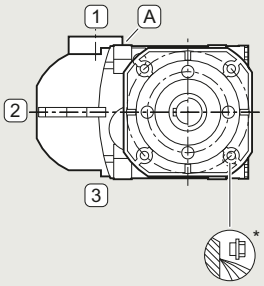
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ3301 -.....-.F..**-Z**, 2KJ3301 -.....-.H..**-Z** 2KJ3401 -.....-.F..**-Z**, 2KJ3401 -.....-.H..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ3301 -.....-.F..**-Z**, 2KJ3301 -.....-.H..**-Z** 2KJ3401 -.....-.F..**-Z**, 2KJ3401 -.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ3301 -.....-.F..**-Z**, 2KJ3301 -.....-.H..**-Z** 2KJ3401 -.....-.F..**-Z**, 2KJ3401 -.....-.H..**-Z**	**D06**



Parallel shaft gearboxes

Flange-mounted design or with housing flange

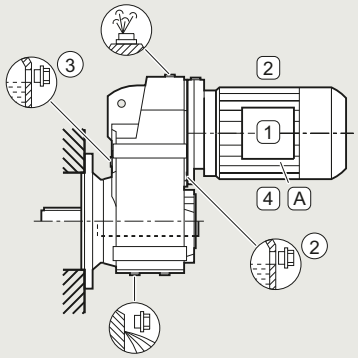
Parallel shaft gearboxes F..F or F..Z, sizes 39 to 189
Parallel shaft gearboxes F..F with VLplus (G30) reinforced bearing system, sizes 89 to 169

Oil valves

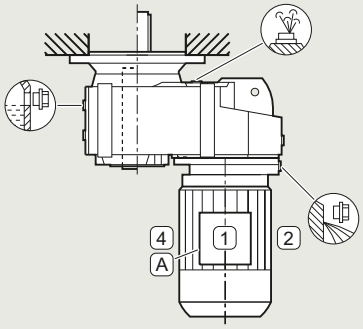
For an explanation of the symbols, see page 10/3.

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.

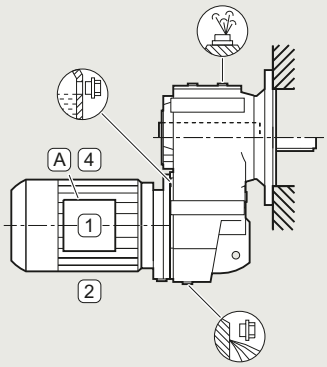
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ33.. -.....-.F..**-Z**, 2KJ33.. -.....-.H..**-Z** 2KJ34.. -.....-.F..**-Z**, 2KJ34.. -.....-.H..**-Z**	**D01**



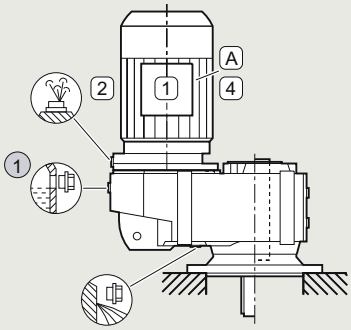
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ33.. -.....-.F..**-Z**, 2KJ33.. -.....-.H..**-Z** 2KJ34.. -.....-.F..**-Z**, 2KJ34.. -.....-.H..**-Z**	**D02**



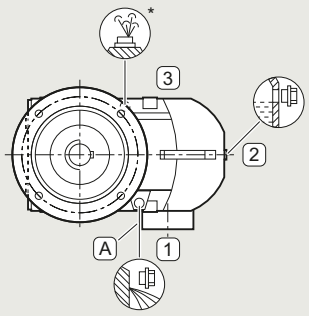
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ33.. -.....-.F..**-Z**, 2KJ33.. -.....-.H..**-Z** 2KJ34.. -.....-.F..**-Z**, 2KJ34.. -.....-.H..**-Z**	**D03**



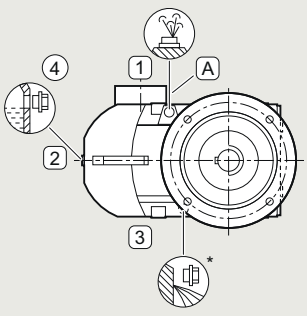
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ33.. -.....-.F..**-Z**, 2KJ33.. -.....-.H..**-Z** 2KJ34.. -.....-.F..**-Z**, 2KJ34.. -.....-.H..**-Z**	**D04**



Mounting position	Additional identification code **-Z** with order code	Order code
M5	2KJ33.. -.....-.F..**-Z**, 2KJ33.. -.....-.H..**-Z** 2KJ34.. -.....-.F..**-Z**, 2KJ34.. -.....-.H..**-Z**	**D05**



Mounting position	Additional identification code **-Z** with order code	Order code
M6	2KJ33.. -.....-.F..**-Z**, 2KJ33.. -.....-.H..**-Z** 2KJ34.. -.....-.F..**-Z**, 2KJ34.. -.....-.H..**-Z**	**D06**



Foot-mounted design

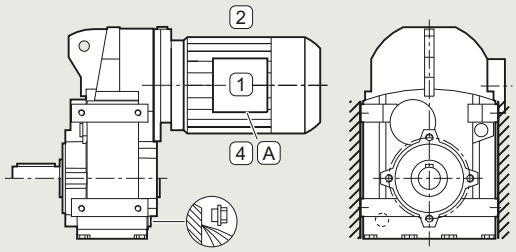
Parallel shaft gearboxes F, size 29

Oil valves

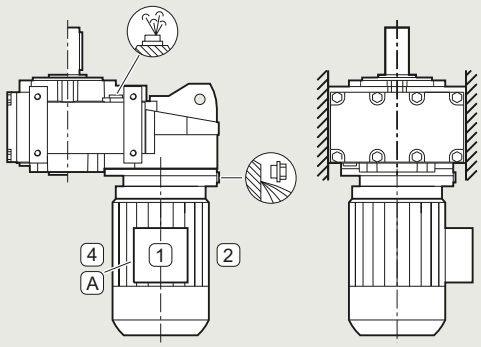
Size 29 is lubricated for life.

For an explanation of the symbols, see page 10/3.

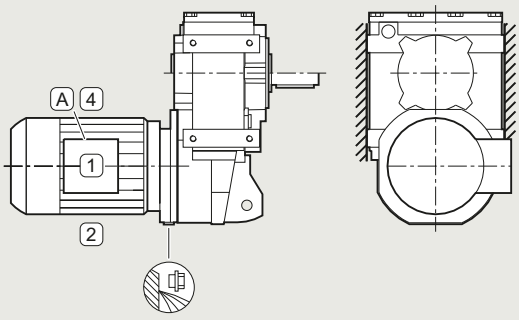
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D01**



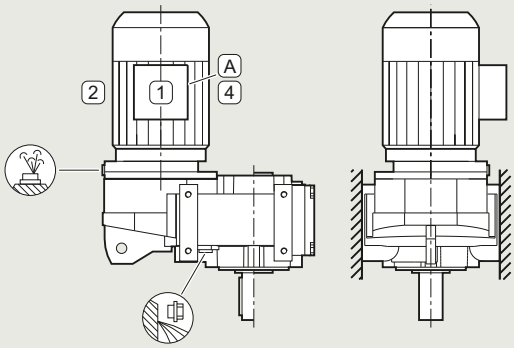
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D02**



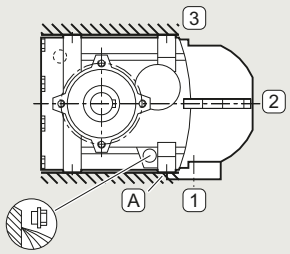
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D03**



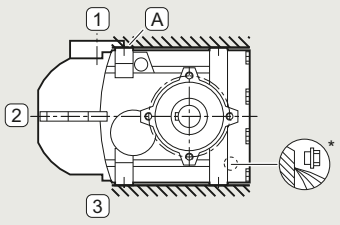
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ3301 -.....-.A..**-Z** 2KJ3401 -.....-.A..**-Z**	**D04**



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**



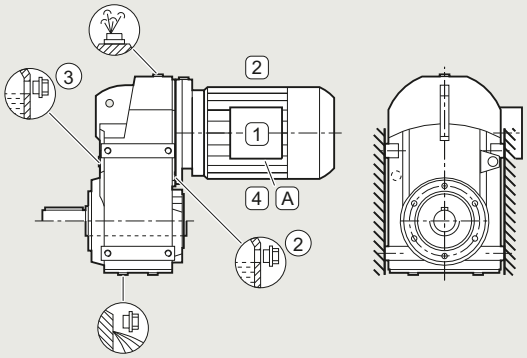
Foot-mounted design

Parallel shaft gearboxes F, sizes 39 to 189

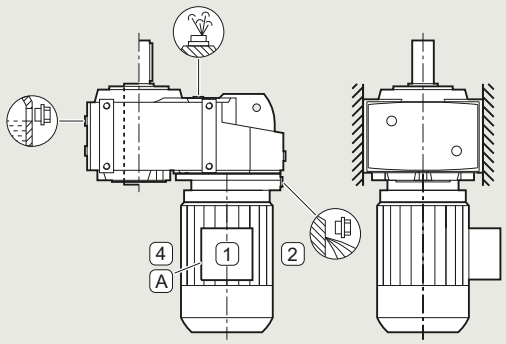
Oil valves

For an explanation of the symbols, see page 10/3.

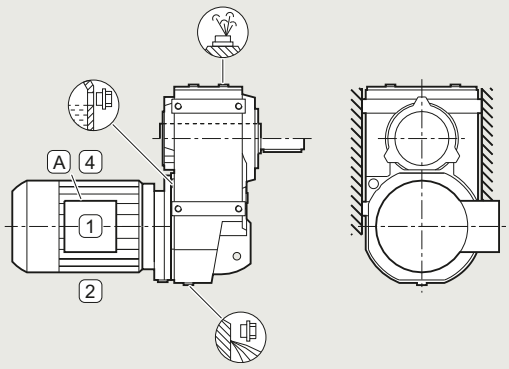
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D01**



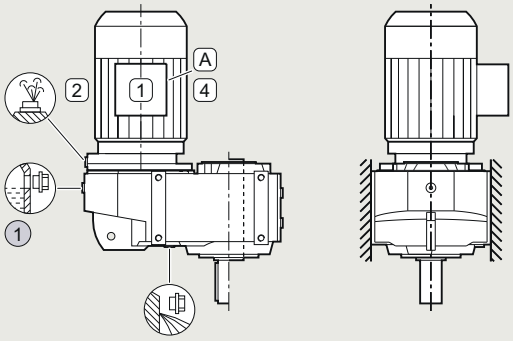
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D02**



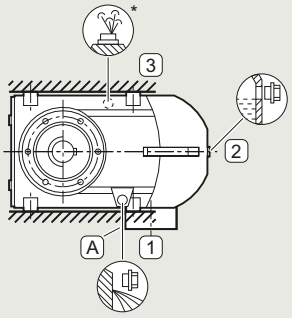
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D03**



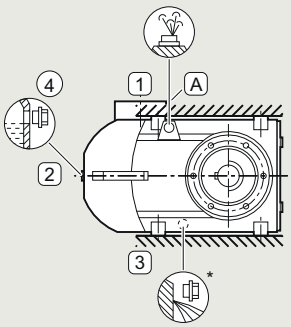
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ33.. -.....-.A..**-Z** 2KJ34.. -.....-.A..**-Z**	**D04**



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**



Foot-mounted design

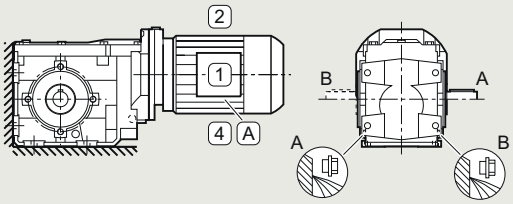
Bevel gearboxes B, sizes 19 and 29

Oil valves

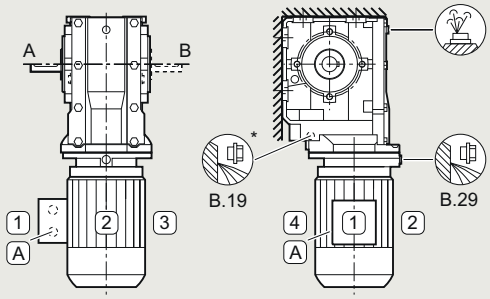
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see page 10/3.

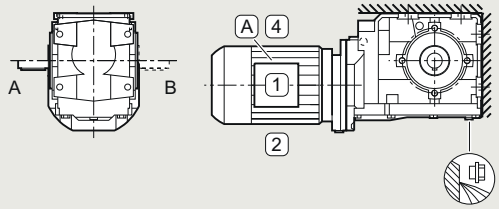
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.A..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.A..**-Z**	**D21**



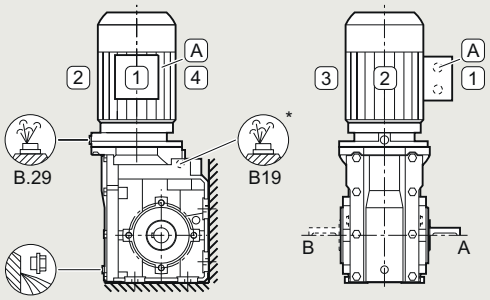
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.A..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.A..**-Z**	**D22**



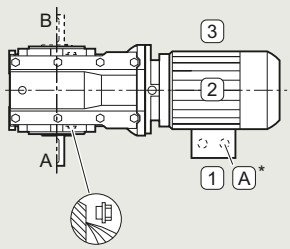
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.A..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.A..**-Z**	**D23**



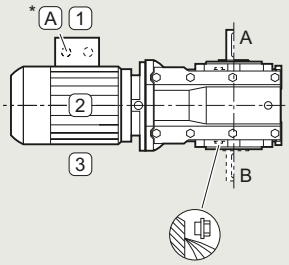
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.A..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.A..**-Z**	**D24**



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**



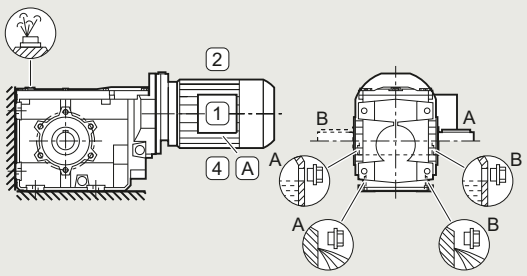
Foot-mounted design

Bevel gearboxes B, sizes 39 and 49

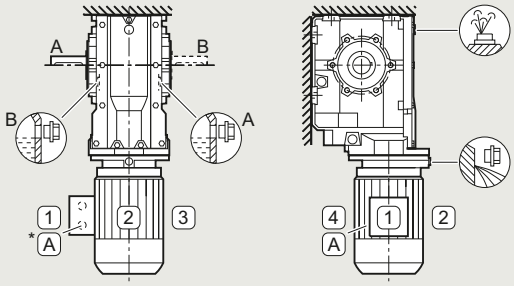
Oil valves

For an explanation of the symbols, see page 10/3.

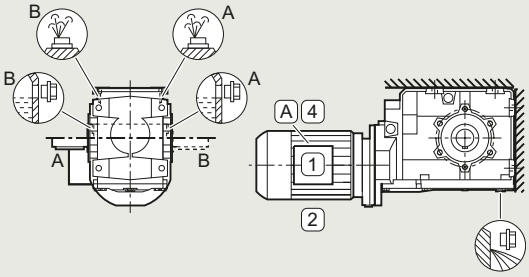
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.A..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.A..**-Z**	**D21**



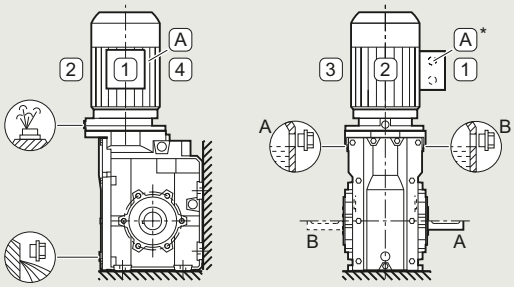
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.A..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.A..**-Z**	**D22**



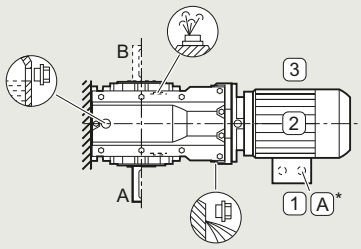
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.A..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.A..**-Z**	**D23**



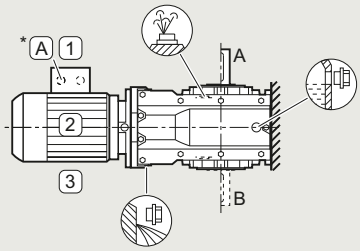
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.A..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.A..**-Z**	**D24**



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**



Housing flange design and flange-mounted design

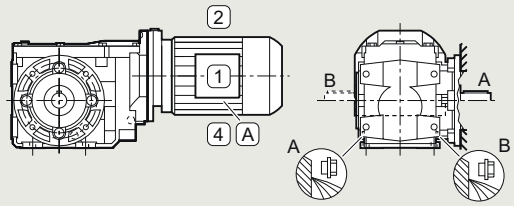
Bevel gearboxes B.Z and B.F, sizes 19 and 29

Oil valves

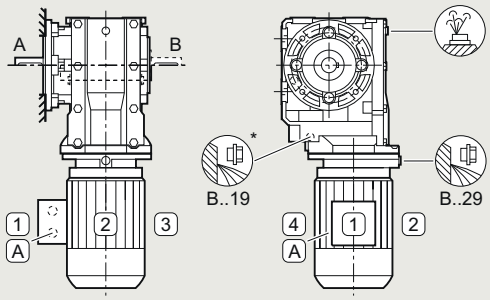
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see page 10/3.

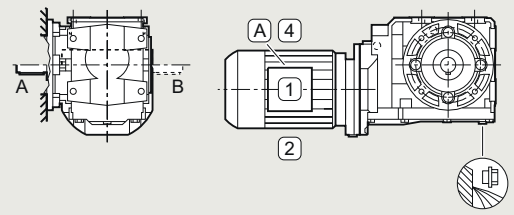
Mounting pos.	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D21**



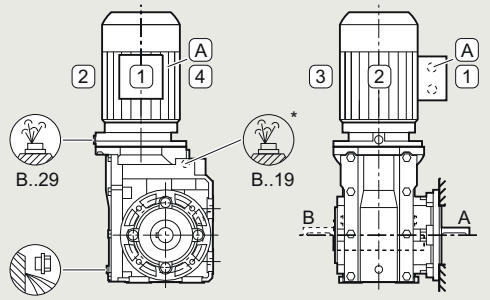
Mounting pos.	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D22**



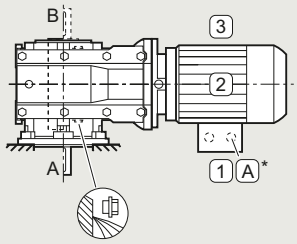
Mounting pos.	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D23**



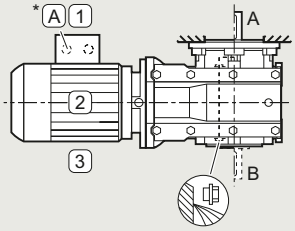
Mounting pos.	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D24**



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**



Bevel gearboxes B

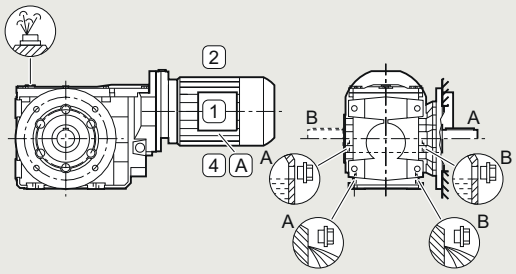
Housing flange design and flange-mounted design

Bevel gearboxes B.Z and B.F, sizes 39 and 49

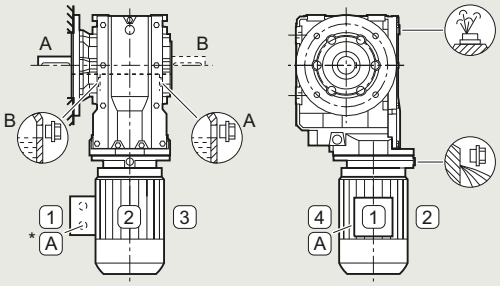
Oil valves

For an explanation of the symbols, see page 10/3.

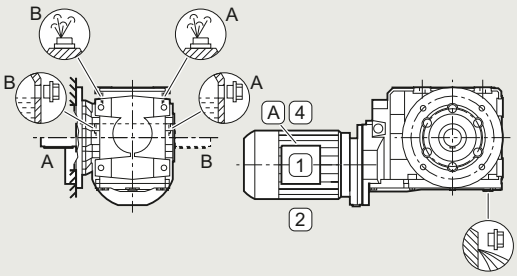
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D21**



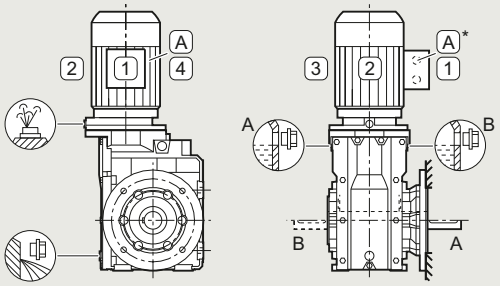
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D22**



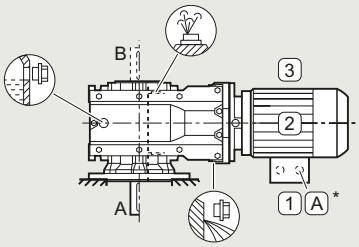
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D23**



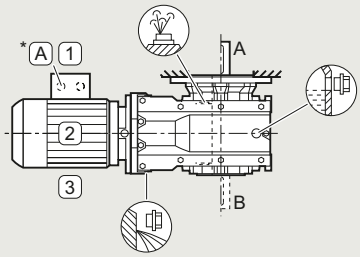
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D24**



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**



Shaft-mounted design

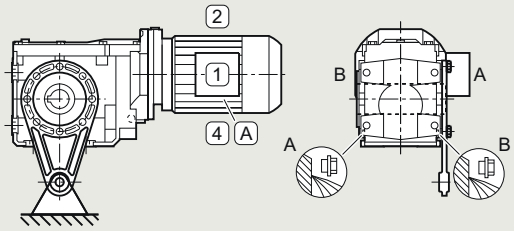
Bevel gearboxes BAD, sizes 19 and 29

Oil valves

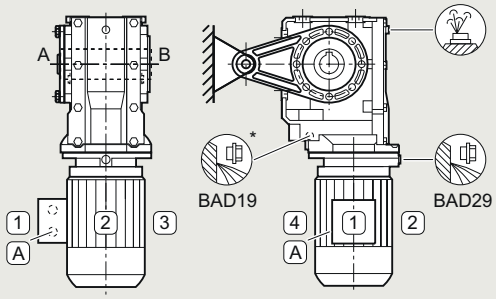
Sizes 19 and 29 are lubricated for life.

For an explanation of the symbols, see page 10/3.

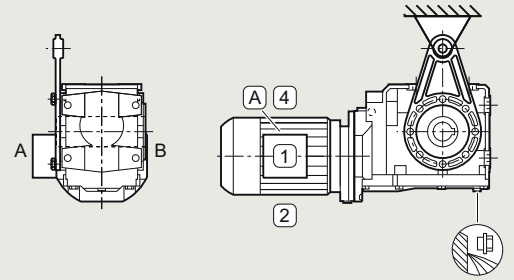
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.D..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.D..**-Z**	**D21**



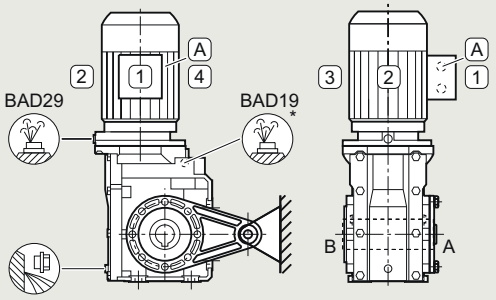
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.D..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.D..**-Z**	**D22**



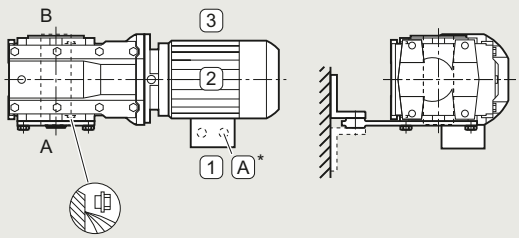
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.D..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.D..**-Z**	**D23**



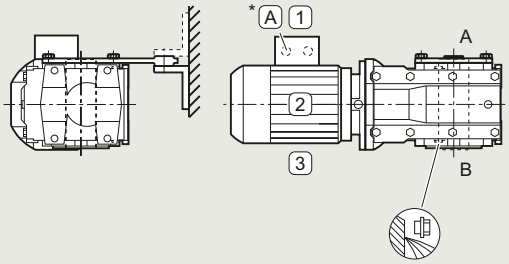
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.D..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.D..**-Z**	**D24**



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**



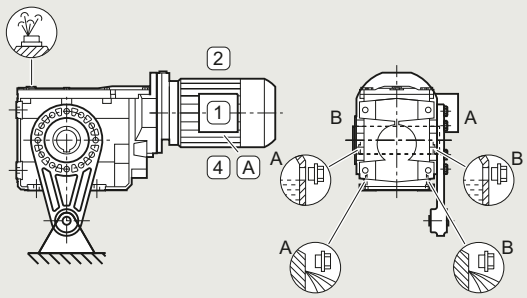
Shaft-mounted design

Bevel gearboxes BAD, sizes 39 and 49

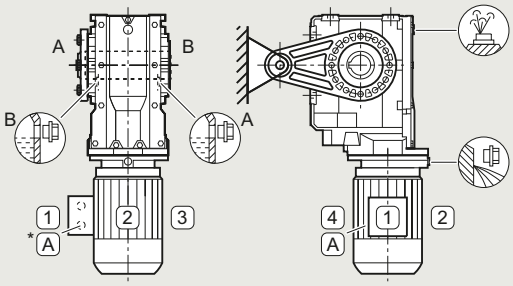
Oil valves

For an explanation of the symbols, see page 10/3.

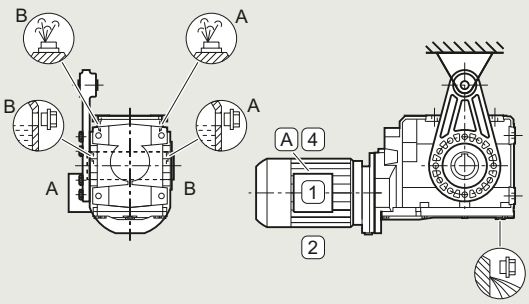
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.D..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.D..**-Z**	**D21**



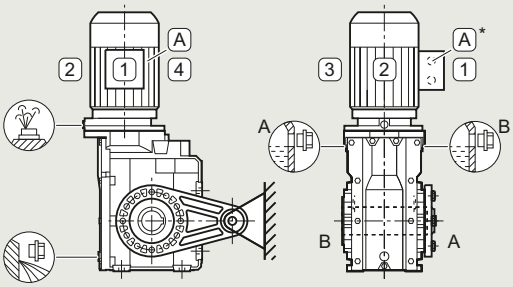
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.D..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.D..**-Z**	**D22**



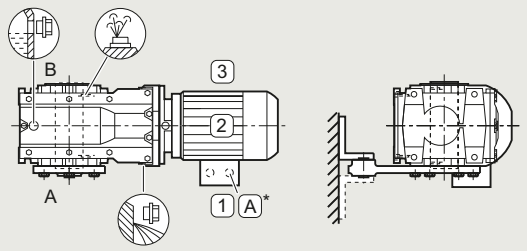
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.D..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.D..**-Z**	**D23**



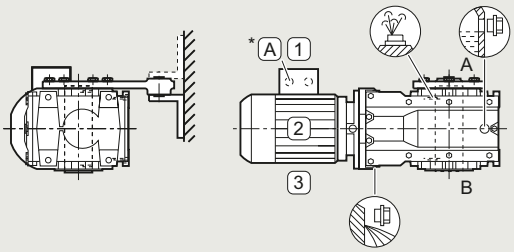
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.D..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.D..**-Z**	**D24**



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**



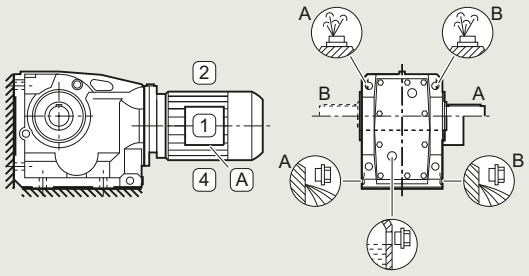
Foot-mounted design

Bevel gearboxes K, sizes 39 to 189

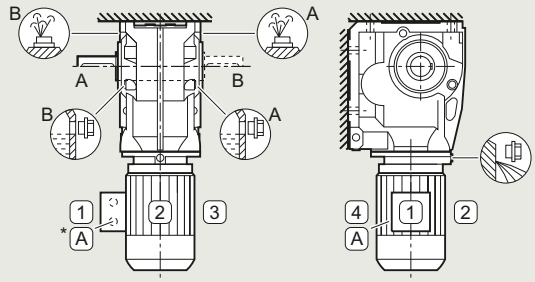
Oil valves

For an explanation of the symbols, see page 10/3.

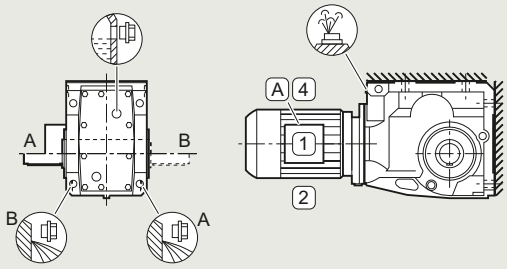
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.A..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.A..**-Z**	**D21**



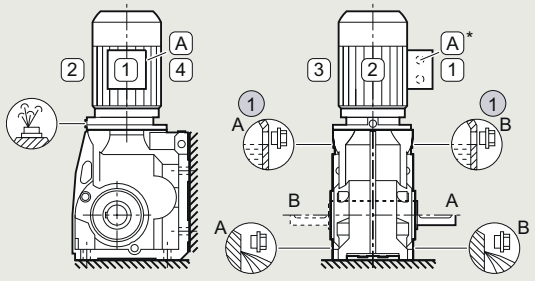
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.A..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.A..**-Z**	**D22**



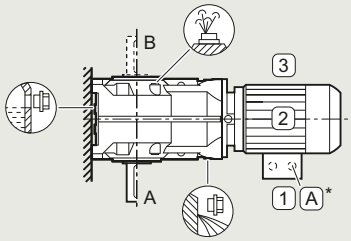
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.A..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.A..**-Z**	**D23**



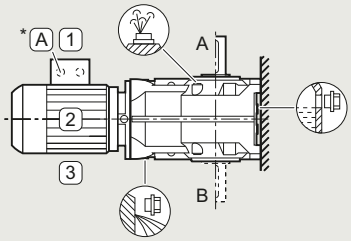
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.A..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.A..**-Z**	**D24**



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**



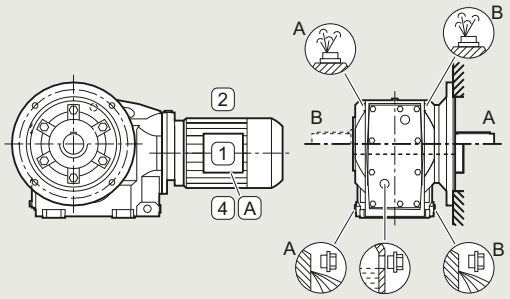
Housing flange design and flange-mounted design

Bevel gearboxes KAZ and K.F, sizes 39 to 189
Bevel gearboxes K.F with VLplus (G30) reinforced bearing systems, sizes 89 to 169

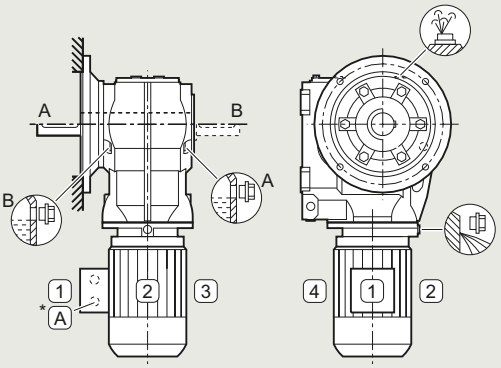
Oil valves

For an explanation of the symbols, see page 10/3.

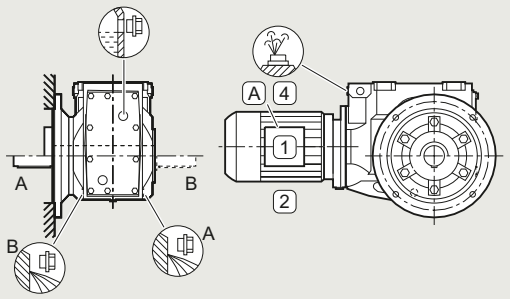
Mounting pos.	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D21**



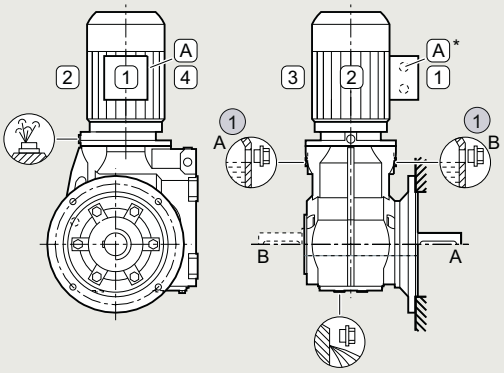
Mounting pos.	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D22**



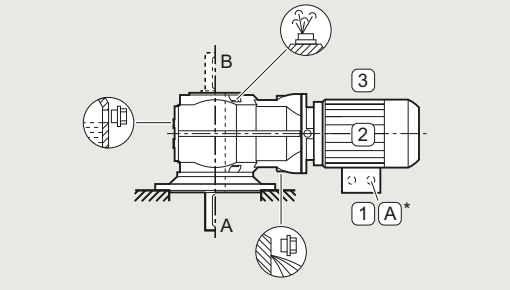
Mounting pos.	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D23**



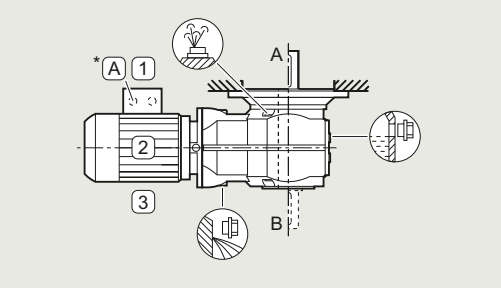
Mounting pos.	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.F..**-Z**, 2KJ35.. -.....-.H..**-Z**	**D24**



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**



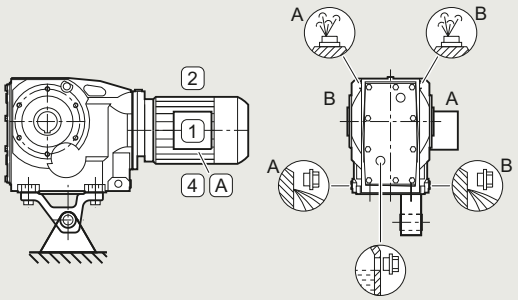
Shaft-mounted design

Bevel gearboxes KAD, sizes 39 to 189

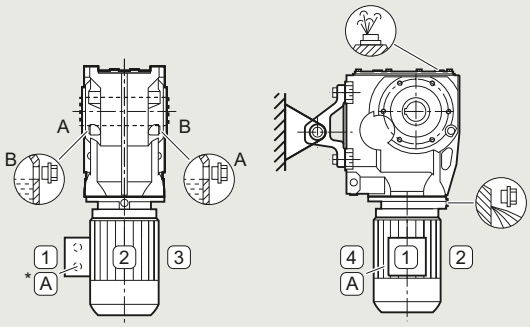
Oil valves

For an explanation of the symbols, see page 10/3.

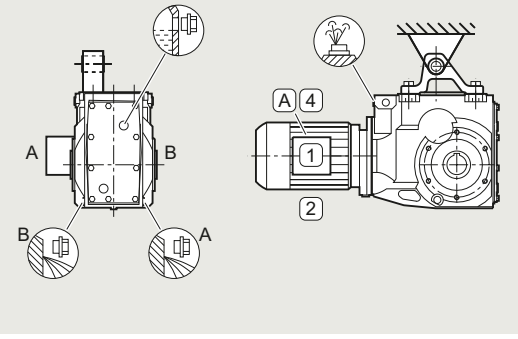
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ35.. -.....-.D..**-Z**	**D11**
M1 output side B	2KJ35.. -.....-.D..**-Z**	**D21**



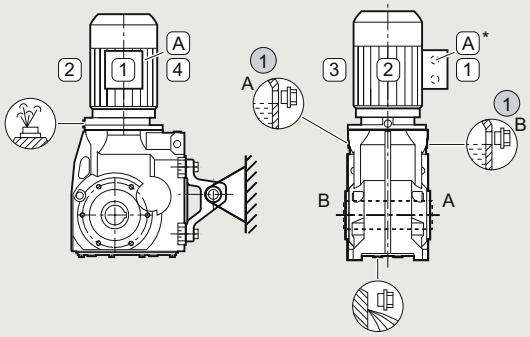
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ35.. -.....-.D..**-Z**	**D12**
M2 output side B	2KJ35.. -.....-.D..**-Z**	**D22**



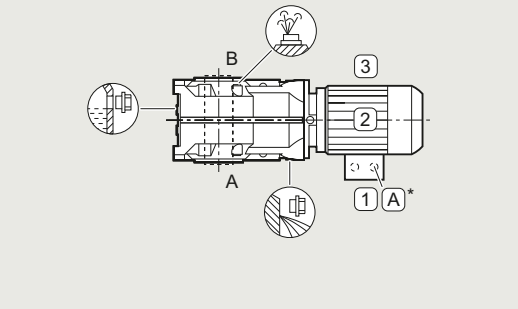
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ35.. -.....-.D..**-Z**	**D13**
M3 output side B	2KJ35.. -.....-.D..**-Z**	**D23**



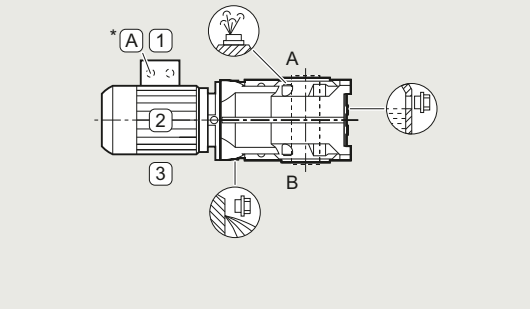
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ35.. -.....-.D..**-Z**	**D14**
M4 output side B	2KJ35.. -.....-.D..**-Z**	**D24**



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**



Shaft-mounted design

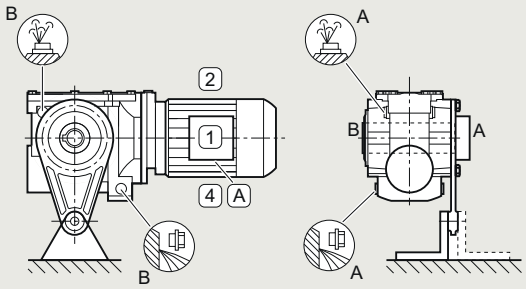
Helical worm gearboxes CAD, size 29

Oil valves

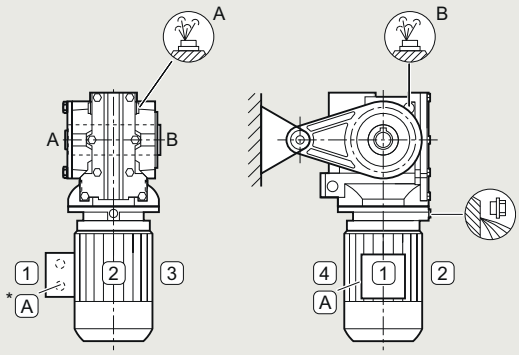
Sizes 29 are lubricated for life.

For an explanation of the symbols, see page 10/3.

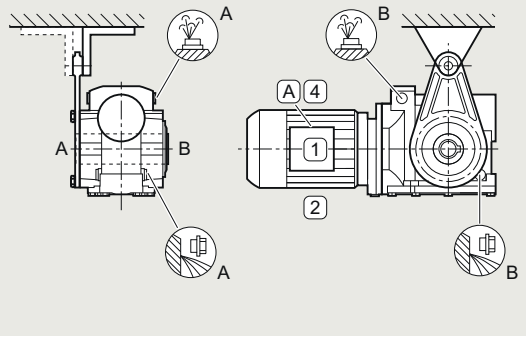
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3601-.....-.D..**-Z**	**D11**
M1 output side B	2KJ3601-.....-.D..**-Z**	**D21**



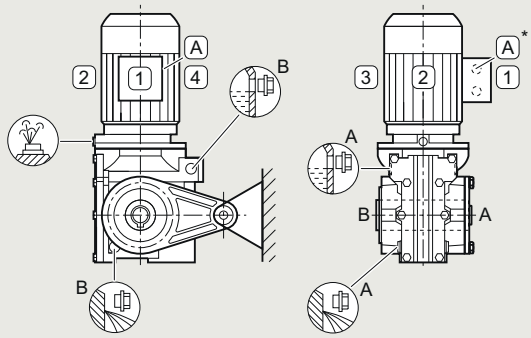
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3601-.....-.D..**-Z**	**D12**
M2 output side B	2KJ3601-.....-.D..**-Z**	**D22**



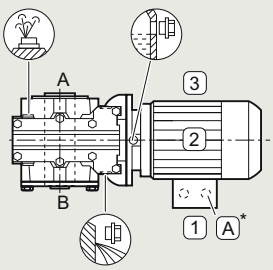
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3601-.....-.D..**-Z**	**D13**
M3 output side B	2KJ3601-.....-.D..**-Z**	**D23**



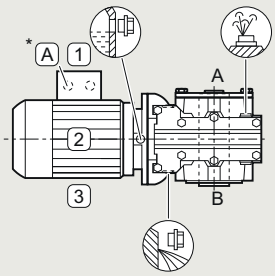
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3601-.....-.D..**-Z**	**D14**
M4 output side B	2KJ3601-.....-.D..**-Z**	**D24**



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**



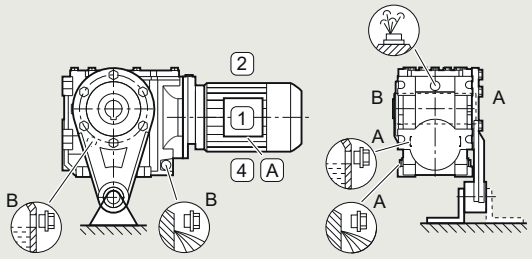
Shaft-mounted design

Helical worm gearboxes CAD, size 39A

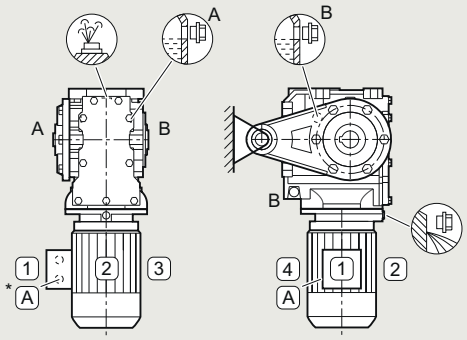
Oil valves

For an explanation of the symbols, see page 10/3.

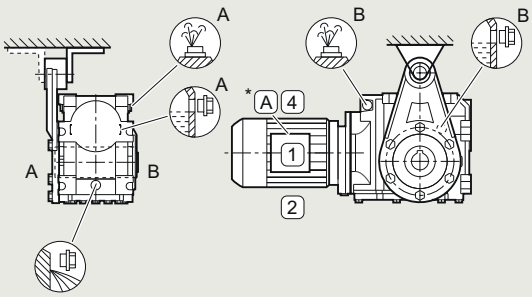
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3642-.....-.D..**-Z**	**D11**
M1 output side B	2KJ3642-.....-.D..**-Z**	**D21**



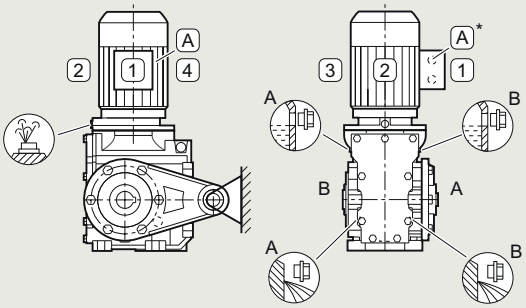
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3642-.....-.D..**-Z**	**D12**
M2 output side B	2KJ3642-.....-.D..**-Z**	**D22**



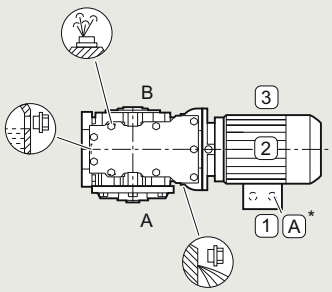
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3642-.....-.D..**-Z**	**D13**
M3 output side B	2KJ3642-.....-.D..**-Z**	**D23**



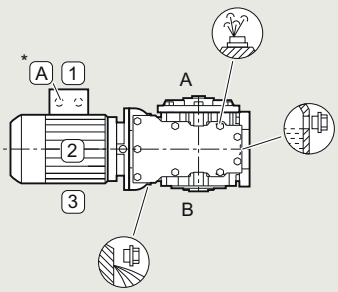
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3642-.....-.D..**-Z**	**D14**
M4 output side B	2KJ3642-.....-.D..**-Z**	**D24**



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**



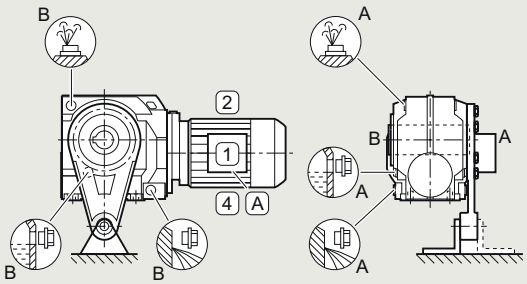
Shaft-mounted design

Helical worm gearboxes CAD, sizes 49 to 89

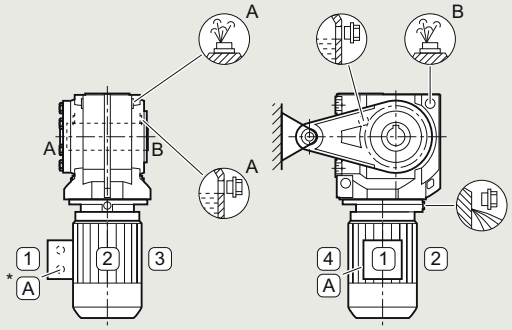
Oil valves

For an explanation of the symbols, see page 10/3.

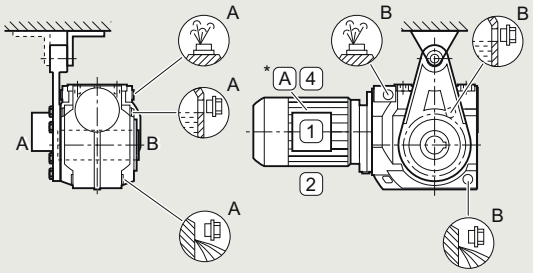
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ360 . - . . . . . - . D . . **-Z**	**D11**
M1 output side B	2KJ360 . - . . . . . - . D . . **-Z**	**D21**



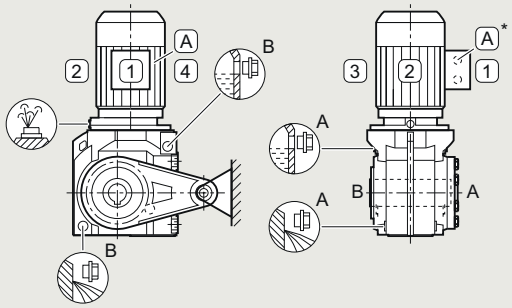
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ360 . - . . . . . - . D . . **-Z**	**D12**
M2 output side B	2KJ360 . - . . . . . - . D . . **-Z**	**D22**



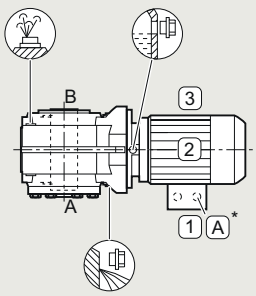
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ360 . - . . . . . - . D . . **-Z**	**D13**
M3 output side B	2KJ360 . - . . . . . - . D . . **-Z**	**D23**



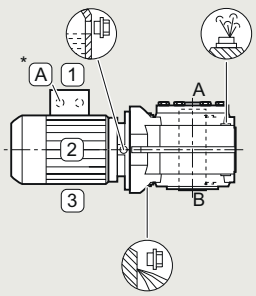
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ360 . - . . . . . - . D . . **-Z**	**D14**
M4 output side B	2KJ360 . - . . . . . - . D . . **-Z**	**D24**



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**



Housing flange design and flange-mounted design

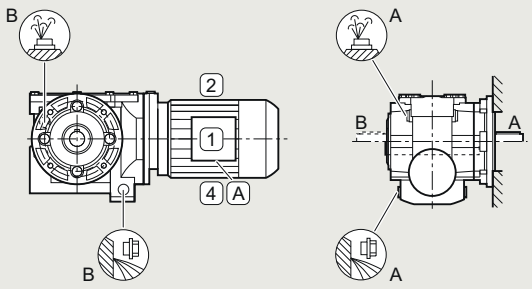
Helical worm gearboxes C.Z and C.F, size 29

Oil valves

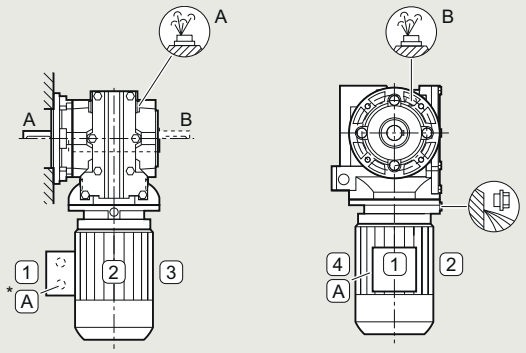
Sizes 29 are lubricated for life.

For an explanation of the symbols, see page 10/3.

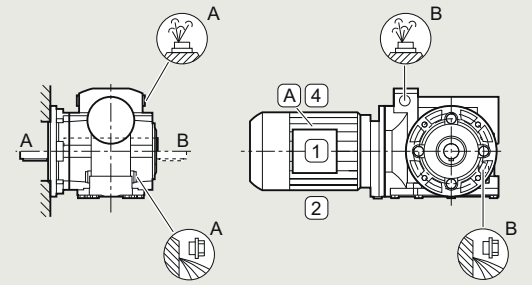
Mounting pos.	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3601-.....-.F..**-Z**, 2KJ3601-.....-.H..**-Z**	**D11**
M1 output side B	2KJ3601-.....-.F..**-Z**, 2KJ3601-.....-.H..**-Z**	**D21**



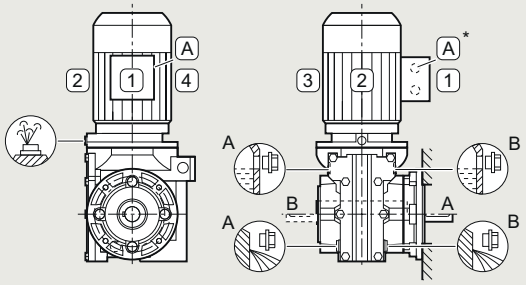
Mounting pos.	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3601-.....-.F..**-Z**, 2KJ3601-.....-.H..**-Z**	**D12**
M2 output side B	2KJ3601-.....-.F..**-Z**, 2KJ3601-.....-.H..**-Z**	**D22**



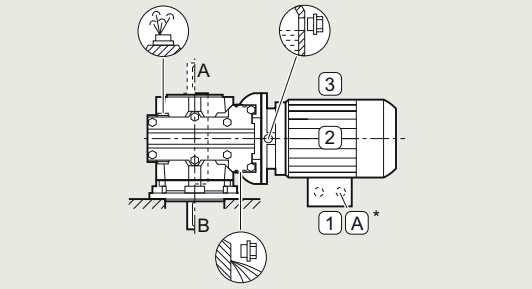
Mounting pos.	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3601-.....-.F..**-Z**, 2KJ3601-.....-.H..**-Z**	**D13**
M3 output side B	2KJ3601-.....-.F..**-Z**, 2KJ3601-.....-.H..**-Z**	**D23**



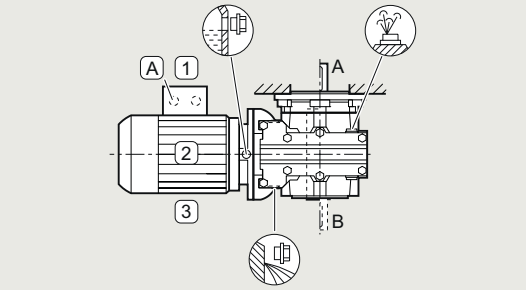
Mounting pos.	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3601-.....-.F..**-Z**, 2KJ3601-.....-.H..**-Z**	**D14**
M4 output side B	2KJ3601-.....-.F..**-Z**, 2KJ3601-.....-.H..**-Z**	**D24**



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**



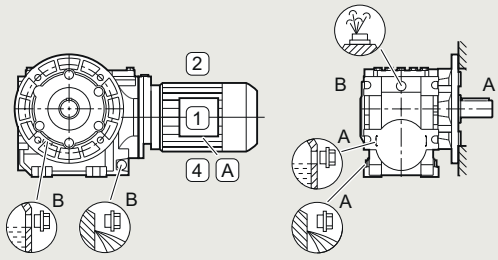
Housing flange design and flange-mounted design

Helical worm gearboxes C.Z and C.F, size 39A

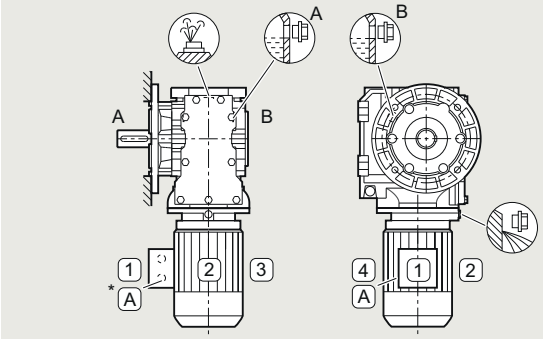
Oil valves

For an explanation of the symbols, see page 10/3.

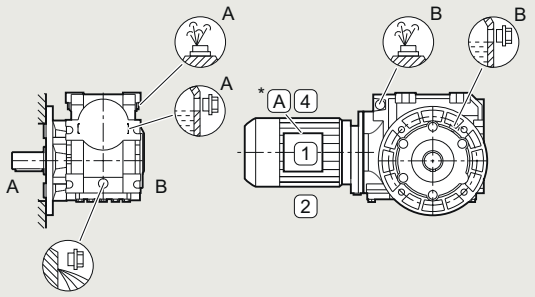
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3642-.....-.F..**-Z**, 2KJ3642-.....-.H..**-Z**	**D11**
M1 output side B	2KJ3642-.....-.F..**-Z**, 2KJ3642-.....-.H..**-Z**	**D21**



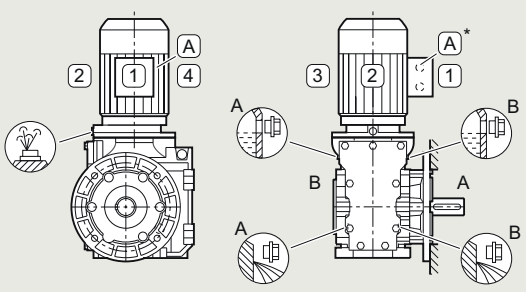
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3642-.....-.F..**-Z**, 2KJ3642-.....-.H..**-Z**	**D12**
M2 output side B	2KJ3642-.....-.F..**-Z**, 2KJ3642-.....-.H..**-Z**	**D22**



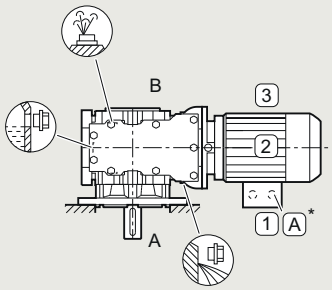
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3642-.....-.F..**-Z**, 2KJ3642-.....-.H..**-Z**	**D13**
M3 output side B	2KJ3642-.....-.F..**-Z**, 2KJ3642-.....-.H..**-Z**	**D23**



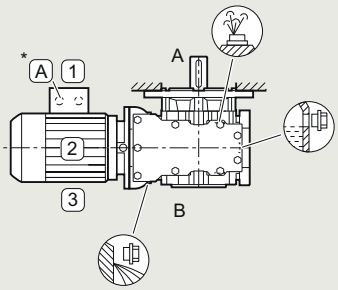
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3642-.....-.F..**-Z**, 2KJ3642-.....-.H..**-Z**	**D14**
M4 output side B	2KJ3642-.....-.F..**-Z**, 2KJ3642-.....-.H..**-Z**	**D24**



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**



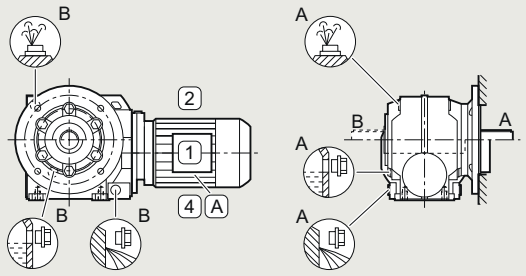
Housing flange design and flange-mounted design

Helical worm gearboxes C.Z and C.F, sizes 49 to 89

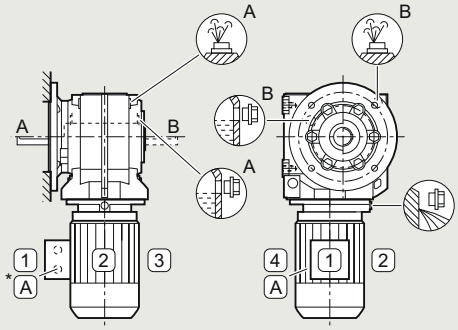
Oil valves

For an explanation of the symbols, see page 10/3.

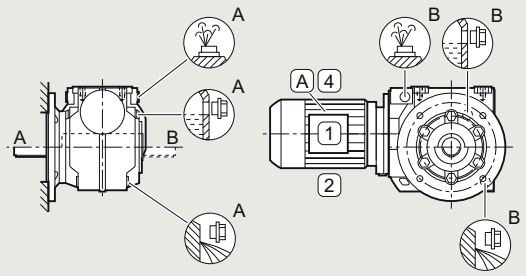
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ360.-.....-.F..**-Z**, 2KJ360.-.....-.H..**-Z**	**D11**
M1 output side B	2KJ360.-.....-.F..**-Z**, 2KJ360.-.....-.H..**-Z**	**D21**



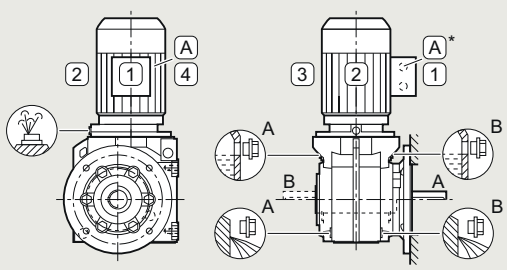
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ360.-.....-.F..**-Z**, 2KJ360.-.....-.H..**-Z**	**D12**
M2 output side B	2KJ360.-.....-.F..**-Z**, 2KJ360.-.....-.H..**-Z**	**D22**



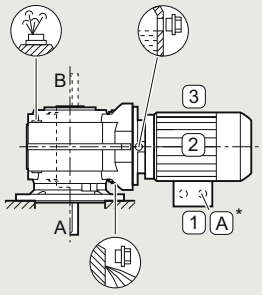
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ360.-.....-.F..**-Z**, 2KJ360.-.....-.H..**-Z**	**D13**
M3 output side B	2KJ360.-.....-.F..**-Z**, 2KJ360.-.....-.H..**-Z**	**D23**



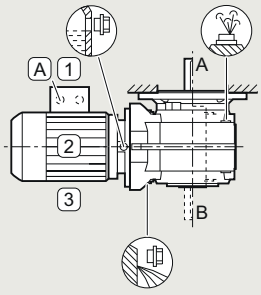
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ360.-.....-.F..**-Z**, 2KJ360.-.....-.H..**-Z**	**D14**
M4 output side B	2KJ360.-.....-.F..**-Z**, 2KJ360.-.....-.H..**-Z**	**D24**



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**



Foot-mounted design

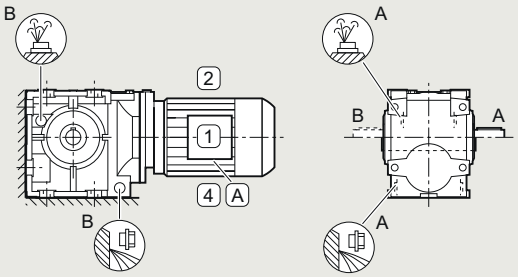
Helical worm gearboxes C, size 29

Oil valves

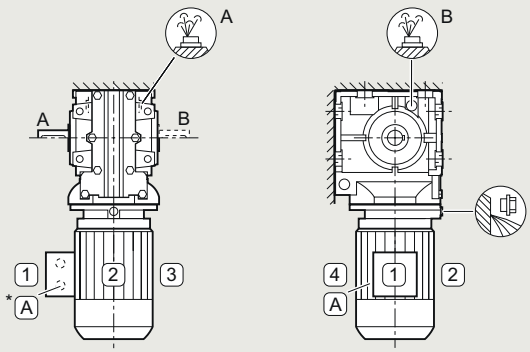
Sizes 29 are lubricated for life.

For an explanation of the symbols, see page 10/3.

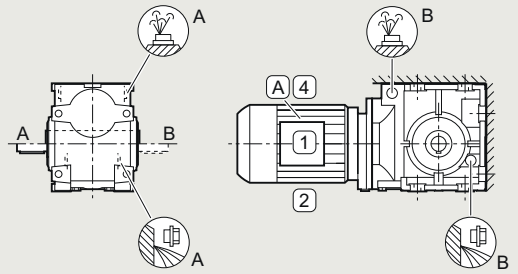
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3601-.....-.A..**-Z**	**D11**
M1 output side B	2KJ3601-.....-.A..**-Z**	**D21**



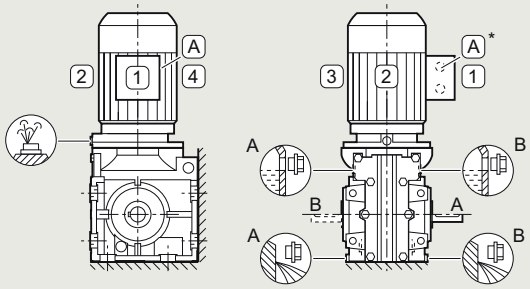
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3601-.....-.A..**-Z**	**D12**
M2 output side B	2KJ3601-.....-.A..**-Z**	**D22**



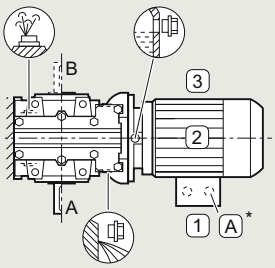
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3601-.....-.A..**-Z**	**D13**
M3 output side B	2KJ3601-.....-.A..**-Z**	**D23**



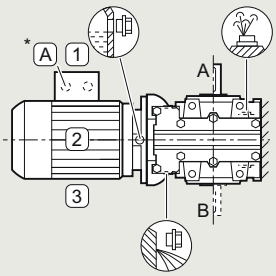
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3601-.....-.A..**-Z**	**D14**
M4 output side B	2KJ3601-.....-.A..**-Z**	**D24**



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**



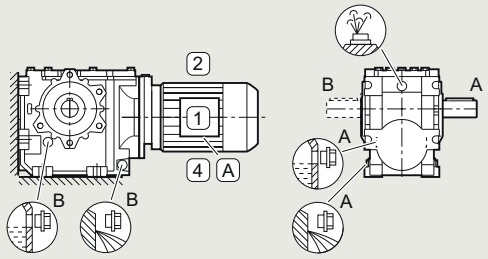
Foot-mounted design

Helical worm gearboxes C, size 39A

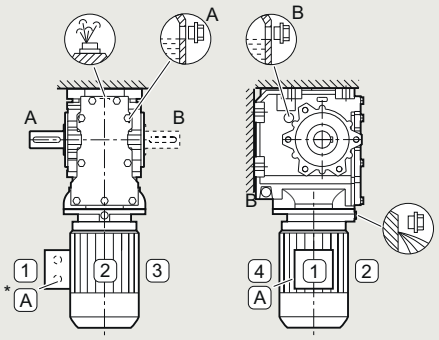
Oil valves

For an explanation of the symbols, see page 10/3.

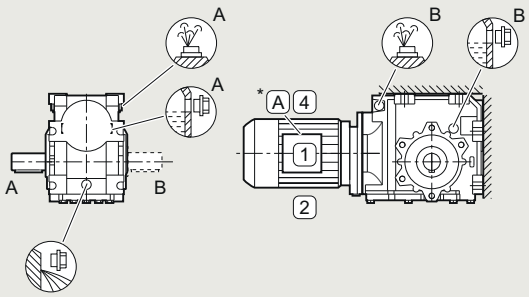
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ3642-.....-.A..**-Z**	**D11**
M1 output side B	2KJ3642-.....-.A..**-Z**	**D21**



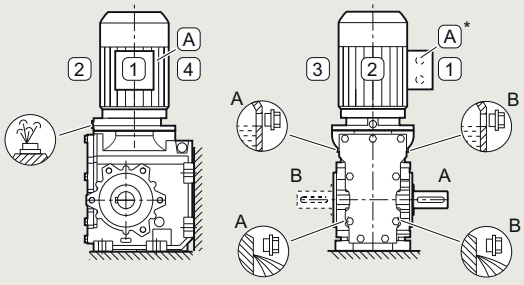
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ3642-.....-.A..**-Z**	**D12**
M2 output side B	2KJ3642-.....-.A..**-Z**	**D22**



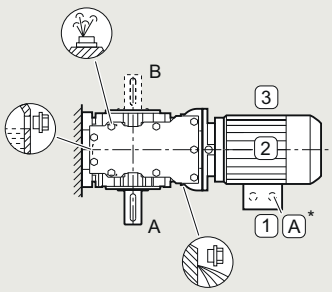
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ3642-.....-.A..**-Z**	**D13**
M3 output side B	2KJ3642-.....-.A..**-Z**	**D23**



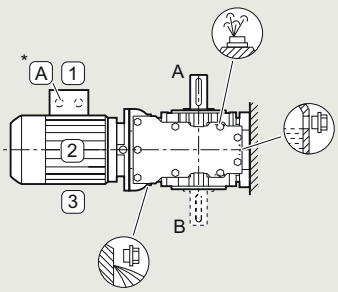
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ3642-.....-.A..**-Z**	**D14**
M4 output side B	2KJ3642-.....-.A..**-Z**	**D24**



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**



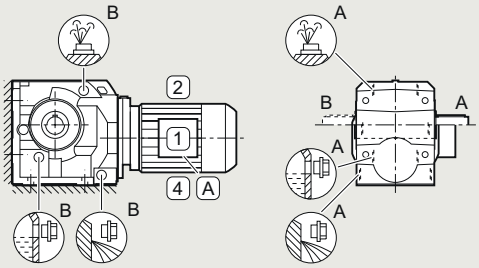
Foot-mounted design

Helical worm gearboxes C, sizes 49 to 89

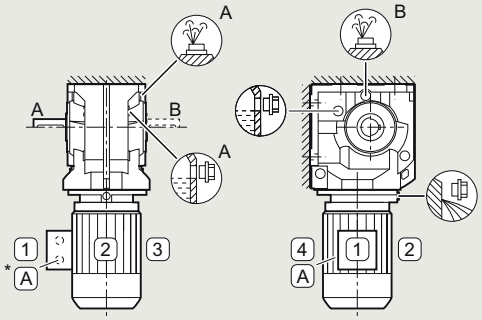
Oil valves

For an explanation of the symbols, see page 10/3.

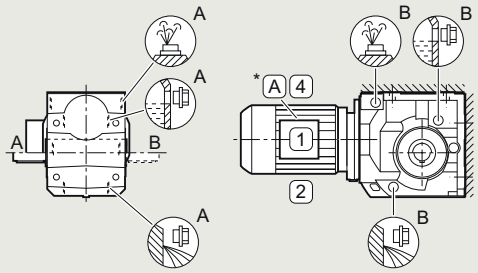
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ360 . - . . . . . - . A . . **-Z**	**D11**
M1 output side B	2KJ360 . - . . . . . - . A . . **-Z**	**D21**



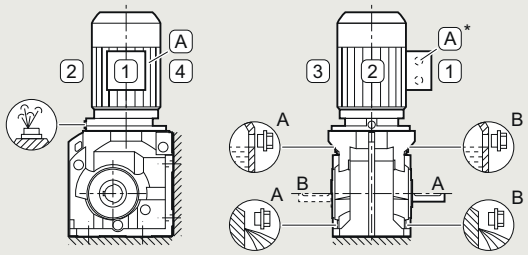
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ360 . - . . . . . - . A . . **-Z**	**D12**
M2 output side B	2KJ360 . - . . . . . - . A . . **-Z**	**D22**



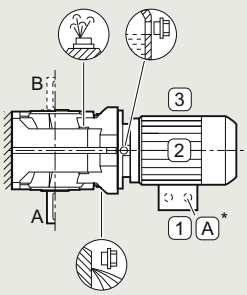
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ360 . - . . . . . - . A . . **-Z**	**D13**
M3 output side B	2KJ360 . - . . . . . - . A . . **-Z**	**D23**



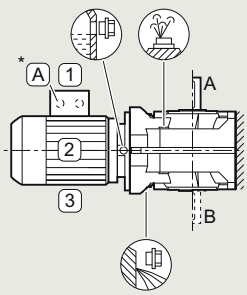
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ360 . - . . . . . - . A . . **-Z**	**D14**
M4 output side B	2KJ360 . - . . . . . - . A . . **-Z**	**D24**



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**



Foot-mounted, flange-mounted, shaft-mounted and housing flange designs

Worm gearboxes S., sizes 09 to 29

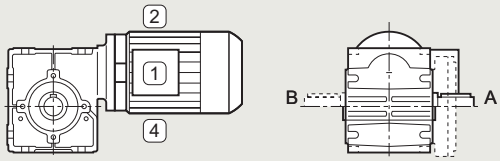
Oil valves

The worm gearboxes S are lubricated for life.
For an explanation of the symbols, see page 10/3.

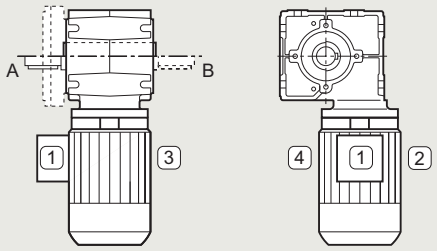
M0 is a universal mounting position in which the geared motor can be installed in any position.

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**

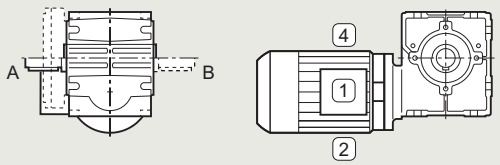
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ373 . - . . . . . - . . . . **-Z**	**D11**
M1 output side B	2KJ373 . - . . . . . - . . . . **-Z**	**D21**



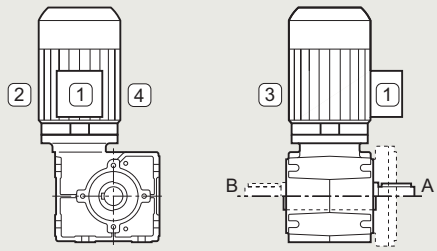
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ373 . - . . . . . - . . . . **-Z**	**D12**
M2 output side B	2KJ373 . - . . . . . - . . . . **-Z**	**D22**



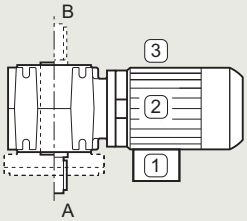
Mounting position	Additional identification code **-Z** with order code	Order code
M3 output side A	2KJ373 . - . . . . . - . . . . **-Z**	**D13**
M3 output side B	2KJ373 . - . . . . . - . . . . **-Z**	**D23**



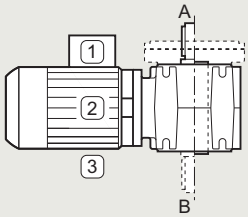
Mounting position	Additional identification code **-Z** with order code	Order code
M4 output side A	2KJ373 . - . . . . . - . . . . **-Z**	**D14**
M4 output side B	2KJ373 . - . . . . . - . . . . **-Z**	**D24**



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**



10

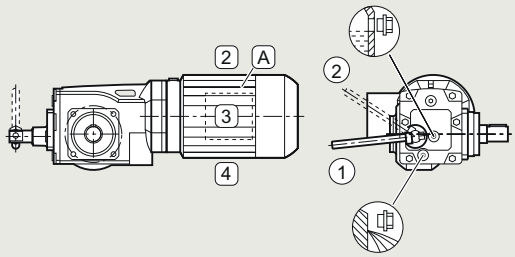
Foot-mounted design and housing flange design

Electric-monorail geared motor BH., sizes 29 and 39

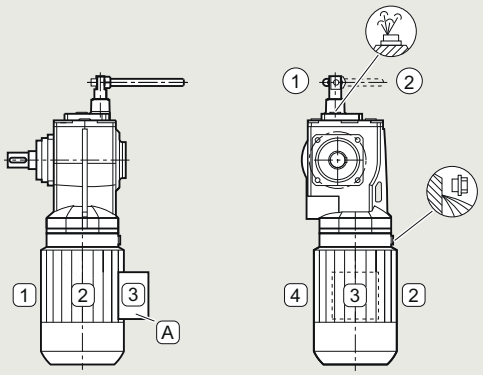
Oil valves

For an explanation of the symbols, see page 10/3.

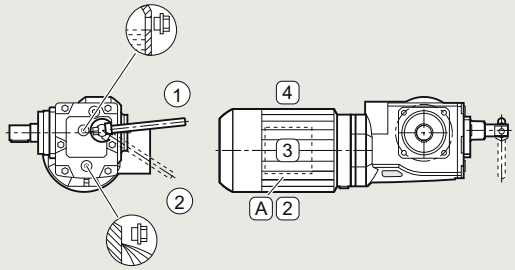
Mounting position	Additional identification code **-Z** with order code	Order code
M1	2KJ380.-.....-....**-Z**	**D11**



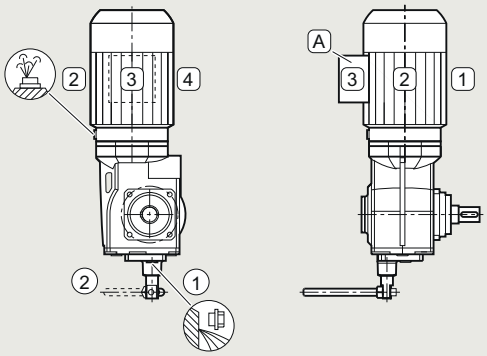
Mounting position	Additional identification code **-Z** with order code	Order code
M2	2KJ380.-.....-....**-Z**	**D12**



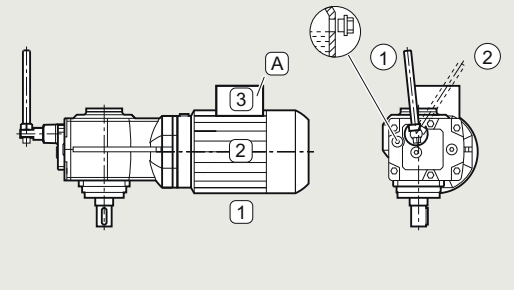
Mounting position	Additional identification code **-Z** with order code	Order code
M3	2KJ380.-.....-....**-Z**	**D13**



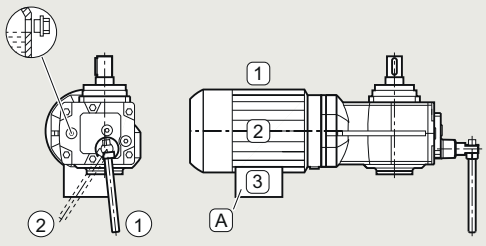
Mounting position	Additional identification code **-Z** with order code	Order code
M4	2KJ380.-.....-....**-Z**	**D14**



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**



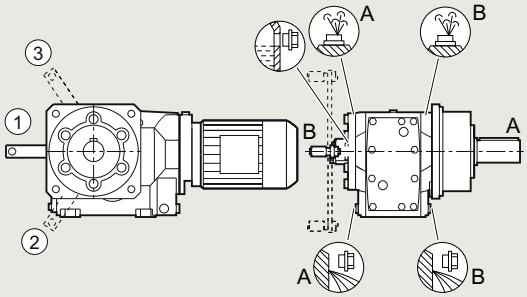
Flange-mounted design

Electric-monorail geared motor KH., sizes 49 to 79

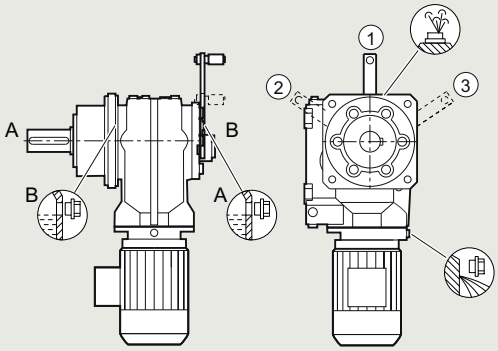
Oil valves

For an explanation of the symbols, see page 10/3.

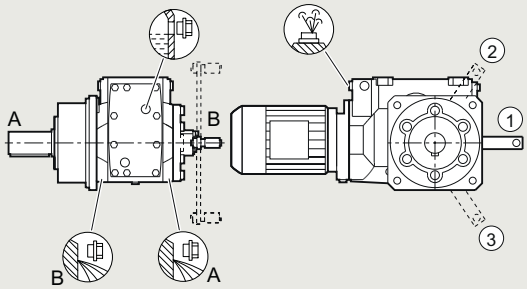
Mounting position	Additional identification code **-Z** with order code	Order code
M1 output side A	2KJ380.-.....-.....**-Z**	**D11**
M1 output side B	2KJ380.-.....-.....**-Z**	**D21**



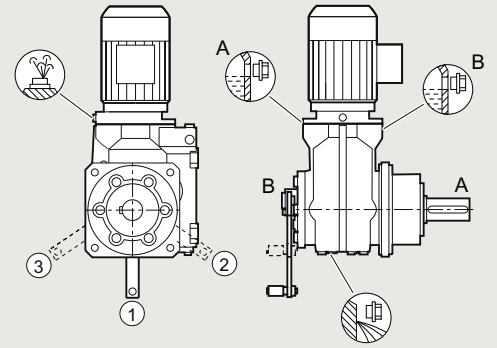
Mounting position	Additional identification code **-Z** with order code	Order code
M2 output side A	2KJ380.-.....-.....**-Z**	**D12**
M2 output side B	2KJ380.-.....-.....**-Z**	**D22**



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**



Tandem gearboxes

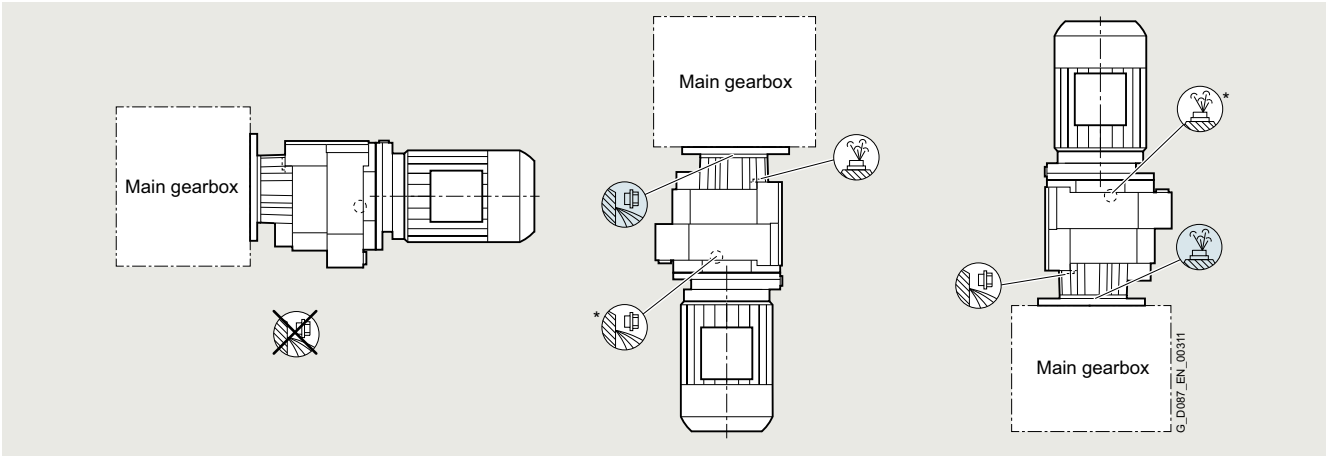
Overview

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.

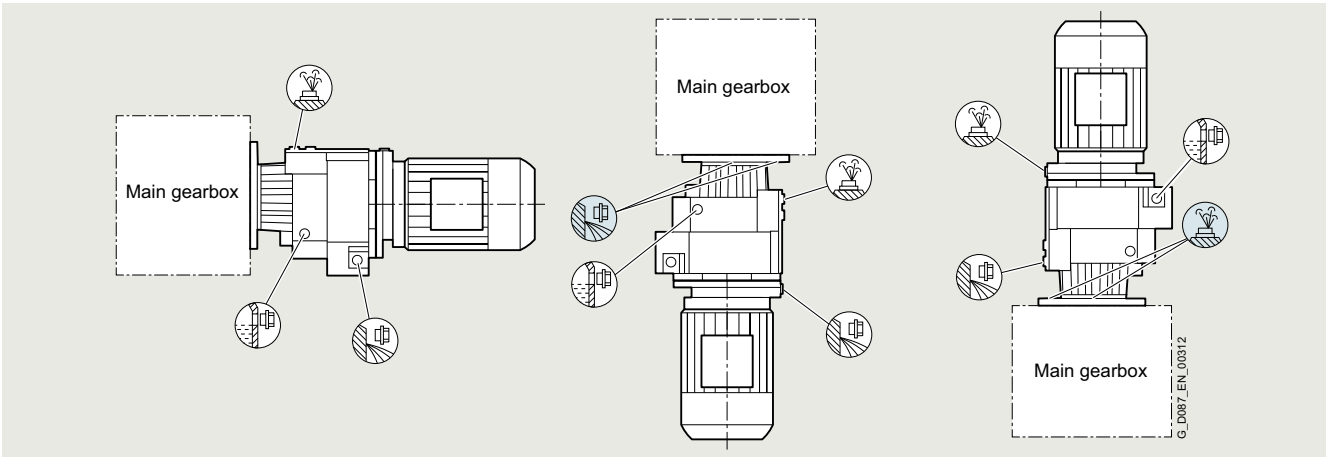
Note:

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.

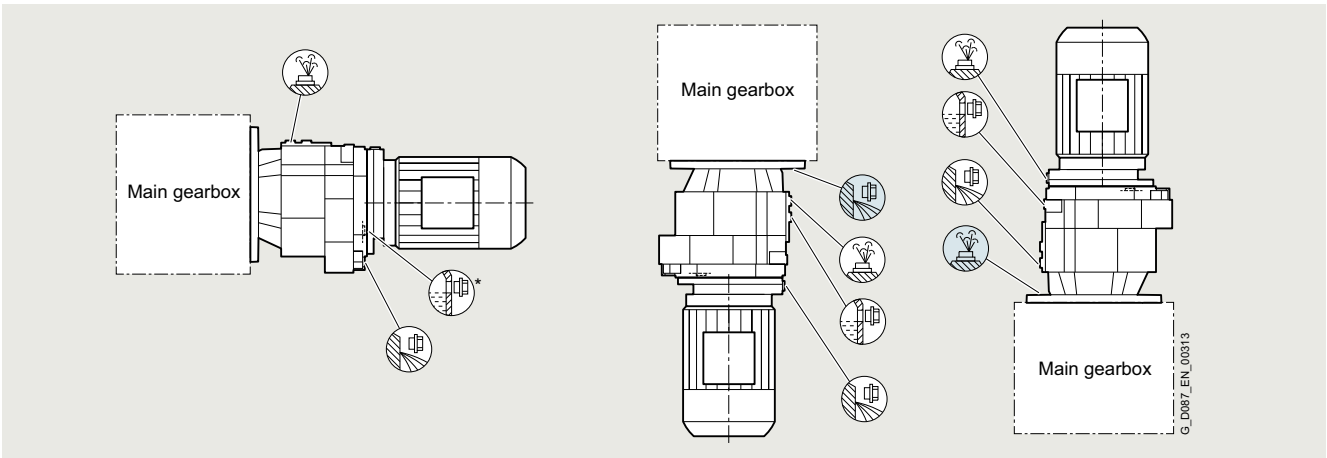
Tandem gearboxes: 2nd gearbox size 19



Tandem gearboxes: 2nd gearbox size 39



Tandem gearboxes: 2nd gearbox sizes 49 to 69



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.

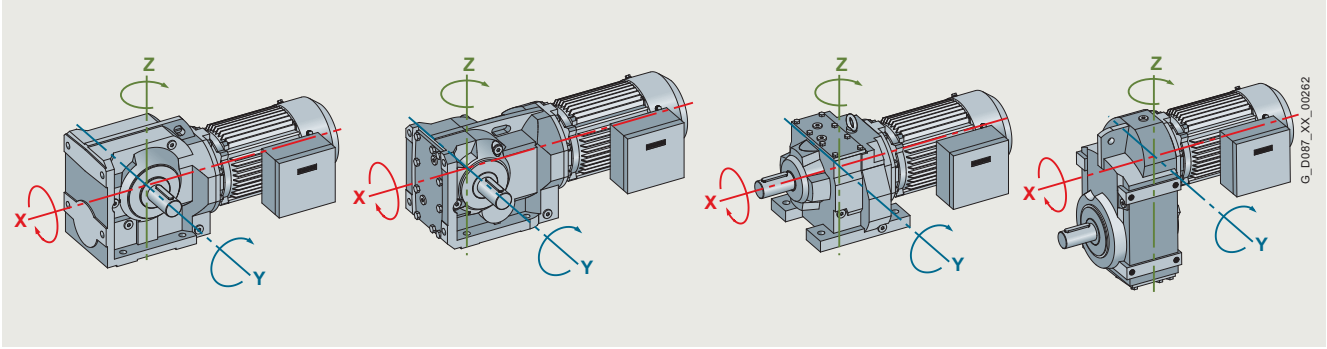
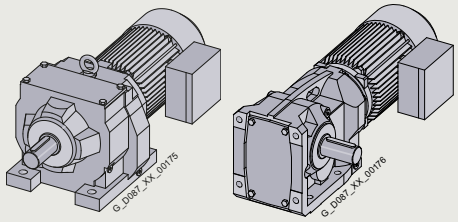
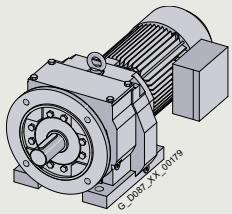
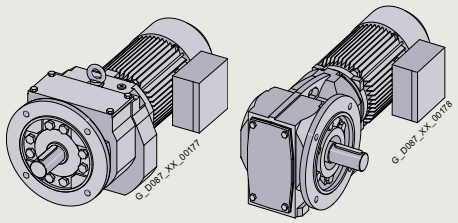
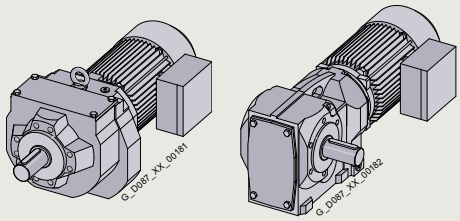
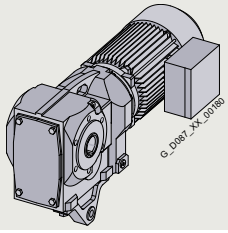


Fig. 10/6 Axes of rotation of the geared motors

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**

Mounting types

Overview

Mounting types	Possible for the following geared motors	Gearbox type	14th position of the Article No. 2KJ31.. -.....-. ■ -..-Z		Example
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	

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**			

10

Mounting types

Flange-mounted designs

Parallel shaft gearboxes F..F

Gearbox type	Flange diameter mm											Additional identification code **-Z** with order code	
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**

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										✓

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.

Bevel gearboxes BAD. in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

Mounting type	14th position of the Article No.
	2KJ35.. -.....-. ■ ..**-Z**
Shaft-mounted design	**D**

When ordered, the torque arm is supplied loose.

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.

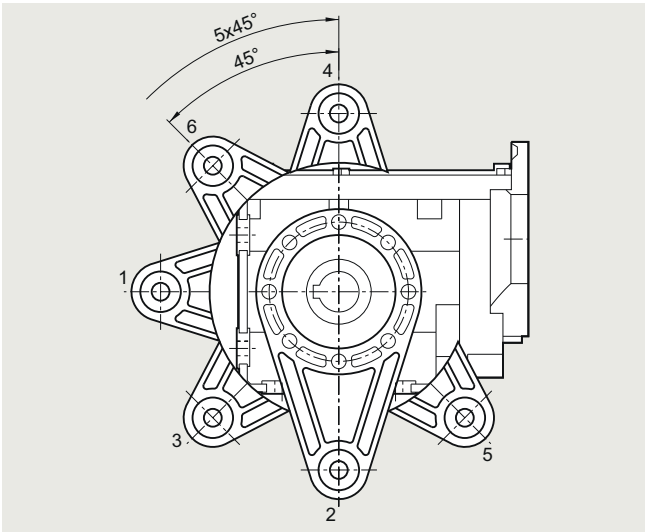


Fig. 10/7 Bevel gearboxes BAD, sizes 19 and 29

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.

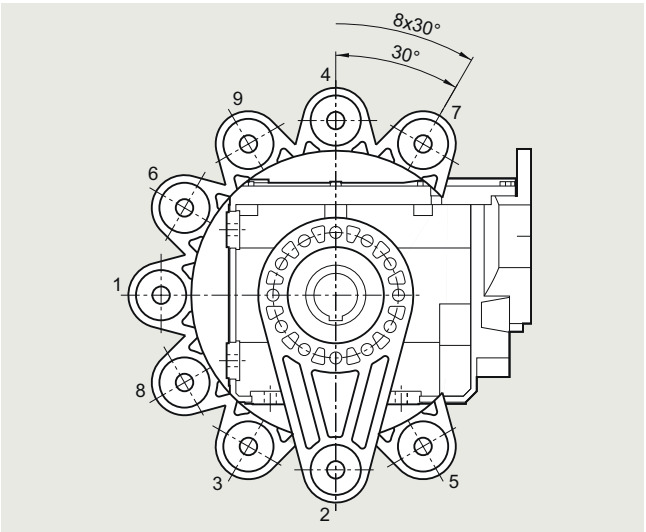


Fig. 10/8 Bevel gearboxes BAD, sizes 39 and 49

Helical worm gearboxes CAD. in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

Mounting type	14th position of the Article No.
	2KJ36.. -.....-. ■ ..**-Z**
Shaft-mounted design	**D**

When ordered, the torque arm is supplied loose.

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.

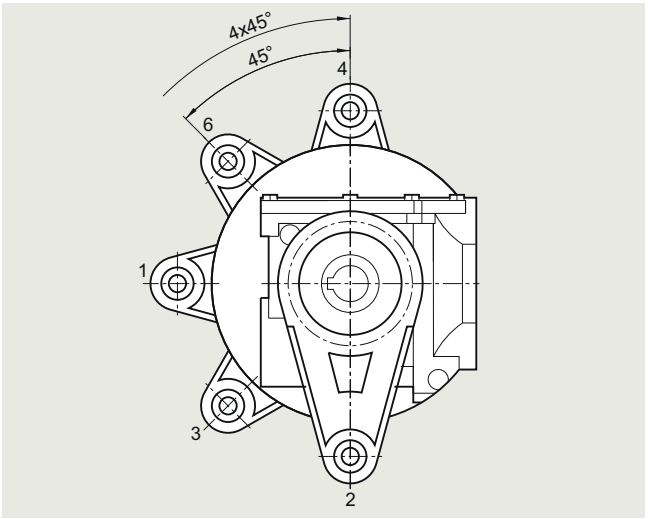


Fig. 10/9 Helical worm gearboxes CAD, size 29

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**

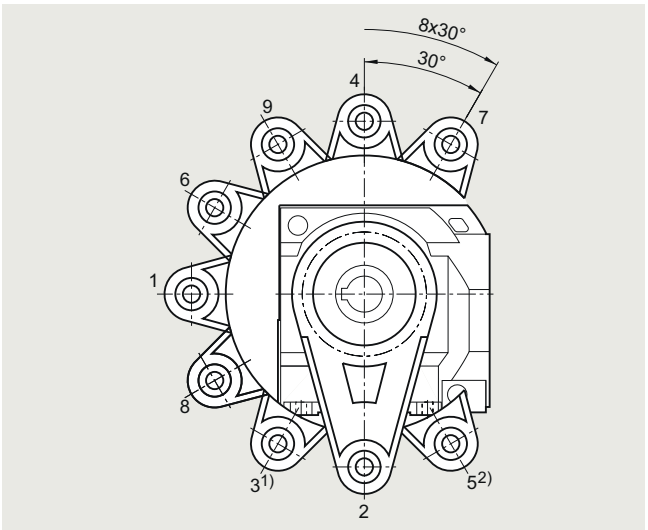


Fig. 10/10 Helical worm gearboxes CAD, Figure 1, sizes 39A to 89

1) Position not possible for sizes CAD.39A and CAD.69

2) Position not possible for size CAD.39A

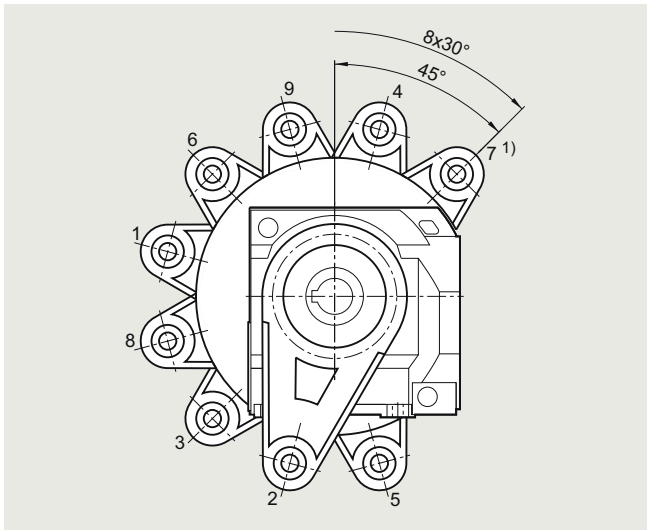


Fig. 10/11 Helical worm gearboxes CAD, Figure 2, sizes 39A to 89

1) Position not possible for sizes CAD.39A and CAD.49

Mounting types

Worm gearboxes SAD in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

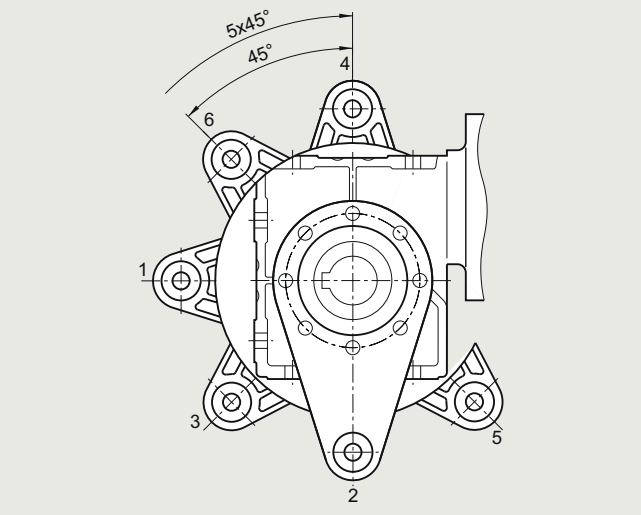


Fig. 10/12 Worm gearboxes S in a shaft-mounted design

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.

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.

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 . - ■ 2KJ316 . - ■	. . . . - . . . . **-Z** . . . . - . . . . **-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 . . - ■ 2KJ34 . . - ■	. . . . - . . . . **-Z** . . . . - . . . . **-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**
SIMOLOC assembly system, metric	HF25	HF30	HF35	HF40	HF40	HF50	–20 ... +60 °C		**9**	**H3G**
	HF20	HF25	HF30	HF35	HF35	HF40			**9**	**H3H**
SIMOLOC 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 . . - ■ 2KJ34 . . - ■	. . . . - . . . . **-Z** . . . . - . . . . **-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 Siemens Product Configurator.

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**
SIMOLOC assembly system, metric		HF25	HF30	HF35		–20 ... +60 °C		**9**		**H3G**
		HF20	HF25	HF30				**9**		**H3H**
				HF40				**9**		**H3P**
SIMOLOC 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**
SIMOLOC assembly system, metric	HF30	HF35	HF40	HF40	HF50	–20 ... +60 °C		**9**		**H3G**
	HF25	HF30	HF35	HF35	HF40			**9**		**H3H**
SIMOLOC 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.

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**
SIMOLOC assembly system, metric	HF25	HF30	HF35	HF40	HF50	–20 ... +60 °C		**9**	**H3G**
	HF20	HF25	HF30	HF35	HF40			**9**	**H3H**
SIMOLOC 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.

SIMOLOC assembly system

The SIMOLOC assembly system offers a low-cost, easy-to-fit alternative to conventional shaft connections for gearboxes in a shaft-mounted design.

Use of the SIMOLOC system provides a friction-locked connection of the machine shaft to the hollow shaft in the gearbox.

Components of the SIMOLOC assembly system

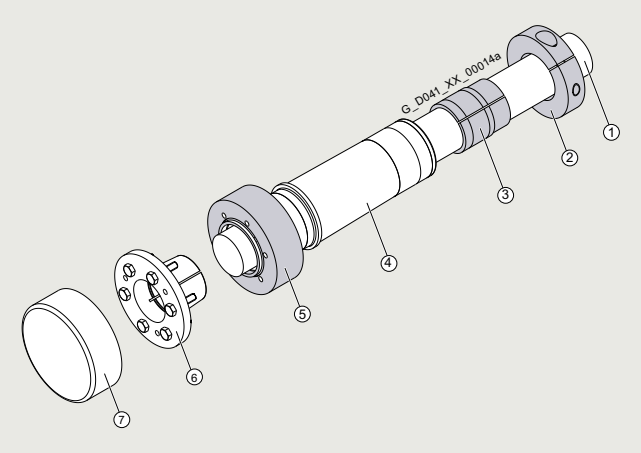


Fig. 10/13 SIMOLOC assembly system

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 SIMOLOC 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 SIMOLOC 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.

10

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.

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.

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 Siemens.

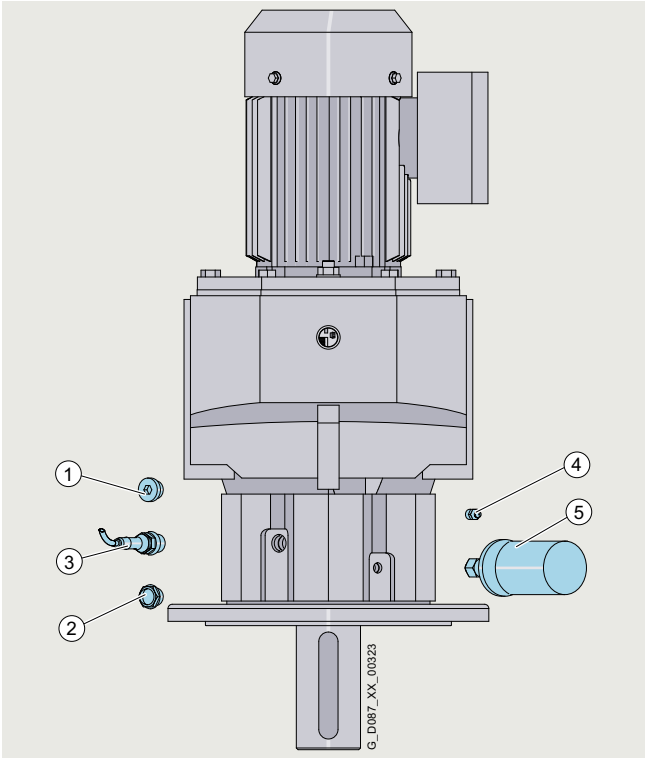


Fig. 10/14 VLplus version with Drywell / grease cartridge

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

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**

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 Siemens.

Accessories for VLplus reinforced bearing systems	Additional identification code **-Z** with order code	
	2KJ3 . . . -. . . . . -. . . . **-Z G30**	Order code
Grease cartridge		**G93**

Overview

The SIMOGEAR 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.

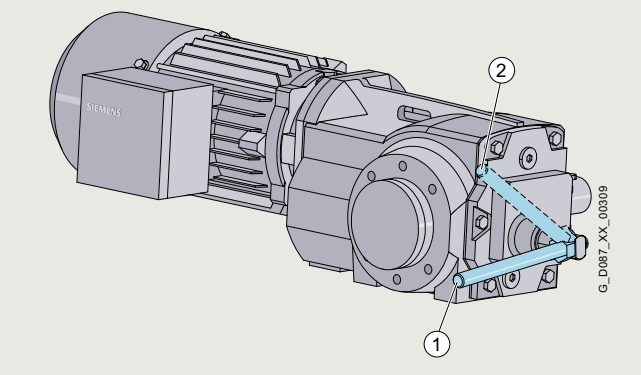


Fig. 10/15 Clutch on BH.29 and BH.39

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**

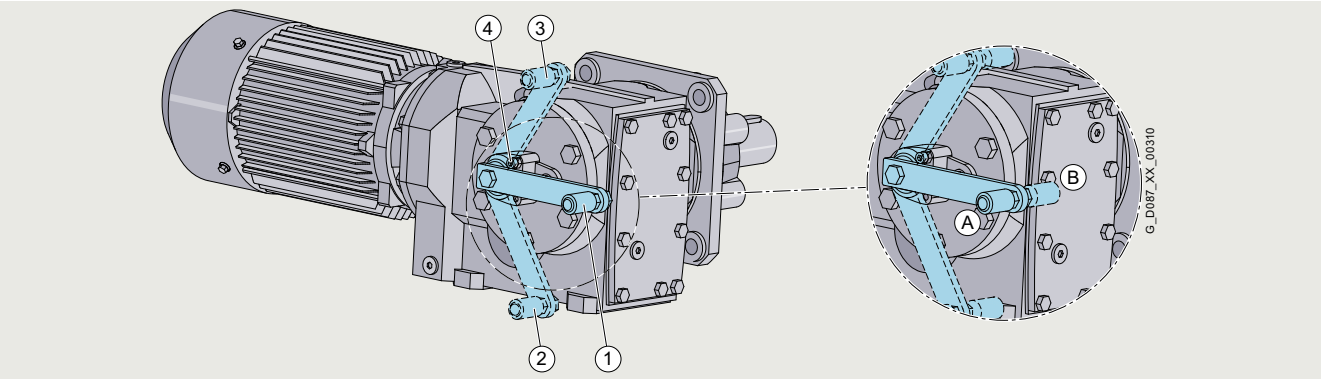


Fig. 10/16 Clutches for KHF49 to KHF79

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)

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 Siemens AG can be found on the internet in the Service and Support pages in the List of approved and recommended gear lubricants NT 7300:

https://support.automation.siemens.com/WW/view/en/44231658

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	Permissible oil sump temperature range in operation	Additional identification code **-Z** with order code		Standard ambient temperature range [°C]		Extended ambient temperature range [°C]			
	Marking according to DIN 51502	[°C]	2KJ3… -…..-….**-Z**	Order code	–	**K95**	**K92**	**K96**	**K97**	**K98**
Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K										
					–15 … +40	**–20 … +40**	**–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)

Selection of lubricant

Applications	Oil type	Permissible oil sump temperature range in operation	Additional identification code **-Z** with order code		Standard ambient temperature range [°C]		Extended ambient temperature range [°C]			
	Marking according to DIN 51502	[°C]	2KJ3 . . . -. . . . . -. . . . **-Z**	Order code	–	**K95**	**K92**	**K96**	**K97**	**K98**
Bevel gearboxes B and helical worm gearboxes C										
					–20 … +40	**–**	**–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 … +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 … +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**	✓	✓	✓	✓	✓	
Biodegrad-able 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)

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 Siemens AG are specified in the List of approved and recommended gearbox lubricants NT 7300.

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 Siemens 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	Additional identification code **-Z** with order code		Standard ambient temperature range [°C]		Extended ambient temperature range [°C]			
	[°C]	2KJ3 … -…..-….**-Z**	Order code	–	**K95**	**K92**	**K96**	**K97**	**K98**
Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K									
				–15 … +40	**–20 … +40**	**–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 … +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 … +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 … +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

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 10/62
Pressure breather valve, stainless steel			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G49**	page 10/62
Oil expansion unit			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G47**	page 10/63
Oil sight glass with reflector				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G34**	page 10/65
Magnetic oil drain screw			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G53**	page 10/65
Oil drain valve, straight			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G54**	page 10/65
Oil drain valve, angled			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G55**	page 10/65
Oil level sensor								✓	✓	✓	✓	✓	✓		**G37**	page 10/67
Oil level sensor ATEX								✓	✓	✓	✓	✓	✓		**G38**	page 10/67
Pt100 electrical temperature monitoring				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G69**	page 10/66
Helical gearboxes E																
Gearbox size			**39**		**49**		**69**	**89**	**109**	**129**		**149**		2KJ30.. -.....-....**-Z**	Order code	
Pressure breather valve			✓		✓		✓	✓	✓	✓		✓			**G45**	page 10/62
Pressure breather valve, stainless steel			✓		✓		✓	✓	✓	✓		✓			**G49**	page 10/62
Oil expansion unit			✓		✓		✓	✓	✓	✓		✓			**G47**	page 10/63
Oil sight glass with reflector			✓		✓		✓	✓	✓	✓		✓			**G34**	page 10/65
Magnetic oil drain screw			✓		✓		✓	✓	✓	✓		✓			**G53**	page 10/65
Oil drain valve, straight			✓		✓		✓	✓	✓	✓		✓			**G54**	page 10/65
Oil drain valve, angled			✓		✓		✓	✓	✓	✓		✓			**G55**	page 10/65
Oil level sensor								✓	✓	✓		✓			**G37**	page 10/67
Oil level sensor ATEX								✓	✓	✓		✓			**G38**	page 10/67
Pt100 electrical temperature monitoring				✓		✓		✓	✓	✓		✓			**G69**	page 10/66
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 10/62
Pressure breather valve, stainless steel	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				**G49**	page 10/62
Oil dipstick	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				**G48**	page 10/10
Oil expansion unit	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				**G47**	page 10/63
Oil sight glass with reflector	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				**G34**	page 10/65
Magnetic oil drain screw	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				**G53**	page 10/65
Oil drain valve, straight	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				**G54**	page 10/65
Oil drain valve, angled	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				**G55**	page 10/65
Pt100 electrical temperature monitoring	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				**G69**	page 10/66

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 10/62
Pressure breather valve, stainless steel		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G49**	page 10/62
Oil expansion unit		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G47**	page 10/63
Oil sight glass with reflector			✓	✓	✓	✓	✓	✓	✓	✓	✓		**G34**	page 10/65
Magnetic oil drain screw		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G53**	page 10/65
Oil drain valve, straight		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G54**	page 10/65
Oil drain valve, angled		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		**G55**	page 10/65
Oil level sensor						✓	✓	✓	✓	✓	✓		**G37**	page 10/67
Oil level sensor ATEX						✓	✓	✓	✓	✓	✓		**G38**	page 10/67
Pt100 electrical temperature monitoring			✓	✓	✓	✓	✓	✓	✓	✓	✓		**G69**	page 10/66
Bevel gearboxes B														
Gearbox size	**19**		**29**			**39**			**49**			2KJ35.. -.....-....**-Z**	Order code	
Lubricated for life	✓		✓										–	
Pressure breather valve	✓		✓			✓			✓				**G45**	page 10/62
Pressure breather valve, stainless steel	✓		✓			✓			✓				**G49**	page 10/62
Oil expansion unit			✓			✓			✓				**G47**	page 10/63
Oil sight glass with reflector									✓				**G34**	page 10/65
Oil sight glass with reflector on both sides									✓				**G35**	page 10/65
Magnetic oil drain screw						✓			✓				**G53**	page 10/65
Oil drain valve, straight						✓			✓				**G54**	page 10/65
Oil drain valve, angled						✓			✓				**G55**	page 10/65
Pt100 electrical temperature monitoring									✓				**G69**	page 10/66
Bevel gearboxes K														
Gearbox size	**39**	**49**	**69**	**79**	**89**	**109**	**129**	**149**	**169**	**189**		2KJ35.. -.....-....**-Z**	Order code	
Pressure breather valve	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			**G45**	page 10/62
Pressure breather valve, stainless steel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			**G49**	page 10/62
Oil expansion unit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			**G47**	page 10/63
Oil sight glass with reflector		✓	✓	✓	✓	✓	✓	✓	✓	✓			**G34**	page 10/65
Oil sight glass with reflector on both sides		✓	✓	✓	✓	✓	✓	✓	✓	✓			**G35**	page 10/65
Magnetic oil drain screw	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			**G53**	page 10/65
Oil drain valve, straight	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			**G54**	page 10/65
Oil drain valve, angled	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			**G55**	page 10/65
Oil level sensor					✓	✓	✓	✓	✓	✓			**G37**	page 10/67
Oil level sensor ATEX					✓	✓	✓	✓	✓	✓			**G38**	page 10/67
Pt100 electrical temperature monitoring		✓	✓	✓	✓	✓	✓	✓	✓	✓			**G69**	page 10/66

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 10/62
Pressure breather valve, stainless steel	✓	✓	✓	✓	✓		**G49**	page 10/62
Oil expansion unit		✓	✓	✓	✓		**G47**	page 10/63
Oil sight glass with reflector			✓	✓	✓		**G34**	page 10/65
Oil sight glass with reflector on both sides			✓	✓	✓		**G35**	page 10/65
Magnetic oil drain screw		✓	✓	✓	✓		**G53**	page 10/65
Oil drain valve, straight		✓	✓	✓	✓		**G54**	page 10/65
Oil drain valve, angled		✓	✓	✓	✓		**G55**	page 10/65
Pt100 electrical temperature monitoring			✓	✓	✓		**G69**	page 10/66
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 10/62
Pressure breather valve, stainless steel	✓[2]	✓	✓	✓	✓		**G49**	page 10/62
Oil sight glass with reflector			✓	✓	✓		**G34**	page 10/65
Magnetic oil drain screw		✓	✓	✓	✓		**G53**	page 10/65

[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.

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**

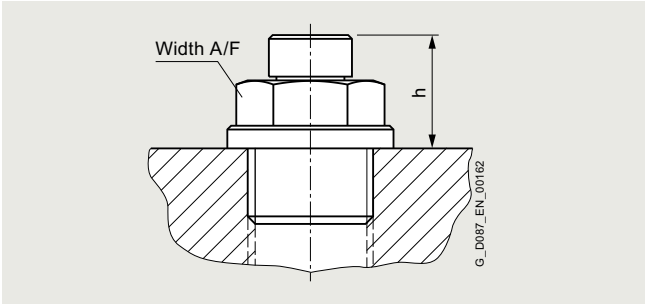


Fig. 10/17 Pressure breather valve

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

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 Siemens.

Venting	Additional identification code **-Z** with order code	
	2KJ3... -.....-....**-Z**	Order code
Oil expansion unit		**G47**

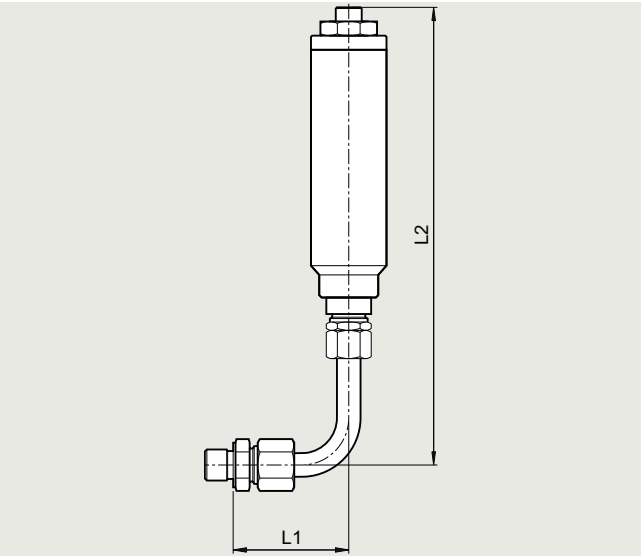


Fig. 10/18 Oil expansion unit type 1

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

Venting

Oil expansion unit

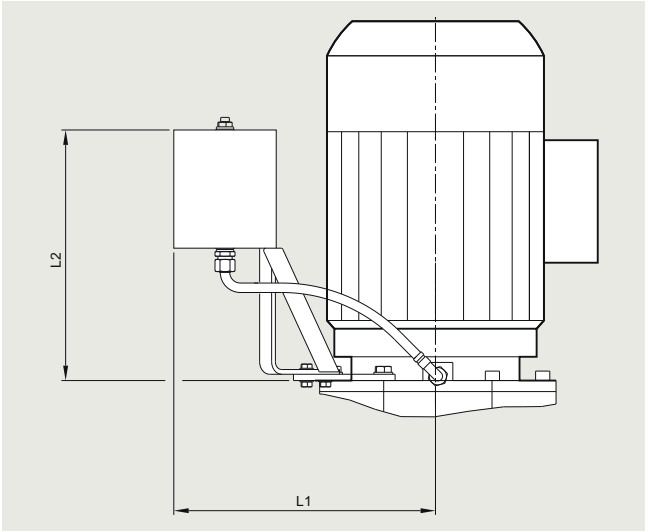


Fig. 10/19 Oil expansion unit type 2

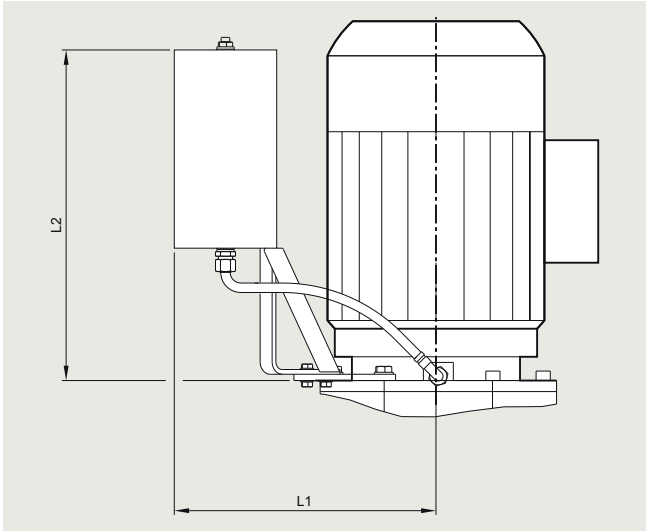


Fig. 10/20 Oil expansion unit type 3

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.

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**

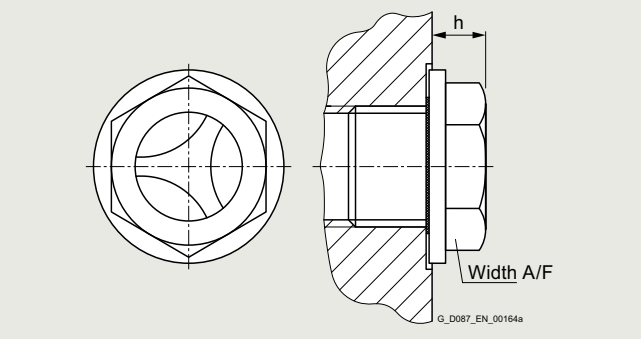


Fig. 10/21 Oil sight glass with reflector

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**

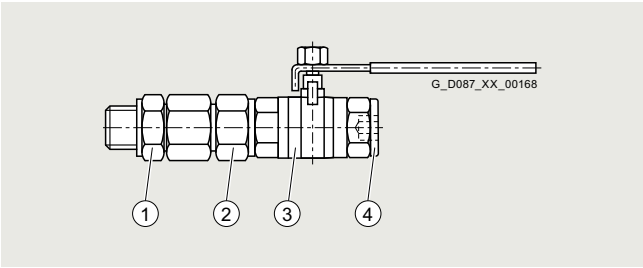


Fig. 10/22 Oil drain valve, straight

① Oil drain valve, straight
② Screw gland
③ Screw gland
④ Screw plug

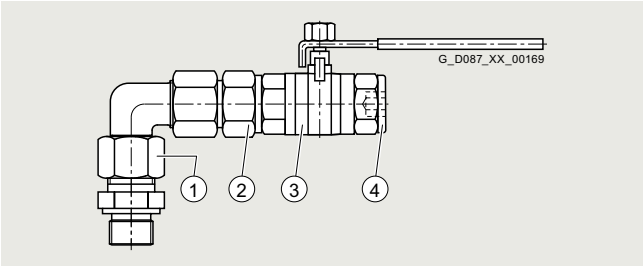


Fig. 10/23 Oil drain valve, angled

① Oil drain valve, angled
② Screw gland
③ Screw gland
④ Screw plug

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).

Oil level control	Additional identification code **-Z** with order code	
	2KJ3 . . . -. . . . . -. . . . **-Z**	Order code
Pt100 electrical temperature monitoring		**G69**

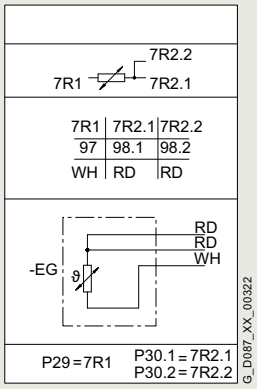


Fig. 10/24 Sensor circuit diagram for Pt100 electrical oil temperature monitoring

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

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 Siemens.

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	✓	✓	✓	✓	✓	✓

Overview

Reduced-backlash version

Gearboxes with reduced backlash are required to perform high-precision 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													