

Options



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Options

Article No. supplements

Shaft design

Selection and ordering data

Shaft design	Dimensions				8th position of the Article No.	
	mm				An order code is required when 9 appears in the 8th position of the Article No.	
Servo helical geared motors 2-stage, 3-stage				Helical gearboxes Z, D		1FG11 ...  Order code
Gearbox size	29	39	49	59	1FG12 ...  Order code	
Solid shaft with feather keyway	V25 × 50	V25 × 50	V30 × 60	V35 × 70	1	—
Smooth solid shaft	VG25 × 50	VG25 × 50	VG30 × 60	VG35 × 70	9	H1G
Solid shaft, inches, with feather keyway	V1" × 1.97"	V1" × 1.97"	V1.25" × 2.36"	V1.375" × 2.76"	9	H6A
Gearbox size	69	79	89	109		
Solid shaft with feather keyway	V35 × 70	V40 × 80	V50 × 100	V60 × 120	1	—
Smooth solid shaft	VG35 × 70	VG40 × 80	VG50 × 100	—	9	H1G
Solid shaft, inches, with feather keyway	V1.375" × 2.76"	V1.625" × 3.15"	V2.125" × 3.94"	V2.375" × 4.72"	9	H6A
Gearbox size	129					
Solid shaft with feather keyway	V70 × 140				1	—
Smooth solid shaft	—				9	H1G
Solid shaft, inches, with feather keyway	V2.875" × 5.51"				9	H6A
Servo parallel shaft geared motors 2-stage, 3-stage				Parallel shaft gearboxes FZ, FD		1FG13 ...  Order code
Gearbox size	29	39	49	69	1FG14 ...  Order code	
Solid shaft with feather keyway	V25 × 50	V25 × 50	V30 × 60	V35 × 70	1	—
Smooth solid shaft	VG25 × 50	VG25 × 50	VG30 × 60	VG35 × 70	9	H1G
Solid shaft, inches, with feather keyway	V1" × 1.97"	V1" × 1.97"	V1.25" × 2.36"	V1.375" × 2.76"	9	H6A
Hollow shaft Design 1	H25	H30	H35	H40	5	—
Hollow shaft with shrink disk	HS25	HS30	HS35	HS40	9	H3A
Hollow shaft with SIMOLOC assembly system ¹⁾ , metric design	HF25	HF30	HF35	HF40	9	H3G
	HF20	HF25	HF30	HF35	9	H3H
Hollow shaft with SIMOLOC assembly system ¹⁾ , inch design	HF1"	HF1.25"	HF1.375"	HF1.5"	9	H3J
	HF0.75"	HF1.1875"	HF1.4375"	HF1.625"	9	H3K
	—	HF1"	HF1.25"	HF1.4375"	9	H3L
	—	—	HF1.1875"	HF1.375"	9	H3M
Splined hollow shaft	—	N30	N35	N35	9	H4A
Hollow shaft, inches, with feather keyway	H1"	H1.25"	H1.375"	H1.5"	9	H7A
Gearbox size	79	89	109	129		Order code
Solid shaft with feather keyway	V40 × 80	V50 × 100	V60 × 120	V70 × 140	1	—
Smooth solid shaft	VG40 × 80	VG50 × 100	—	—	9	H1G
Solid shaft, inches, with feather keyway	V1.625" × 3.15"	V2" × 3.94"	V2.375" × 4.72"	V2.875" × 5.51"	9	H6A
Hollow shaft Design 1	H40	H50	H60	H70	5	—
Hollow shaft with shrink disk	HS40	HS50	HS65	HS75	9	H3A
Hollow shaft with SIMOLOC assembly system ¹⁾ , metric design	HF40	HF50	—	—	9	H3G
	HF35	HF40	—	—	9	H3H
Hollow shaft with SIMOLOC assembly system ¹⁾ , inch design	HF1.5"	HF2"	—	—	9	H3J
	HF1.625"	HF1.9375"	—	—	9	H3K
	HF1.4375"	HF1.75"	—	—	9	H3L
	HF1.375"	HF1.625"	—	—	9	H3M
Splined hollow shaft	N45	N50	N65	N70	9	H4A
Hollow shaft, inches, with feather keyway	H1.5"	H2"	H2.375"	H2.75"	9	H7A

¹⁾ Only possible for shaft-mounted design.

Selection and ordering data (continued)

Shaft design	Dimensions				8th position of the Article No.		
	mm				An order code is required when 9 appears in the 8th position of the Article No.		
Servo bevel geared motors 2-stage				Bevel gearbox <i>B</i>		1FG15 . . . - ■ -	Order code
Gearbox size	29	39	49				
Solid shaft with feather keyway	V20 × 40	V30 × 60	V35 × 70		1	–	
Smooth solid shaft	VG20 × 40	VG30 × 60	VG35 × 70		9	H1G	
Solid shaft with feather keyway, both ends ²⁾	VD20 × 40	VD30 × 60	VD35 × 70		9	H5A	
Solid shaft, inches, with feather keyway	V0.75" × 1.57"	V1" × 1.97"	V1.375" × 2.76"		9	H6A	
Hollow shaft with feather keyway: Design 1	H20	H30	H40		5	–	
Design 2	H25	H35	H35		6	–	
Design 3	–	H40	–		7	–	
Hollow shaft with shrink disk	HS20	HS35	HS40		9	H3A	
Hollow shaft with SIMOLOC assembly system ¹⁾ , metric design	HF25	HF30	HF35		9	H3G	
	HF20	HF25	HF30		9	H3H	
Hollow shaft with SIMOLOC assembly system ¹⁾ , inch design	HF1"	HF1.25"	HF1.375"		9	H3J	
	HF0.75"	HF1.1875"	HF1.4375"		9	H3K	
	–	HF1"	HF1.25"		9	H3L	
	–	–	HF1.1875"		9	H3M	
	–	–	HF1.625"		9	H3N	
Hollow shaft, inches, with feather keyway	H0.75"	H1.25"	H1.5"		9	H7A	
Servo bevel geared motors 3-stage				Bevel gearbox <i>K</i>		1FG15 . . . - ■ -	Order code
Gearbox size	39	49	69 79				
Solid shaft with feather keyway	V25 × 50	V30 × 60	V35 × 70	V40 × 80	1	–	
Smooth solid shaft	VG25 × 50	VG30 × 60	VG35 × 70	VG40 × 80	9	H1G	
Solid shaft with feather keyway, both ends ²⁾	VD25 × 50	VD30 × 60	VD35 × 70	VD40 × 80	9	H5A	
Solid shaft, inches, with feather keyway	V1" × 1.97"	V1.25" × 2.36"	V1.375" × 2.76"	V1.625" × 3.15"	9	H6A	
Hollow shaft with feather keyway: Design 1	H30	H35	H40	H40	5	–	
Hollow shaft with shrink disk	HS30	HS35	HS40	HS40	9	H3A	
Hollow shaft with SIMOLOC assembly system ¹⁾ , metric design	HF30	HF35	HF40	HF40	9	H3G	
	HF25	HF30	HF35	HF35	9	H3H	
Hollow shaft with SIMOLOC assembly system ¹⁾ , inch design	HF1.25"	HF1.375"	–	HF1.5"	9	H3J	
	HF1.1875"	HF1.4375"	HF1.625"	HF1.625"	9	H3K	
	HF1"	HF1.25"	HF1.4375"	HF1.4375"	9	H3L	
	–	HF1.1875"	HF1.375"	HF1.375"	9	H3M	
Splined hollow shaft	N30	N35	N35	N45	9	H4A	
Hollow shaft, inches, with feather keyway	H1.25"	H1.375"	H1.5"	H1.5"	9	H7A	
Gearbox size	89	109	129	149		Order code	
Solid shaft with feather keyway	V50 × 100	V60 × 120	V70 × 140	V90 × 170	1	–	
Smooth solid shaft	VG50 × 100	–	–	–	9	H1G	
Solid shaft with feather keyway, both ends	VD50 × 100	VD60 × 120	VD70 × 140	VD90 × 170	9	H5A	
Solid shaft, inches, with feather keyway	V2" × 3.94"	V2.375" × 4.72"	V2.875" × 5.51"	V3.625" × 6.69"	9	H6A	
Hollow shaft with feather keyway: Design 1	H50	H60	H70	H90	5	–	
Hollow shaft with shrink disk	HS50	HS65	HS75 × 345	HS95 × 404	9	H3A	
Hollow shaft with SIMOLOC assembly system ¹⁾ , metric design	HF50	–	–	–	9	H3G	
	HF40	–	–	–	9	H3H	
Hollow shaft with SIMOLOC assembly system ¹⁾ , inch design	HF2"	–	–	–	9	H3J	
	HF1.9375"	–	–	–	9	H3K	
	HF1.75"	–	–	–	9	H3L	
	HF1.625"	–	–	–	9	H3M	
Splined hollow shaft	N50	N65	N70	N85	9	H4A	
Hollow shaft, inches, with feather keyway	H2"	H2.375"	H2.75" × 11.81"	H3.625" × 13.78"	9	H7A	

¹⁾ Only possible for shaft-mounted design.²⁾ Only possible for foot-mounted design.

Options

Article No. supplements

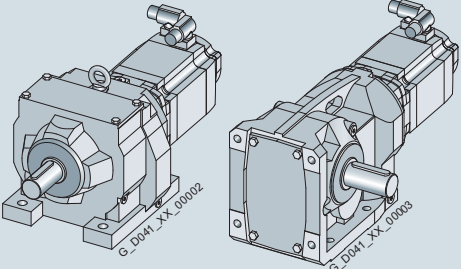
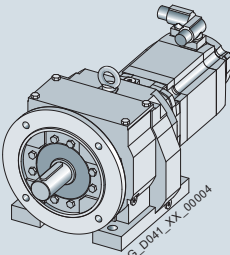
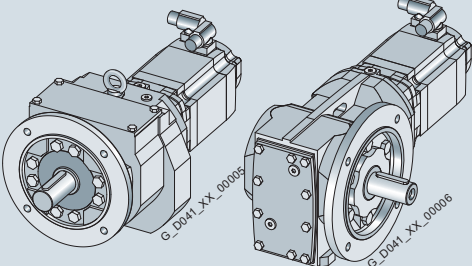
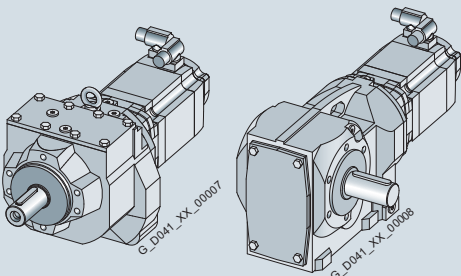
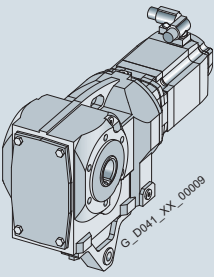
Shaft design

Selection and ordering data (continued)

Shaft design	Dimensions					8th position of the Article No.	
	mm					An order code is required when 9 appears in the 8th position of the Article No.	
Servo helical worm geared motors 2-stage				Helical worm gearbox <i>C</i>		1FG16 ... 	
Gearbox size	29	39	49	69	89		Order code
Solid shaft with feather keyway	V20 × 40	V25 × 50	V30 × 60	V35 × 70	V45 × 90	1	–
Smooth solid shaft	VG20 × 40	VG25 × 50	VG30 × 60	VG35 × 70	VG45 × 90	9	H1G
Solid shaft with feather keyway, both ends	VD20 × 40	VD25 × 50	VD30 × 60	VD35 × 70	VD45 × 90	9	H5A
Solid shaft, inches, with feather keyway	V0.75" × 1.57"	V1"× 1.97"	V1.25" × 2.36"	V1.375"× 2.76"	V1.75"× 3.54"	9	H6A
Hollow shaft with feather keyway: Design 1	H20 × 120	H25 × 120	H30 × 150	H40 × 180	H50 × 210	5	–
Design 2	–	H30 × 120	H35 × 150	H45 × 180	H60 × 210	6	–
Hollow shaft with shrink disk	HS20	HS30	HS35	HS40	HS50 × 241	9	H3A
Hollow shaft with SIMOLOC assembly system ¹⁾ , metric design	HF25	HF30	HF35	HF40	HF50	9	H3G
	HF20	HF25	HF30	HF35	HF40	9	H3H
Hollow shaft with SIMOLOC assembly system ¹⁾ , inch design	HF1"	HF1.25"	HF1.375"	HF1.5"	HF2"	9	H3J
	HF0.75"	HF1.1875"	HF1.4375"	HF1.625"	HF1.9375"	9	H3K
	–	HF1"	HF1.25"	HF1.4375"	HF1.75"	9	H3L
	–	–	HF1.1875"	HF1.375"	HF1.625"	9	H3M
Hollow shaft, inches, with feather keyway	H0.75"	H1.25"	H1.375"	H1.5"	H2"	9	H7A

¹⁾ Only possible for shaft-mounted design.

Selection and ordering data

Mounting type	Possible for the following servo geared motors	Gearbox type	14th position of the Article No.	Example
			1FG1 ■ . .	
Foot-mounted design	Servo helical geared motor 2-stage	Z	1FG11 A ..	
	Servo helical geared motor 3-stage	D	1FG12 A ..	
	Servo parallel shaft geared motor 2-stage	FZ	1FG13 A ..	
	Servo parallel shaft geared motor 3-stage	FD	1FG14 A ..	
	Servo bevel geared motor 2-stage	B	1FG15 A ..	
	Servo bevel geared motor 3-stage	K	1FG15 A ..	
	Servo helical worm geared motor 2-stage	C	1FG16 A ..	
Foot-mounted/ flange-mounted design For selection of flange diameters, see section "Flange-mounted designs" on page 8/40.	Servo helical geared motor 2-stage	ZB	1FG11 B ..	
	Servo helical geared motor 3-stage	DB	1FG12 B ..	
Flange-mounted design (A type) For selection of flange diameters, see section "Flange-mounted designs" on page 8/40.	Servo helical geared motor 2-stage	ZF	1FG11 F ..	
	Servo helical geared motor 3-stage	DF	1FG12 F ..	
	Servo parallel shaft geared motor 2-stage	FZF	1FG13 F ..	
	Servo parallel shaft geared motor 3-stage	FDF	1FG14 F ..	
	Servo bevel geared motor 2-stage	BF	1FG15 F ..	
	Servo bevel geared motor 3-stage	KF	1FG15 F ..	
	Servo helical worm geared motor 2-stage	CF	1FG16 F ..	
Housing flange design (C type) For selection of flange diameters, see section "Flange-mounted designs" on page 8/40.	Servo helical geared motor 2-stage	ZZ	1FG11 H ..	
	Servo helical geared motor 3-stage	DZ	1FG12 H ..	
	Servo parallel shaft geared motor 2-stage	FZZ	1FG13 H ..	
	Servo parallel shaft geared motor 3-stage	FDZ	1FG14 H ..	
	Servo bevel geared motor 2-stage	BZ	1FG15 H ..	
	Servo bevel geared motor 3-stage	KZ	1FG15 H ..	
	Servo helical worm geared motor 2-stage	CZ	1FG16 H ..	
Shaft-mounted design (torque arm)	Servo parallel shaft geared motor 2-stage	FZAD	1FG13 D ..	
	Servo parallel shaft geared motor 3-stage	FDAD	1FG14 D ..	
	Servo bevel geared motor 2-stage	BAD	1FG15 D ..	
	Servo bevel geared motor 3-stage	KAD	1FG15 C ..	
	Servo helical worm geared motor 2-stage	CAD	1FG16 D ..	

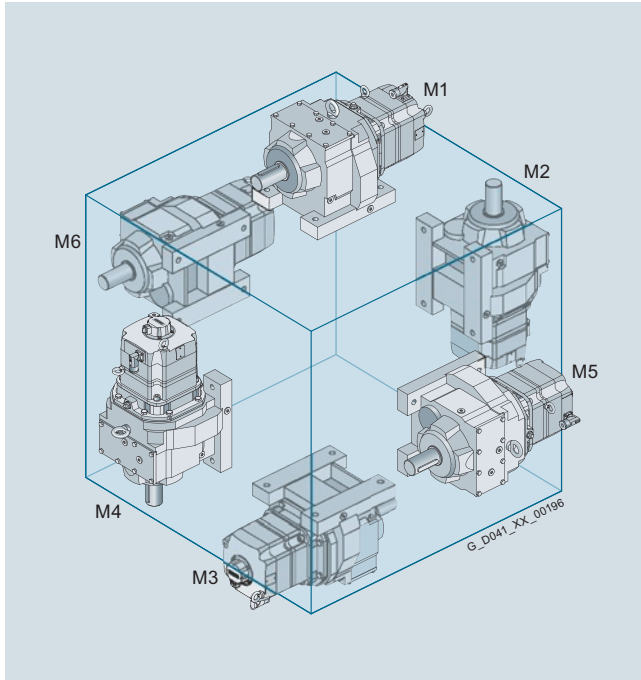
Options

Special designs

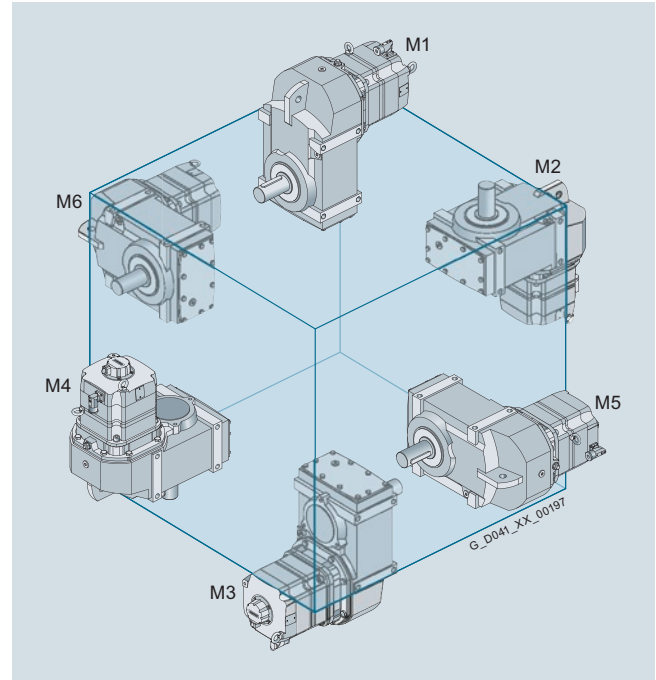
Mounting position

Overview

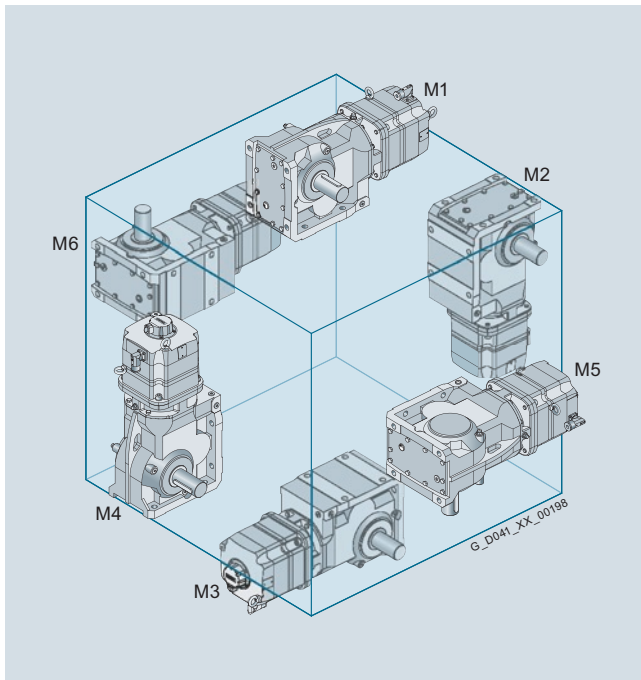
It is essential to specify the mounting position when you place your order (order code) to ensure that the gearbox is delivered with the correct quantity of oil.



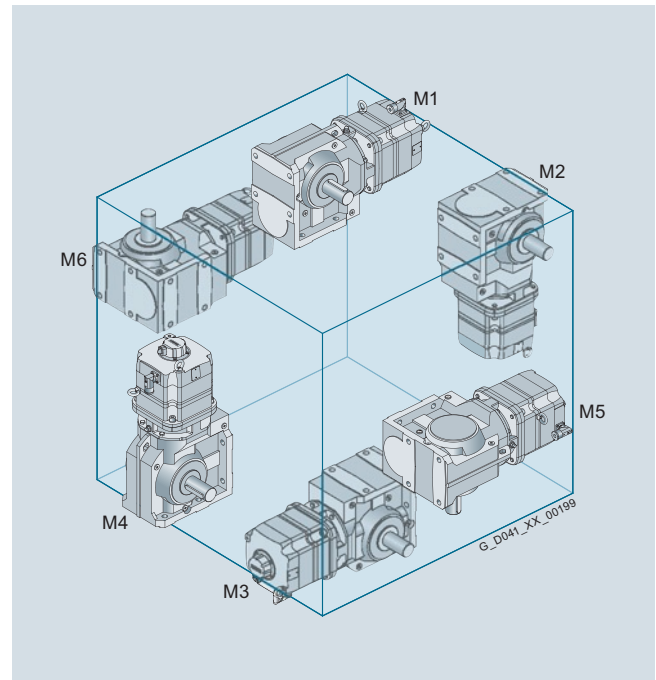
Helical geared motors



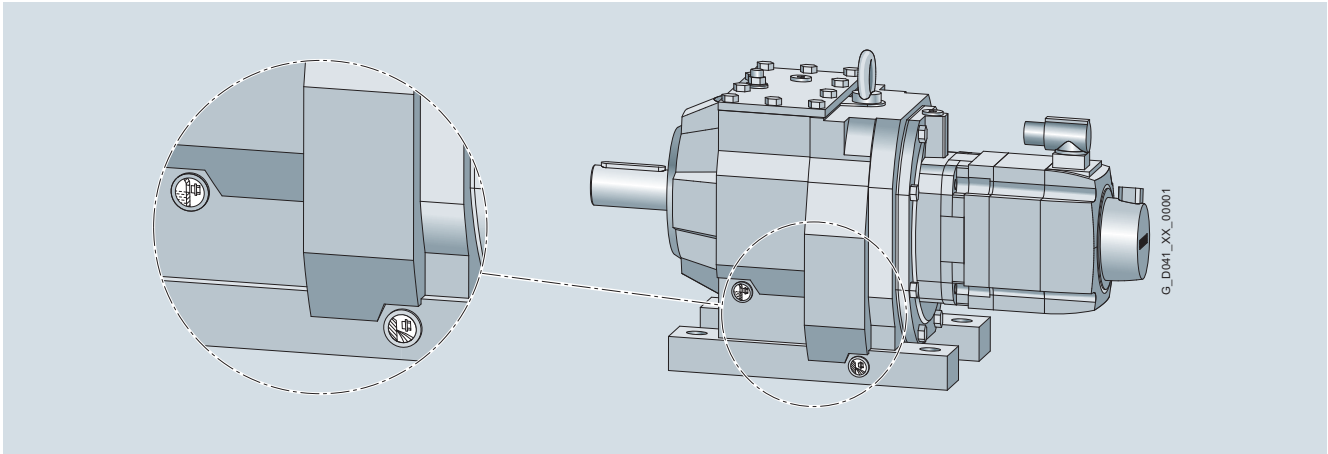
Parallel shaft geared motors



Bevel geared motors



Helical worm geared motors

Overview (continued)

Detailed 3D image

Note:

The **DT Configurator** can be used to configure SIMOTICS S-1FG1 servo geared motors. The Drive Technology Configurator is integrated as a selection tool into the Interactive Catalog CA 01 on DVD-ROM. In addition, the DT Configurator can be used on the Internet without requiring any installation. The DT Configurator can be found in the Siemens Mall at the following address:
www.siemens.com/dt-configurator

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

An explanation of the symbols used to represent mounting positions can be found on the following pages

Symbol	
Oil valves	
	Pressure breather valve
	Pressure breather valve opposite end
	Magnetic oil drain screw
	Magnetic oil drain screw opposite end
	Oil sight glass (oil level plug)
	Oil sight glass (oil level plug) opposite end

Symbol	
Supplements	
A, B	Output side A, output side B
②	2-stage gearbox
③	3-stage gearbox
① ... ④	Position of the connector

Options**Position of the connector**

Symbol for position of connector relative to mounting position	This is the connector position when facing the drive end (DE) of the motor	Add. identification code -Z with order code (if no order code is stated, then Article No. without -Z)	Order code
①	Right	1FG1 ... -Z	Q91
②	Top	Standard	—
③	Left		Q93
④	Bottom		Q92

The position of the connector is represented by the symbols ① to ④ in the diagrams of individual mounting positions on the following pages.

Position of pressure breather valve, oil screw plug and oil sight glass

The position of the pressure breather valve, oil screw plug and oil sight glass is represented by symbols in the diagrams of individual mounting positions on the following pages. For further details see "Explanation of symbols".

Options

Special designs

Mounting position > Servo helical geared motors > Foot-mounted design, 2-stage and 3-stage

Options

Gearbox size 29 – Gearbox types Z29 and D29

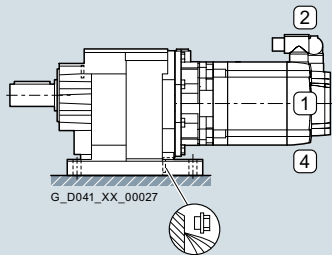
Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

Mounting position

Add. identification code **-Z** with order code

1FG11 A . . **-Z**
1FG12 A . . **-Z** Order code



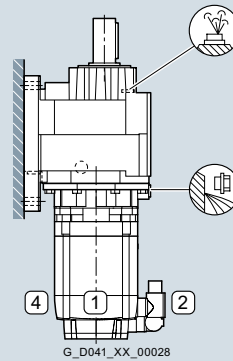
M1

D01

Mounting position

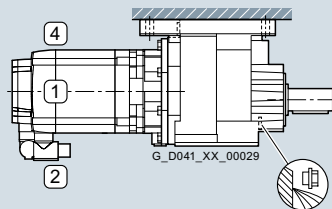
Add. identification code **-Z** with order code

1FG11 A . . **-Z**
1FG12 A . . **-Z** Order code



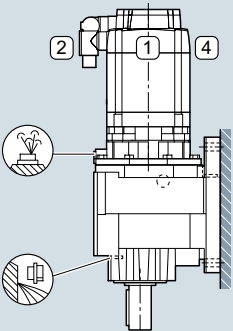
M2

D02



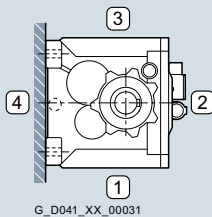
M3

D03



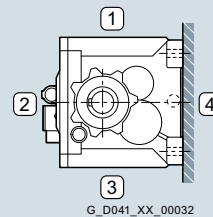
M4

D04



M5

D05



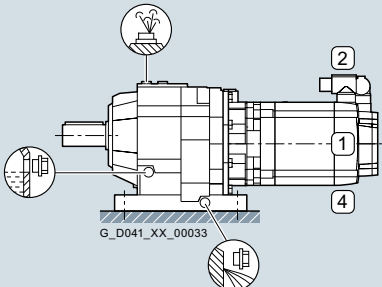
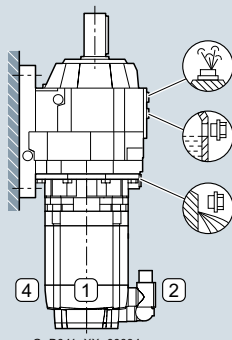
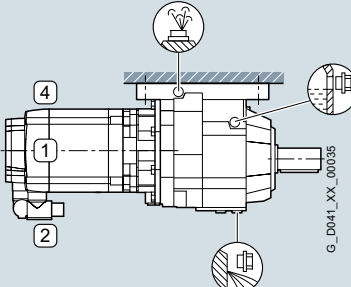
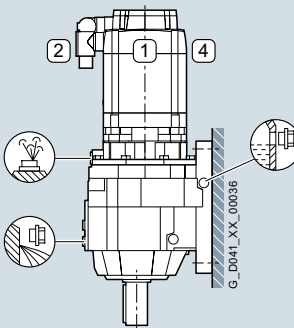
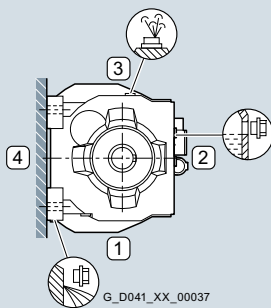
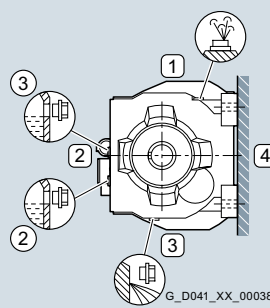
M6

D06

Options (continued)

Gearbox sizes **39 to 129** – Gearbox types **Z39 to Z129** and **D39 to D129**

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code
1FG11 A . . -Z 1FG12 A . . -Z Order code	1FG11 A . . -Z 1FG12 A . . -Z Order code
 M1	D01
 M2	D02
 M3	D03
 M4	D04
 M5	D05
 M6	D06

Options

Special designs

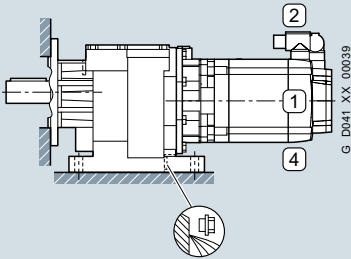
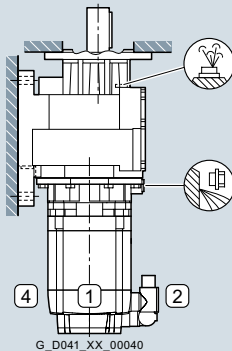
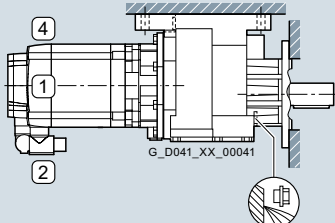
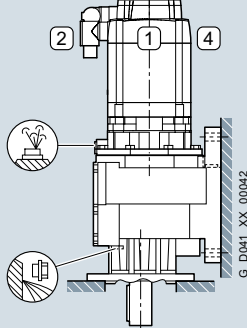
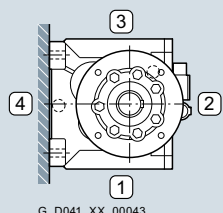
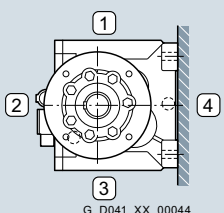
Mounting position > Servo helical geared motors > Foot-/flange-mounted designs, 2-stage and 3-stage

Options

Gearbox size 29 – Gearbox types ZB29 and DB29

Mounting positions, position of oil valves and connector

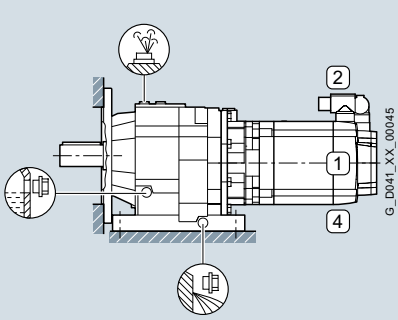
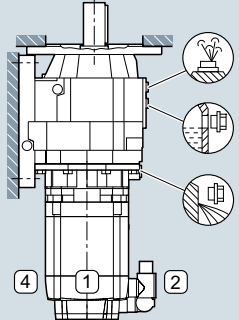
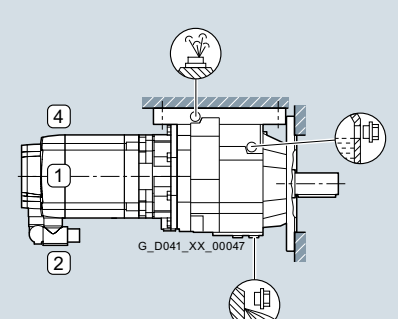
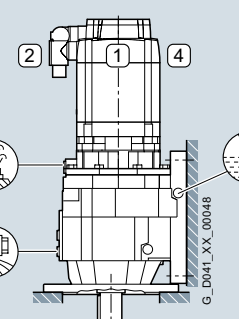
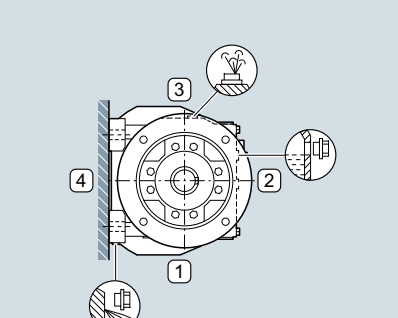
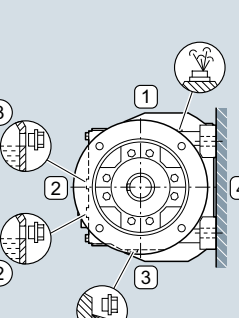
Gearbox size 29 is lubricated for life.

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG11 B . . -Z 1FG12 B . . -Z Order code		1FG11 B . . -Z 1FG12 B . . -Z Order code	
			
M1	D01	M2	D02
			
M3	D03	M4	D04
			
M5	D05	M6	D06

Options (continued)

Gearbox sizes **39 to 89** – Gearbox types **ZB39 to ZB89** and **DB39 to DB89**

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG11 B . . -Z 1FG12 B . . -Z Order code  M1 D01		1FG11 B . . -Z 1FG12 B . . -Z Order code  M2 D02	
 M3 D03		 M4 D04	
 M5 D05		 M6 D06	

Options

Special designs

Mounting position > Servo helical geared motors > Flange-mounted or with housing flange, 2-stage and 3-stage

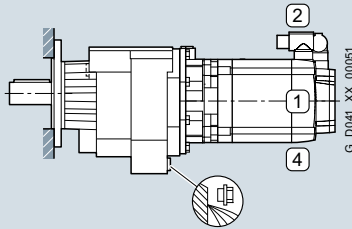
Options

Gearbox size 29 – Gearbox types ZF29 and DF29 or ZZ29 and DZ29

Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

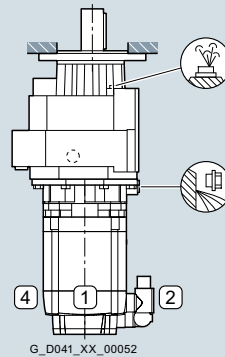
Mounting position	Add. identification code -Z with order code
1FG11 ... -F...-Z, 1FG11 ... -H...-Z	Order code
1FG12 ... -F...-Z, 1FG12 ... -H...-Z	



M1

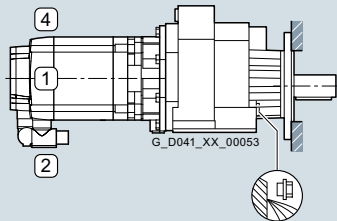
D01

Mounting position	Add. identification code -Z with order code
1FG11 ... -F...-Z, 1FG11 ... -H...-Z	Order code
1FG12 ... -F...-Z, 1FG12 ... -H...-Z	



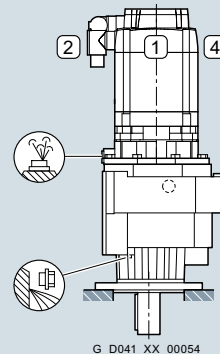
M2

D02



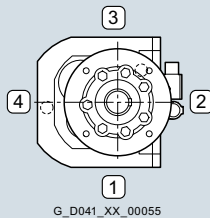
M3

D03



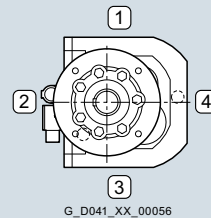
M4

D04



M5

D05



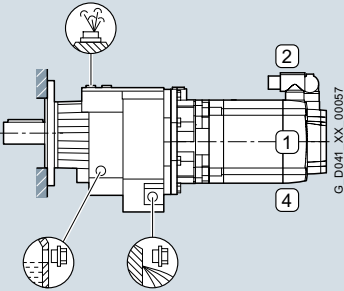
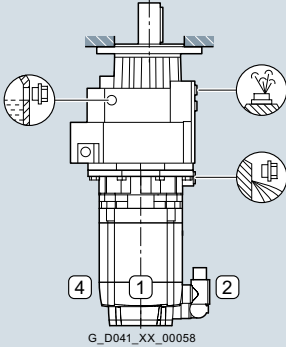
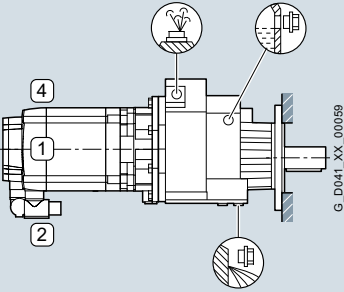
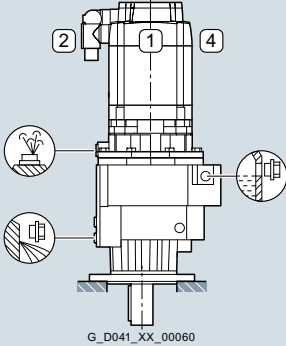
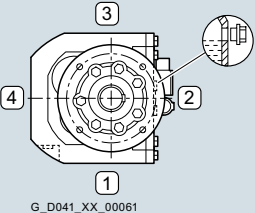
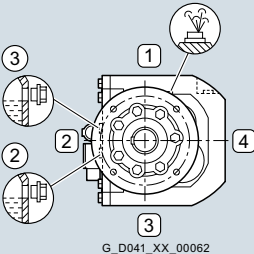
M6

D06

Options (continued)

Gearbox size **39** – Gearbox types **ZF39** and **DF39** or **ZZ39** and **DZ39**

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG11 ... - F ... -Z , 1FG11 ... - H ... -Z 1FG12 ... - F ... -Z , 1FG12 ... - H ... -Z	Order code	1FG11 ... - F ... -Z , 1FG11 ... - H ... -Z 1FG12 ... - F ... -Z , 1FG12 ... - H ... -Z	Order code
 M1	D01	 M2	D02
 M3	D03	 M4	D04
 M5	D05	 M6	D06

Options

Special designs

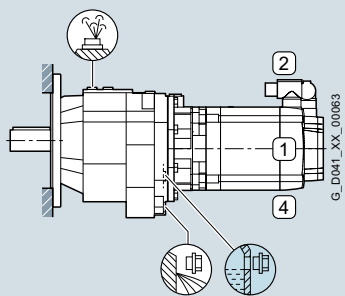
Mounting position > Servo helical geared motors > Flange-mounted or with housing flange, 2-stage and 3-stage

Options (continued)

Gearbox sizes 49 to 129 – Gearbox types ZF49 to ZF129 and DF49 to DF129 or ZZ49 to ZZ129 and DZ49 to DZ129

Mounting positions, position of oil valves and connector

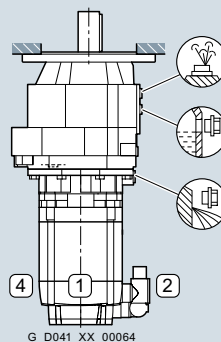
Mounting position	Add. identification code -Z with order code
1FG11 F . . -Z , 1FG11 H . . -Z	
1FG12 F . . -Z , 1FG12 H . . -Z	Order code



M1

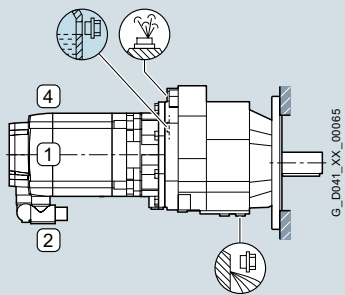
D01

Mounting position	Add. identification code -Z with order code
1FG11 F . . -Z , 1FG11 H . . -Z	
1FG12 F . . -Z , 1FG12 H . . -Z	Order code



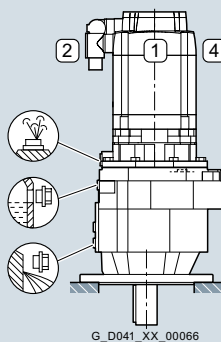
M2

D02



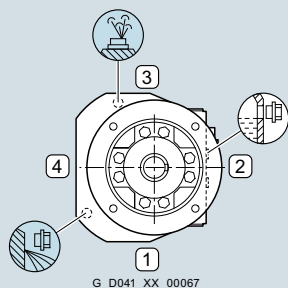
M3

D03



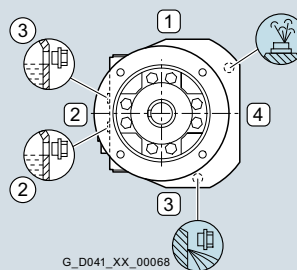
M4

D04



M5

D05



M6

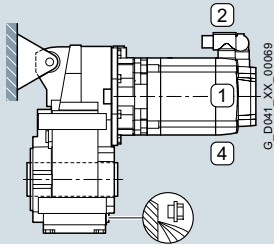
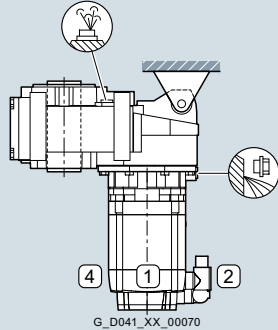
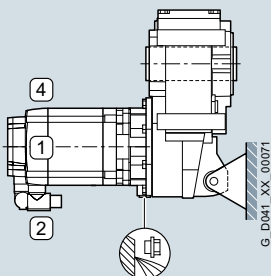
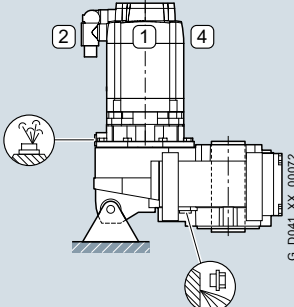
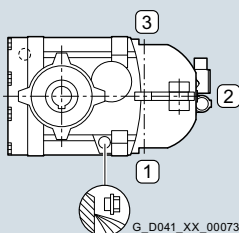
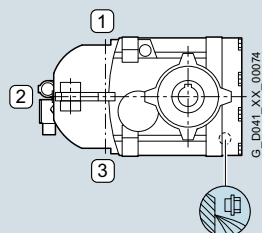
D06

Options

Gearbox size 29 – Gearbox types **FZAD29** and **FDAD29**

Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

Mounting position	Add. identification code -Z with order code
1FG13 ... - 5 ... - D ... -Z 1FG14 ... - 5 ... - D ... -Z	Order code
	
M1	D01
	
M2	D02
	
M3	D03
	
M4	D04
	
M5	D05
	
M6	D06

Options

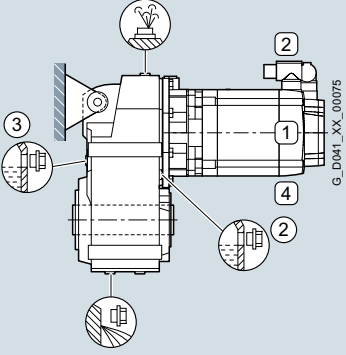
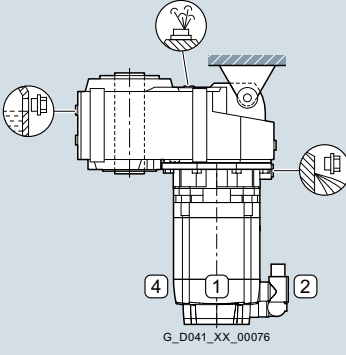
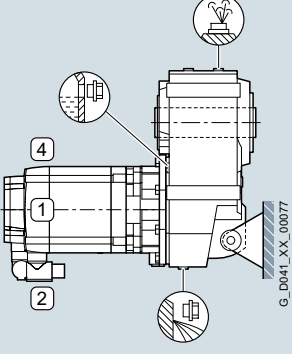
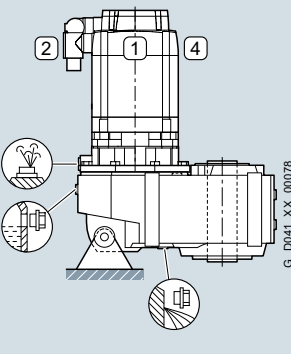
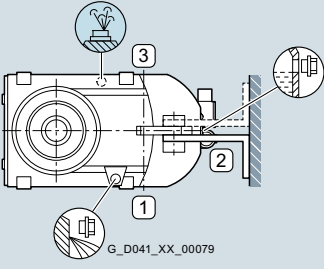
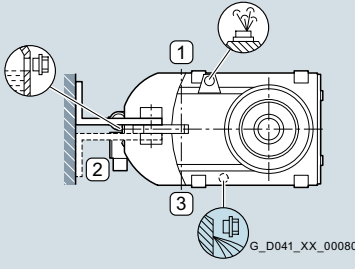
Special designs

Mounting position > Servo parallel shaft geared motors > Shaft-mounted design, 2-stage and 3-stage

Options (continued)

Gearbox sizes 39 to 129 – Gearbox types FZAD39 to FZAD129 and FDAD39 to FDAD129

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG13 ... - 5 ... - D ... -Z 1FG14 ... - 5 ... - D ... -Z Order code  M1	D01	1FG13 ... - 5 ... - D ... -Z 1FG14 ... - 5 ... - D ... -Z Order code  M2	D02
 M3	D03	 M4	D04
 M5	D05	 M6	D06

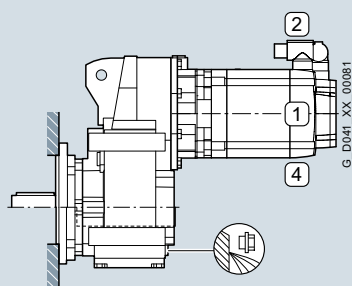
Options

Gearbox size 29 – Gearbox types **FZ.F29**, **FZ.Z29**, **FD.F29** and **FD.Z29**

Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

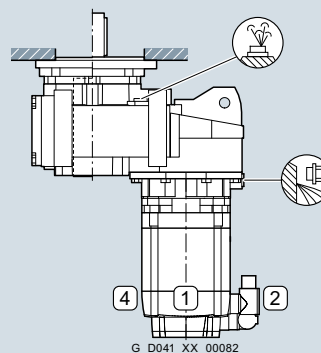
Mounting position	Add. identification code -Z with order code
1FG13 ... - F ... -Z , 1FG11 ... - H ... -Z	Order code
1FG14 ... - F ... -Z , 1FG12 ... - H ... -Z	



M1

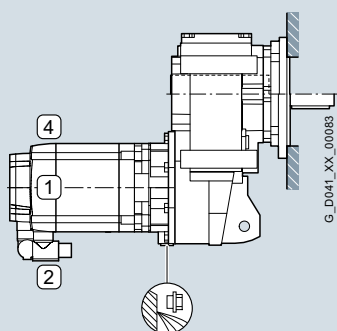
D01

Mounting position	Add. identification code -Z with order code
1FG13 ... - F ... -Z , 1FG11 ... - H ... -Z	Order code
1FG14 ... - F ... -Z , 1FG12 ... - H ... -Z	



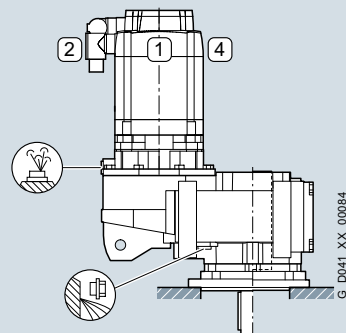
M2

D02



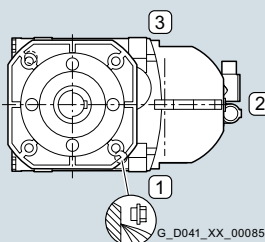
M3

D03



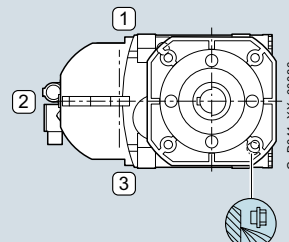
M4

D04



M5

D05



M6

D06

Options

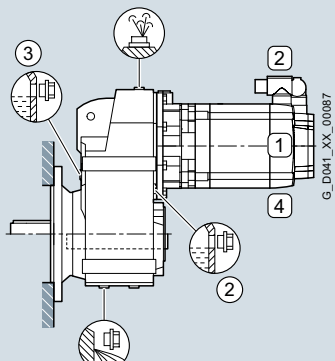
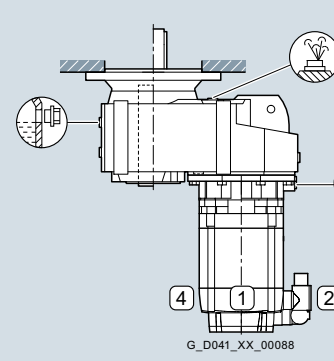
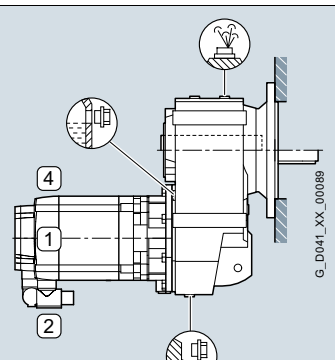
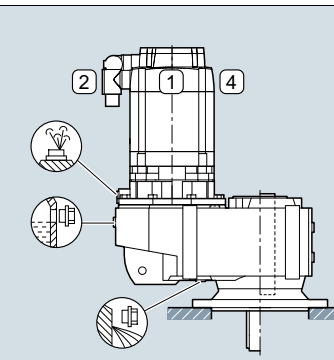
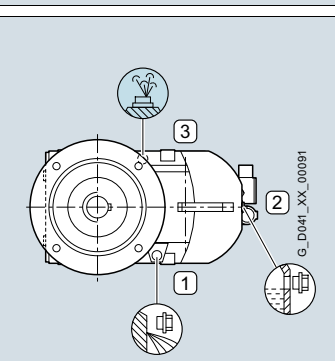
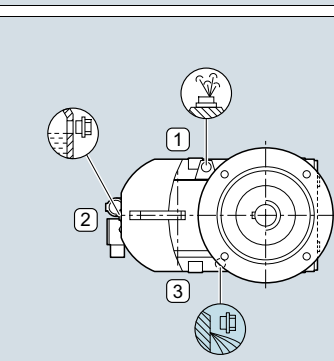
Special designs

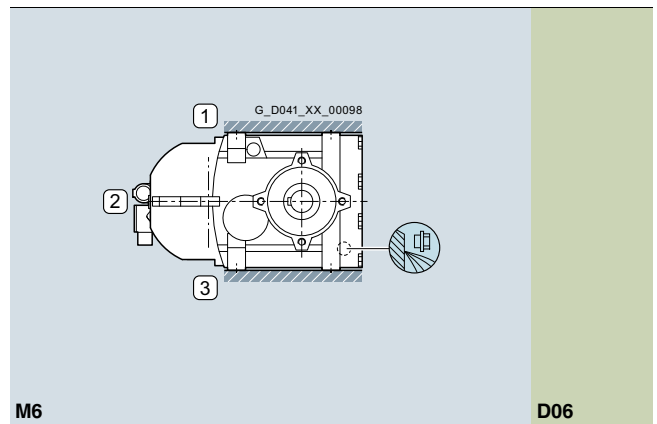
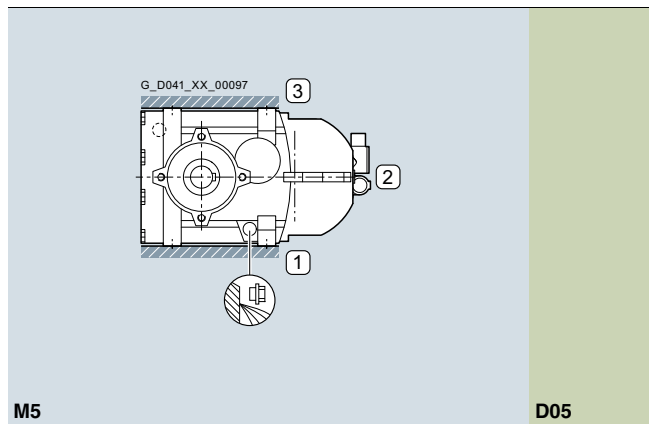
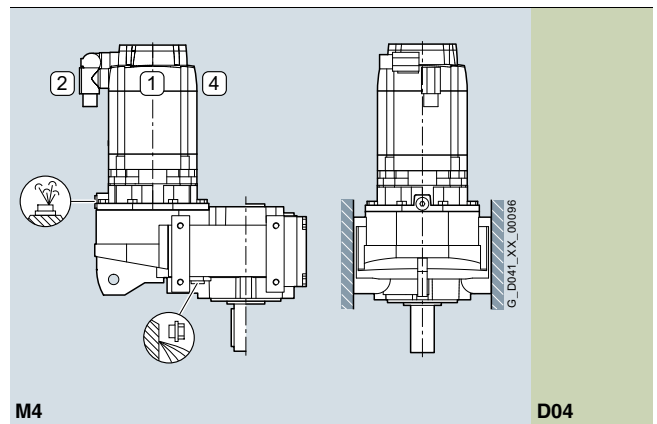
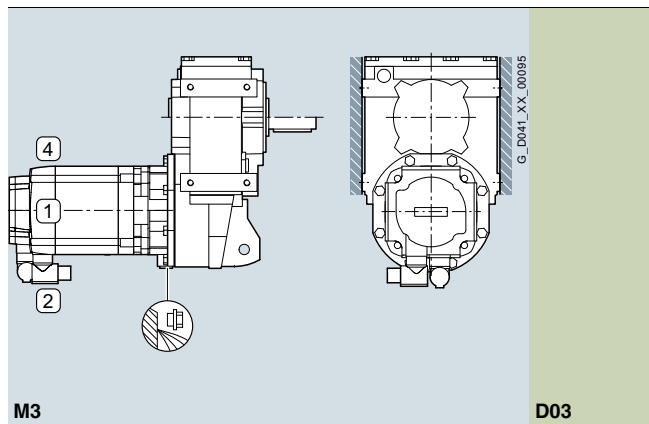
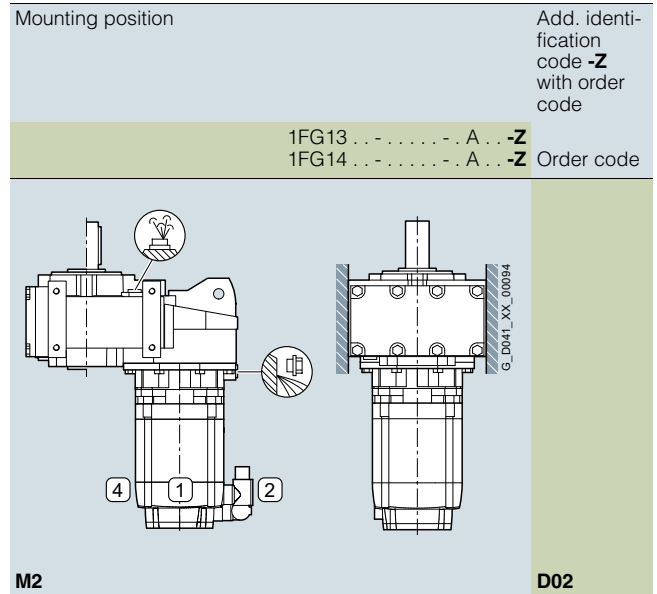
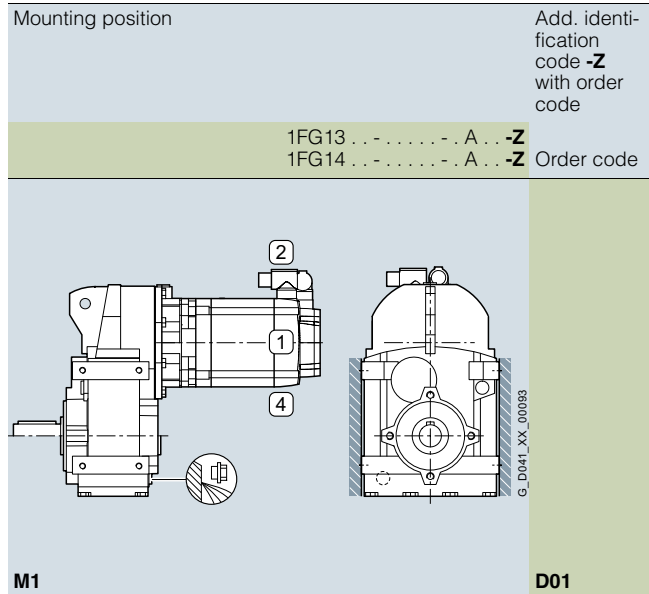
Mounting position > Servo parallel shaft geared motors > Flange-mounted or with housing flange, 2-stage and 3-stage

Options (continued)

Gearbox sizes 39 to 129 – Gearbox types FZ.F39 to FZ.F129, FD.F39 to FD.F129 and FZ.Z39 to FZ.Z129, FD.Z39 to FD.Z129

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG13 ... - F ... -Z , 1FG11 ... - H ... -Z 1FG14 ... - F ... -Z , 1FG12 ... - H ... -Z	Order code	1FG13 ... - F ... -Z , 1FG11 ... - H ... -Z 1FG14 ... - F ... -Z , 1FG12 ... - H ... -Z	Order code
 M1	D01	 M2	D02
 M3	D03	 M4	D04
 M5	D05	 M6	D06

Options
Gearbox size 29 – Gearbox types FZ.29 and FD.29
Mounting positions, position of oil valves and connector


Options

Special designs

Mounting position > Servo parallel shaft geared motors > Foot-mounted design, 2-stage and 3-stage

Options (continued)

Gearbox sizes 39 to 129 – Gearbox types FZ.39 to FZ.129 and FD.39 to FD.129

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code
1FG13 A . . -Z 1FG14 A . . -Z Order code	
M1	D01
M2	D02
M3	D03
M4	D04
M5	D05
M6	D06

Options

Gearbox size 29 – Gearbox type B29

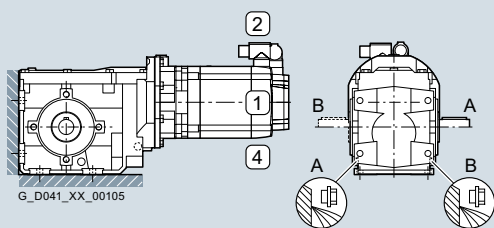
Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

Mounting position

Add. identification code **-Z** with order code

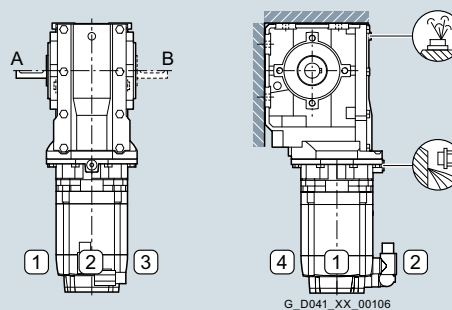
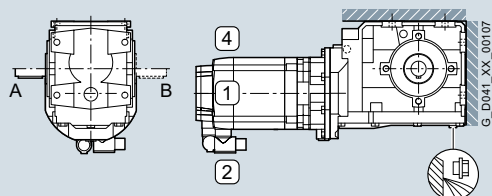
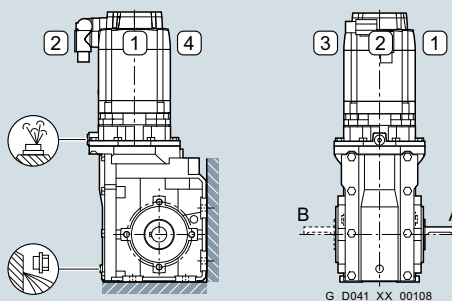
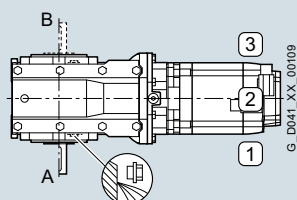
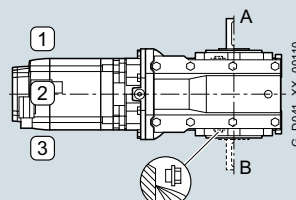
1FG15 A . . -Z Order code

**M1-A** (output side A)**D11****M1-B** (output side B)**D21**

Mounting position

Add. identification code **-Z** with order code

1FG15 A . . -Z Order code

**M2-A** (output side A)**D12****M2-B** (output side B)**D22****M3-A** (output side A)**D13****M3-B** (output side B)**D23****M4-A** (output side A)**D14****M4-B** (output side B)**D24****M5-A** (output side A)**D15****M5-B** (output side B)**D25****M6-A** (output side A)**D16****M6-B** (output side B)**D26**

Options

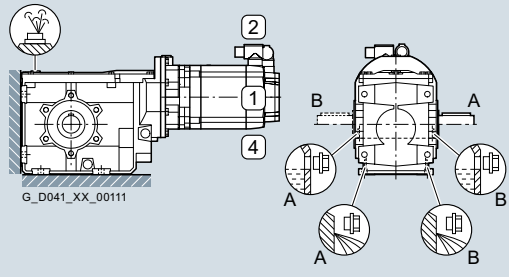
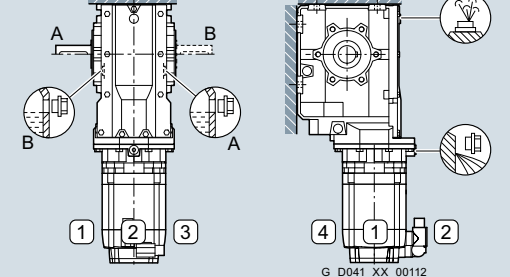
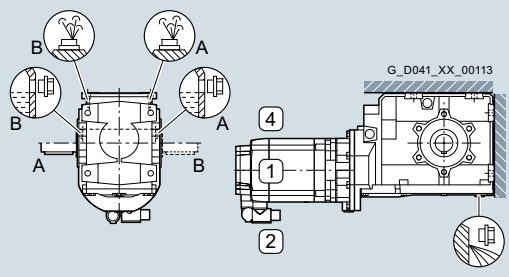
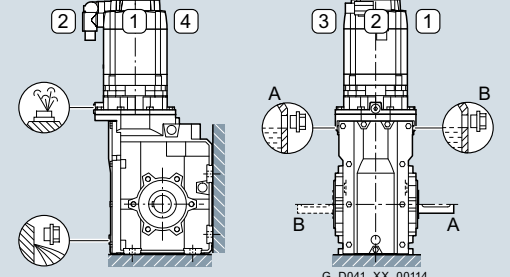
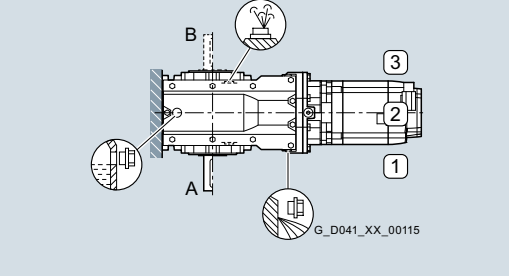
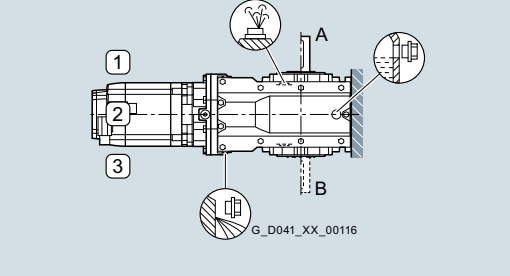
Special designs

Mounting position > Servo bevel geared motors > Foot-mounted design, 2-stage

Options (continued)

Gearbox sizes 39 and 49 – Gearbox types B39 and B49

Mounting positions, position of oil valves and connector

Mounting position		Add. identification code -Z with order code	
1FG15 A . . -Z Order code		1FG15 A . . -Z Order code	
 G_D041_XX_00111		 G_D041_XX_00112	
M1-A (output side A)		D11	
M1-B (output side B)		D21	
 G_D041_XX_00113		 G_D041_XX_00114	
M3-A (output side A)		D13	
M3-B (output side B)		D23	
 G_D041_XX_00115		 G_D041_XX_00116	
M5-A (output side A)		D15	
M5-B (output side B)		D25	
M6-A (output side A)		D16	
M6-B (output side B)		D26	

Options

Gearbox size 29 – Gearbox types B.Z29 and B.F29

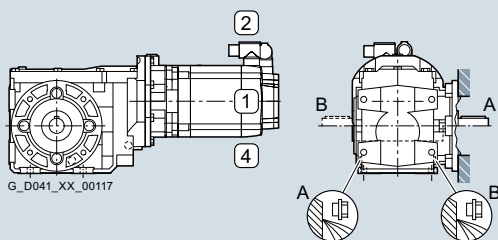
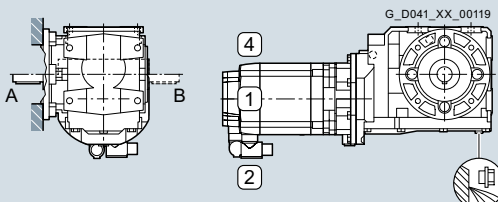
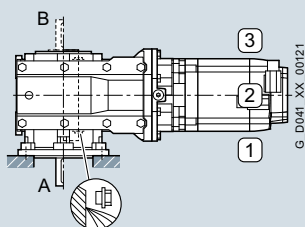
Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

Mounting position

Add. identification code **-Z** with order code

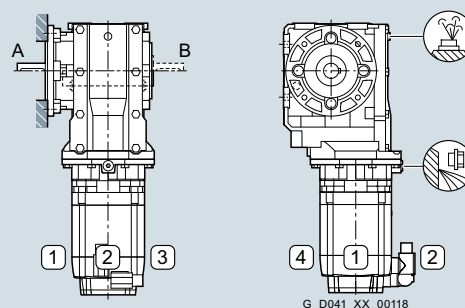
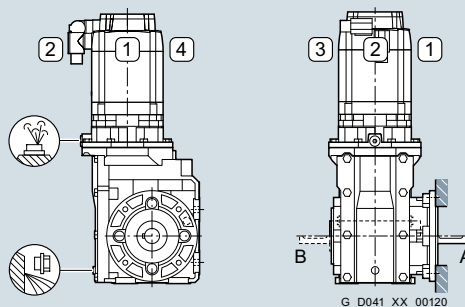
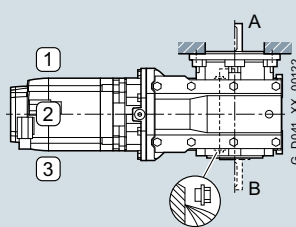
1FG15 F . . -Z, 1FG15 H . . -Z Order code

**M1-A** (output side A)**D11****M1-B** (output side B)**D21****M3-A** (output side A)**D13****M3-B** (output side B)**D23****M5-A** (output side A)**D15****M5-B** (output side B)**D25**

Mounting position

Add. identification code **-Z** with order code

1FG15 F . . -Z, 1FG15 H . . -Z Order code

**M2-A** (output side A)**D12****M2-B** (output side B)**D22****M4-A** (output side A)**D14****M4-B** (output side B)**D24****M6-A** (output side A)**D16****M6-B** (output side B)**D26**

Options

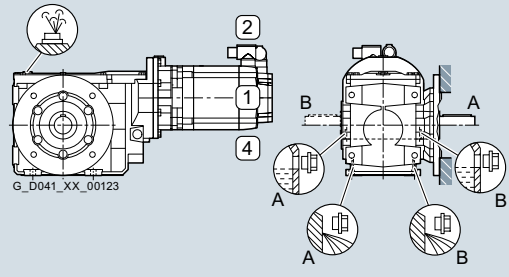
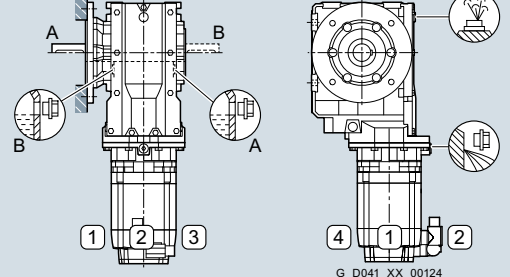
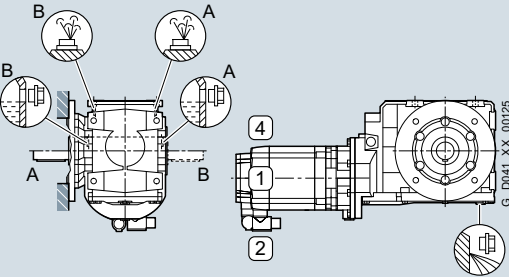
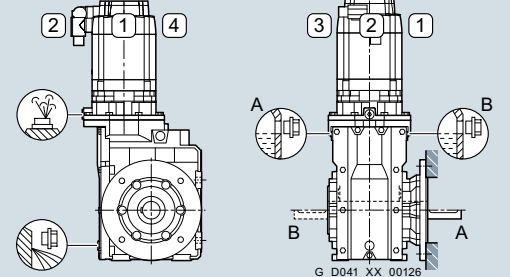
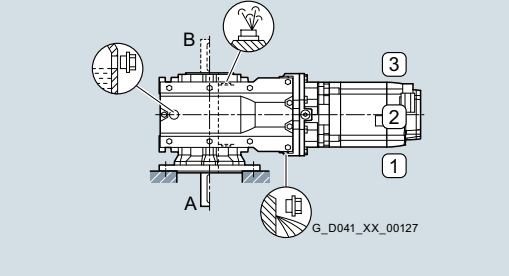
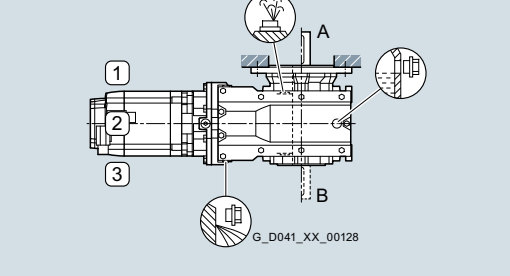
Special designs

Mounting position > Servo bevel geared motors > Housing flange and flange-mounted design, 2-stage

Options (continued)

Gearbox sizes 39 and 49 – Gearbox types B.Z39 and B.Z49 or B.F39 and B.F49

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG15 F . . -Z, 1FG15 H . . -Z Order code		1FG15 F . . -Z, 1FG15 H . . -Z Order code	
 M1-A (output side A) D11 M1-B (output side B) D21		 M2-A (output side A) D12 M2-B (output side B) D22	
 M3-A (output side A) D13 M3-B (output side B) D23		 M4-A (output side A) D14 M4-B (output side B) D24	
 M5-A (output side A) D15 M5-B (output side B) D25		 M6-A (output side A) D16 M6-B (output side B) D26	

Options

Gearbox size 29 – Gearbox types BAD29

Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

Mounting position	Add. identification code -Z with order code
1FG15...-5...-D...-Z Order code	
M1-A (output side A)	D11
M1-B (output side B)	D21

Mounting position	Add. identification code -Z with order code
1FG15...-5...-D...-Z Order code	
M2-A (output side A)	D12
M2-B (output side B)	D22

M3-A (output side A)	D13
M3-B (output side B)	D23

M4-A (output side A)	D14
M4-B (output side B)	D24

M5-A (output side A)	D15
M5-B (output side B)	D25

M6-A (output side A)	D16
M6-B (output side B)	D26

Options

Special designs

Mounting position > Servo bevel geared motors > Shaft-mounted design, 2-stage

Options (continued)

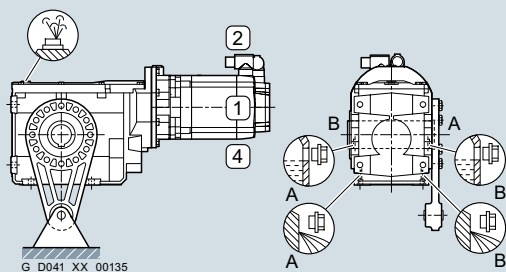
Gearbox sizes 39 and 49 – Gearbox types BAD39 and BAD49

Mounting positions, position of oil valves and connector

Mounting position

Add. identification code **-Z** with order code

1FG15...-5...-D...-Z Order code



M1-A (output side A)

D11

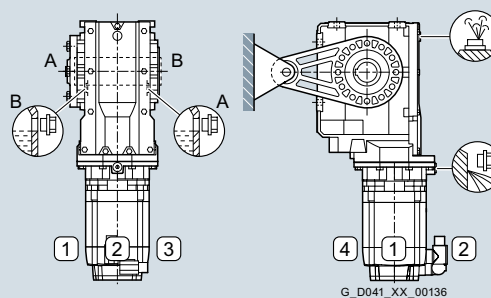
M1-B (output side B)

D21

Mounting position

Add. identification code **-Z** with order code

1FG15...-5...-D...-Z Order code

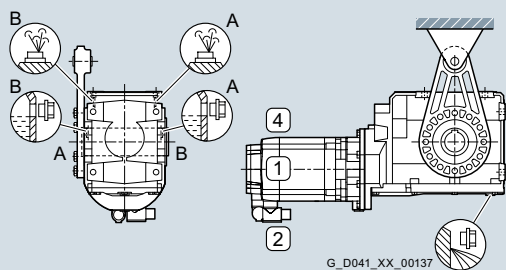


M2-A (output side A)

D12

M2-B (output side B)

D22

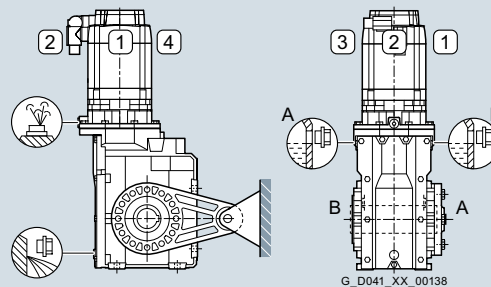


M3-A (output side A)

D13

M3-B (output side B)

D23

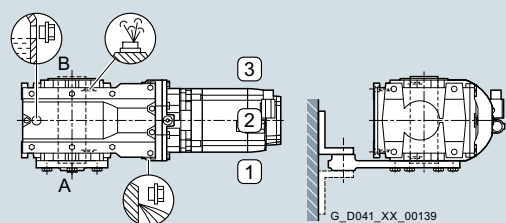


M4-A (output side A)

D14

M4-B (output side B)

D24

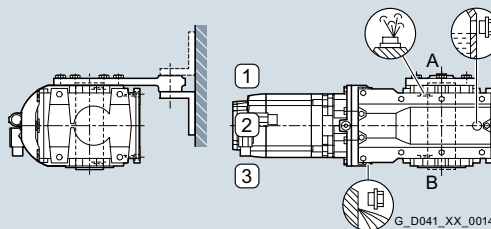


M5-A (output side A)

D15

M5-B (output side B)

D25



M6-A (output side A)

D16

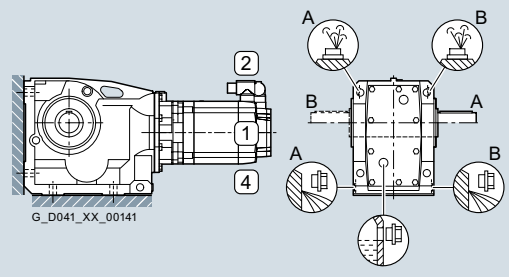
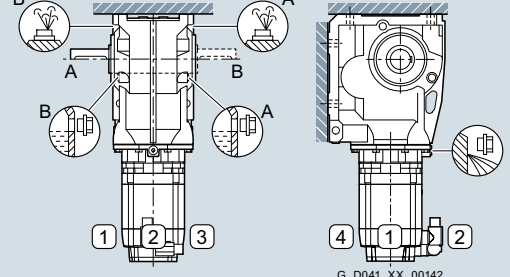
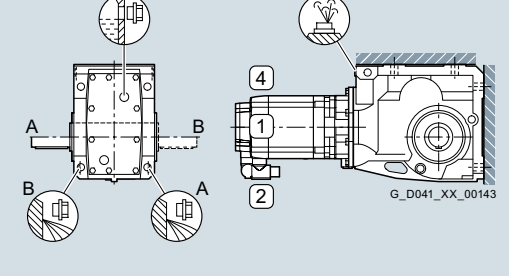
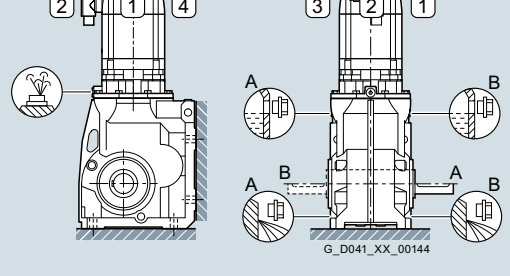
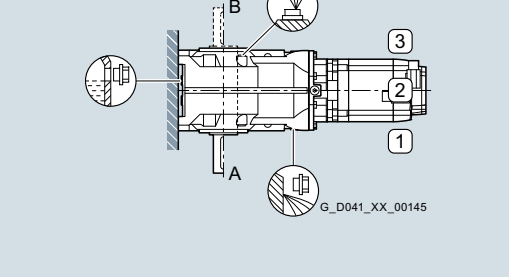
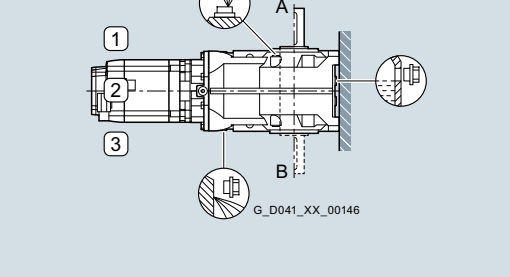
M6-B (output side B)

D26

Options

Gearbox sizes 39 to 149 – Gearbox types K39 to K149

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG15 A . . -Z Order code		1FG15 A . . -Z Order code	
 M1-A (output side A) D11 M1-B (output side B) D21		 M2-A (output side A) D12 M2-B (output side B) D22	
 M3-A (output side A) D13 M3-B (output side B) D23		 M4-A (output side A) D14 M4-B (output side B) D24	
 M5-A (output side A) D15 M5-B (output side B) D25		 M6-A (output side A) D16 M6-B (output side B) D26	

Options

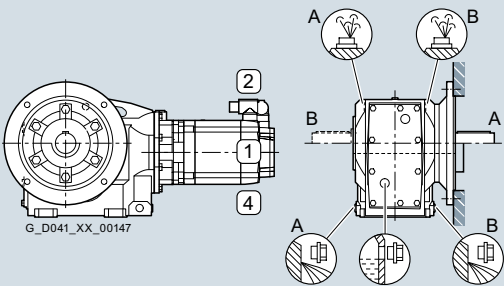
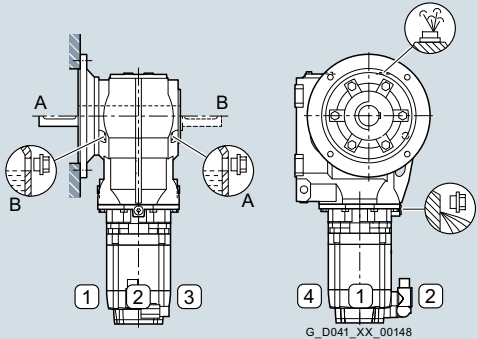
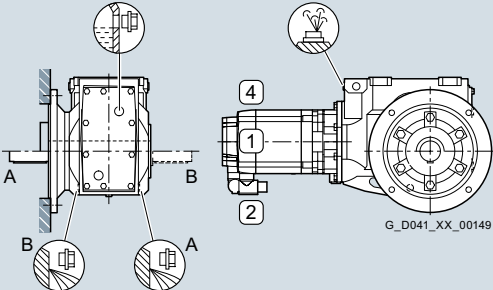
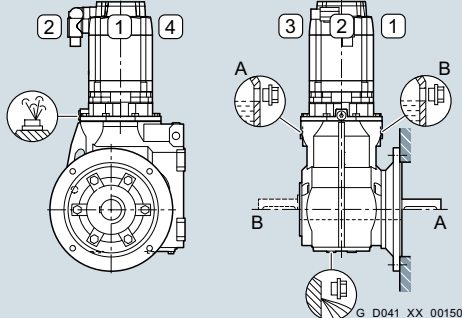
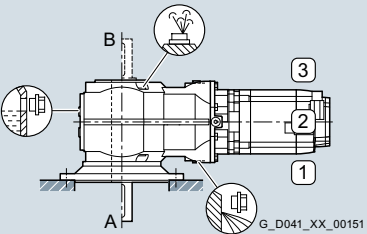
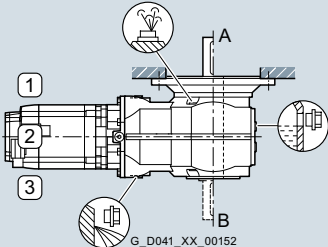
Special designs

Mounting position > Servo bevel geared motors > Housing flange and flange-mounted design, 3-stage

Options

Gearbox sizes 39 to 149 – Gearbox types K.Z39 to K.Z149 or K.F39 to K.F149

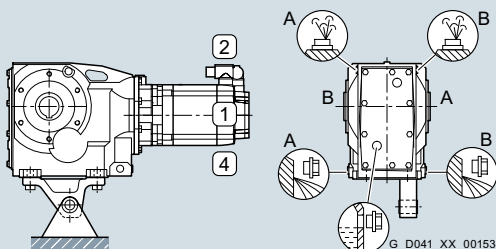
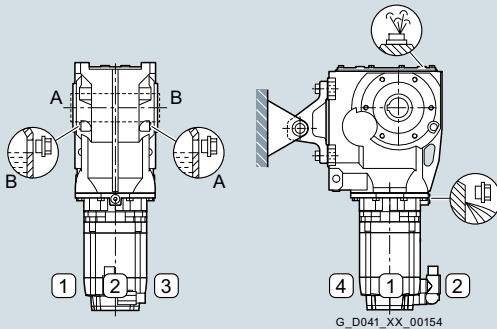
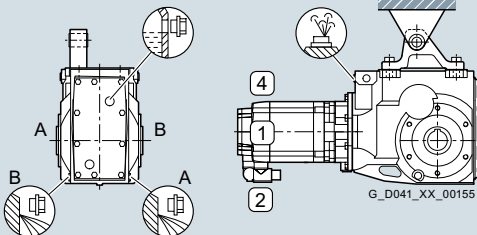
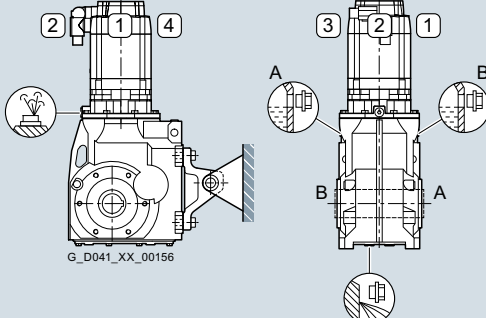
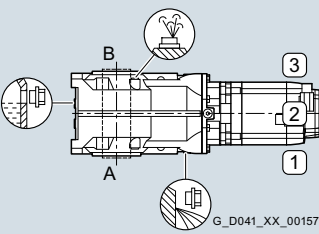
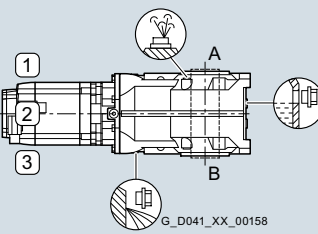
Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG15 F . . -Z, 1FG15 H . . -Z Order code		1FG15 F . . -Z, 1FG15 H . . -Z Order code	
 M1-A (output side A) D11 M1-B (output side B) D21		 M2-A (output side A) D12 M2-B (output side B) D22	
 M3-A (output side A) D13 M3-B (output side B) D23		 M4-A (output side A) D14 M4-B (output side B) D24	
 M5-A (output side A) D15 M5-B (output side B) D25		 M6-A (output side A) D16 M6-B (output side B) D26	

Options

Gearbox sizes **39 to 149** – Gearbox types **KAD39 to KAD149**

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG15...-5...-C...-Z Order code		1FG15...-5...-C...-Z Order code	
 M1-A (output side A) D11 M1-B (output side B) D21		 M2-A (output side A) D12 M2-B (output side B) D22	
 M3-A (output side A) D13 M3-B (output side B) D23		 M4-A (output side A) D14 M4-B (output side B) D24	
 M5-A (output side A) D15 M5-B (output side B) D25		 M6-A (output side A) D16 M6-B (output side B) D26	

Options

Special designs

Mounting position > Servo helical worm geared motors > Shaft-mounted design, 2-stage

Options

Gearbox size 29 – Gearbox type CAD29

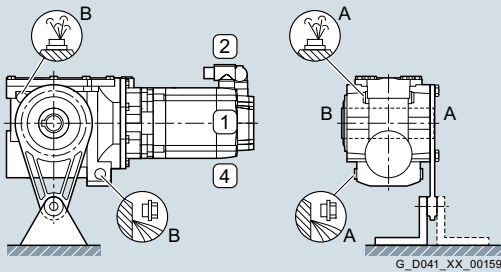
Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

Mounting position

Add. identification code **-Z** with order code

1FG16...-5...-D...-Z Order code



M1-A (output side A)

D11

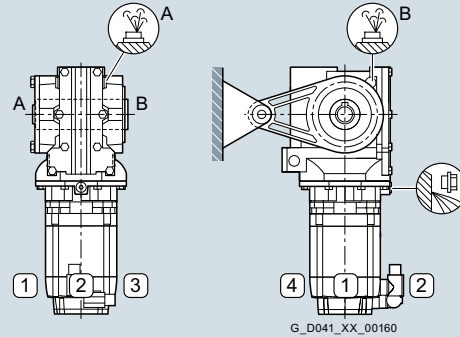
M1-B (output side B)

D21

Mounting position

Add. identification code **-Z** with order code

1FG16...-5...-D...-Z Order code

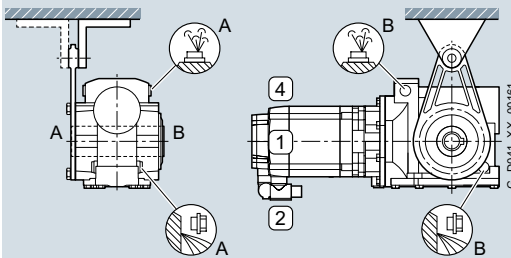


M2-A (output side A)

D12

M2-B (output side B)

D22

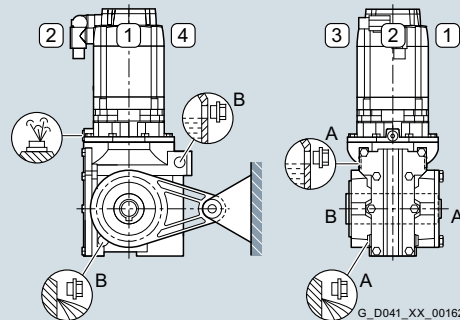


M3-A (output side A)

D13

M3-B (output side B)

D23

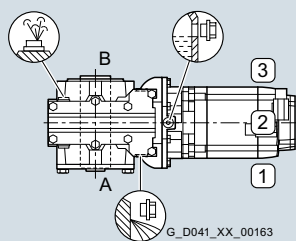


M4-A (output side A)

D14

M4-B (output side B)

D24

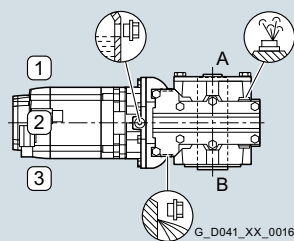


M5-A (output side A)

D15

M5-B (output side B)

D25



M6-A (output side A)

D16

M6-B (output side B)

D26

Options (continued)

Gearbox sizes 39 to 89 – Gearbox types CAD39 to CAD89

Mounting positions, position of oil valves and connector

Mounting position

1FG16...-5...-D...-Z Order code

Add. identification code **-Z** with order code

M1-A (output side A) **D11**

M1-B (output side B) **D21**

Mounting position

1FG16...-5...-D...-Z Order code

Add. identification code **-Z** with order code

M2-A (output side A) **D12**

M2-B (output side B) **D22**

M3-A (output side A) **D13**

M3-B (output side B) **D23**

M4-A (output side A) **D14**

M4-B (output side B) **D24**

M5-A (output side A) **D15**

M5-B (output side B) **D25**

M6-A (output side A) **D16**

M6-B (output side B) **D26**

Options

Special designs

Mounting position > Servo helical worm geared motors > Housing flange and flange-mounted design, 2-stage

Options

Gearbox size 29 – Gearbox types C.Z29 and C.F29

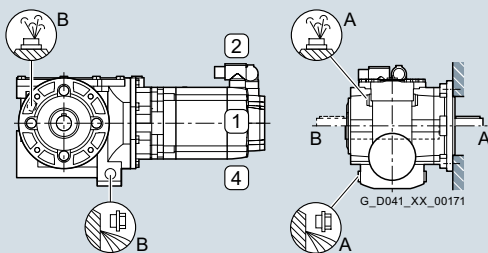
Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

Mounting position

Add. identification code **-Z** with order code

1FG16 F . . -Z, 1FG16 H . . -Z Order code



M1-A (output side A)

D11

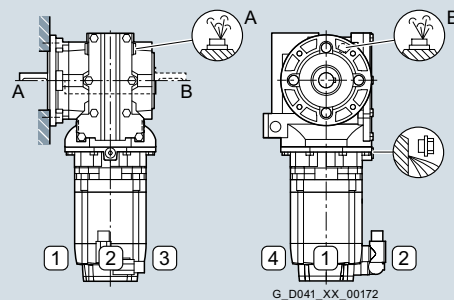
M1-B (output side B)

D21

Mounting position

Add. identification code **-Z** with order code

1FG16 F . . -Z, 1FG16 H . . -Z Order code

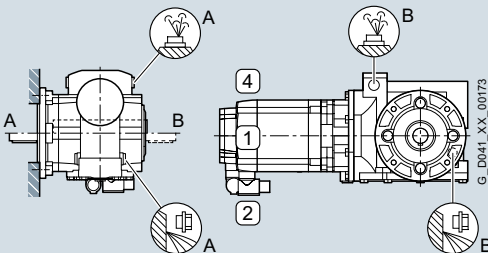


M2-A (output side A)

D12

M2-B (output side B)

D22

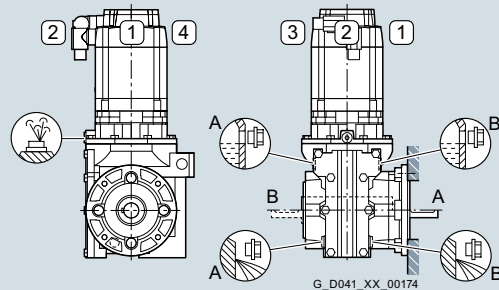


M3-A (output side A)

D13

M3-B (output side B)

D23

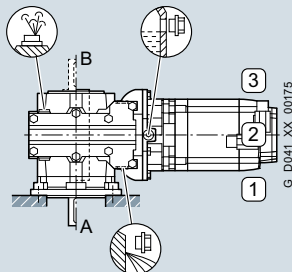


M4-A (output side A)

D14

M4-B (output side B)

D24

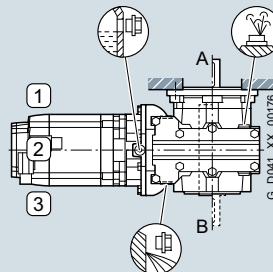


M5-A (output side A)

D15

M5-B (output side B)

D25



M6-A (output side A)

D16

M6-B (output side B)

D26

Options (continued)

Gearbox sizes **39 to 89** – Gearbox types **CAZ39 to CAZ89** or **C.F39 to C.F89**

Mounting positions, position of oil valves and connector

Mounting position

1FG16 F . . -Z, 1FG16 H . . -Z Order code

Add. identification code **-Z** with order code

M1-A (output side A) **D11**
M1-B (output side B) **D21**

Mounting position

1FG16 F . . -Z, 1FG16 H . . -Z Order code

Add. identification code **-Z** with order code

M2-A (output side A) **D12**
M2-B (output side B) **D22**

M3-A (output side A) **D13**
M3-B (output side B) **D23**

M4-A (output side A) **D14**
M4-B (output side B) **D24**

M5-A (output side A) **D15**
M5-B (output side B) **D25**

M6-A (output side A) **D16**
M6-B (output side B) **D26**

Options

Special designs

Mounting position > Servo helical worm geared motors > Foot-mounted design, 2-stage

Options

Gearbox size 29 – Gearbox type C29

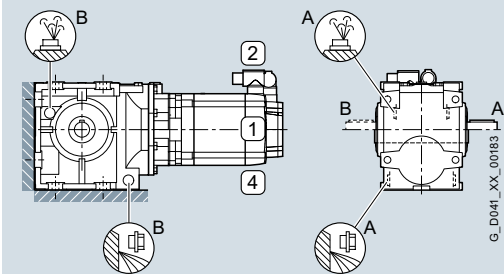
Mounting positions, position of oil valves and connector

Gearbox size 29 is lubricated for life.

Mounting position

Add. identification code **-Z** with order code

1FG16 A . . -Z Order code



M1-A (output side A)

D11

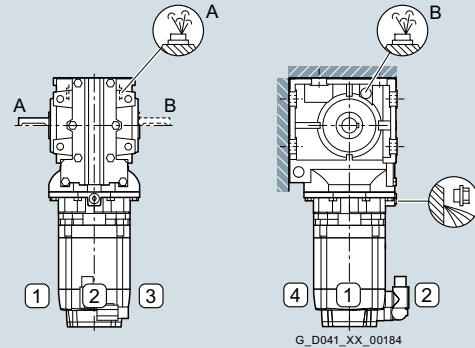
M1-B (output side B)

D21

Mounting position

Add. identification code **-Z** with order code

1FG16 A . . -Z Order code

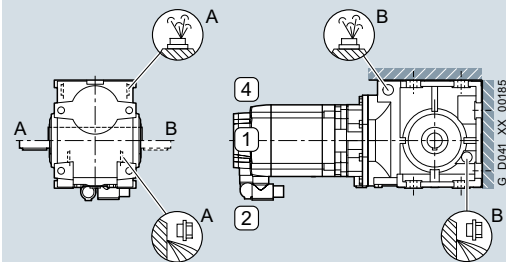


M2-A (output side A)

D12

M2-B (output side B)

D22

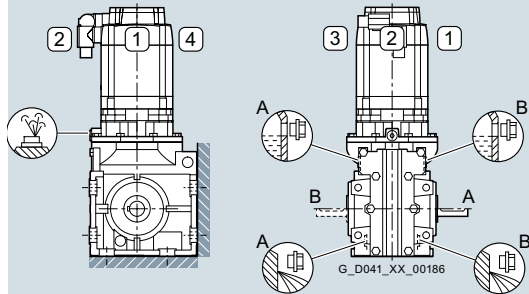


M3-A (output side A)

D13

M3-B (output side B)

D23

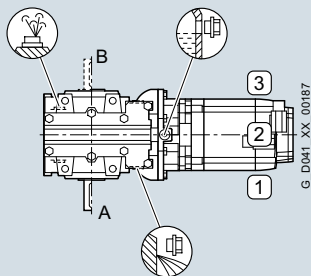


M4-A (output side A)

D14

M4-B (output side B)

D24

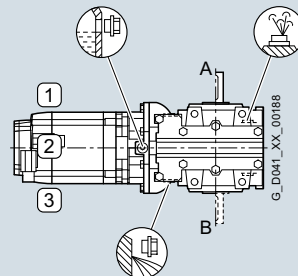


M5-A (output side A)

D15

M5-B (output side B)

D25



M6-A (output side A)

D16

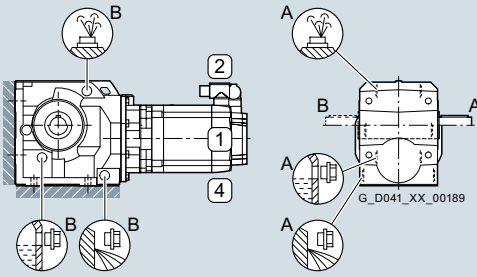
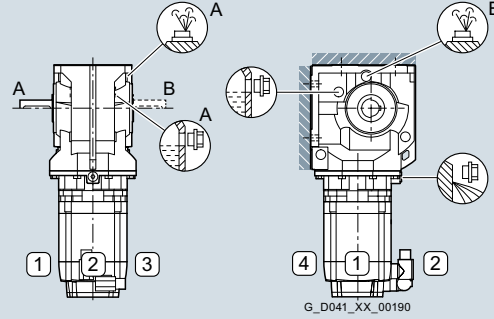
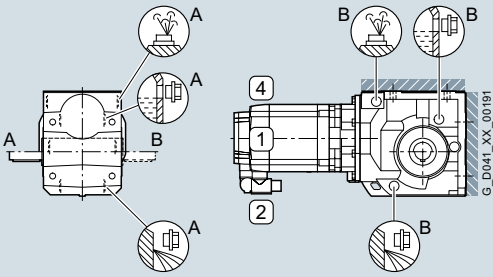
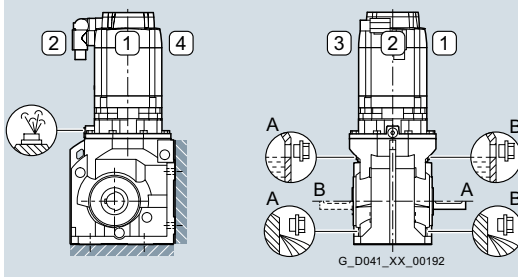
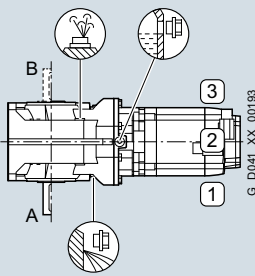
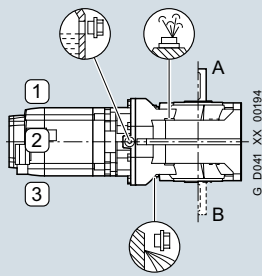
M6-B (output side B)

D26

Options (continued)

Gearbox sizes 39 to 89 – Gearbox types C39 to C89

Mounting positions, position of oil valves and connector

Mounting position	Add. identification code -Z with order code	Mounting position	Add. identification code -Z with order code
1FG16 A . . -Z Order code		1FG16 A . . -Z Order code	
	D11 D21		D12 D22
	D13 D23		D14 D24
	D15 D25		D16 D26

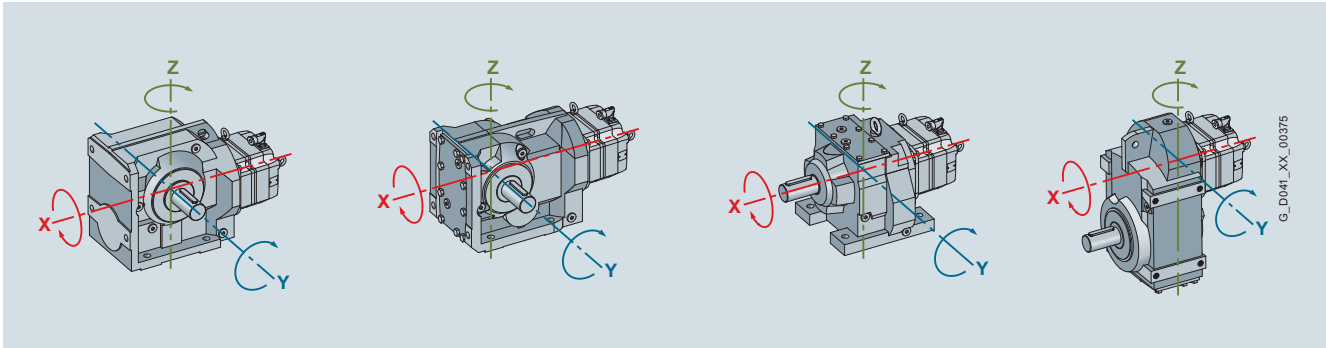
Options

Special designs

Mounting position > Angled mounting positions

Options

Apart from the standard types of construction, geared motors can also be supplied in different angled positions.

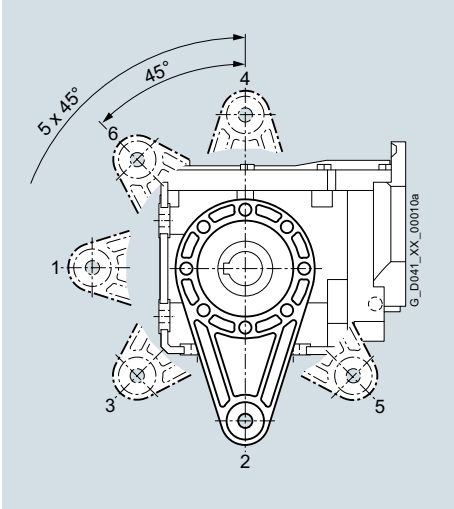
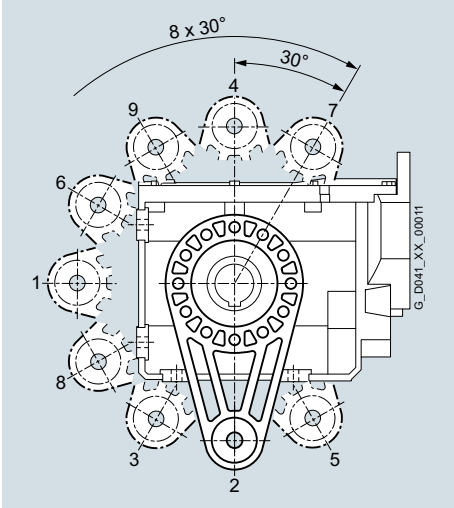


Axes of rotation of the geared motors

Y axis		X axis		Z axis	
Add. identification code -Z with order code		Add. identification code -Z with order code		Add. identification code -Z with order code	
1FG1 -Z	Order code	1FG1 -Z	Order code	1FG1 -Z	Order code
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

Options

The torque arm for the shaft-mounted design can be screwed to the gearbox housing at various positions.

Design		Add. identification code -Z with order code		
Servo bevel geared motors 2-stage – hollow shaft design				
Bevel gearbox BAD . (2-stage)		1FG15 D . . -Z		
Gearbox size	29	39	49	Order code
Torque arm	☒	—	—	—
				
Torque arm with altered hole circle	—	☒	☒	—
				

☒ Standard version

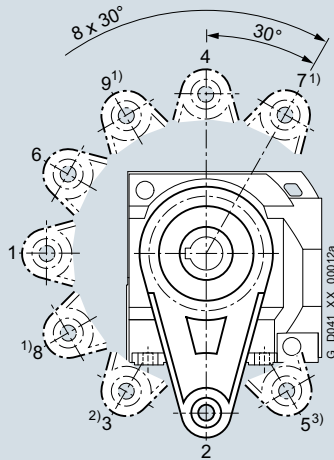
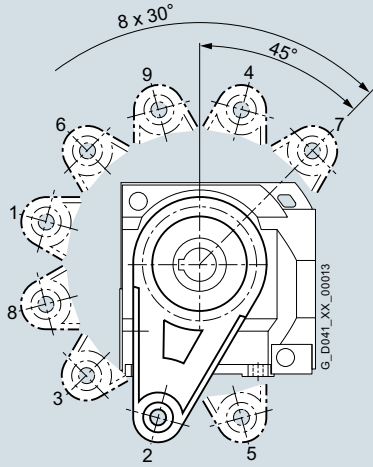
☒ Standard version

Options

Special designs

Shaft-mounted design (torque arm)

Options (continued)

Design						Add. identification code -Z with order code	
Servo helical worm geared motors 2-stage – hollow shaft design							
Helical worm gearbox <i>CAD</i>						1FG16 D . . -Z	
Gearbox size		29	39	49	69	89	Order code
Torque arm		☐	☐	☐	☐	☐	–
							
Torque arm with altered hole circle		–	☒	☒	☒	☒	G10
							
☐ Standard version							

¹⁾ Position not possible with gearbox size 29/type *CAD.29*.

²⁾ Position not possible with gearbox sizes 39 and 69/ types *CAD.39* and *CAD.69*.

³⁾ Position not possible with gearbox size 39/type *CAD.39*.

Options

Design										Add. identification code -Z with Order code
Servo parallel shaft geared motors 2-stage, 3-stage – hollow shaft design										
Parallel shaft gearboxes <i>FZA</i> and <i>FDA</i>										1FG13...-5...-...-Z 1FG14...-5...-...-Z
Gearbox size	29	39	49	69	79	89	109	129	–	Order code
Fixed protection cover	✓	✓	✓	✓	✓	✓	✓	✓	–	G60
Servo parallel shaft geared motors 2-stage, 3-stage – hollow shaft design with shrink disk										
Parallel shaft gearboxes <i>FZA.S</i> and <i>FDA.S</i>										1FG13...-9...-...-Z H3A 1FG14...-9...-...-Z H3A
Gearbox size	29	39	49	69	79	89	109	129	–	Order code
Fixed protection cover	✓	✓	✓	✓	✓	✓	✓	✓	–	G60
Servo bevel geared motors 2-stage, 3-stage – hollow shaft design										
Bevel gearbox <i>B</i> (2-stage)										1FG15...-5...-...-Z
Gearbox size	29	39	49	–	–	–	–	–	–	Order code
Fixed protection cover	✓	✓	✓	–	–	–	–	–	–	G60
Bevel gearbox <i>K</i> (3-stage)										1FG15...-5...-...-Z
Gearbox size	–	39	49	69	79	89	109	129	149	Order code
Fixed protection cover	–	✓	✓	✓	✓	✓	✓	✓	✓	G60
Servo bevel geared motors 2-stage, 3-stage – hollow shaft design with shrink disk										
Bevel gearbox <i>B</i> (2-stage)										1FG15...-9...-...-Z H3A
Gearbox size	29	39	49	–	–	–	–	–	–	Order code
Fixed protection cover	✓	✓	✓	–	–	–	–	–	–	G60
Bevel gearbox <i>K</i> (3-stage)										1FG15...-9...-...-Z H3A
Gearbox size	–	39	49	69	79	89	109	109	129	Order code
Fixed protection cover	–	✓	✓	✓	✓	✓	✓	✓	✓	G60
Servo helical worm geared motors 2-stage – hollow shaft design										
Helical worm gearbox <i>C</i>										1FG16...-5...-...-Z
Gearbox size	29	39	49	69	89	–	–	–	–	Order code
Fixed protection cover	✓	✓	✓	✓	✓	–	–	–	–	G60
Servo helical worm geared motors 2-stage – hollow shaft design with shrink disk										
Helical worm gearbox <i>C</i>										1FG16...-9...-...-Z H3A
Gearbox size	29	39	49	69	89	–	–	–	–	Order code
Fixed protection cover	✓	✓	✓	✓	✓	–	–	–	–	G60

Options

Special designs

Flange-mounted designs

Options

Gearbox type	Flange diameter mm										Add. identification code -Z with Order code
Servo helical geared motors 2-stage, 3-stage, in flange-mounted design											
Helical gearboxes <i>ZF</i> and <i>DF</i>										1FG11 F . . -Z	
										1FG12 F . . -Z	
Gearbox size	29	39	49	59	69	79	89	109	129	–	Order code
Standard version	120 ¹⁾	120 ¹⁾	140 ¹⁾	160 ¹⁾	200 ¹⁾	250 ¹⁾	300 ¹⁾	350	350	–	–
	140	–	–	–	–	–	–	–	–	–	H03
	160	160	160	–	–	–	–	–	–	–	H04
	–	200	200	200	–	–	–	–	–	–	H05
	–	–	–	250	250	–	–	–	–	–	H06
	–	–	–	–	–	300	–	–	–	–	H07
	–	–	–	–	–	–	350	–	–	–	H08
	–	–	–	–	–	–	–	450	450	–	H09
Servo helical geared motors 2-stage, 3-stage, in foot-mounted/flange-mounted design ²⁾											
Helical gearboxes <i>ZB</i> and <i>DB</i>										1FG11 B . . -Z	
										1FG12 B . . -Z	
Gearbox size	29	39	49	59	69	79	89	–	–	–	Order code
Standard version	120 ¹⁾	120 ¹⁾	140 ¹⁾	160 ¹⁾	200 ¹⁾	250 ¹⁾	300 ¹⁾	–	–	–	–
Servo parallel shaft geared motors 2-stage, 3-stage, in flange-mounted design											
Parallel shaft gearboxes <i>FZ.F</i> and <i>FD.F</i>										1FG13 F . . -Z	
										1FG14 F . . -Z	
Gearbox size	29	39	49	–	69	79	89	109	129	–	Order code
Standard version	120	160	200	–	250	250	300	350	450	–	–
	160	–	–	–	–	–	–	–	–	–	H04
Servo bevel geared motors 2-stage, in flange-mounted design											
Bevel gearbox <i>B.F</i> (2-stage)										1FG15 F . . -Z	
Gearbox size	29	39	49	–	–	–	–	–	–	–	Order code
Standard version	120	160	200	–	–	–	–	–	–	–	–
	160	–	–	–	–	–	–	–	–	–	H04
	–	200	–	–	–	–	–	–	–	–	H05
Servo bevel geared motors 3-stage, in flange-mounted design											
Bevel gearbox <i>K.F</i> (3-stage)										1FG15 F . . -Z	
Gearbox size	–	39	49	–	69	79	89	109	129	149	Order code
Standard version	–	160	200	–	250	250	300	350	450	450	–
Servo helical worm geared motors 2-stage, in flange-mounted design											
Helical worm gearbox <i>C.F</i>										1FG16 F . . -Z	
Gearbox size	29	39	49	–	69	–	89	–	–	–	Order code
Standard version	120	160	200	–	200	–	250	–	–	–	–
	160	–	–	–	–	–	–	–	–	–	H04

¹⁾ Helical gearboxes, 2-stage and 3-stage, in a foot/flange-mounted design and in gearbox sizes 29 to 89 are only available with small flange.

²⁾ Helical gearboxes, 2-stage and 3-stage, in gearbox sizes 109 and 129 are not available in foot/flange-mounted versions.

Radially reinforced output shaft bearings and reduced-backlash version

Options

Radially reinforced output shaft bearings

Design											Add. identification code -Z with Order code
Servo helical geared motors 2-stage, 3-stage											
Parallel shaft gearboxes <i>Z</i> and <i>D</i>											1FG11 -Z 1FG12 -Z
Gearbox size	<i>29</i>	<i>39</i>	<i>49</i>	<i>59</i>	<i>69</i>	<i>79</i>	<i>89</i>	<i>109</i>	<i>129</i>	–	Order code
	–	–	–	–	✓	✓	✓	✓	✓	–	G20
Servo parallel shaft geared motors 2-stage, 3-stage											
Parallel shaft gearboxes <i>FZ</i> and <i>FD</i>											1FG13 -Z 1FG14 -Z
Gearbox size	<i>29</i>	<i>39</i>	<i>49</i>	–	<i>69</i>	<i>79</i>	<i>89</i>	<i>109</i>	<i>129</i>	–	Order code
	–	–	✓ ¹⁾	–	✓	✓	✓	✓	✓	–	G20
Servo bevel geared motors 3-stage											
Bevel gearbox <i>K</i> (3-stage)											1FG15 -Z
Gearbox size	–	<i>39</i>	<i>49</i>	–	<i>69</i>	<i>79</i>	<i>89</i>	<i>109</i>	<i>129</i>	<i>149</i>	Order code
	–	–	✓ ¹⁾	–	✓	✓	✓	✓	✓	✓	G20

Reduced-backlash version

Applies to all gearbox designs with specified torsional backlash.
For values, see technical specifications in chapters for selection of servo geared motors.

	1FG1 -Z	Add. identification code -Z with order code
Reduced-backlash version		G99

¹⁾ Not possible for flange-mounted design with solid shaft
(1FG15..-1....-F.. – Gearbox type *KF*, 1FG13..-1....-F.. – Gearbox type *FZF*
and 1FG14..-1....-F.. – Gearbox type *FDF*).

Options

Special designs

Sealing and lubrication

Options

Sealing system

Output shaft sealing	Description	Ambient condition	Add. identification code -Z with order code	Order code
			1FG1 -Z	
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 and normal environmental stress				
Sealing system with longer service life	Towards the inside of the gearbox, the radial shaft sealing ring with dust protection lip has an additional axial seal. This sealing system has a high degree of reliability as a result of its resistance to oil impurities.	Environment with low dust and pollution levels with low moisture.		G23
Longer service life and increased environmental stress				
Sealing system 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 consult your local Siemens office.	Environment with increased pollution and dust levels as well as low moisture. Typical applications: Production areas with increased pollution and dust, such as wood chips, dust or granulate as well as occasional water spray		G24

Options (continued)

Lubricant

It is essential to specify the oil type when you place your order (order code).

Area of application	Ambient temperature °C	Oil type Marking acc. to DIN 51502	Add. identification code -Z with order code	Possible with sealing system for:		
				Environmental stress	Standard	Increased
				Standard	Standard	Increased
				Service life	Longer	Longer
			Order code	–	G23	G24
Servo helical geared motors 2-stage, 3-stage						
Helical gearboxes Z and D,			1FG11 ... - - - - - -Z			
			1FG12 ... - - - - - -Z			
Standard	-10 ... +40	CLP ISO VG 220	K06	✓	✓	✓
	-20 ... +50	CLP ISO PG VG 220	K07	–	✓	✓
	0 ... +80	CLP ISO PG VG 460	K08	–	✓	✓
Foodstuff area	0 ... +40	CLP H1 ISO VG 460	K11	–	✓	–
Servo parallel shaft geared motors 2-stage, 3-stage						
Parallel shaft gearboxes FZ and FD			1FG13 ... - - - - - -Z			
			1FG14 ... - - - - - -Z			
Standard	-10 ... +40	CLP ISO VG 220	K06	✓	✓	✓
	-20 ... +50	CLP ISO PG VG 220	K07	–	✓	✓
	0 ... +80	CLP ISO PG VG 460	K08	–	✓	✓
Foodstuff area	0 ... +40	CLP H1 ISO VG 460	K11	–	✓	–
Servo bevel geared motors 2-stage						
Bevel gearbox B			1FG15 ... - - - - - -Z			
Standard	-10 ... +40	CLP PG ISO VG 220	K07	–	✓	✓
	0 ... +80	CLP ISO PG VG 460	K08	–	✓	✓
Foodstuff area	0 ... +40	CLP H1 ISO VG 460	K11	–	✓	–
Servo bevel geared motors 3-stage						
Bevel gearbox K			1FG15 ... - - - - - -Z			
Standard	-10 ... +40	CLP ISO VG 220	K06	✓	✓	✓
	-20 ... +50	CLP ISO PG VG 220	K07	–	✓	✓
	0 ... +80	CLP ISO PG VG 460	K08	–	✓	✓
Foodstuff area	0 ... +40	CLP H1 ISO VG 460	K11	–	✓	–
Servo helical worm geared motors 2-stage						
Helical worm gearbox C			1FG16 ... - - - - - -Z			
Standard	-10 ... +60	CLP ISO PG VG 460	K08	–	✓	✓
Foodstuff area	0 ... +40	CLP H1 ISO VG 460	K11	–	✓	–

CLP = mineral oil

CLP PG = polyglycol oil

CLP H1 = physiological safe oil (USDA-H1 approval)

Note:

The maintenance intervals can be increased to twice the specified time when synthetic oils are used (order codes **K07** and **K08**).

The data specified is valid for an oil temperature of +80° C.

Options

Special designs

Sealing and lubrication

Options (continued)

Pressure breather valve, oil expansion tank, oil level plug

Design	Motor shaft height	Gearbox size										Add. identification code -Z with order code	
Servo helical geared motors 2-stage, 3-stage													
Helical gearboxes Z and D		29	39	49	59	69	79	89	109	129	–	1FG11 -Z 1FG12 -Z	Order code
Lubricated for life		✓	–	–	–	–	–	–	–	–	–		–
Oil sight glass ¹⁾		–	–	✓	✓	✓	✓	✓	✓	✓	✓		G34
Magnetic oil drain screw		–	✓	✓	✓	✓	✓	✓	✓	✓	✓		G53
Servo parallel shaft geared motors 2-stage, 3-stage													
Parallel shaft gearboxes FZ and FD		29	39	49	–	69	79	89	109	129	–	1FG13 -Z 1FG14 -Z	Order code
Lubricated for life		✓	–	–	–	–	–	–	–	–	–		–
Oil expansion tank	Motor shaft height 36	–	✓	–	–	–	–	–	–	–	–		G47
	Motor shaft height 48	–	✓	–	–	–	–	–	–	–	–		
	Motor shaft height 63	–	✓	✓	–	–	–	–	–	–	–		
	Motor shaft height 80	–	✓	✓	–	✓	–	–	–	–	–		
	Motor shaft height 100	–	–	–	–	✓	✓	✓	–	✓	✓		
Oil sight glass ¹⁾		–	–	✓	–	✓	✓	✓	✓	✓	✓		G34
Magnetic oil drain screw		–	✓	✓	–	✓	✓	✓	✓	✓	✓		G53
Servo bevel geared motors 2-stage													
Bevel gearbox B		29	39	49	–	–	–	–	–	–	–	1FG15 -Z	Order code
Lubricated for life		✓	–	–	–	–	–	–	–	–	–		–
Oil expansion tank	Motor shaft height 36	✓	✓	–	–	–	–	–	–	–	–		G47
	Motor shaft height 48	✓	✓	–	–	–	–	–	–	–	–		
	Motor shaft height 63	✓	✓	✓	–	–	–	–	–	–	–		
	Motor shaft height 80	✓	✓	✓	–	–	–	–	–	–	–		
	Motor shaft height 100	–	–	✓	–	–	–	–	–	–	–		
Oil sight glass ¹⁾		–	–	✓	–	✓	✓	✓	✓	✓	✓		G34
Magnetic oil drain screw		–	✓	✓	–	✓	✓	✓	✓	✓	✓		G53
Servo bevel geared motors 3-stage													
Bevel gearbox K		–	39	49	–	69	79	89	109	129	149	1FG15 -Z	Order code
Oil expansion tank	Motor shaft height 36	✓	–	–	–	–	–	–	–	–	–		G47
	Motor shaft height 48	✓	–	–	–	–	–	–	–	–	–		
	Motor shaft height 63	✓	–	–	–	✓	✓	–	–	–	–		
	Motor shaft height 80	✓	–	–	–	✓	✓	✓	–	✓	–		
	Motor shaft height 100	–	–	–	–	✓	✓	✓	✓	✓	✓		
Oil sight glass ¹⁾		–	–	✓	–	✓	✓	✓	✓	✓	✓		G34
Magnetic oil drain screw		–	✓	✓	–	✓	✓	✓	✓	✓	✓		G53
Servo helical worm geared motors 2-stage													
Helical worm gearbox C		29	39	49	–	69	–	89	–	–	–	1FG16 -Z	Order code
Lubricated for life		✓	–	–	–	–	–	–	–	–	–		–
Oil expansion tank	Motor shaft height 63	–	–	–	–	✓	–	–	–	–	–		G47
	Motor shaft height 80	–	–	–	–	✓	–	–	–	–	–		
	Motor shaft height 100	–	–	–	–	✓	–	✓	–	–	–		
Oil sight glass ¹⁾		–	–	✓	–	✓	–	✓	–	–	–		G34
Magnetic oil drain screw		–	✓	✓	–	✓	–	✓	–	–	–		G53

Notes:

- Gearboxes from size 39 for standard mounting positions are supplied as standard with pressure breather valve, oil level plug and screw plug.
- Gearbox size 29 is 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 vent valve.
- When the oil expansion tank is selected, the range of connector position options is limited, i.e. the order code **Q91** "Position of connector on right", **Q92** "Position of connector at bottom" or **Q93** "Position of connector on left" must also be selected.

¹⁾ The option "Oil sight glass" with order code **G34** is not possible for angled mounting positions (order codes **E01** to **E17**, **E21** to **E37** and **E41** to **E57**).

Colors and paint finish, chemical resistance, holding brakes and rating plate

Options

Colors

		Add. identification code -Z with order code	
		1FG1 -Z	
RAL No.	Color name	Paint finish	Order code
7016	Anthracite gray	Standard	–
7016	Anthracite gray	Primer + top coat in RAL 7016	K23
–	–	Primer without top coat	K24
9005	Jet black	Optional color	X01
9001	Cream	Optional color	X02
6011	Reseda green	Optional color	X03
7032	Pebble gray	Optional color	X04
5015	Sky blue	Optional color	X05
1015	Light ivory	Optional color	X06
7000	Squirrel gray	Optional color	X07
9006	White aluminum	Optional color	X08
5002	Ultramarine blue	Optional color	X10
6019	Pastel green	Optional color	X11
5010	Gentian blue	Optional color	X12
9010	Pure white	Optional color	X15
6018	Yellow green	Optional color	X16
2004	Pure orange	Optional color	X19
7001	Silver gray	Optional color	X24
5009	Azure blue	Optional color	X28
5007	Brilliant blue	Optional color	X31
9016	Traffic white	Optional color	X36
2003	Yellow orange	Optional color	X51
3000	Flame red	Optional color	X52
7035	Light gray	Optional color	X53
5012	Light blue	Optional color	X57
7030	Stone gray	Optional color	X59
7031	Blue gray	Optional color	X60
7011	Iron gray	Optional color	X91

Increased chemical resistance

		Add. identification code -Z with order code	
		1FG1 -Z	
		Order code	
Increased chemical resistance		N16	
• Four-coat paint system • Nickel-plated connectors • Stainless steel pressure breather valve			

Holding brakes

Permanent-magnet brake

		Add. identification code -Z with order code	
		1FG1 -Z	
		Order code	
Standard holding brake		N23	
Holding brake with increased braking torque		N24	

Spring-operated brake

Motor shaft height	Rated braking torque M_{2Br}	Add. identification code -Z with order code	
		1FG1 -Z	
		Order code	
80		1FG1 -Z	
	11	N30	
	15	N31	
	22	N32	
	30	N33	
	40	N34	
100		1FG1 -Z	
	25	N30	
	32	N31	
	50	N32	
	62	N33	
	80	N34	

Manual brake release, air gap check for spring-operated brake:

		Add. identification code -Z with order code	
		1FG1 -Z	
		Order code	
Manual brake release		K82	
Mechanical air gap check		C05	

Customer data on the rating plate

The rating plate can be optionally inscribed with customer-specific text. This text can be a maximum of 20 characters in length.

		Add. identification code -Z with order code	
		1FG1 -Z	
		Order code	
Customer data on the rating plate		Y84 and customer specifications	

Test certificates

		Add. identification code -Z with order code	
		1FG1 -Z	
		Order code	
Acceptance test certificate 3.1 according to EN 10204		B02	

Options

Special designs

Notes