

1 Product and Service specifications



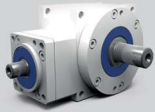
Miniature bevel gearboxes



Bevel gearboxes



Hygiene-design gearboxes



Hypoid gearboxes



Worm gearboxes



Gearbox motors



**Servo gearboxes
Precision gearboxes**



Special gearboxes

ATEX gearboxes



Gear sets



Service

Gear ratios: $i = 1:1$ to $4:1$
 Maximum output torque: 16 Nm
 2 gearbox sizes with edge lengths of 035 to 045 mm
 Speeds up to $n_1 = 3000$ rpm
 Low-backlash construction < 10 angular minutes possible

Small, lightweight, space-saving,
 Aluminium design
 Housing made of aluminium
 Spiral-toothed gear sets
 Maintenance-free

Miniature
bevel
gearboxes

Gear ratios: $i = 1:1$ to $6:1$
 Maximum output torque: 5400 Nm
 9 gearbox sizes with edge lengths of 065 to 350 mm
 Speeds up to $n_1 = 3000$ rpm
 Low-backlash construction < 6 angular minutes possible

Sturdy, powerful, compact
 Housing made of grey cast iron or steel
 Spiral-toothed gear sets
 Maintenance-free

Bevel
gearboxes

Gear ratios: $i = 1:1$ to $6:1$
 Maximum output torque: 430 Nm
 4 gearbox sizes with edge lengths of 065 to 140 mm
 Low-backlash construction < 10 angular minutes possible

Corrosion-proof, hygienic, powerful
 All outside parts made of VA steel
 Housing made of 1.4305 material
 Maintenance-free

Hygiene-design
gearboxes

Gear ratios: $i = 8:1$ to $15:1$
 Maximum output torque: 1700 Nm
 6 gearbox sizes with edge lengths of 090 to 260 mm
 Speeds up to $n_1 = 8000$ rpm

Dynamic, powerful, compact
 Housing made of aluminium
 Hypoid gear sets
 Axial offset between drive and output-
 Maintenance-free

Hypoid
gearboxes

Nominal gear ratios: $i = 5:1$ to $83:1$
 Maximum output torque: 13,720 Nm
 9 sizes, centre-to-centre distance of 040 to 250 mm
 Speeds up to $n_1 = 3000$ rpm
 Low-backlash construction < 6 angular minutes possible

Sturdy, powerful, low-noise
 Housing made of grey cast iron
 Axial offset between drive and output
 Maintenance-free

Worm
gearboxes

Type VLM – Type VL with motor
 Nominal gear ratios: $i = 1:1$ to $6:1$
 Maximum output torque: 2310 Nm
 Output from 0.12 to 30 kW
 IEC standard motor

Type SLM – Type SL with motor
 Nominal gear ratios: $i = 5:1$ to $83:1$
 Maximum output torque: 13,720 Nm
 Output from 0.18 to 35 kW
 IEC standard motor

Gearbox
motors

Bevel gearboxes suitable for fitting servo-motors
 Worm gearboxes suitable for fitting servo-motors
 Gear ratios: $i = 1:1$ to $26:1$
 Maximum acceleration torque on output: 700 Nm
 6 gearbox sizes with edge lengths of 065 to 200 mm

High speeds up to $n_1 = 6000$ rpm
 Minimized circumferential backlash (optional)
 High precision
 Housing made of grey cast iron

Servo gearboxes
(precision gearboxes)

In addition to our standard program we develop and manufacture special gearboxes according to customer requirements.

Questionary

Special
gearboxes

We offer gearboxes for use in potentially explosive atmospheres According to EU Directive 2014/34 / EU (ATEX).

Design sheet

ATEX
gearboxes

Spiral-toothed bevel gear sets
 High-quality worm gear sets
 Gear ratios: $i = 1:1$ to $83:1$
 Maximum output torque: 13,720 Nm
 Tothing module from 0.8 to 12.5 mm

Gear sets

Service
 Spare parts drawings for bevel gearboxes
 Spare parts drawings for worm gearboxes

Lubricant table
 Local contacts

Service



5.1 Type overview



Type L – Miniature bevel gearboxes

Gear ratios: $i = 1:1$ to $4:1$
Maximum output torque: 16 Nm
2 gearbox sizes with edge lengths of 035 to 045 mm
Low-backlash construction < 10 angular minutes possible
Housing made of aluminium



6.1 Type overview



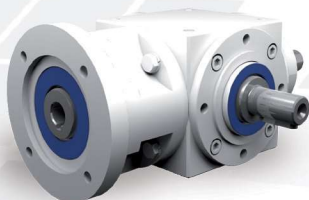
Type V – Standard bevel gearboxes

Gear ratios: $i = 1:1$ to $6:1$
Maximum output torque: 5400 Nm
9 gearbox sizes with edge lengths of 065 to 350 mm
Low-backlash construction < 6 angular minutes possible
Housing made of grey cast iron or steel



Type VS – Type V with step-up ratio

Gear ratios: $i = 1:1.5$ and $1:2$
Maximum output torque: 1200 Nm
6 gearbox sizes with edge lengths of 090 to 260 mm
Low-backlash construction < 10 angular minutes possible
Larger shaft diameter (N_2), slowly rotating
Housing made of grey cast iron or steel



Type VL – Type V with flange

Gear ratios: $i = 1:1$ to $6:1$
Maximum output torque: 2310 Nm
8 gearbox sizes with edge lengths of 065 to 260 mm
Low-backlash construction < 6 angular minutes possible
Suitable for fitting IEC standard motors
Drive side with hollow-bored shaft and flange
Housing made of grey cast iron or steel



Multi shaft gearbox – with additional shafts

for gear ratios of $1.5:1$ to $6:1$ with type V
for gear ratios of $1.5:1$ to $2:1$ with type VS
with solid shaft or hollow shaft
up to 6 shaft ends

6.3 Type V – Standard bevel gearboxes

6.3.1 Features

Gear ratios: $i = 1:1$ to $6:1$

Maximum output torque: 5400 Nm

9 gearbox sizes with edge lengths of 065 to 350 mm

Low-backlash construction < 6 angular minutes possible

Housing made of grey cast iron or steel



6.3.2 Models

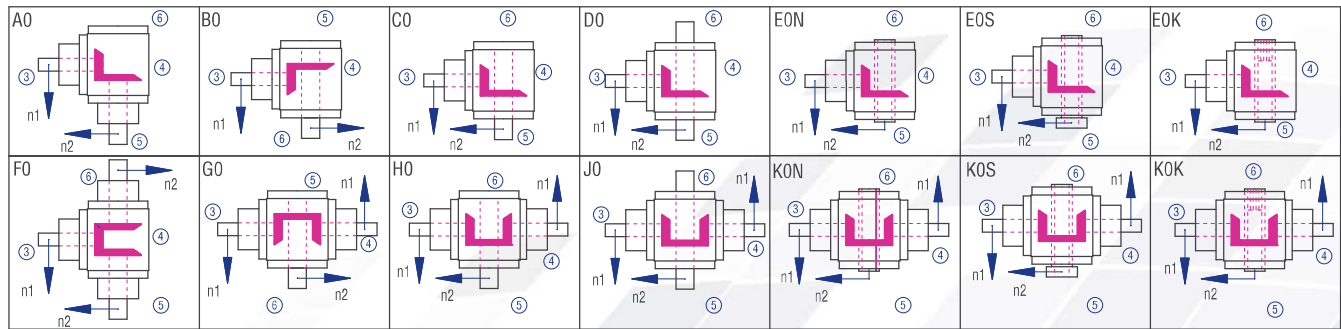


Figure 6.3.2-1; Models

6.3.3 Gearbox sides

The example shows the Model C0

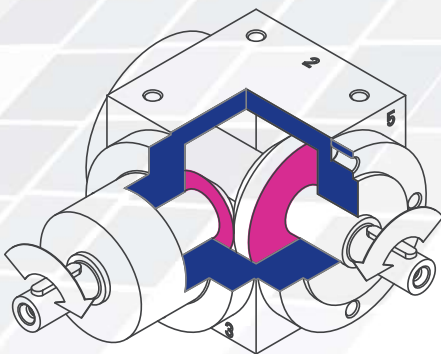


Figure 6.3.3-1; Gearbox sides

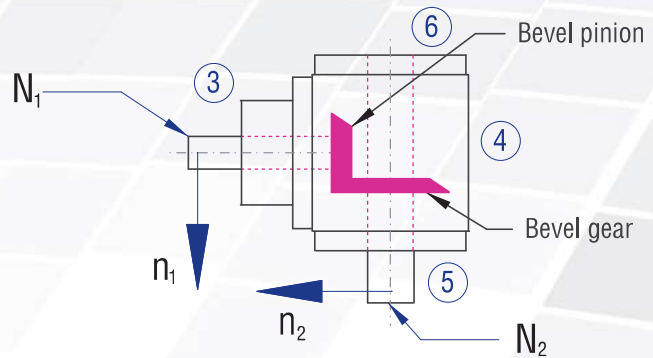


Figure 6.3.3-2; Shaft designations

6.3.4 Order code

The order code reflects the customer specifications. Example:

Type	Size	Gear ratio	Model	Fixing side	Installation position	Speed n_2	Design
V	065	1:1	C0-	1.	1-	1500	/0000
Description	Housing edge length; Table 6.3.5-1	Table 6.3.5-1	Figure 6.3.2-1; Models	Gearbox side on which fixing is made; Table 6.2.3-1; Figure 4.3.1-1; Gearbox sides	Gearbox side directed downwards; Figure 4.3.1-1; Gearbox sides	Slowly rotating shaft; Table 6.3.5-1	Standard

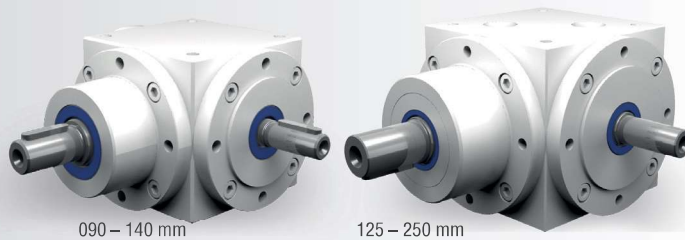
Table 6.3.4-1

6.4 Type VS – Type V with step-up ratio

6.4.1 Features

Gear ratios: $i = 1:1.5$ to $1:2$
 Maximum output torque: 1200 Nm
 7 gearbox sizes with edge lengths of 090 to 260 mm
 Larger shaft diameter (N_2), slowly rotating
 Low-backlash construction < 10 angular minutes possible
 Housing made of grey cast iron or steel

The through-shaft (N_1) is fast-running



6.4.2 Models

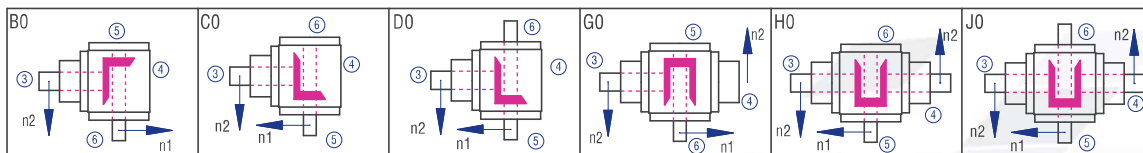


Figure 6.4.2-1; Models

6.4.3 Gearbox sides

The example shows the Model C0

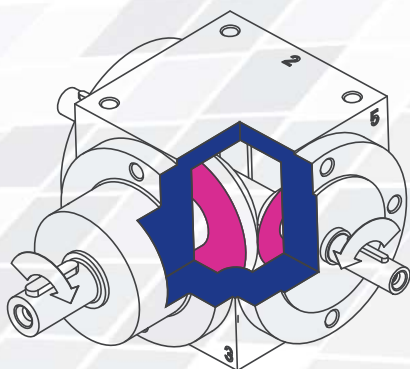


Figure 6.4.3-1; Gearbox sides

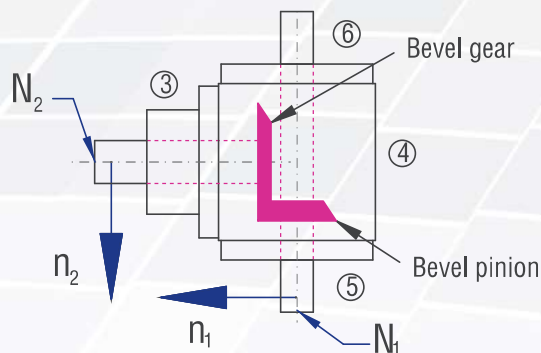


Figure 6.4.3-2; Shaft designations

6.4.4 Order code

The order code reflects the customer specifications. Example:

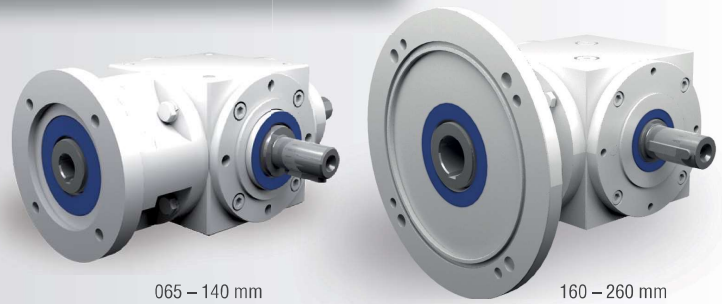
Type	Size	Gear ratio	Model	Fixing side	Installation position	Speed n_2	Design
VS	090	1.5:1	C0-	1.	1-	1500	/0000
Description	Housing; Table 6.4.5-1	Table 6.4.5-1	Figure 6.4.2-1; Models	Gearbox side on which fixing is made Table 6.2.3-1; Figure 4.3.1-1; Gear- box sides	Gearbox side directed down- wards; Figure 4.3.1-1; Gearbox sides	Slowly rotating shaft; Table 6.4.5-1	Standard

Table 6.4.4-1

6.5 Type VL – Type V with flange for motor mounting

6.5.1 Features

- Gear ratios: $i = 1:1$ to $6:1$
- Maximum output torque: 2310 Nm
- 8 gearbox sizes with edge lengths of 065 to 260 mm
- Low-backlash construction < 6 angular minutes possible
- Suitable for fitting IEC standard motors
- Drive side with hollow-bored shaft and flange
- Housing made of grey cast iron or steel



6.5.2 Models

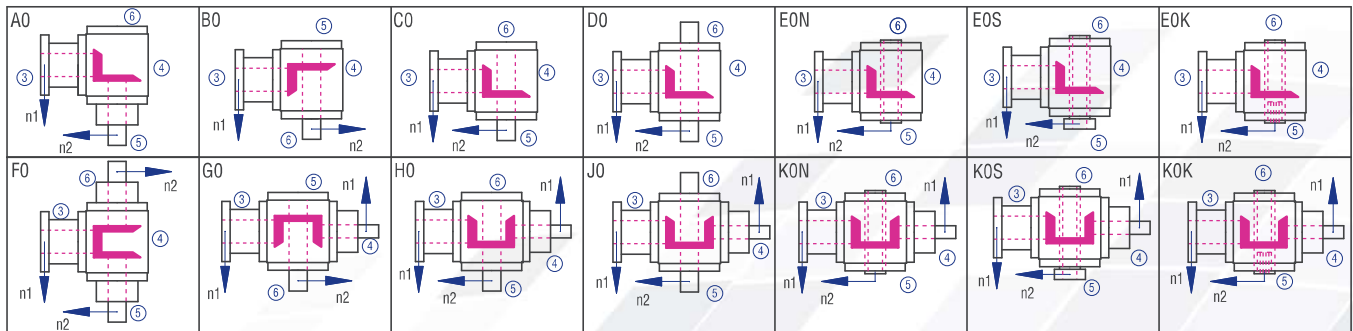


Figure 6.5.2-1; Models

6.5.3 Gearbox sides

The example shows the Model C0

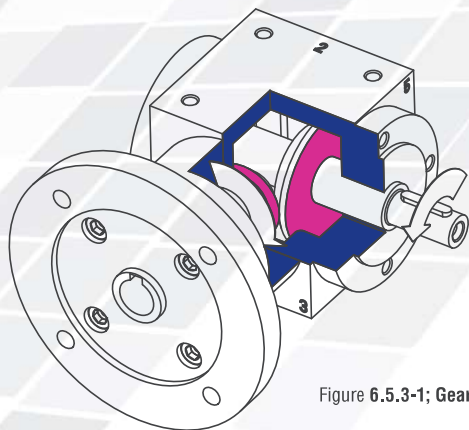


Figure 6.5.3-1; Gearbox sides

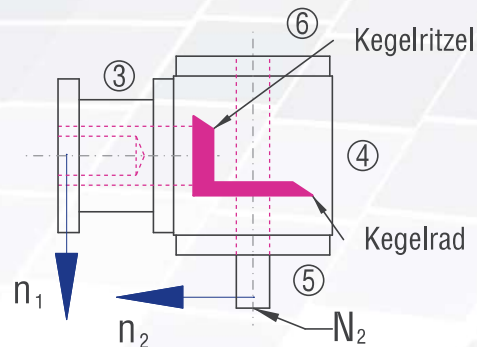


Figure 6.5.3-2; Shaft designations

6.5.4 Order code

The order code reflects the customer specifications. Example:

Type	Size	Gear ratio	Model	Fixing side	Installation position	Speed n_2	Design
VL	065	1:1	C0-	1.	1-	1500	/0000
Description	Size Table 6.5.5-1	Table 6.5.5-1	Figure 6.5.2-1	Gearbox side on which fixing is made; Table 6.2.3-1; Figure 4.3.1-1; Gearbox sides	Gearbox side directed downwards; Figure 4.3.1-1 Gearbox sides	Slowly rotating shaft; Table 6.5.5-1	Standard
	D120	/14x30					
	Flange diameter	Shaft diameter x length					

Table 6.5.4-1



7.1 Type overview



Type HDV – Hygiene-design bevel gearboxes

Gear ratios: $i = 1:1$ to $6:1$
Maximum output torque: 430 Nm
4 gearbox sizes with edge lengths of 065 to 140 mm
Low-backlash construction < 10 angular minutes possible
All outside parts made of VA steel

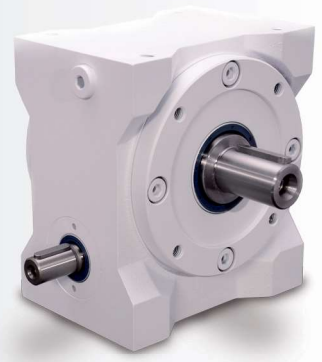


8.1 Type overview



Type H – Hypoid gearboxes

Gear ratios: $i = 8:1$ to $15:1$ (others upon request)
Maximum output torque: 1450 Nm
6 gearbox sizes with edge lengths of 090 to 260 mm
Low-backlash construction < 4 angular minutes possible
Housing made of aluminium



9.1 Type overview



Type S – Standard worm gearboxes

Gear ratios: $i = 05:1$ to $83:1$
Maximum output torque: 13720 Nm
9 sizes, centre-to-centre distance of 040 to 250 mm
Low-backlash construction < 6 angular minutes possible
Housing made of grey cast iron



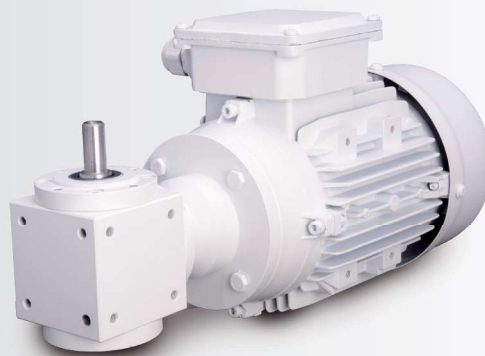
Type SL – Type S with flange for motor mounting

Gear ratios: $i = 05:1$ to $83:1$
Maximum output torque: 13720 Nm
9 sizes, centre-to-centre distance of 040 to 250 mm
Low-backlash construction < 6 angular minutes possible
Suitable for fitting IEC standard motors
Drive side with hollow-bored shaft and flange
Housing made of grey cast iron



Double worm gear unit

Primary gear, available as type S, SL, SLM on SC
9 standard-size combinations
For gear ratios up to 6890:1
Output speeds of 0.1 to 8 rpm

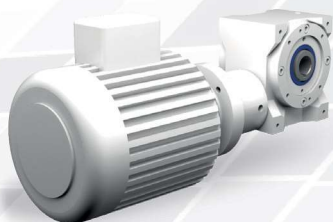


10.1 Type overview



Type VLM – type VL with motor

Gear ratios: $i = 1:1$ to $6:1$
Maximum output torque: 2310 Nm
8 gearbox sizes with edge lengths of 065 to 260 mm
Low-backlash construction < 6 angular minutes possible
With mounted IEC standard motor
Housing made of grey cast iron or steel

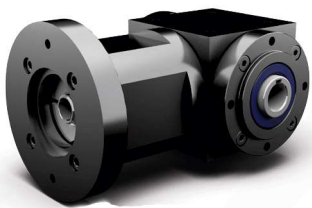


Type SLM – Type SL with motor

Nominal gear ratios: $i = 5:1$ to $83:1$
Maximum output torque: 10,500 Nm
8 sizes, centre-to-centre distance of 040 to 200 mm
Low-backlash construction < 6 angular minutes possible
With mounted IEC standard motor
Housing made of grey cast iron



11.1 Type overview



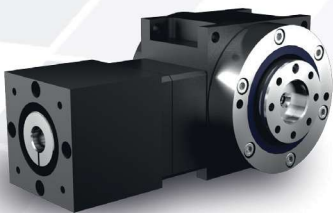
Type LC – Servo bevel gearboxes

Gear ratios: $i = 1:1$ to $4:1$
Maximum output torque: 16 Nm
2 gearbox sizes with edge lengths of 035 to 45 mm
Suitable for fitting IEC standard motors
Low-backlash construction < 10 angular minutes possible
Housing made of aluminium



Type VC – Servo bevel gearboxes

Gear ratios: $i = 1:1$ to $6:1$
Maximum acceleration torque on output: 700 Nm
6 gearbox sizes with edge lengths of 065 to 200 mm
Minimised circumferential backlash (optional)
Housing made of grey cast iron
Bevel gearboxes suitable for fitting servo-motors
Non-positive connection between motor and gearbox



Type HC – Servo hypoid gearboxes

Gear ratios: $i = 8:1$ to $15:1$
Maximum acceleration torque on output: 2160 Nm
6 gearbox sizes; centre-to-centre distance: 090 to 260 mm
Minimised circumferential backlash (optional)
Housing made of aluminium
Hypoid gearboxes suitable for fitting servo-motors
Non-positive connection between motor and gearbox



Type SC – Servo worm gearboxes

Gear ratios: $i = 5:1$ to $26:1$ ($i > 26$ upon request)
Maximum acceleration torque on output: 1100 Nm
5 gearbox sizes; centre-to-centre distance: 040 to 100 mm
Minimised circumferential backlash (optional)
Housing made of grey cast iron
Worm gearboxes suitable for fitting servo-motors
Non-positive connection between motor and gearbox