

Datasheet



- Angular gearboxes with bevel and spiral bevel gears are suitable for transmitting the rotary motion between two shafts at right angles.
- Models with spiral bevel gears are available in all versions; spiral gearboxes achieve higher precision, silent operation and enable 30% higher efficiency.
- All bevel gears have ball-bearings; minimal angular and axial clearance.

Technical characteristics

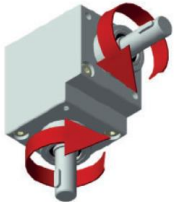

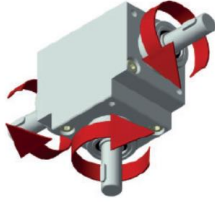
Dimensions	overall, see section: versions and dimensions	
Diameter	Shaft, Hollow shaft Hollow shaft	
	Ø6 mm (standard); Ø8 mm and Ø10 mm (on request in version A)	
Length	Hollow shaft	10,5 mm <u>effective length</u> , 5 mm <u>construction depth</u> with Ø6 mm (standard); 11,5 mm <u>effective length</u> , 14 mm <u>construction depth</u> with Ø8 mm and Ø10 mm (on request in version A)
	Shaft	12 mm (standard)
Material	Hollow shaft, shaft Housing Bearing	Stainless steel (AISI 303) Die-cast aluminium housing, black anodized (standard) Ball-bearings, hardened bevel gears
Weight		50 g with 2 outputs 65 g with 3 outputs
Version	A B C	with 2 outputs with 3 outputs with 3 outputs (with opposite rotation)
Reduction ratios	1:1 1	(standard)
Torque		2 Nm
Axle load	Radial load Axial load	7,5 kg 0,7 kg (see Fig. 7)
Gearbox	Straight bevel gears Spiral bevel gears	Straight gearing (standard), see Fig. 1 Spiral-shaped gearing, see Fig. 2
Tolerance between gears		0,1° to 0,75°
Lubrication		Grease fitting for continuous operation (optional)


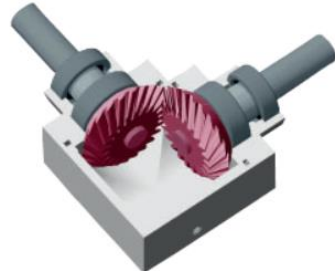



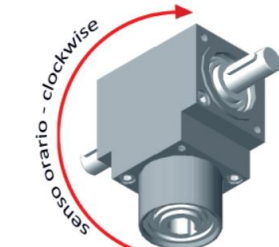
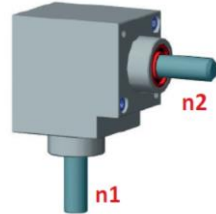
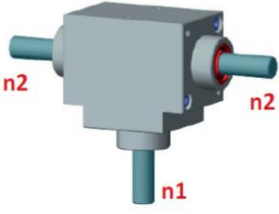
To choose the most suitable gearbox, please refer to the following tables of technical characteristics, efficiency diagrams, as well as the corresponding versions with dimension drawings of the gearboxes.


Datasheet



Direction of rotation				
Version A	Version B	Version C		
				
The direction of rotation depends on the configuration and the positioning; see section Versions with dimension drawings.				

Bevel gears	
Fig. 1	Fig. 2
	
Straight bevel gears	Spiral bevel gears
Spiral gearboxes (Fig. 2) achieve higher precision, silent operation and enable 30% higher efficiency.	

Reduction and multiplying ratio			
Fig. 3	Fig. 4	Fig. 5	Fig. 6
			
Clockwise	Clockwise		
The ratio (Fig. 5 and 6) and configuration is determined by the n1 shaft (always shown in the bottom of the drawing), the others shaft following clockwise (Fig. 3 and 4).			

 For use in continuous operation, a grease nipple is provided which must be refilled at different intervals depending on the operating conditions.

Datasheet



Loads

The loads on the gearbox must be considered as a whole and in relation to the superstructure, such as structural misalignments, vibrations, acceleration or deceleration, shocks, vibration, etc.
Two types of shaft loads must be considered:
radial FR (radial force) and axial FA (axial force) loads (Fig. 7).

Fig. 7

FR = radial load, FA = axial load

The radial load acts in a perpendicular direction to the shaft/axis.

The axial load acts in the same direction of the shaft/axis; when ordering please take into account, whether it is pull or push type.

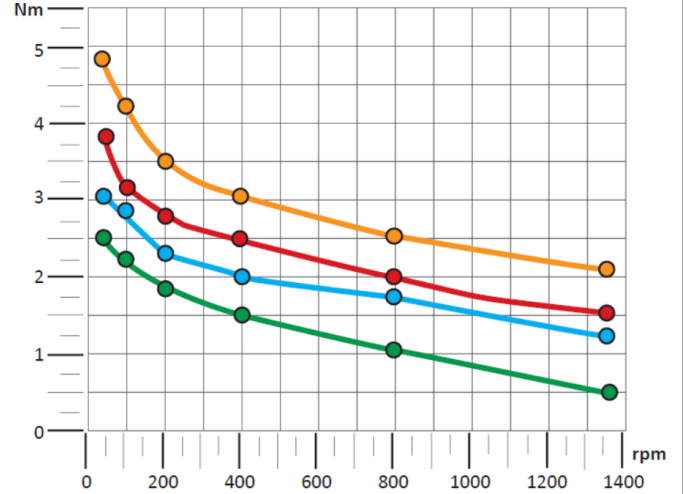
T = torque

Efficiency diagrams and tables

Output torque with ratio 1 (1:1)

OUTPUT TORQUE WITH RATIO 1/1 - DREHMOMENT MIT ÜBERSETZUNG 1/1				
● TM dc	● TR dc	● TM dsp	● TR dsp	rpm
3,8	2,5	4,9	3,2	50
3,3	2,2	4,3	2,9	100
2,7	1,8	3,5	2,3	200
2,4	1,6	3,1	2,1	400
2	1,3	2,6	1,7	800
1,6	1,1	2,1	1,4	1400

Efficiency - Leistung = 90%

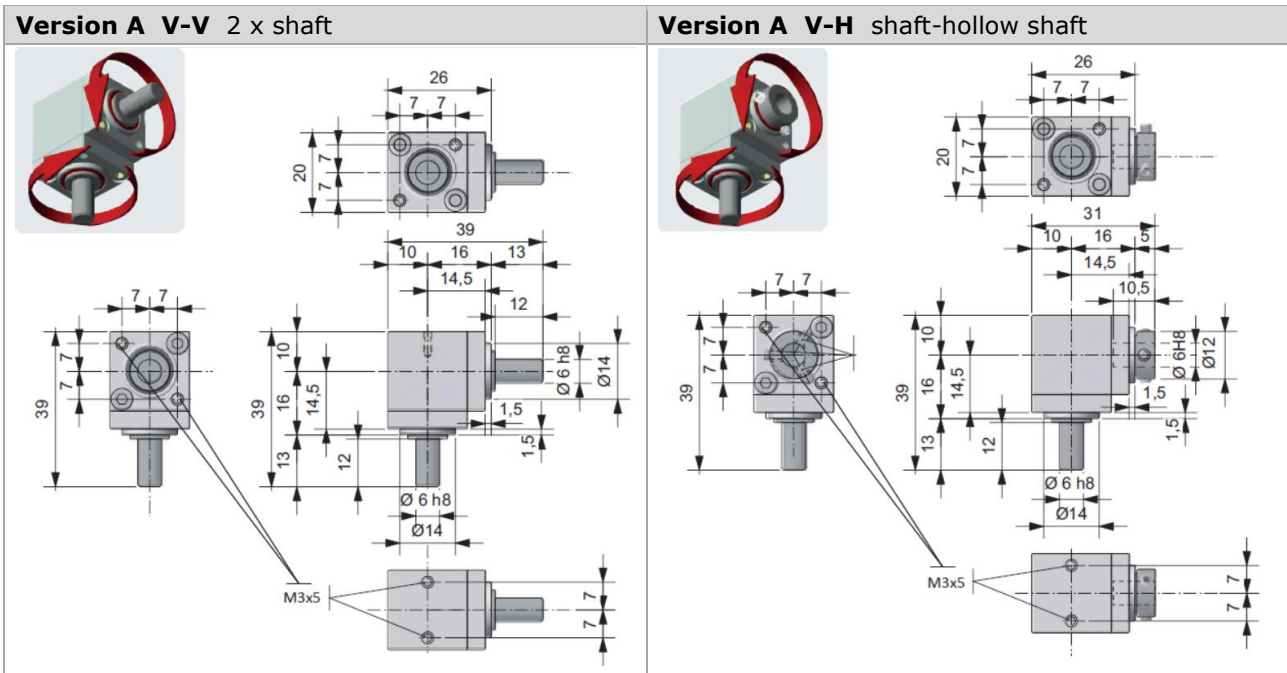


Datasheet

Glossary

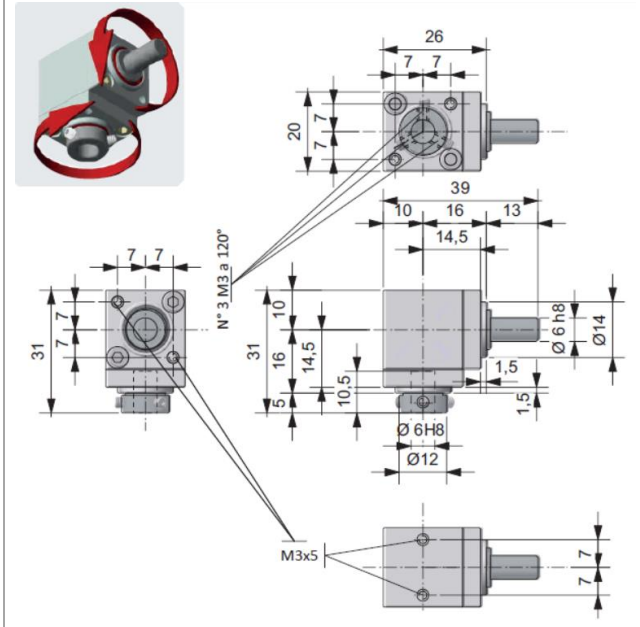
F_R	Radial load
F_A	Axial load
R	Force
T	Torque
T_M	Maximum torque
T_R	Recommended torque
T_A	Actual torque
T_O	Output torque
T_I	Input torque
P_n	Power
N	Newton
Nm	Newton meter
fu	Factor of use
i	Gear ratio
rpm	Revolutions per minute (rpm)
n1	Entry shaft
n2	Outlet shaft
dc	Straight bevel gears
dsp	Spiral bevel gears
M	Solid shaft
F	Hollow shaft
D	Through hollow shaft

Versions with dimension drawings

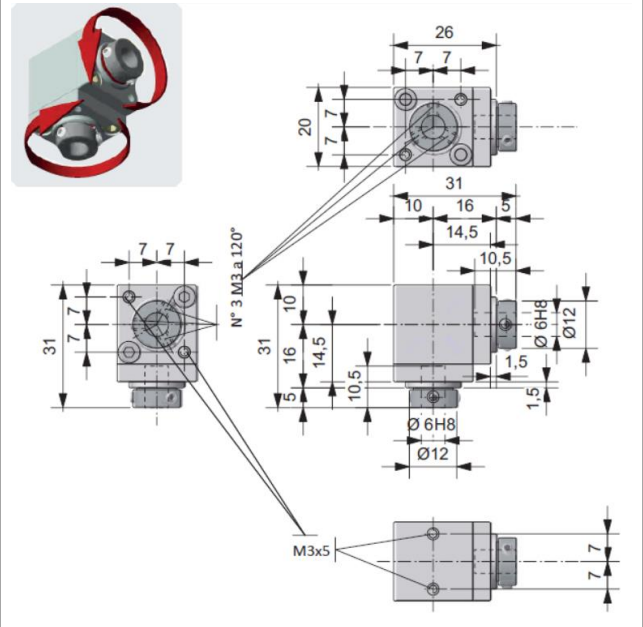


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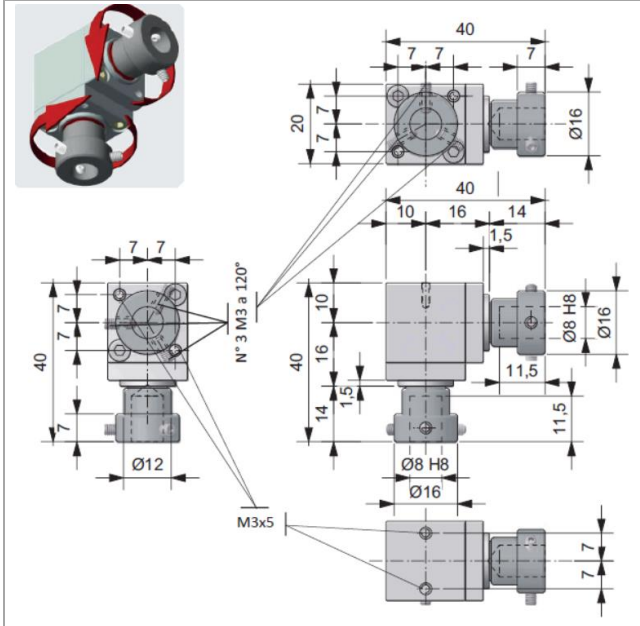
Version A H-V hollow shaft-shaft



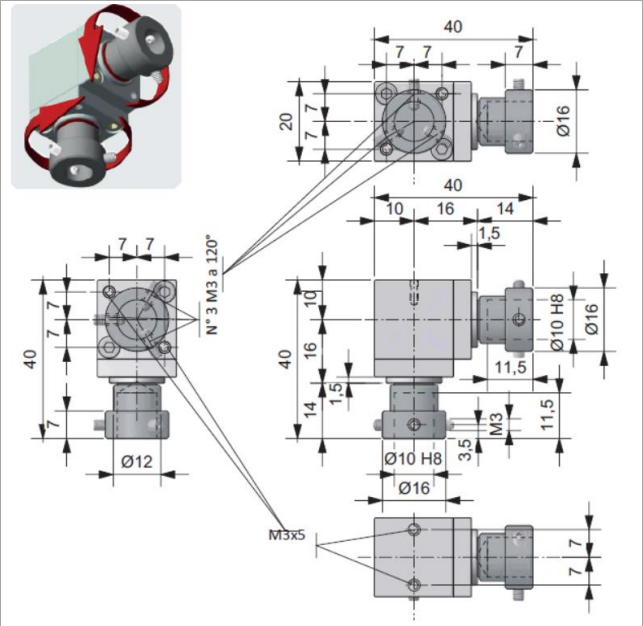
Version A H-H 2 x hollow shaft



Version A H($\varnothing 8$)-H($\varnothing 8$) 2 x hollow shaft

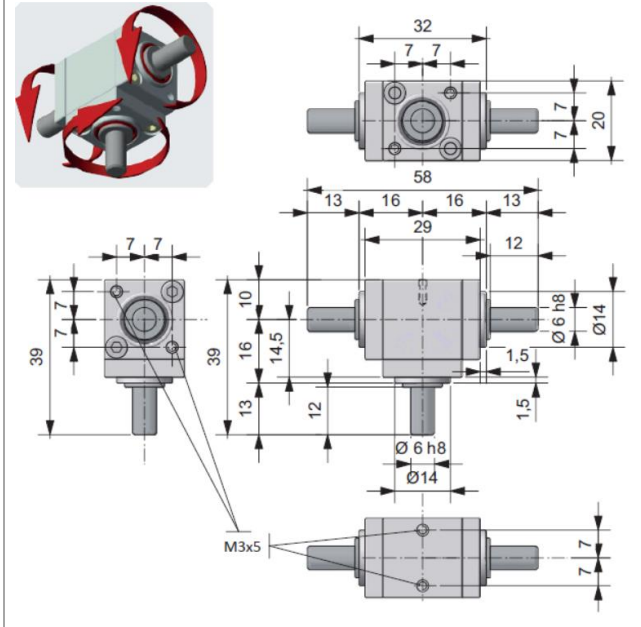


Version A H($\varnothing 10$)-H($\varnothing 10$) 2 x hollow shaft

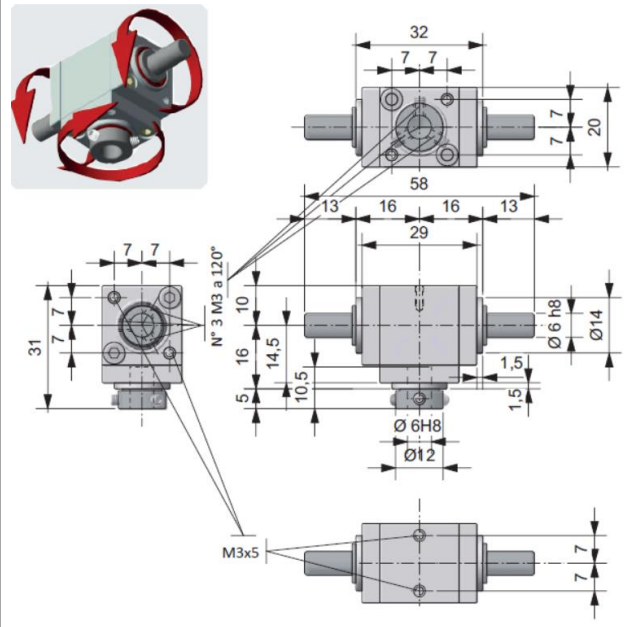


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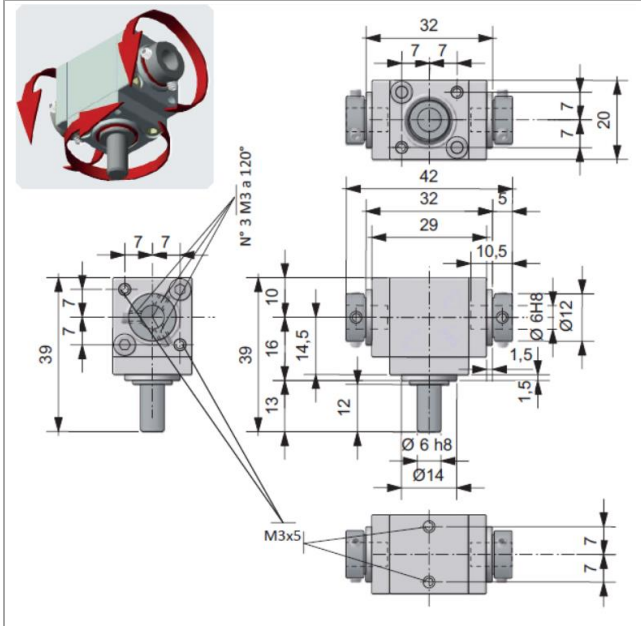
Version B V-V-V 3 x shaft



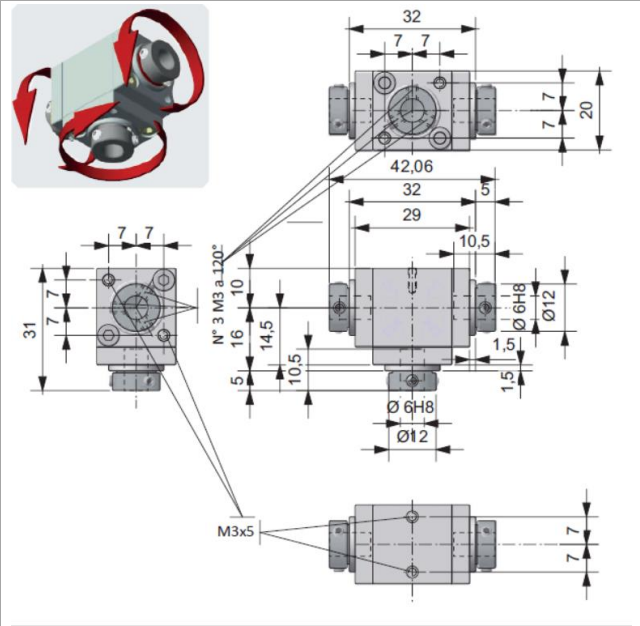
Version B H-V-V hollow shaft-shaft-shaft



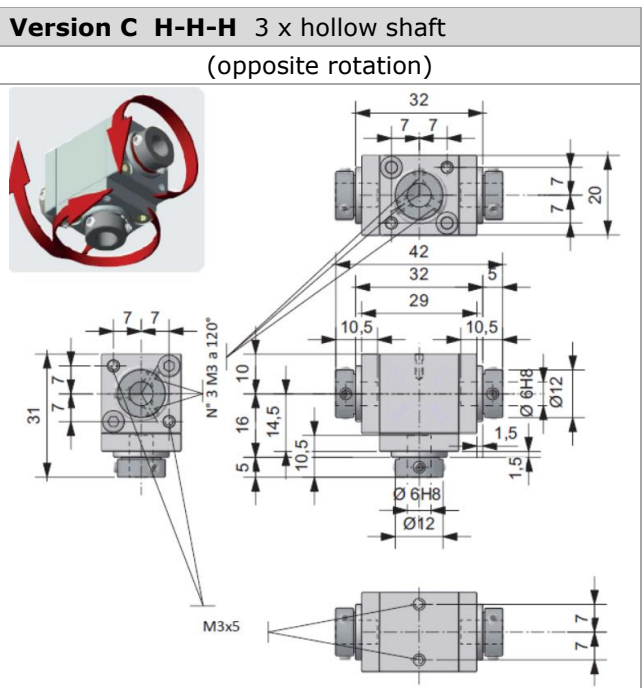
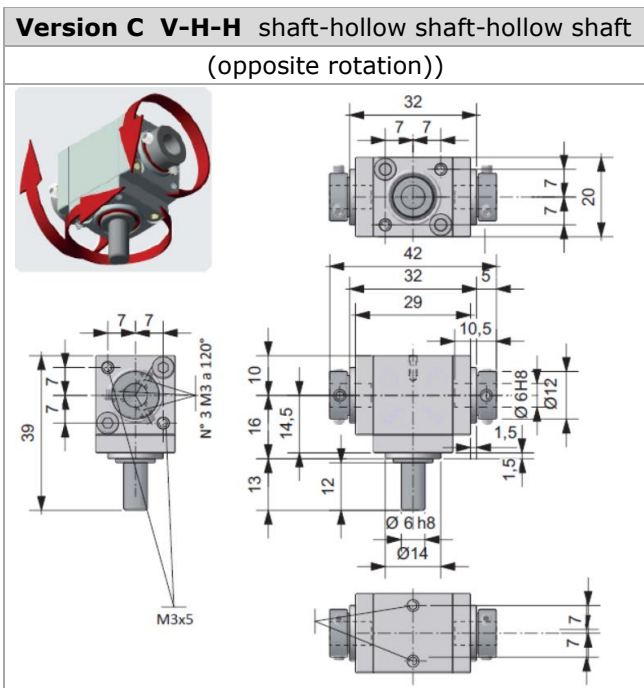
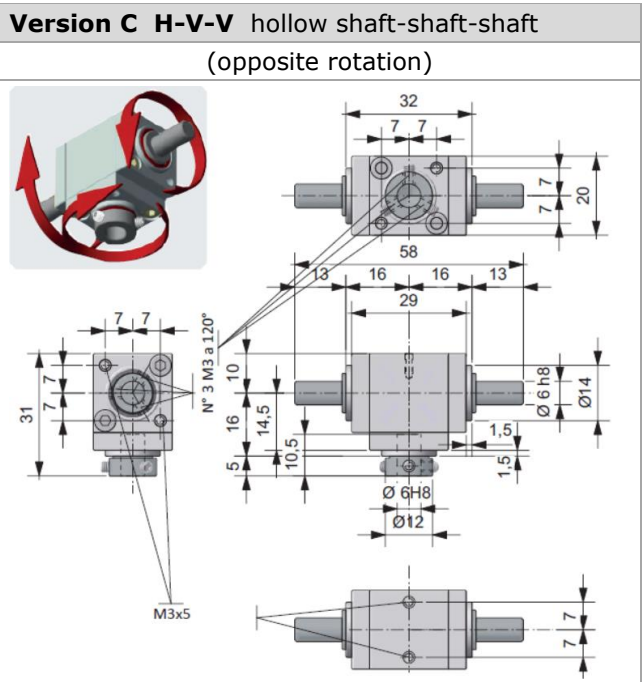
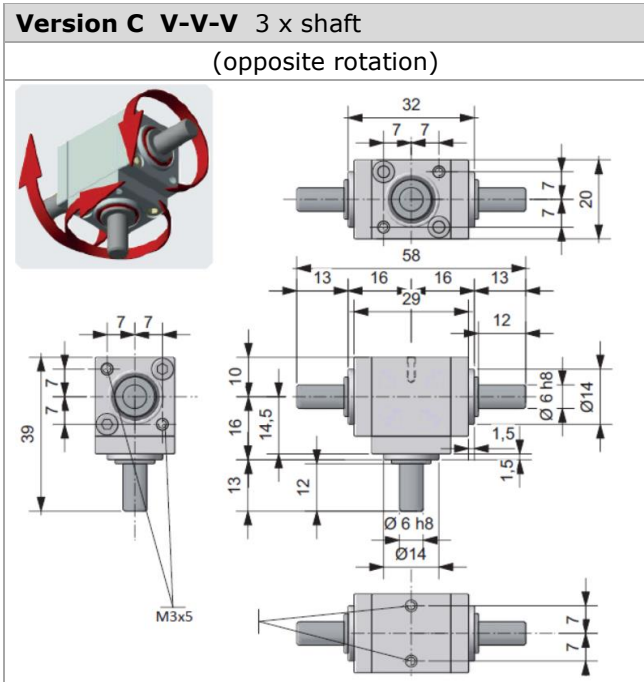
Version B V-H-H shaft-hollow shaft-hollow shaft



Version B H-H-H 3 x hollow shaft



Datasheet



Datasheet

Applications

The angular gearboxes are suited for industrial use and can be universally used for spindle drives in any mounting position.

- Compact and modular designs, adaptable, easy assembly. The favourable price-performance ratio and small installation space enable a cost-effective system solution.
- Manual or motorised adjustments with matching flange, adapter, flexible shafts and couplings or motor, optionally with position indicators and clamping elements, complete a sensible assembly group in machine and plant construction.

Angular gear with rigid shaft



Transmitting the rotary motion, direct connection via rigid shaft.


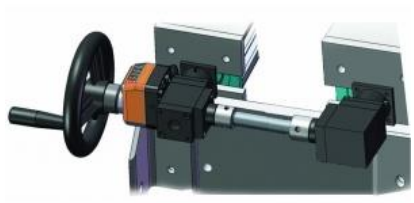
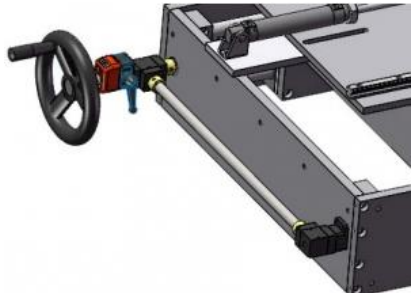
Angular gear with flexible shaft



Transmitting rotary motion via one or more flexible shafts where a direct connection is not possible in any other case; for example, to connect two axes or shafts which are not perfectly aligned.

Datasheet



Further applications		
		
<p>Transmitting the rotary motion, connection via shaft block flange with flexible shaft to the coupling, and position indicator with crank handle.</p>	<p>Transmitting the rotary motion, direct connection via rigid shaft to the coupling and position indicator with handwheel.</p>	



Figures show angular gear with flexible or rigid shaft, shaft block flange, clamping elements and position indicator.

Areas of application

Packaging, food, pharmaceutical, plastic, wood, sheet metal, glass, winding, construction road machines, also on traditional machines and special applications in metal construction, lifting technology, conveyor technology, linear technology, special plant engineering, etc.

Datasheet

Ordering example

Type 66/22 - - - **A** - **1** - **V06-H06** - **UC**

Gearbox

- = bevel gears (standard)
- SP = spiral bevel gears (optional)

Housing material

- ES = anodized black (optional)

Version

- A** = with 2 outputs
- B** = with 3 outputs
- C** = with 3 outputs (with opposite rotation)

Reduction ratio

- 1** = 1:1 (standard)

Version shaft *

- V** = Shaft
- H** = Hollow shaft with blind hole

Diameter shaft *

- 06** = Ø6 mm (standard)
- Hollow shaft: Ø8 mm und Ø10 mm (auf Anfrage in Version A)

Length shaft

- Shaft: 12 mm (standard)
- Hollow shaft: 10,5 mm effective length, 5 mm construction depth with Ø6 mm (standard);
11,5 mm effective length, 14 mm construction depth with
Ø8 mm and Ø10 mm (on request in version A)

Continuous use

- UC** = Grease fitting for continuous operation (optional); available on request



* Further lengths and diameters are available on request.

Manufacturer: **FIAMA**
since 1913