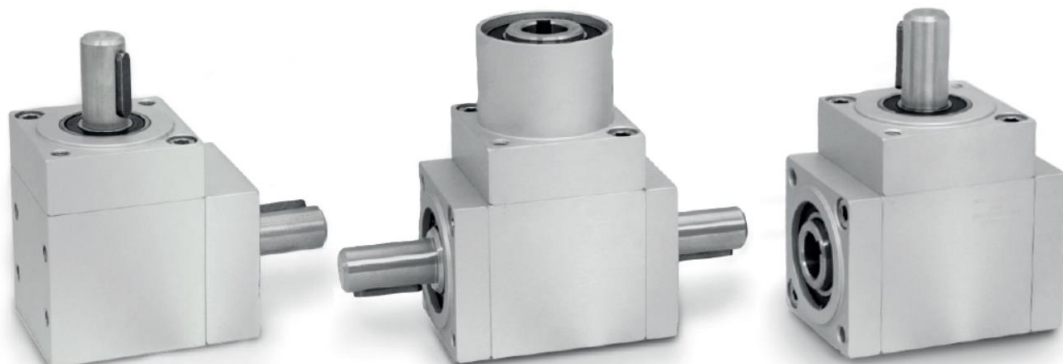


Datasheet



- 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	Ø20 mm (standard)	
Shaft, hollow shaft	42 mm <u>effective length</u> , 42,5 mm <u>construction dept.</u> (standard)	
Length	40 mm (standard); at standard with keyways or on request	
Hollow shaft		
Shaft		
Material	Stainless steel (AISI 303)	
Hollow shaft, shaft	Die-cast aluminium housing, anodized natural (standard), black anodized or stainless steel (AISI 303) (optional)	
Housing	Ball-bearings, hardened bevel gears	
Bearing		
Weight	2500 g	with 2 outputs
	2700 g	with 3 outputs
Version	with 2 outputs	
A	with 3 outputs	
B	with 3 outputs (with opposite rotation)	
C	with 3 outputs, 2 through hollow shafts	
D		
Reduction ratios	1:1	1 (standard)
	1:2	2 <i>in reducing</i> (standard)
	2:1	0,5 <i>in multiplying</i> (on request in version A, B, C, not available in version D), see Fig. 5, 6
Torque	90 Nm	
Axle load	Radial load	150 kg
	Axial load	15 kg (see Fig. 7)
Gearbox	Straight gearing (standard), see Fig. 1	
Straight bevel gears	Spiral-shaped gearing, see Fig. 2	
Spiral bevel gears		
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	Version D	
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	Example	
<u>Reduction ratios</u> $i = n1 : n2$ at $i > 1$ in reducing at $i < 1$ in multiplying		1:2 in reducing $n1 = 1.000$ 1/min $n2 = 500$ 1/min $i = 2$	* 2:1 in multiplying $n1 = 1.000$ 1/min $n2 = 2.000$ 1/min $i = 0,5$ * (not available in version D)
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).			

i 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.

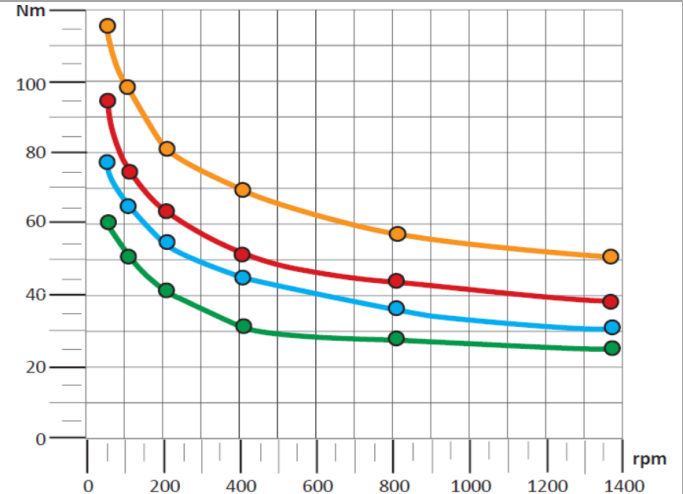
T = torque

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
90	60	117	78	50
75,7	50,4	98,4	65,5	100
63,7	42,4	82,8	55,1	200
53,5	35,7	69,5	46,4	400
45	29,9	58,5	38,8	800
39,1	26,1	50,8	33,9	1400

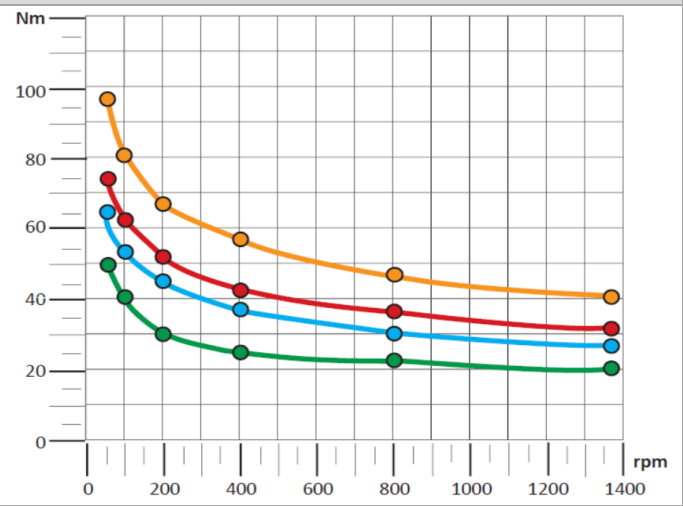
Efficiency - Leistung = 90%



Output torque with ratio 2 (1:2)

OUTPUT TORQUE WITH RATIO 1/2 DREHMOMENT MIT ÜBERSETZUNG 1/2				
● TM dc	● TR dc	● TM dsp	● TR dsp	rpm
75	50	97,5	65	50
63	42	81,9	54,6	100
53	35,3	68,9	45,9	200
44,6	29,9	58	38,7	400
37,5	24,9	48,7	32,3	800
32,6	21,7	42,4	28,2	1400

Efficiency - Leistung = 90%



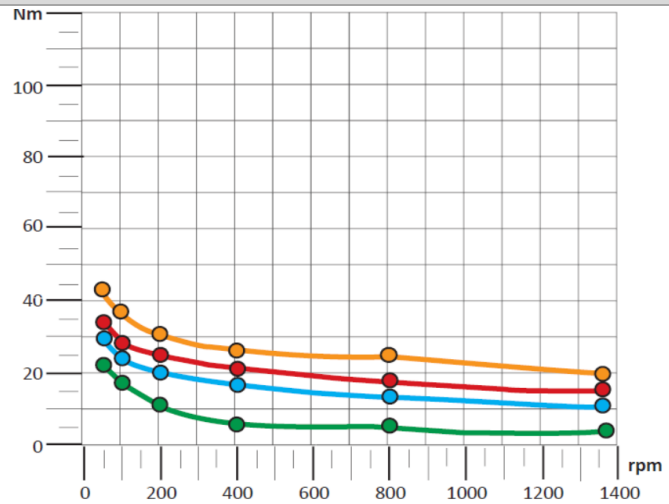
Datasheet



Output torque with ratio 0,5 (2:1)

OUTPUT TORQUE WITH RATIO 2/1 DREHMOMENT MIT ÜBERSETZUNG 2/1				
TM dc	TR dc	TM dsp	TR dsp	rpm
33,8	22,5	43,9	29,2	50
28,4	18,9	36,9	24,5	100
23,9	15,9	31	20,6	200
20	13,3	26	17,3	400
16,9	11,2	22	14,5	800
14,7	9,8	19,1	12,7	1400

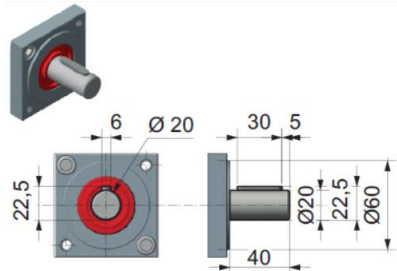
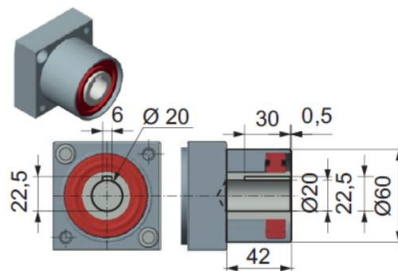
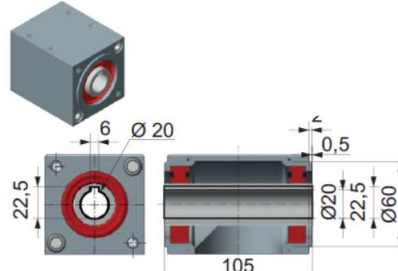
Efficiency - Leistung = 90%

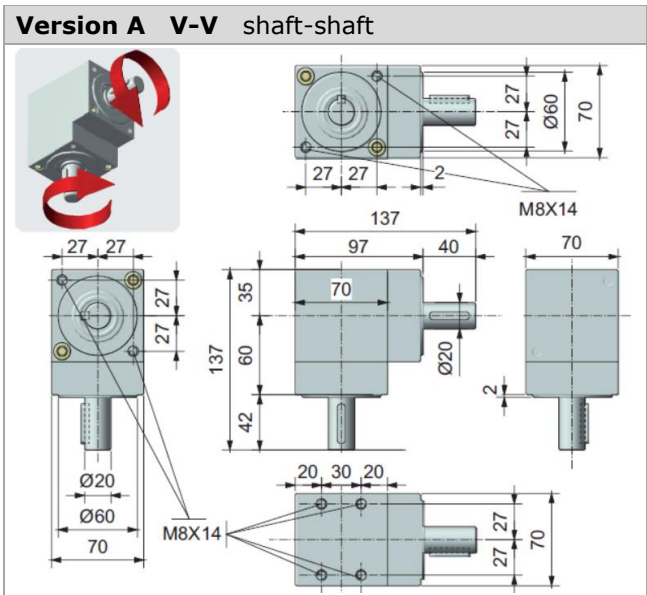


Glossary	
F _R	Radial load
F _A	Axial load
R	Force
T	Torque
T _M	Maximum torque
T _R	Recommended torque
T _A	Actual torque
T _O	Output torque
T _I	Input torque
P _n	Power
N	Newton
Nm	Newton meter
f _u	Factor of use
i	Gear ratio
rpm	Revolutions per minute (rpm)
n1	Entry shaft
n2	Outlet shaft
dc	Straight bevel gears
dsp	Spiral bevel gears
M	Solid shaft
F	Hollow shaft
D	Through hollow shaft

Datasheet

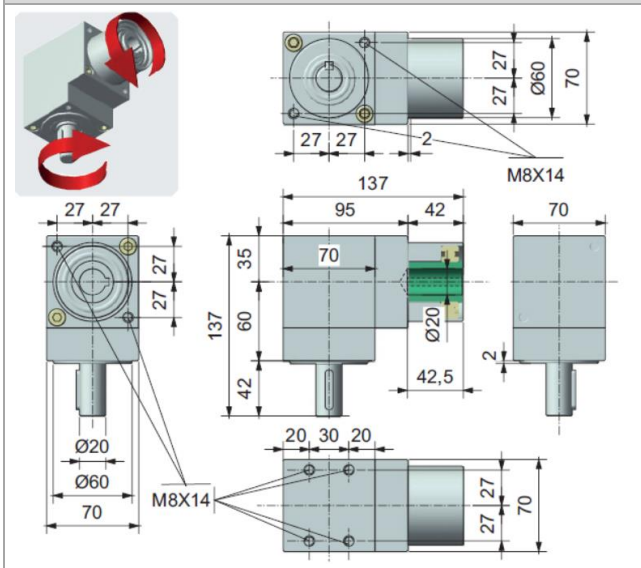
Versions with dimension drawings

Available outputs		
V = shaft	H = hollow shaft	D = through hollow shaft (only for version D)
 <p>Technical drawing showing a shaft output. Dimensions include: 6, Ø 20, 30, 5, 22,5, Ø 60, 40.</p>	 <p>Technical drawing showing a hollow shaft output. Dimensions include: 6, Ø 20, 30, 0,5, 22,5, Ø 60, 42.</p>	 <p>Technical drawing showing a through hollow shaft output. Dimensions include: 6, Ø 20, 0,5, 22,5, Ø 60, 105.</p>

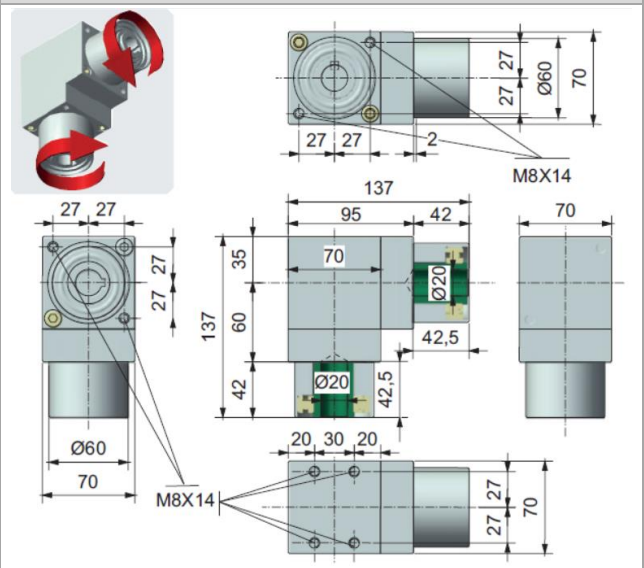


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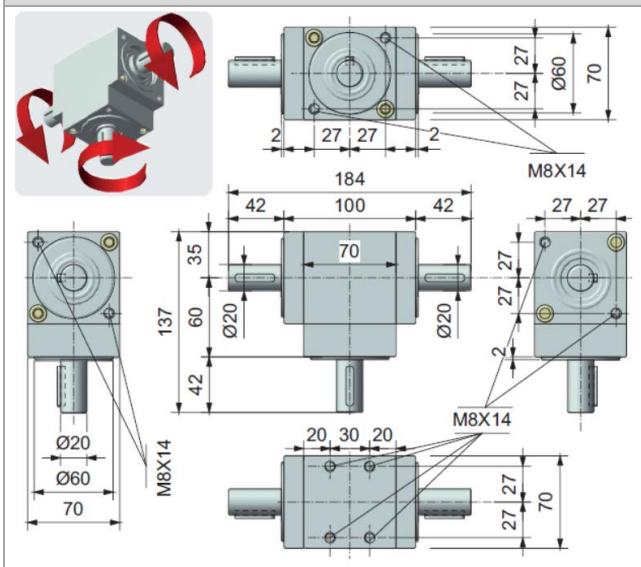
Version A V-H shaft-hollow shaft



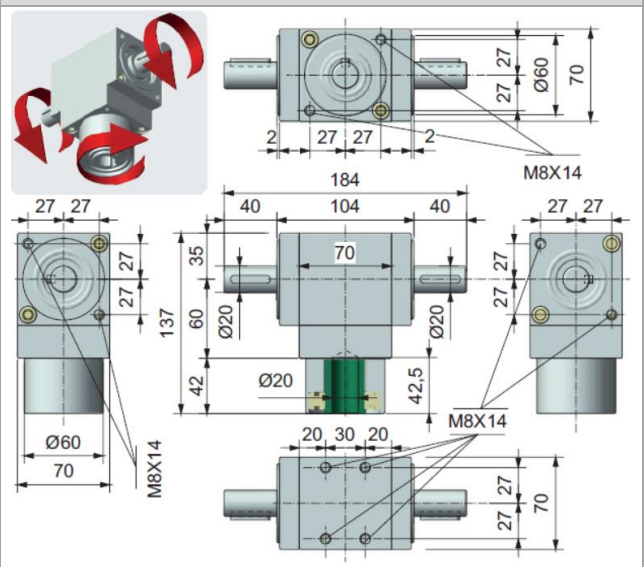
Version A H-H hollow shaft-hollow shaft



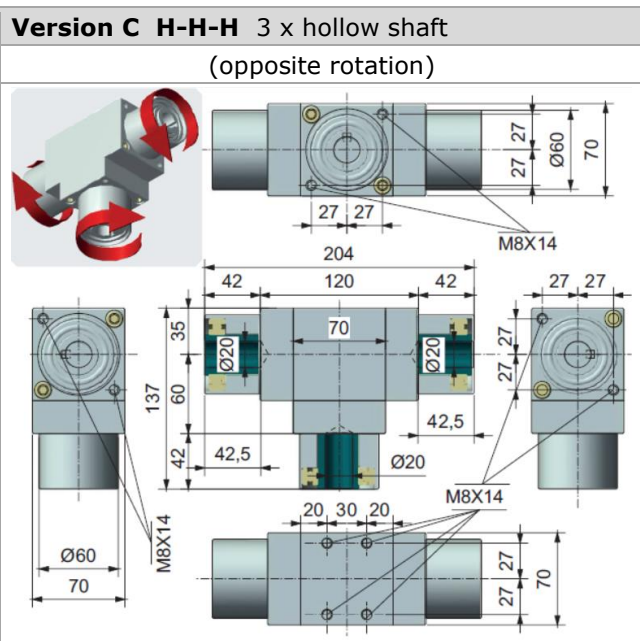
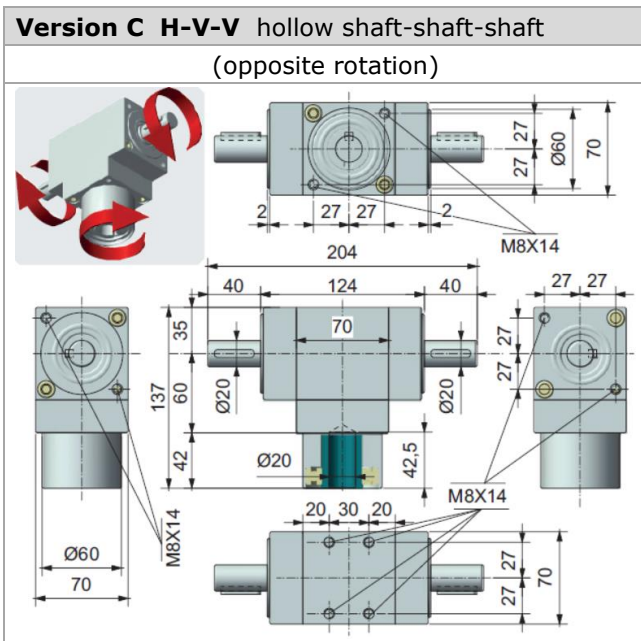
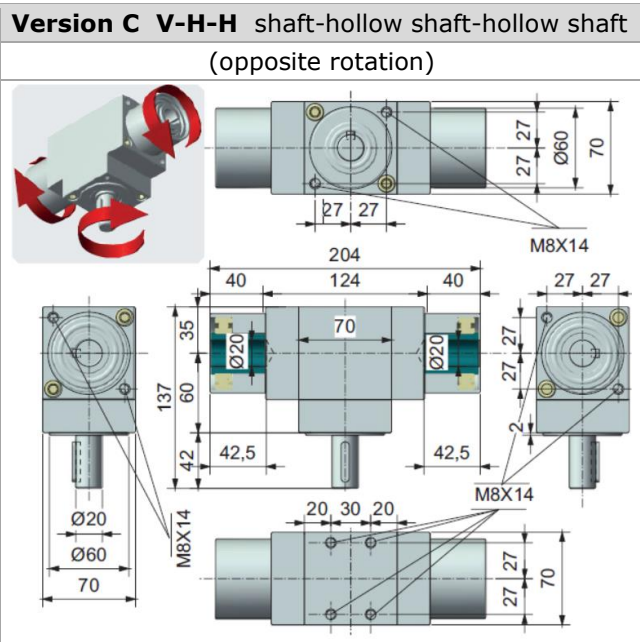
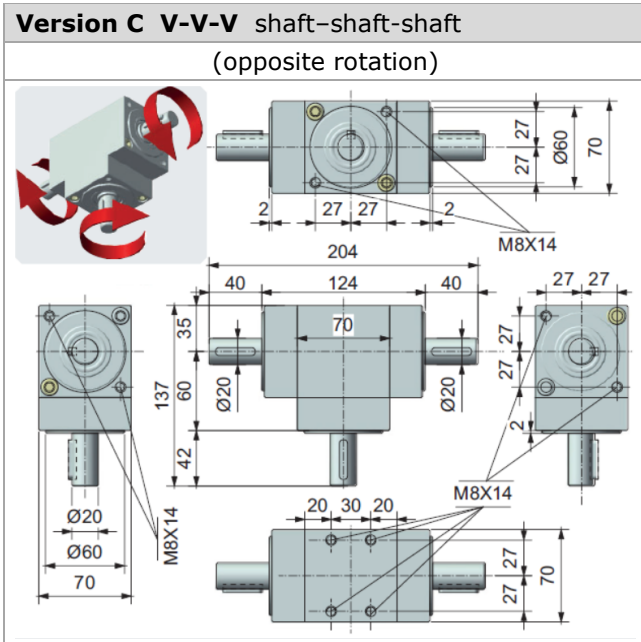
Version B V-V shaft-shaft-shaft



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

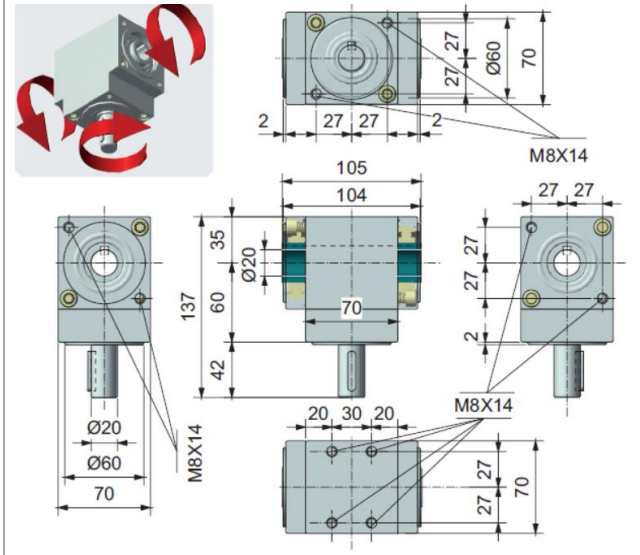


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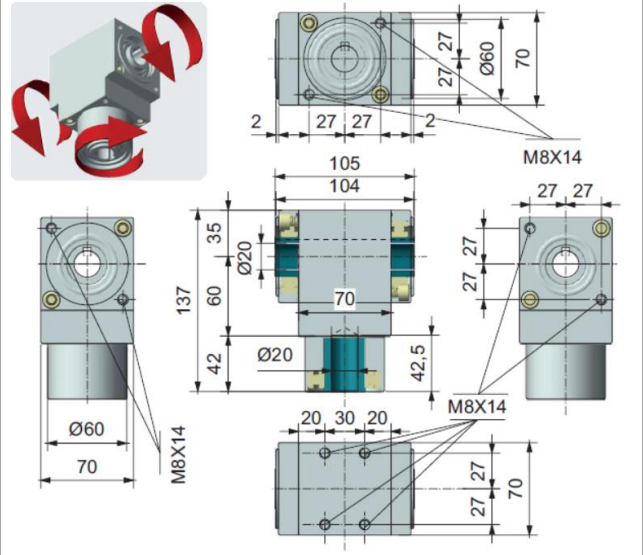


Datasheet

Version D V-H-H hollow shaft-shaft-shaft
(with through hollow shaft)



Version D H-H-H 3 x hollow shaft
(with through hollow shaft)



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.


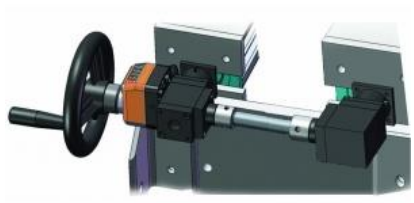
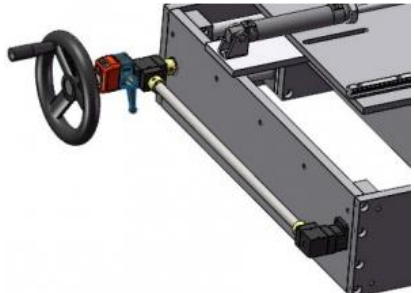
Angular gear with flexible shaft



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 66/8 - - - A - 1 - V20-H20 - UC

Gearbox

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

Housing material

- = anodized transparent (standard)
- ES = anodized black (optional)
- VA = stainless steel (AISI 303) (optional)

Version

- A = with 2 outputs
- B = with 3 outputs
- C = with 3 outputs (with opposite rotation)
- D = with 3 outputs, 2 through hollow shafts

Reduction ratio

- 1 = 1:1 (standard)
- 2 = 1:2 *in reducing* (standard)
- 0,5 = 2:1 *in multiplying* (on request in version A, B, C, not available in version D)

Version shaft

- V = Shaft; with keyway at standard
- H = Hollow shaft with blind hole; through hollow shaft only with version D

Diameter shaft

- 20 = Ø20 mm (standard);

Length shaft

- Shaft: 40 mm (standard)
- Hollow shaft: 42 mm effective length, 42,5 mm construction dept (standard); further lengths available on request

Continuous use

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



* Further lengths and diameters are available on request.

Manufacturer:

