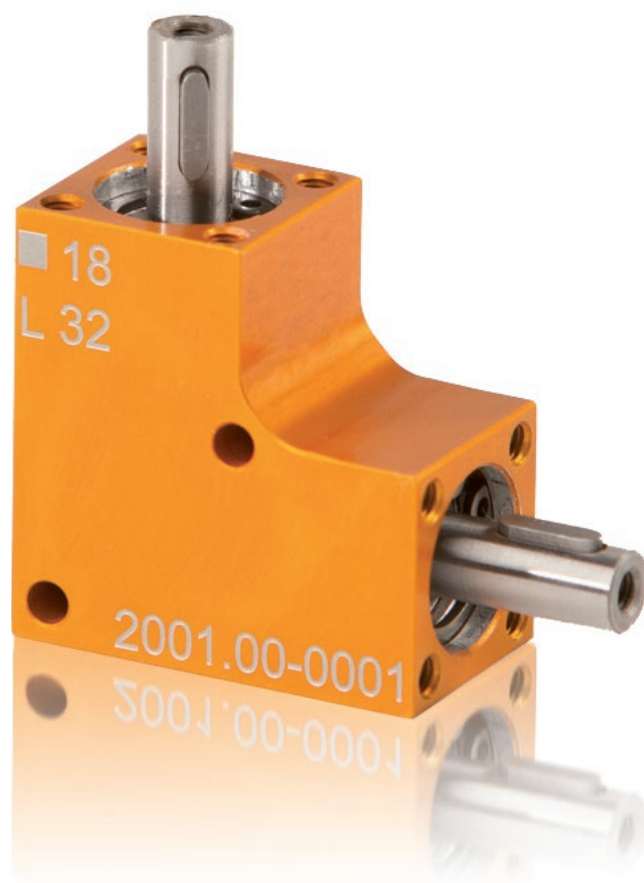


## Bevel Gears and Worm Gears

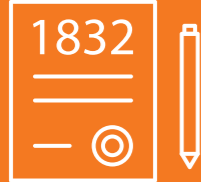


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## Bevel Gears

- Page 04 200X Angular gear Ket-Bee
- Page 06 3014 Deflection gear
- Page 08 3039 Deflection gear
- Page 10 3045 Deflection gear
- Page 12 3056 Bevel gear
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- Page 20 3874 Bevel gear
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## Worm Gears

- Page 26 2010 Worm gear
- Page 28 4731/4739/4743/4745 Worm gear
- Page 30 4747/4749/...Worm gear
- Page 32 4748/4750/...Worm gear



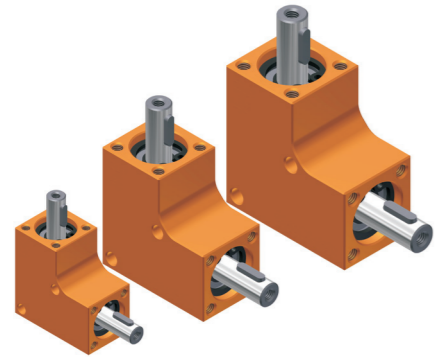
# Angular gear Ket-Bee 200X

## Description

A bevel gearbox family consisting of 7 sizes for versatile use as an angular gearbox. The gearbox is characterised by a compact design with maximum torque, sturdiness and smooth power transmission. The uncomplicated mounting is made possible by a simple screw fixing.

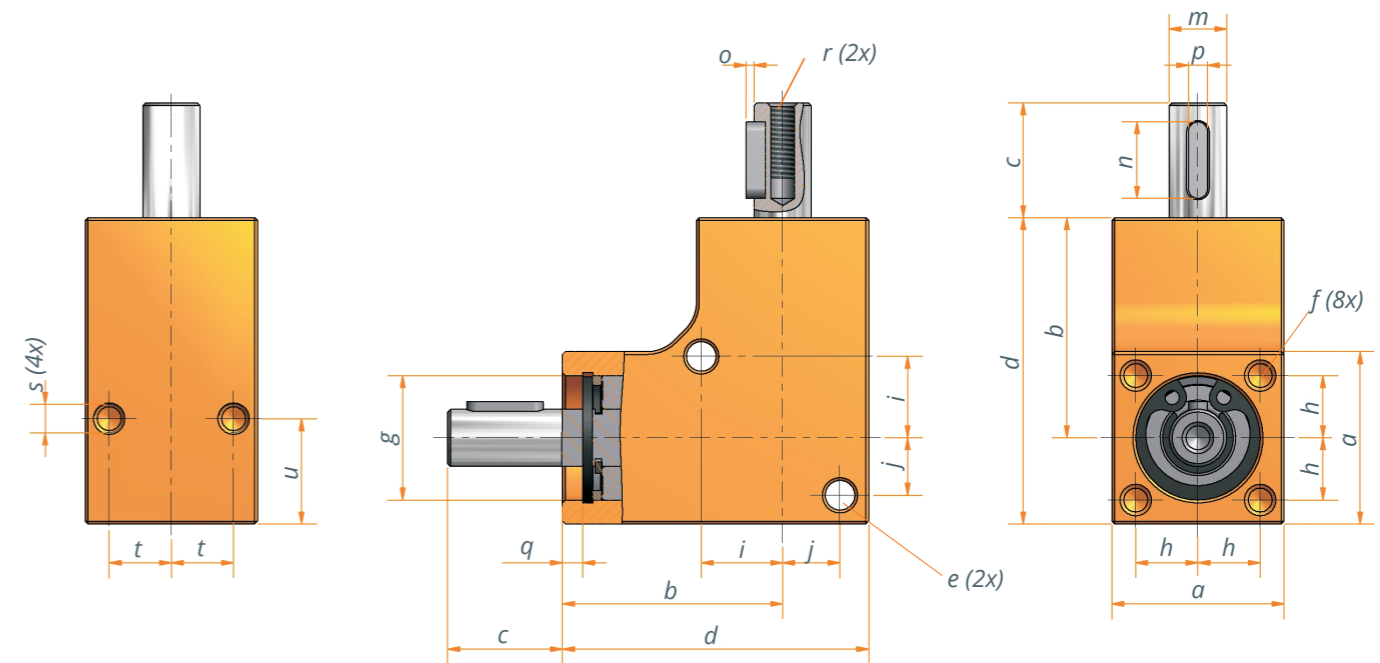
## Special features

- Maintenance-free
- Steel bevel wheels, case-hardened
- Aluminium housing, anodized (orange or silver)
- Silent running
- Ratio 1:1
- Permitted operating temp. -20°C to +60°C
- Backlash at drive shaft 3° ± 1°
- Duty cycle 20 % at 5 min (1 min ON, 4 min OFF)
- Lifetime of 1000 hours with:
  - full load and
  - input speed of 500 rpm and
  - duty cycle 20% with 5 min



## Technical data

Type	Speed <i>n</i> in rpm	Max. torque <i>M</i> in Nm	Radial and axial load		Part weight in kg	Item.-Nr.
			FR in N	FN in N		
Type A	100/500/1000	0.35/0.1/0.05	60	60	0.052	2001.00-0001
Type B	100/500/1000	0.75/0.3/0.15	100	100	0.073	2002.00-0001
Type C	100/500/1000	2.5/1.0/0.5	120	120	0.142	2003.00-0001
Type D	100/500/1000	4.0/1.5/0.75	140	140	0.189	2004.00-0001
Type E	100/500/1000	5.0/2.0/1.0	240	240	0.268	2005.00-0001
Type F	100/500/1000	8.0/3.0/1.5	550	550	0.330	2006.00-0001
Type G	100/500/1000	10.0/4.0/2.0	550	550	0.395	2007.00-0001



## Technical notes

Type	Dimensions in mm																			
	a	b	c	d	e	f	g	h	i	j	m	n	o	p	q	r	s	t	u	
A	18	23	12	32	ø3.1	M3x10	13	6.5	8.5	6	ø6j6	8	0.8	2	2.1	M3x8	M3x6	6.5	11	
B	20	25	12	35	ø3.1	M3x10	16	7.5	10	7	ø8j6	8	0.8	2	2.05	M3x8	M3x6	7.5	10	
C	24	30	16	42	ø4.1	M4x10	19	9	12	8	ø10j6	12	1.5	4	2	M4x8	M4x8	9	16	
D	26	33	16	46	ø4.1	M4x10	21	10	13	9	ø12j6	12	1.5	4	2	M5x8	M4x8	10	16	
E	30	38	16	53	ø4.1	M4x10	24	11	15	11	ø12j6	12	1.5	4	2.1	M5x8	M4x8	11	16	
F	32	40	16	56	ø4.1	M4x10	28	12	17	12	ø12j6	12	1.5	4	2.1	M5x8	M4x8	12	16	
G	35	42,5	16	60	ø4.1	M4x10	30	13	17.5	13.5	ø12j6	12	1.5	4	2.1	M5x8	M4x8	13	16	

## Calculation of the mechanical power

E.g. Type E

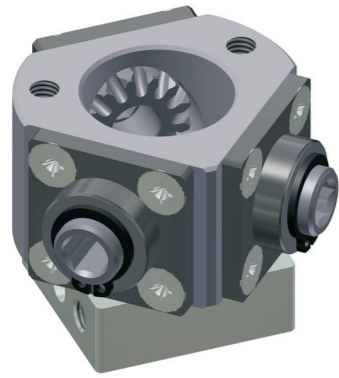
$$p = \frac{M \times n}{9550} \quad p = \frac{2,0 \text{ Nm} \times 500 \text{ 1/min.}}{9550} = 0,1 \text{ kw}$$

M = Torque  
n = Revolution

# Deflection gear 3014

## Description

Bevel gear family for use as a deflection gear in up to three directions. Deflection of rotational movement possible at angles of 90°, 120°, 135°. Upon request the number of drive wheels can be varied. Simple screw mounting on the adaptor facilitates uncomplicated assembly.



## Special features

- Maintenance-free
- Case hardened steel bevel wheels
- Housing made of reinforced glass-fibre or aluminium at an angle of 90°/120°/135°
- Downward ratio 1.3:1, ratio in direction of deflection 1:1
- Designed for the manual operation

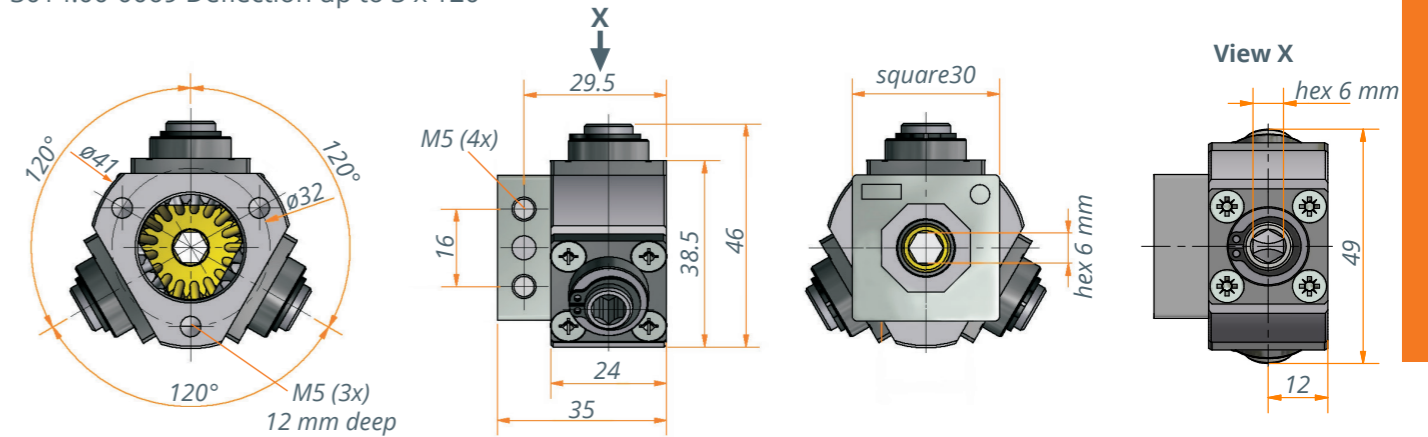
## Technical data

Model	3014.00-0069	3014.00-0070	3014.00-0071	3014.00-0082
Ratio in direction of deflection	1:1	1:1	1:1	1:1
90° downward ratio	1.3:1	1.3:1	1.3:1	1.3:1
Input/Output	hex 6 mm	hex 6 mm	hex 6 mm	hex 6 mm
Number of bevel wheels	4	4	3	3
Max. drive torque	3 Nm	3 Nm	3 Nm	3 Nm
Housing/angle	3 x 120°	2 x 135°	120°	135°
Material	Aluminium	Aluminium	Plastic	Plastic

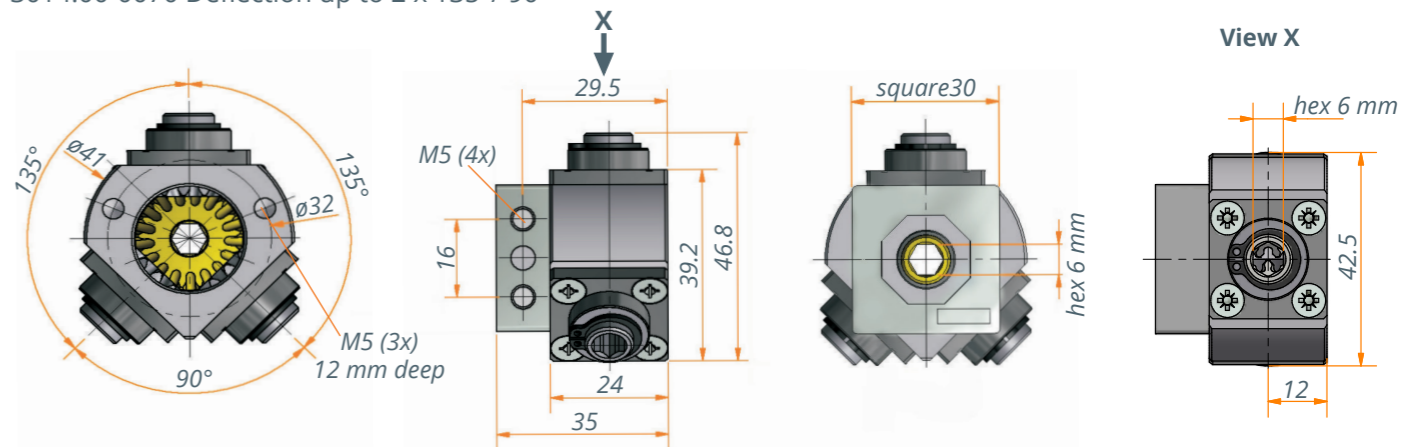
## Application example



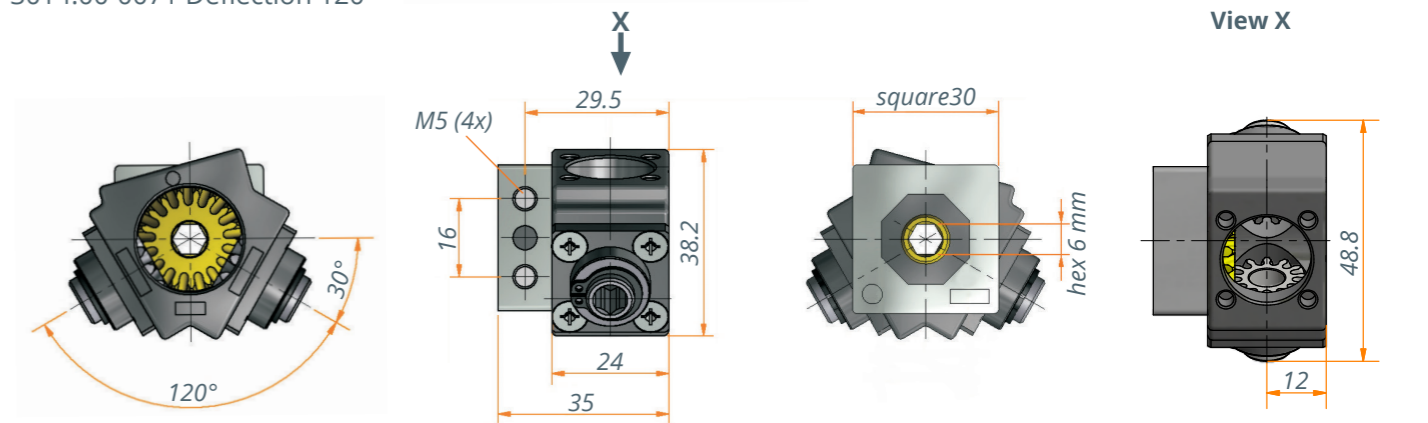
3014.00-0069 Deflection up to 3 x 120°



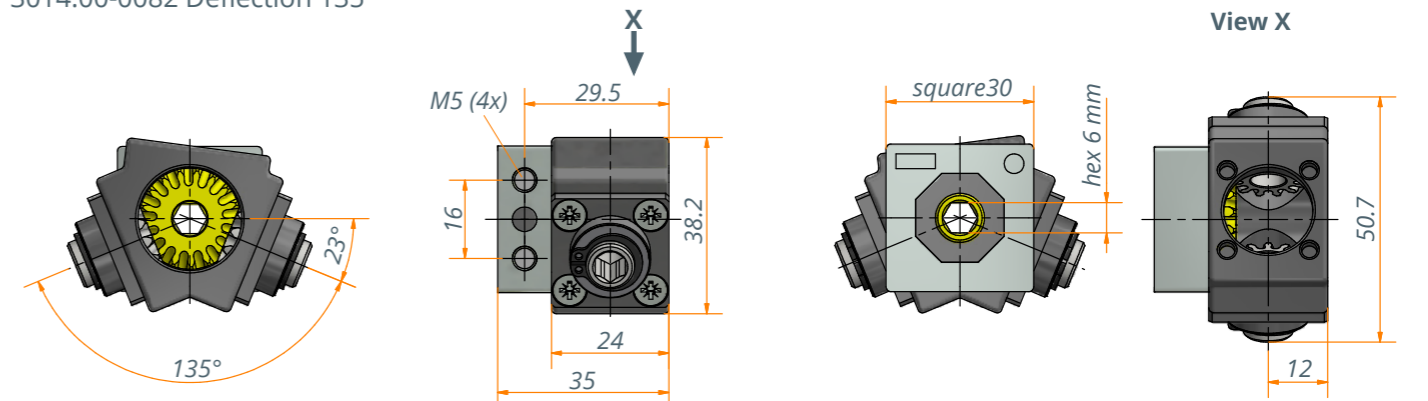
3014.00-0070 Deflection up to 2 x 135°/ 90°



3014.00-0071 Deflection 120°



3014.00-0082 Deflection 135°



# Deflection gear 3039

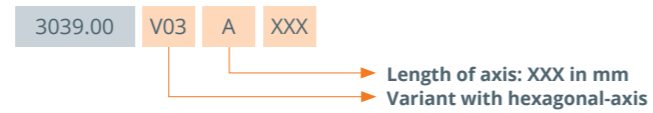
## Description

Bevel gearbox for the deflection of a rotary movement at an angle of 90°  
 The gearbox can be supplied both with a hexagonal axle with a specific length or without an axle.  
 Simple mounting is made possible by a flexible screw fixing.

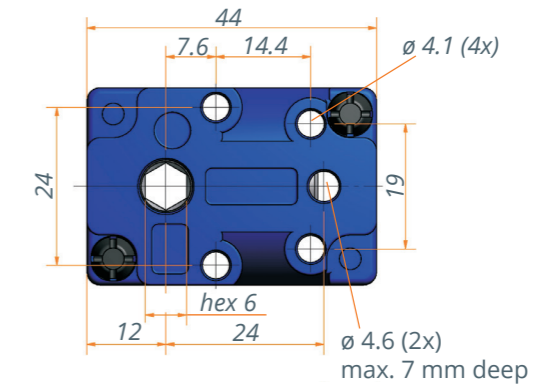
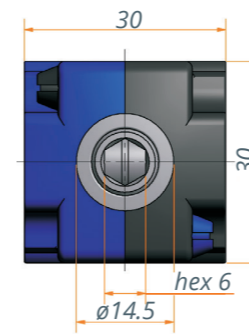
## Special features

- Maintenance-free
- Case-hardened steel bevel wheels
- Synthetic gear housing
- Ratio 1:1
- Suitable for both manual and electric motor drives

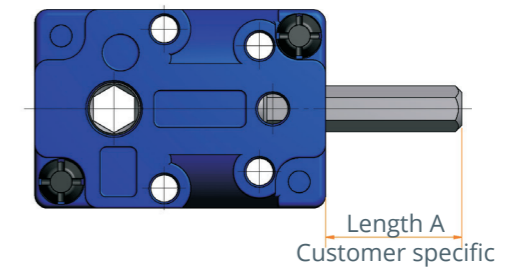
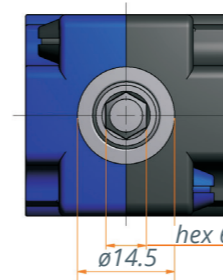
## Variant key



3039.00-0001



3039.00-V03AXXX



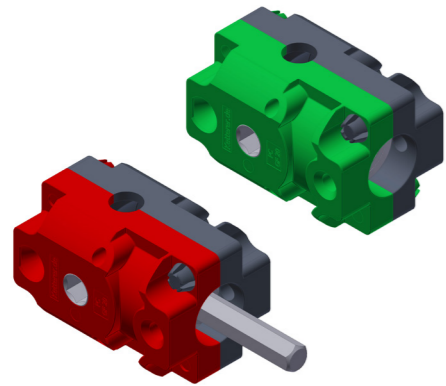
## Technical data

Model	3039.00-0002	3039.00-V03AXXX
Ratio	1:1	1:1
Input/Output	hex 6 mm	hex 6 mm
Number of bevel wheels	2	2
Max. drive torque	4 Nm	4 Nm
Length A	-	Customer specific
Housing	Synthetic	Synthetic

# Deflection gear 3045

## Description

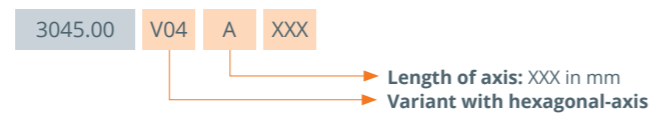
Bevel gearbox for the deflection of a rotary movement at an angle of 90°. The gearbox can be supplied both with a hexagonal axle with a specific length or without an axle. Simple mounting is made possible by a flexible screw fixing.



## Special features

- Maintenance-free
- Case-hardened steel bevel wheels
- Synthetic gear housing
- Ratio 1 : 1 (red-black) and 2 : 1 (green-black)
- Suitable for both manual and electric motor drives

## Variant key

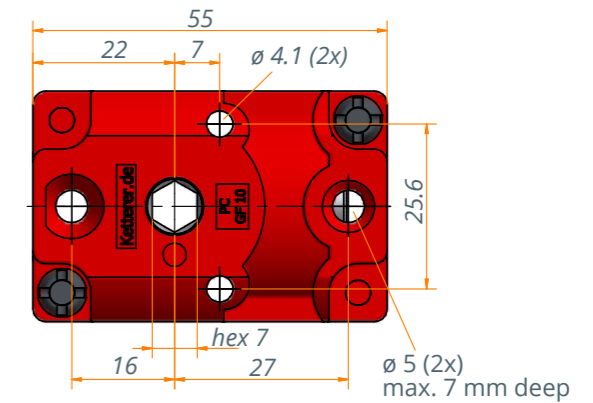
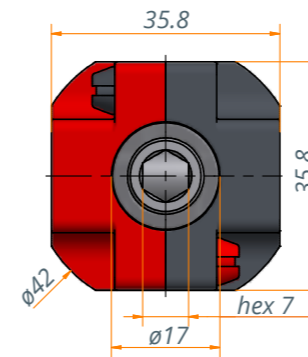


## Technical data

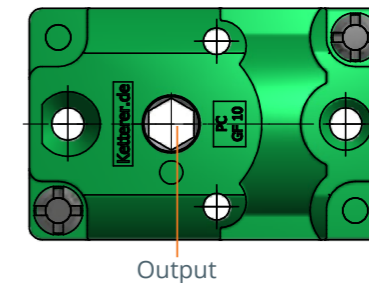
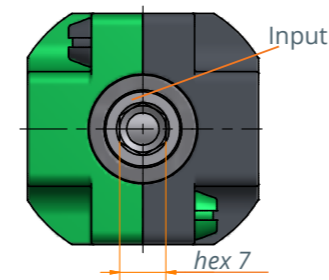
Model	3045.00-3001	3045.00-3002	3045.00-V04AXXX
Ratio	1:1	2:1*	1:1
Input/Output	hex 6 mm	hex 6 mm	hex 6 mm
Number of bevel wheels	2	2	2
Max. drive torque	5,5 Nm	5,5 Nm	5,5 Nm
Length A	-	-	Customer specific
Housing material	Synthetic	Synthetic	Synthetic

\* Input to output

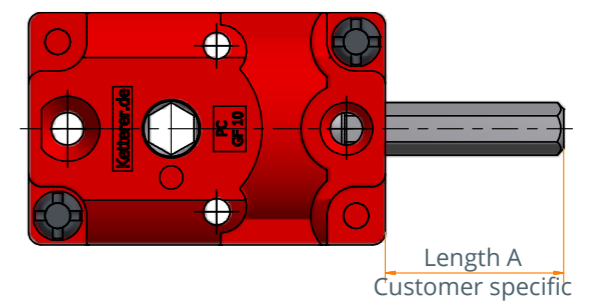
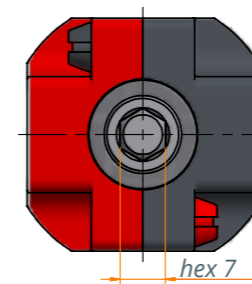
3045.00-3001 - Ratio 1:1



3045.00-3002 - Ratio 2:1 (Input : Output)



3045.00-V04AXXX - Ratio 1:1



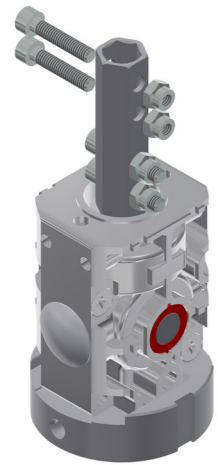
# Bevel gear 3056

## Description

Compact bevel gearbox for the deflection of a rotary movement at an angle of 90°. Ideally suited for the adjustment of large parasols. Special bevel gear toothing ensures smooth running of the gearbox. Drive and output can be modified for custom applications. The gearbox can be combined with any spindle.

## Special features

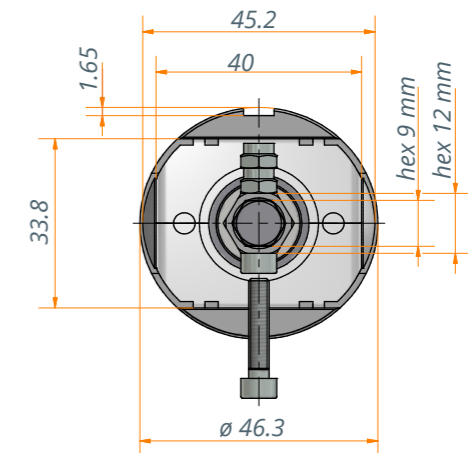
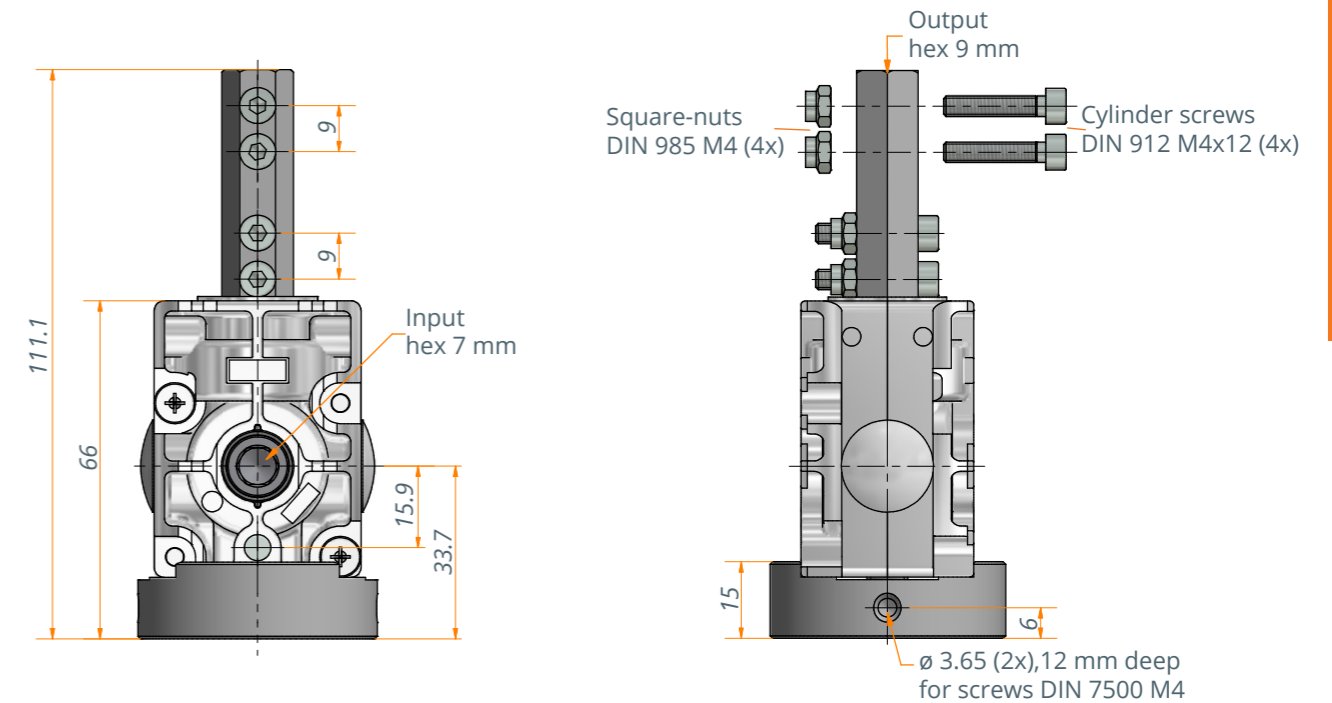
- Maintenance-free
- Case-hardened bevel wheels
- Housing made of zinc die-casting
- Ratio 1:2, on request also 1:1 possible
- Designed for the manual operation



## Technical data

Model	3056.00-2000
Ratio	1:2
Input	hex 6 mm
Output	hex 9 mm
Number of bevel wheels	2
Housing material	Zinc die-casting
Max. drive torque	6 Nm
Max. traction load static short term*	8,000 N
Max. pressure load static short term*	5,000 Nm

\* Peak load, e.g. caused by gusts of wind



## Technical notes

- Attention: Spindle is not in scope of delivery, can be produced to customer requirements
- Depending of the spindle pitch the self-locking of the system must be checked

## Application example



# Bevel gear 3057

## Description

Compact bevel gearbox for the deflection of a rotary movement at an angle of 90°. Ideally suited for the adjustment of large parasols. Special bevel gear toothing ensures smooth running of the gearbox. Drive and output can be modified for custom applications. The gearbox can be combined with any spindle.

## Special features

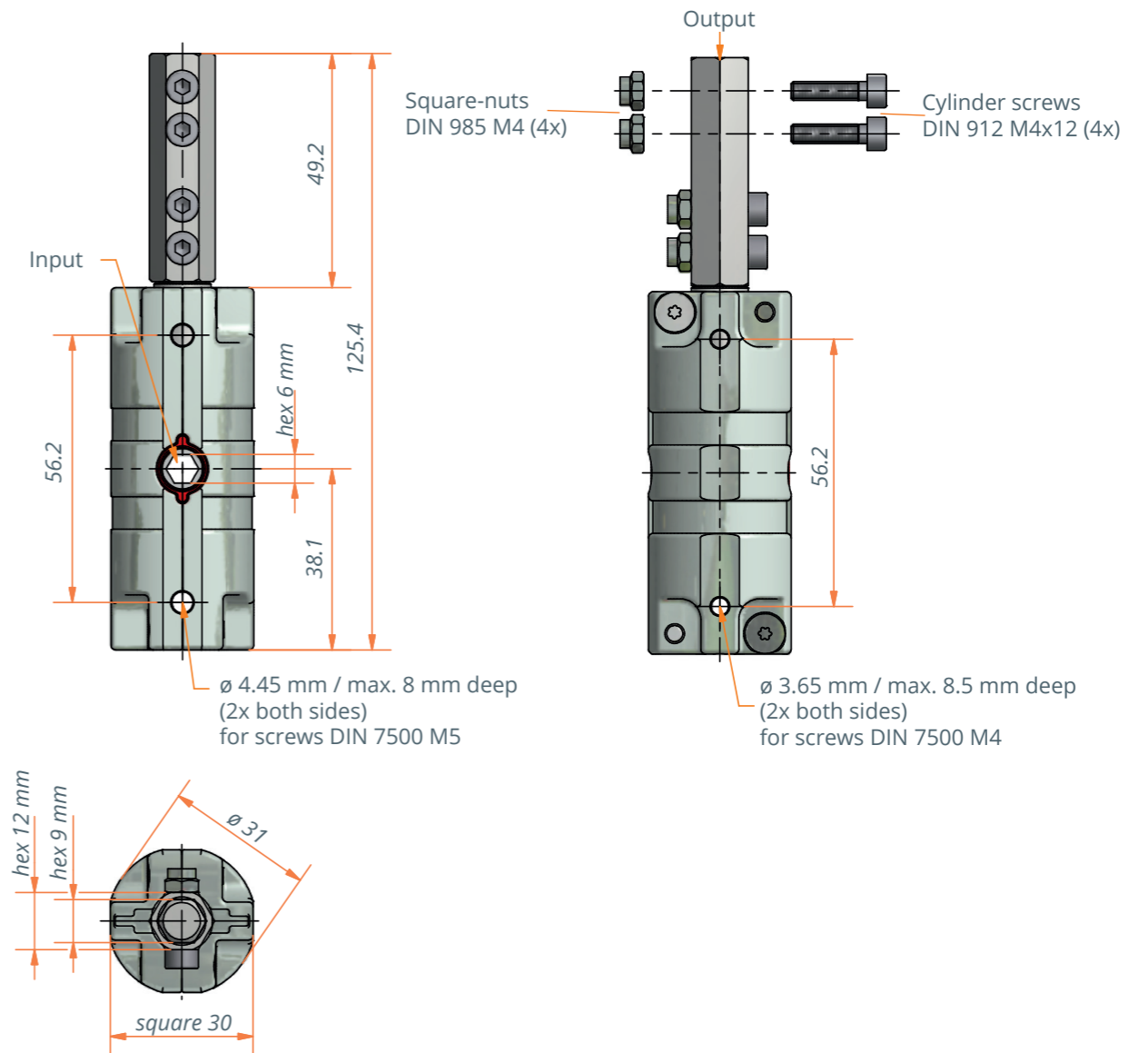
- Maintenance-free
- Case-hardened bevel wheels
- Housing made of zinc die-casting
- Ratio 1 : 2
- Designed for the manual operation



## Technical data

Model	3057.00-0010
Ratio	1:2
Input	hex 6 mm
Output	hex 6 mm
Number of bevel wheels	2
Housing material	Zinc die-casting
Max. drive torque	2,5 Nm
Max. traction load static short term*	8,000 N
Max. pressure load static short term*	5,000 Nm

\* Peak load, e.g. caused by gusts of wind



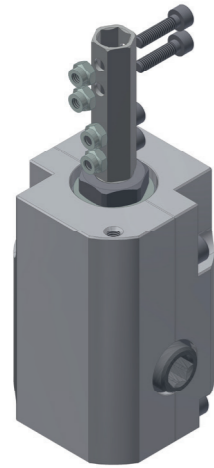
## Technical notes

- Attention: Spindle is not in scope of delivery, can be produced to customer requirements
- Depending of the spindle pitch the self-locking of the system must be checked

## Application example



# Bevel gear 3058



## Description

Compact bevel gearbox for the deflection of a rotary movement at an angle of 90°. Ideally suited for the adjustment of large parasols. Special bevel gear toothing ensures smooth running of the gearbox. Drive and output can be modified for custom applications. The gearbox can be combined with any spindle.

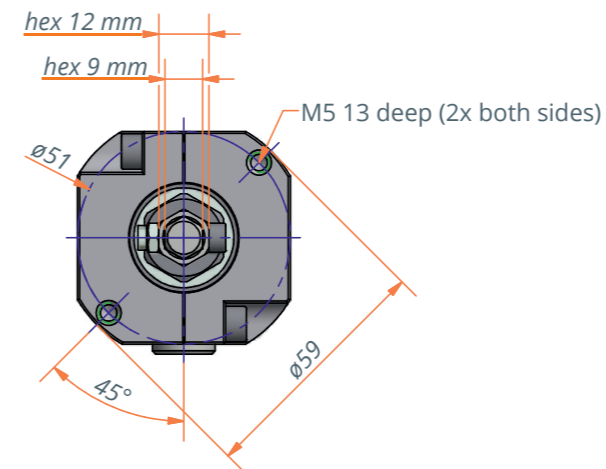
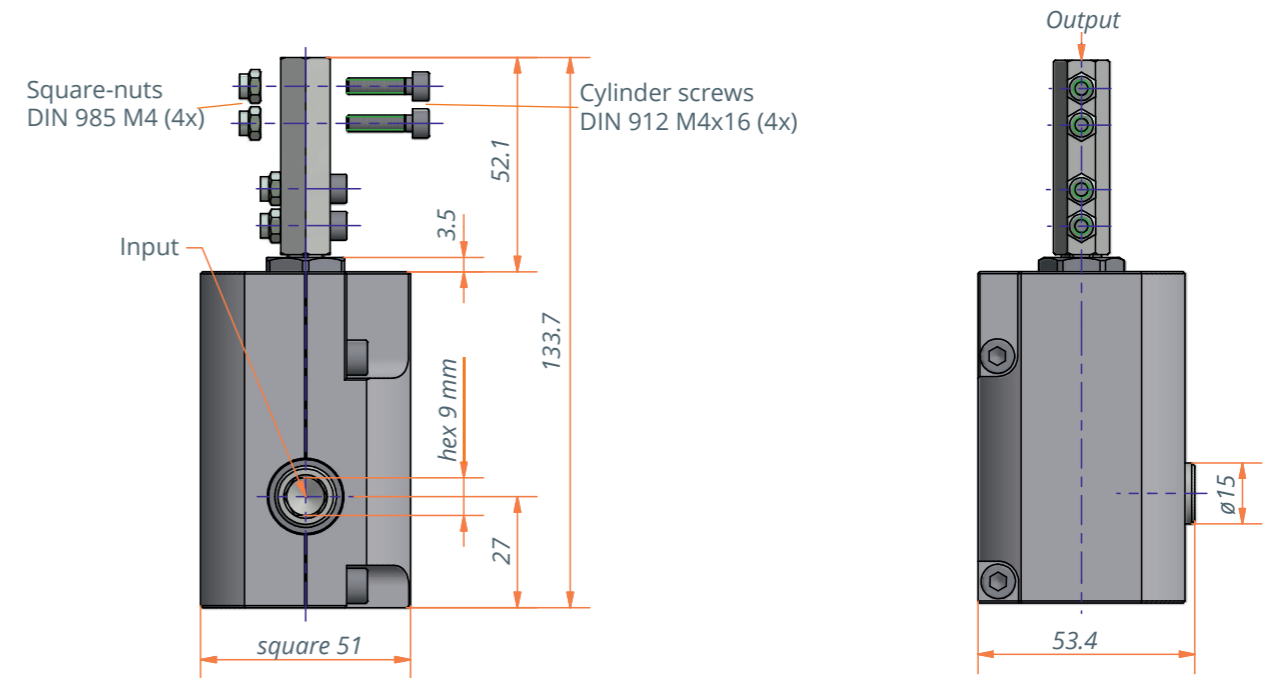
## Special features

- Optimized corrosion properties
- Maintenance-free
- Case-hardened bevel wheels with optimized corrosion protection
- Housing made of zinc die-casting
- Ratio 1:4
- Designed for the manual operation

## Technical data

Model	3058.00-0005
Ratio	1:4
Input	hex 9 mm
Output	hex 9 mm
Number of bevel wheels	2
Housing material	Aluminium
Max. drive torque	10 Nm
Max. traction load static short term*	10,000 N
Max. pressure load static short term*	12,000 N

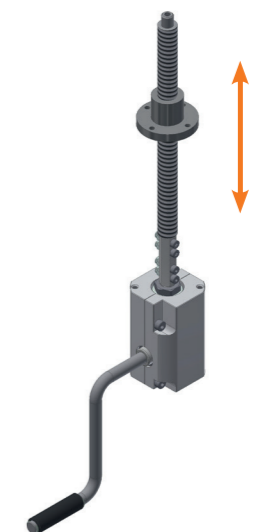
\*Peak load, e.g. caused by gusts of wind



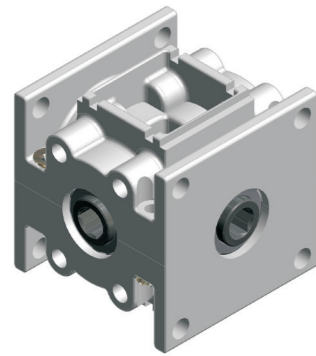
## Technical notes

- Attention: Spindle is not in scope of delivery, can be produced to customer requirements
- Depending of the spindle pitch the self-locking of the system must be checked

## Application example



# Bevel gear 3869/3870/3871/3872



## Description

Bevel gearboxes for the deflection of a rotary movement. Ideal for use as a transfer gearbox or ancillary gearbox for electric motors, e.g. for blinds or actuators in special mechanical engineering. Special bevel gear toothing ensures smooth running of the gearbox.

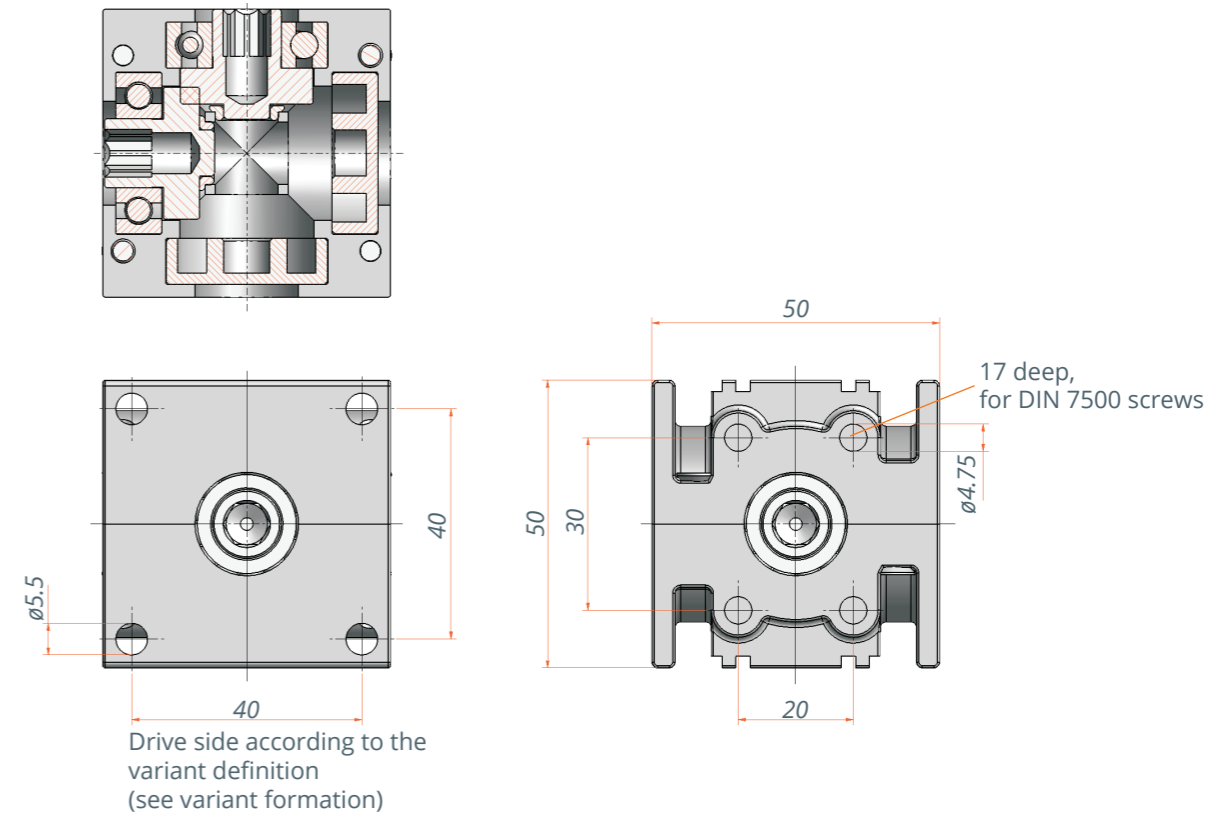
The gearbox can be combined with any spindle. The modular structure of the gearbox allows special customer requests to be met even with small numbers of items.

## Special features

- Maintenance-free
- Hardened, bearing seated steel gear cogs
- Housing made of zinc die-casting
- Ratio 1:1
- Up to four inputs are possible
- On require hex 6 mm, blind hole or through hole possible
- Lifetime 20,000 load changes: bei 10 Nm, 110 U/min, with the duty cycle 30 s ON 240 s OFF and at + 25 °C

## Variant key

one output <b>3870.00-1000</b>	input
two opposite outputs <b>3871.00-1000</b>	input
two outputs 90° <b>3869.00-1000</b>	input
three outputs <b>3872.00-1000</b>	input

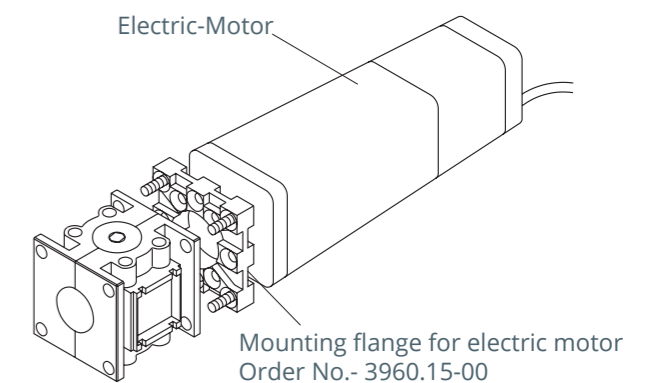


## Technical data

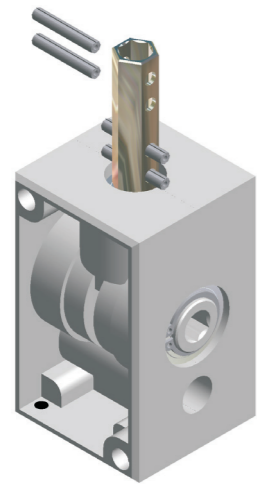
Model	3869.00-1000	3870.00-1000	3871.00-1000	3872.00-1000
<b>Ratio</b>	1:1	1:1	1:1	1:1
<b>Input</b>	hex 7 mm	hex 7 mm	hex 7 mm	hex 7 mm
<b>Output</b>	hex 7 mm	hex 7 mm	hex 7 mm	hex 7 mm
<b>Number of bevel gears</b>	3	2	3	4
<b>Max. drive torque</b>	10 Nm	10 Nm	10 Nm	10 Nm
<b>Housing material</b>	Zinc die-casting	Zinc die-casting	Zinc die-casting	Zinc die-casting

## Technical notes

- The drive side can be selected arbitrarily
- Higher torques are possible at reduced speeds



# Bevel gear 3874



## Description

Compact bevel gearbox for the deflection of a rotary movement at an angle of 90°. Ideally suited for the adjustment of large parasols. Special bevel gear toothing ensures smooth running of the gearbox. Drive and output can be modified for custom applications. The gearbox can be combined with any spindle

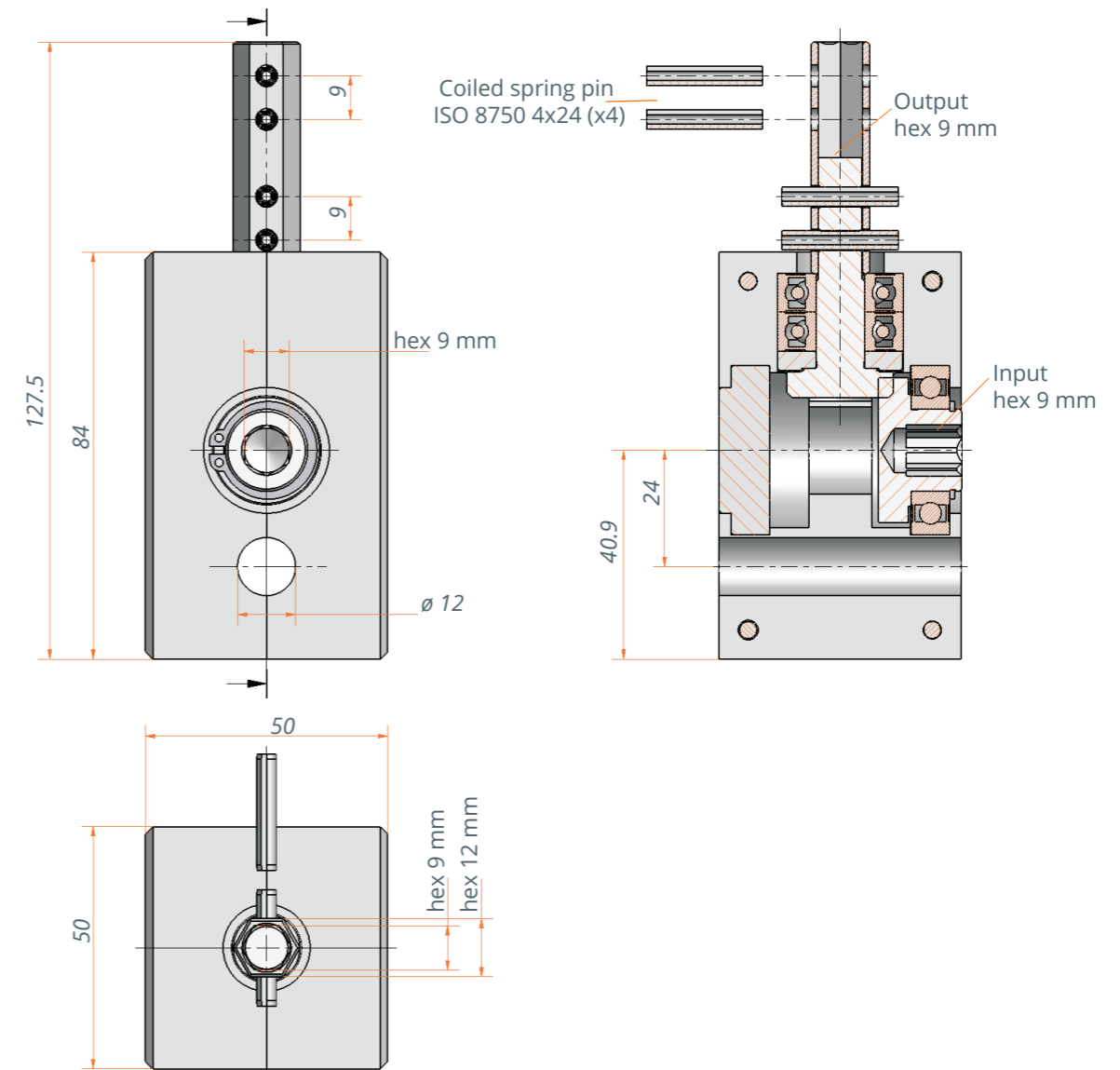
## Special features

- Maintenance-free
- Case-hardened bevel wheels
- Housing made of zinc die-casting
- Construction size 50 x 50 x 84 mm
- Ratio 1:1.5
- Max. output torque 4 Nm
- Designed for the manual operation

## Technical data

Model	3874
Ratio	1:1.5
Input	hex 9 mm
Output	hex 9 mm
Number of bevel wheels	2
Housing material	Zinc die-casting
Max. drive torque	4 Nm
Max. tensile load static short term*	7,000 N
Max. pressure load static short term*	9,000 N

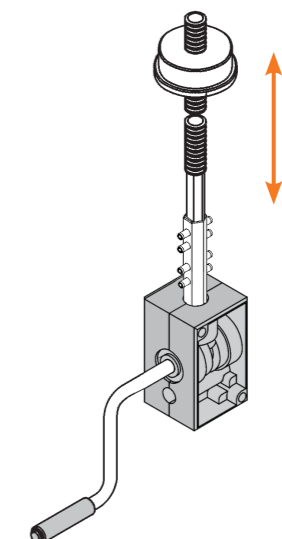
\* Peak load, e.g. caused by gusts of wind



## Technical notes

- Attention: Spindle is not in scope of delivery, can be produced to customer requirements
- Depending of the spindle pitch the self-locking of the system must be checked

## Application example



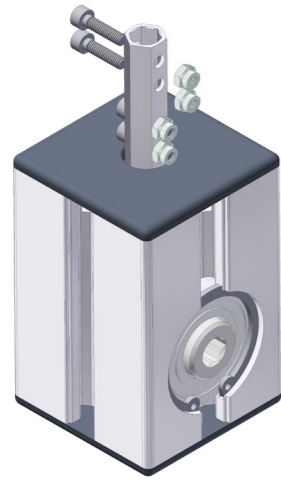
# Bevel gear 3875

## Description

Bevel gearbox for the deflection of a rotary movement at an angle of 90°. Ideally suited for the adjustment of large parasols. Special bevel gear toothing ensures smooth running of the gearbox. Drive and output can be modified for custom applications. The gearbox can be combined with any spindle.

## Special features

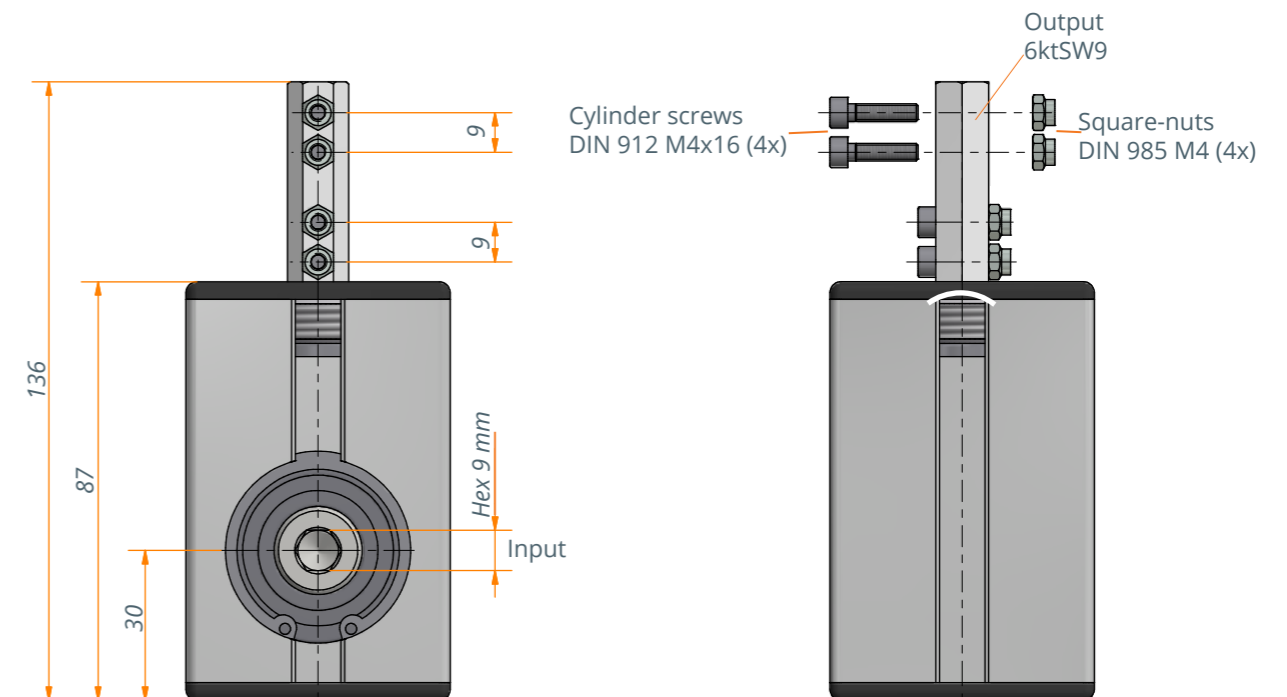
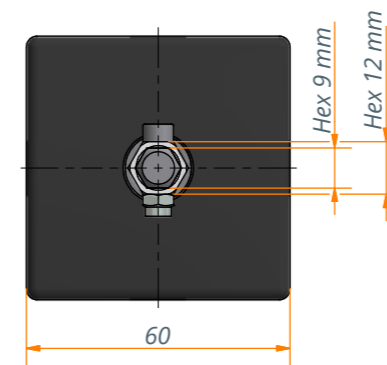
- Maintenance-free
- Case-hardened bevel wheels
- Housing made of aluminium profile
- Construction size 60 x 60 mm
- Ratio 1:1.5
- Max. drive torque 8 Nm
- Designed for the manual operation



## Technical data

Model	3875
Ratio	1:1.5
Input	Hex 9 mm
Output	Hex 9 mm
Number of cog wheels	2
Housing material	Aluminium profil
Max. drive torque	8 Nm
Max. tensile load static short term*	7,500 N
Max. pressure load static short term*	9,000 N

\* Peak load, e.g. caused by gusts of wind



## Technical notes

- Depending of the spindle pitch the self-locking of the system must be checked

# Bevel gear with throughgoing spindle 3900/3901

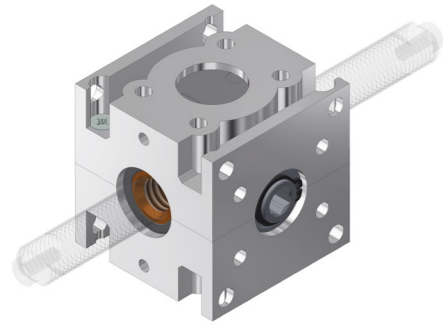
## Description

Bevel gear for continuous non-rotating spindles, for thrust and pull movements.

The gear is particularly suitable for use as a lifting system for skylights, winter gardens and greenhouses as well as for special machine engineering. A special bevel gearing ensures quiet operation of the gear.

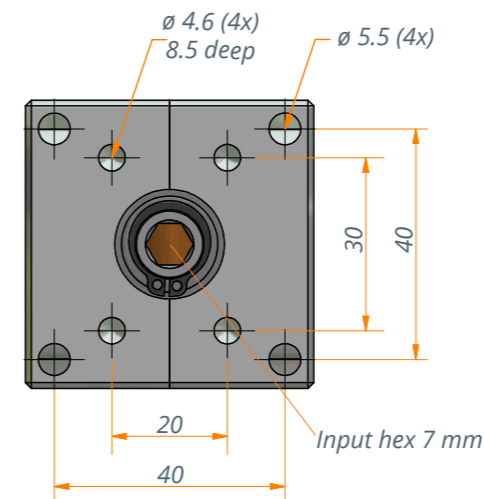
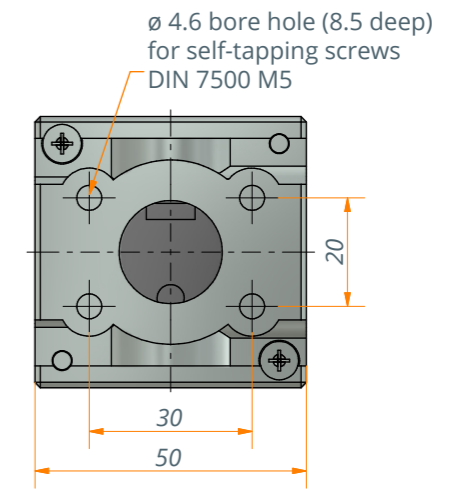
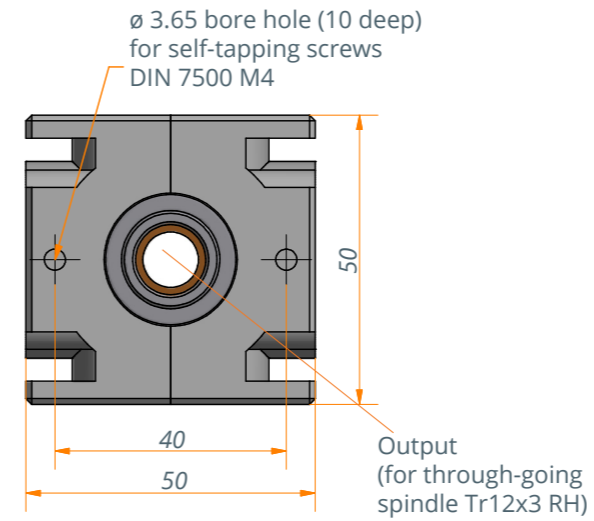
The gear can be supplied with different thread types.

Spindles can be custom manufactured to customer specifications.



## Special features

- Maintenance-free
- Case-hardened bevel wheels
- Housing made of zinc die-casting
- Ratio 1,44:1 or 1,5:1
- Designed for electromotive drive, but also ideal for manual drive



## Technical data

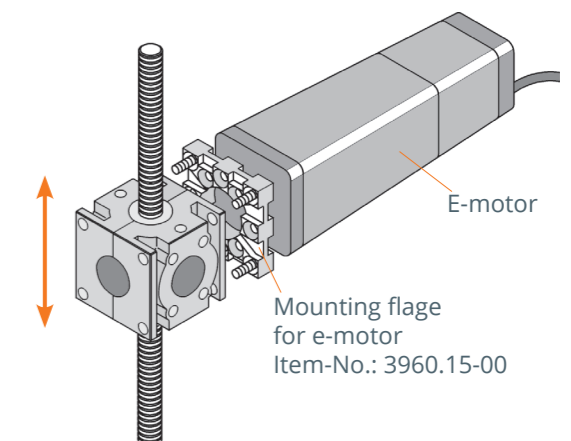
Model	3900	3901
Ratio	1.44:1	1.5:1
Input	hex 7 mm	hex 7 mm
Type of thread*	Tr12x3 RH	Tr12x3 RH
Max. lifting force	800 N	800 N

\* Spindle has to be ordered separately

## Technical notes

- Attention: Spindle is not in scope of delivery, can be produced to customer requirements
- The drive side can be selected as required
- Depending of the spindle pitch the self-locking of the system must be checked

## Application example





# Worm gear 4731/4739/4743/4745

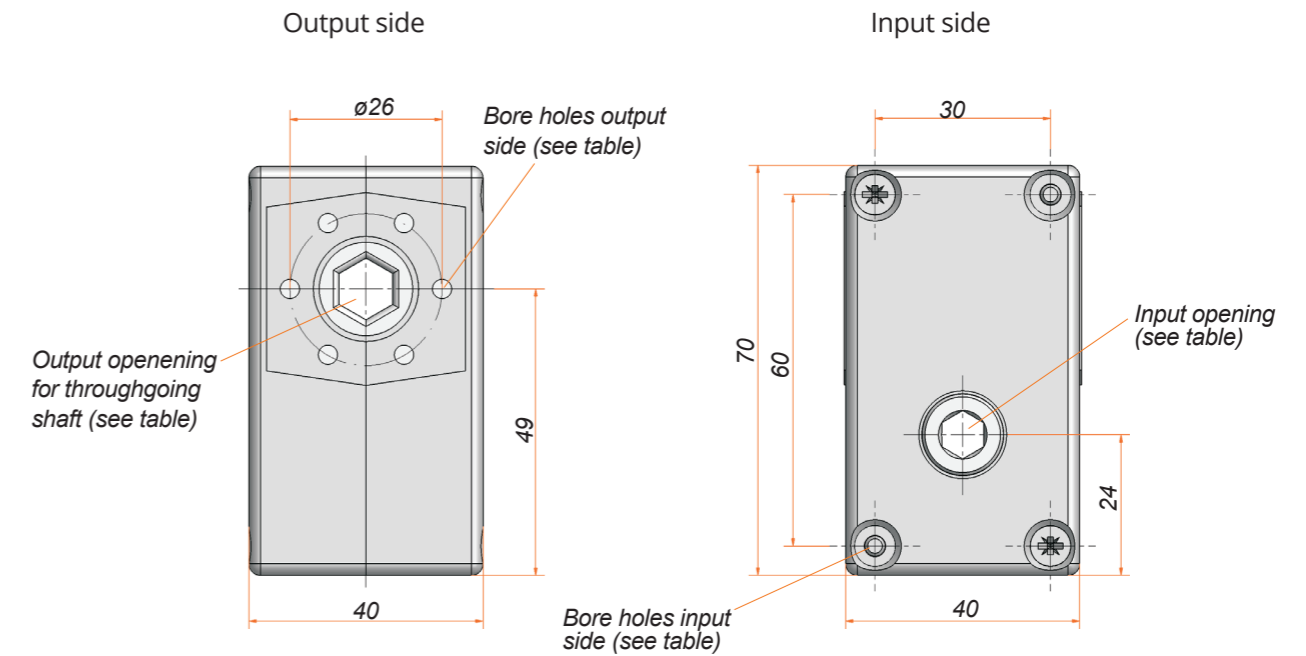
## Description

Bevel gearbox for the deflection of a rotary movement at an angle of 90°. The modular system allows the customized composition matching the installation situation. The gearbox is characterised by a compact design with maximum torque, sturdiness and smooth power transmission. Simple mounting is made possible by a flexible screw fixing.



## Special features

- Maintenance-free
- Case hardened worm and cog wheel
- Housing made of zinc die-casting
- Size 40 x 40 x 70 mm
- 5 Ratios 1:1, 2:1, 8.5:1, 20:1, 30:1
- On request other ratios are possible
- Axial distance 25 mm
- Designed for the manual operation



## Variant key

Designation of the last 4 figures of the order number

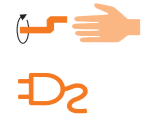
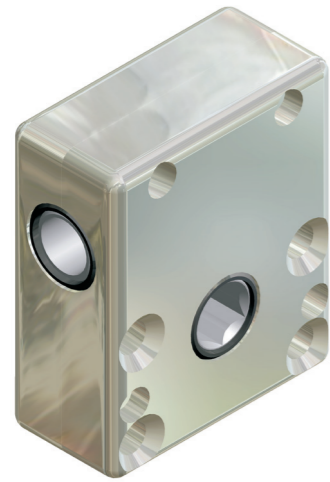
Bore holes Output side (see drawing)		Bore holes input side (see drawing)			Output opening for throughgoing shaft (see drawing)					Input (see drawing)		
3.3 mm	M4	7 mm	M4	M8	Square 10 mm	Square 8 mm	Tr14x4 right	Hex 9 mm	Hex 10 mm	Hex 6 mm	Hex 7 mm	Square 8 mm
1XX	2XX	X1XX	X2XX	X3XX	XX1X	XX2X	XX3X	XX4X	XX5X	XXX1	XXX2	XXX3

## Technical data

Model	4731.00-XXXX	4743.00-XXXX	4739.00-XXXX	4742.00-1153	4745.00-2311
Ratio	1:1	2:1	8,5:1	20:1	30:1
Self-locking	No	No	Yes	Yes	Yes
Max. Output torque	2 Nm	3 Nm	9 Nm	15 Nm	17 Nm
Preferred type	4731.00-2242	4743.00-2311	4739.00-2311	4742.00-1153	4745.00-2311

# Worm gear 4747/4749/...

## Input broad side

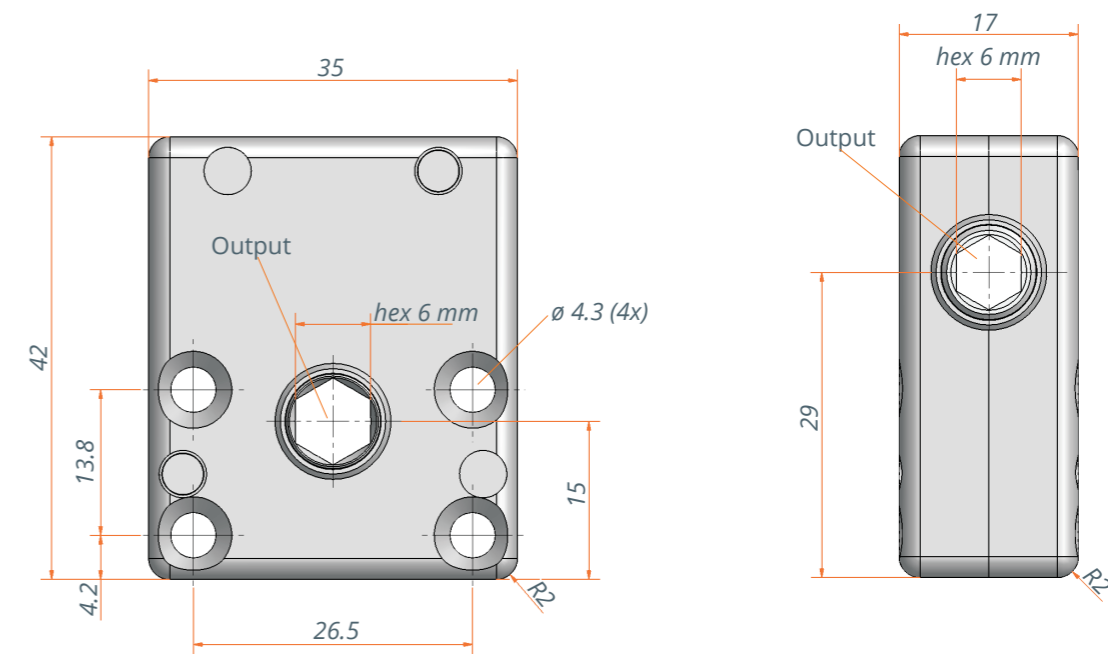


### Description

Compact, universally usable and maintenance-free worm gearbox in a size with an axle distance of 14 mm and various reduction ratios. The drive is located on the wide side of the gearbox. The worm wheel assembly is right-handed. The direction of rotation on the shaft is arbitrary. The gearbox is characterised by a compact design with maximum torque, sturdiness and smooth power transmission. Simple mounting is made possible by a flexible screw fixing.

### Special features

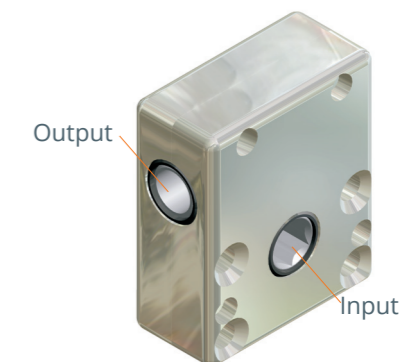
- Maintenance-free grease lubrication
- Case hardened worm and cog wheel
- Housing made of zinc die-casting
- Special model with bronze bearing
- Size 42 x 35 x 17 mm
- 6 ratios as standard
- On request other ratios are possible
- Axial distance 14 mm
- Input / Output hex 6 mm
- On request also possible with counter-clockwise-ascending worm and wheel set



### Technische Angaben

Model	4747.00-00	4749.00-00	4751.00-00
Ratio	4.33:1	2.5:1	1:1
Static self-locking	Yes	No	No
Max. output torque	2 Nm	2 Nm	2 Nm
Max. input torque	3 Nm	3 Nm	4 Nm

Baureihe	4752.00-00	4754.00-00	4755.00-00
Ratio	3.33:1	6:1	13:1
Static self-locking	Yes	Yes	Yes
Max. output torque	2.5 Nm	3 Nm	3 Nm
Max. input torque	3 Nm	2 Nm	1 Nm



# Worm gear 4748/4750/...

Input narrow side

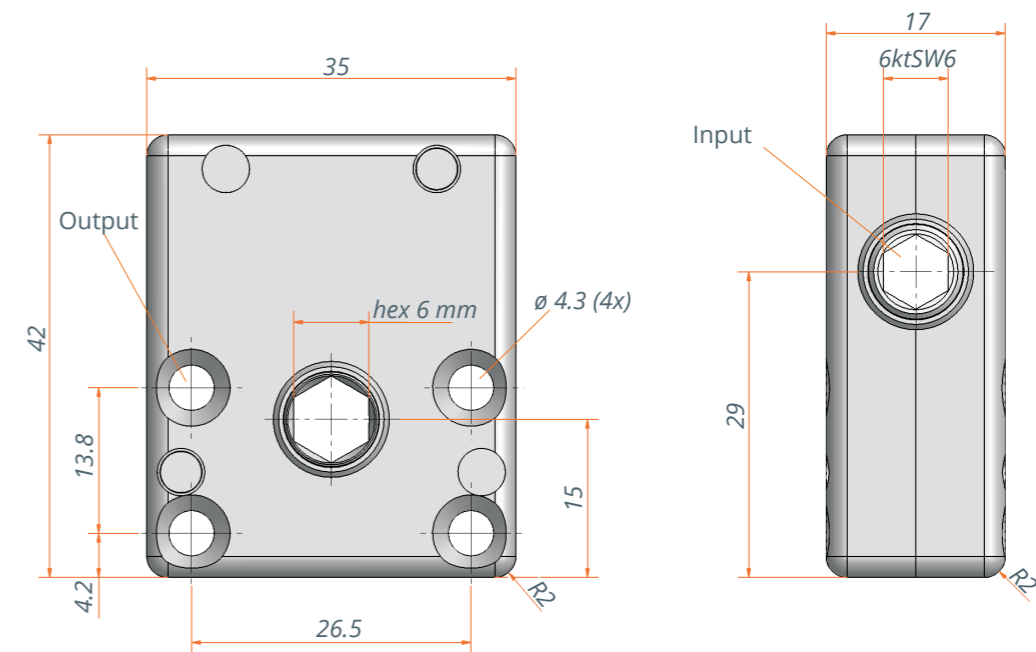


## Description

Compact, universally usable and maintenance-free worm gearbox in a size with an axle distance of 14 mm and various reduction ratios. The drive is located on the narrow side of the gearbox. The worm wheel assembly is right-handed. The direction of rotation on the shaft is arbitrary. The gearbox is characterised by a compact design with maximum torque, sturdiness and smooth power transmission. Simple mounting is made possible by a flexible screw fixing.

## Special features

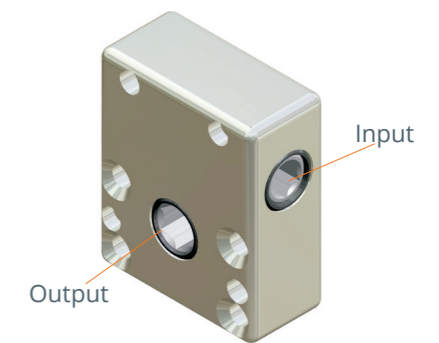
- Maintenance-free grease lubrication
- Case hardened worm and cog wheel
- Housing made of zinc die-casting
- Special model with bronze bearing
- Size 42 x 35 x 17 mm
- 8 ratios as standard
- On request other ratios are possible
- Axial distance 14 mm
- Input / Output hex 6 mm
- On request also with counterclockwise-ascending worm and wheel set



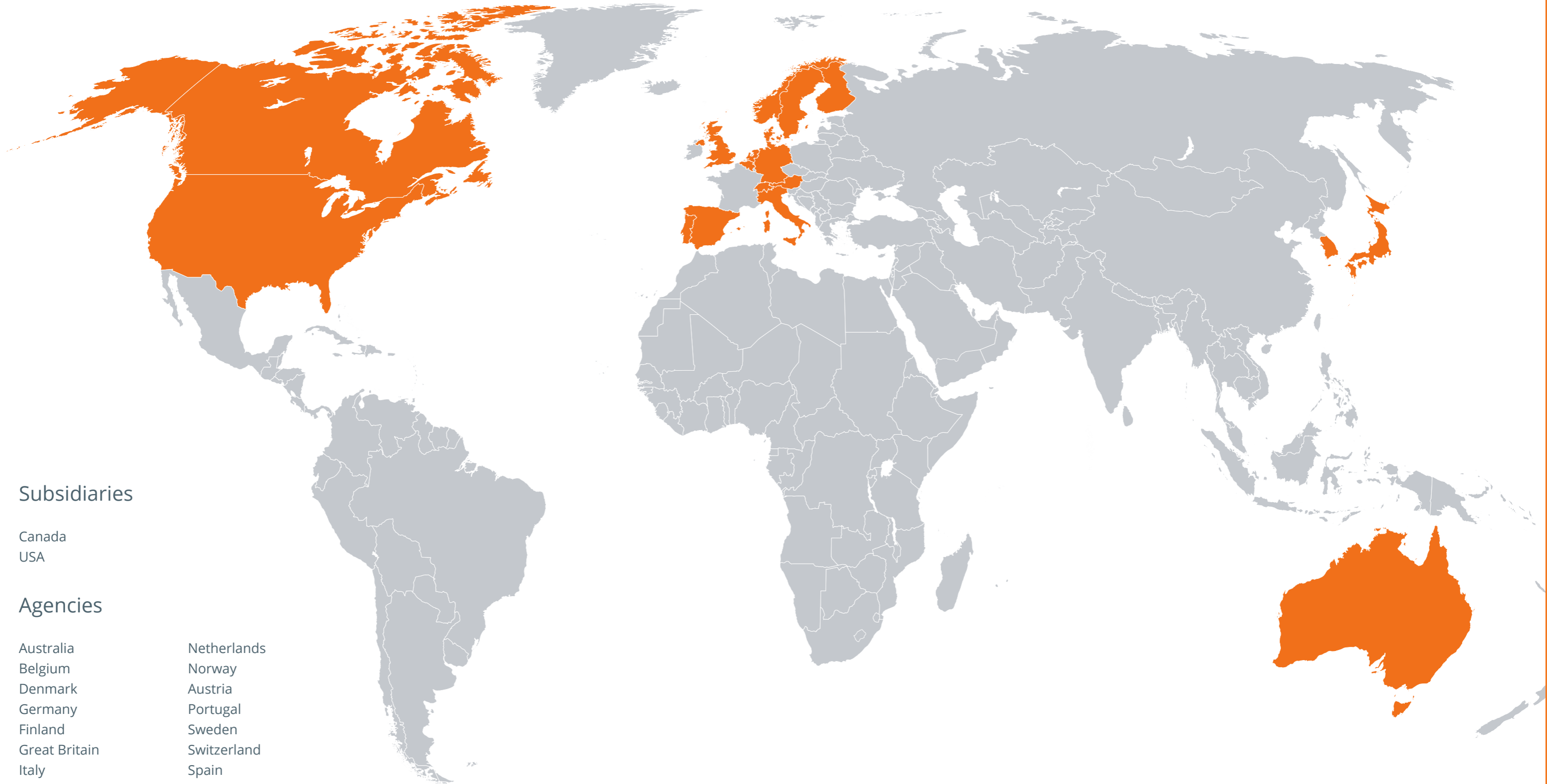
## Technical data

Model	4748.00-00	4750.00-00	4751.00-00	4753.00-00
Ratio	4.33:1	10:1	1:1	2.8:1
Static self-locking	Yes	Yes	No	No
Max. output torque	2 Nm	4 Nm	2 Nm	2.5 Nm
Max. input torque	3 Nm	3 Nm	4 Nm	3 Nm

Model	4757.00-00	4758.00-00	4763.00-00	4767.00-00
Ratio	14:1	15:1	23:1	2:1
Static self-locking	Yes	Yes	Yes	No
Max. output torque	5 Nm	4 Nm	3 Nm	2 Nm
Max. input torque	2.5 Nm	1 Nm	1 Nm	3 Nm



# USED AROUND THE WORLD



## Subsidiaries

Canada  
USA

## Agencies

Australia	Netherlands
Belgium	Norway
Denmark	Austria
Germany	Portugal
Finland	Sweden
Great Britain	Switzerland
Italy	Spain
Japan	South Korea
Luxembourg	

B. Ketterer Söhne GmbH & Co. KG  
Bahnhofstrasse 20  
78120 Furtwangen  
Germany

Phone: +49 7723 9323-0  
Mail: [info@ketterer.de](mailto:info@ketterer.de)  
Web: [www.ketterer.de](http://www.ketterer.de)

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