Ketterer
DRIVES

Worm Gear Reducer

WE GET IDEAS MOVING

The spirit of innovation and a sense of ideas beyond the familiar has made us into a pioneering company over more than 185 years.

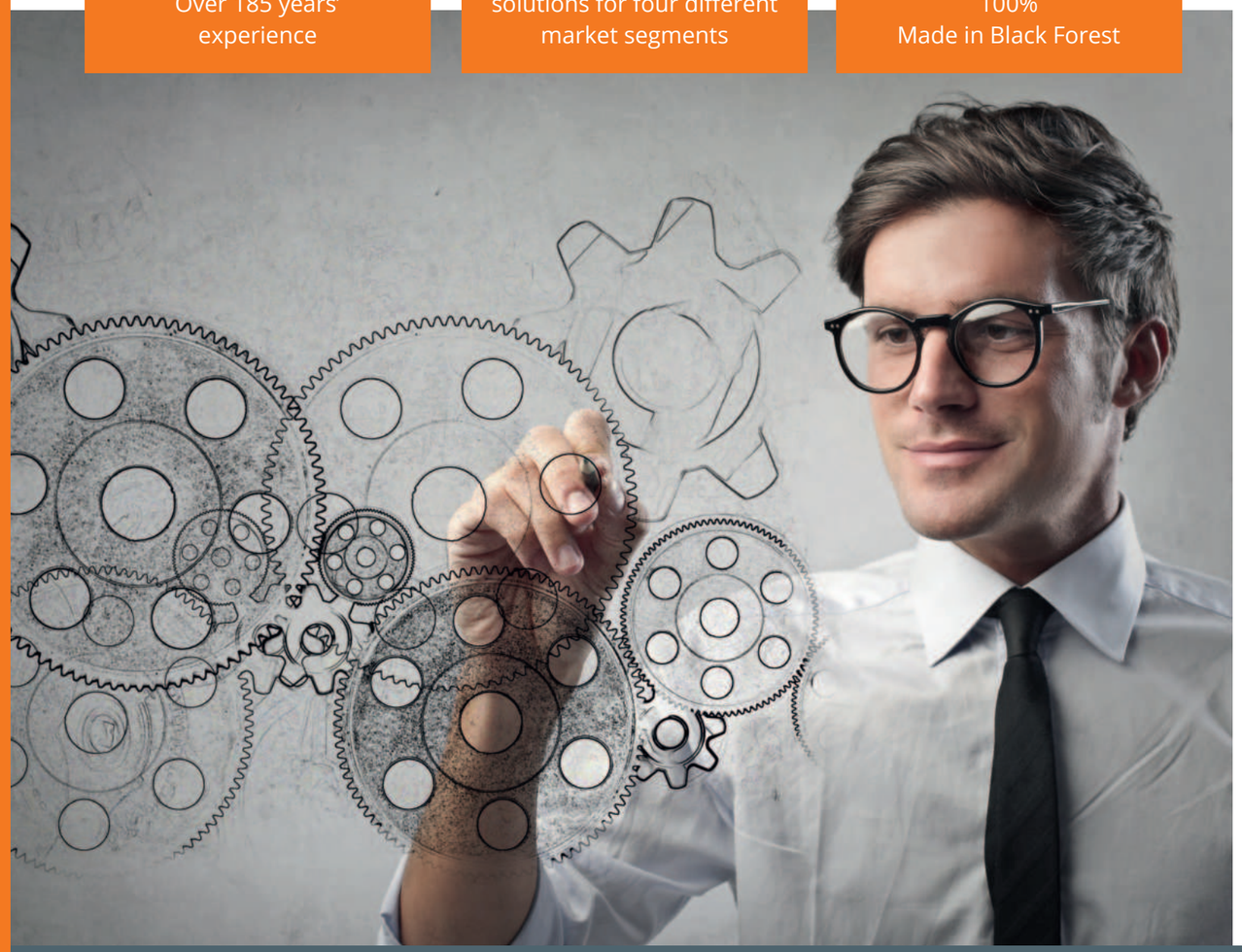
For a quarter of a century, we have been offering customized drive solutions for office and workplace workstations, as well as for shading systems and building technology.

Through our tradition of innovation, we have succeeded in establishing ourselves as a specialist and problem-solver in numerous areas.

Over 185 years' experience

More than 60 standard solutions for four different market segments

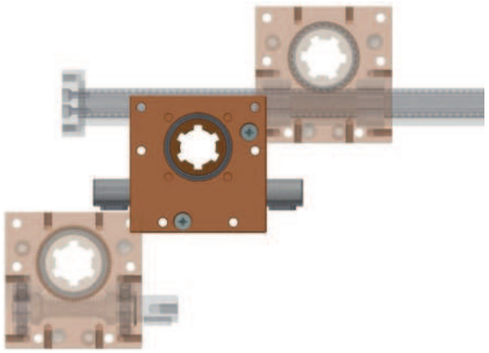
100%
Made in Black Forest



THE RIGHT PRODUCT FOR EACH APPLICATION

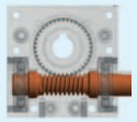
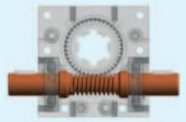
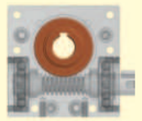
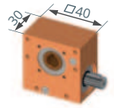
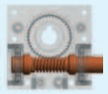
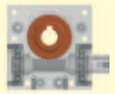
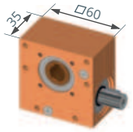
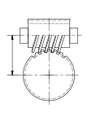
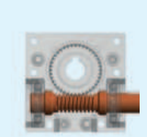
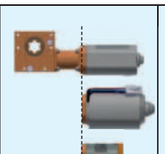
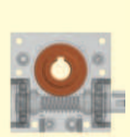
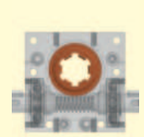
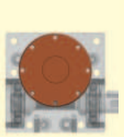
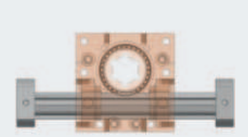
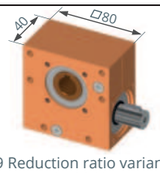
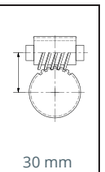
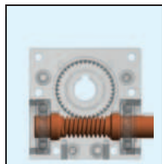
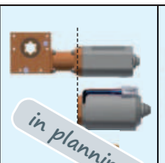
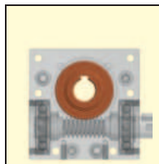
WormGears

Ket-Motion 2XXX worm gearbox family

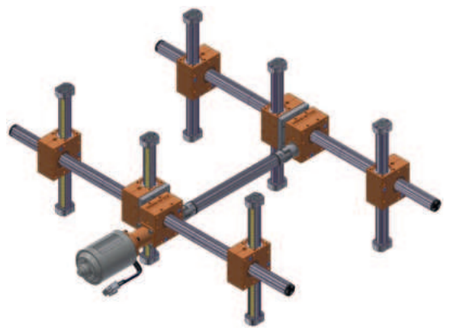
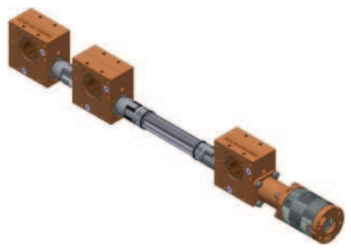
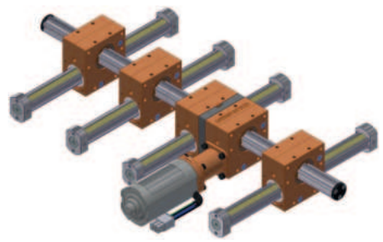
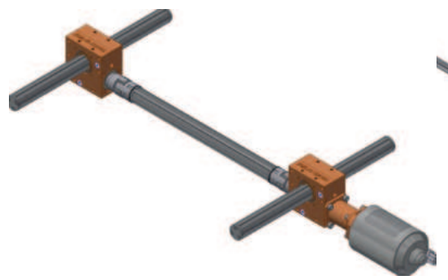
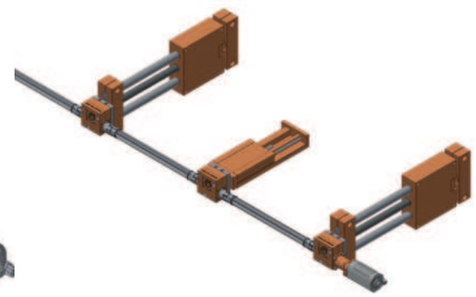


Ket Motion modular gearboxes
Modular, robust, versatile
Your individual requirements - our special solution!

2XXX Ket-Motion

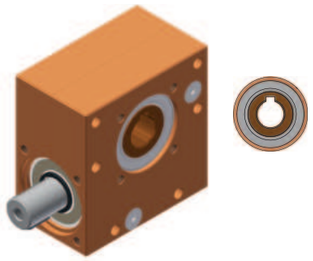
	Variance drive side				Variance output side					Linear gearbox with rack
										Ket-Motion 2XXX Z 
	Single: Drive with feather key groove	Double: Drive as through axis with feather key groove	With motor (3 motor variants)	With position show	Feather key groove	Splined shaft profile	With turntable	For push rod	With linear guidance	
Ket-Motion 2015  7 Reduction ratio variants 0.3 - 3 Nm	 15 mm		—	—		—	—	in planning	possible on request	—
Ket-Motion 2020  9 Reduction ratio variants 0.65 - 15 Nm	 20 mm			in progress						
Ket-Motion 2030  9 Reduction ratio variants 1 - 20 Nm	 30 mm			in planning						

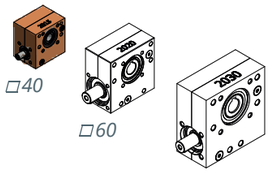
Note: Backlash-free or oil-lubricated variants also available on request

Worm gear reducer Ket-Motion 2015 P

with feather key groove





Universally usable and maintenance-free worm gear unitwith an **axis distance of 15 mm** and with nine different reduction ratios. The housing is encapsulated to prevent the escape of grease and the ingress of dust. The worm gear pair is left-handed. The direction of rotation on the shaft is arbitrary.

Special features

- **Axis distance 15 mm**
- Maintenance-free grease lubrication
- Housing anodized aluminum, orange as standard, other colors possible to suit customer requirement
- 7 reduction ratios from 1:1 to 47:1
- Backlash on the output shaft 1° ± 0.5°, (for i=1:1 2°± 0.5°)
- Duty cycle 20 % for 5 min (1 min ON, 4 min OFF)
- Service life of 1,000 hours with:
  - full load and
  - input speed of 500 rpm and
  - duty cycle 20 % for 5 min and
  - ambient temperature 20 °C

Variant key

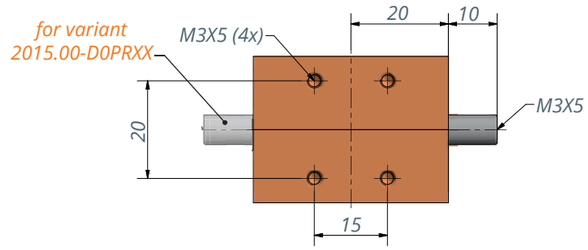
- Variant 2015.00-**S**0PRXX with one drive pin
- Variant 2015.00-**D**0PRXX with through going axis

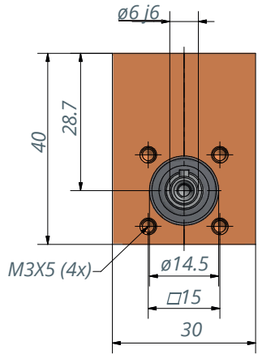
Technical data

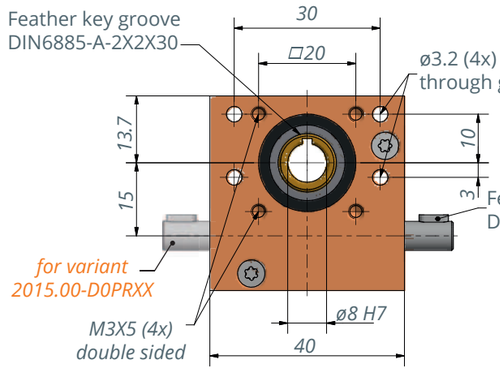
Item number	Ratio i	Self-locking static	Output-speed n in min^{-1}	Max. output-torque M in Nm	Max. drive-torque M in Nm	Drive side: Radial-force[1] F_R in N	Drive side: Axial-force[2] F_A in N	Degree of efficiency %
2015.00-S0PR47	47 : 1	Yes	100/500/1000	1.6/1.4/1.2	0.10/0.09/0.08	200	200	34
2015.00-D0PR47								
2015.00-S0PR40	40 : 1	Yes	100/500/1000	1.7/1.6/1.5	0.15/0.14/0.13	150	150	29
2015.00-D0PR40								
2015.00-S0PR30	30 : 1	No	100/500/1000	2.6/2.3/2.0	0.20/0.18/0.16	100	100	43
2015.00-D0PR30								
2015.00-S0PR18	18 : 1	No	100/500/1000	2.8/2.5/2.3	0.37/0.33/0.30	50	50	42
2015.00-D0PR18								
2015.00-S0PR12	12 : 1	No	100/500/1000	3.0/2.8/2.5	0.56/0.52/0.46	50	50	45
2015.00-D0PR12								
2015.00-S0PR05	5 : 1	No	100/500/1000	2.7/2.6/2.4	0.89/0.85/0.79	50	50	61
2015.00-D0PR05								
2015.00-S0PR01*	1 : 1	No	100/500/1000	1.0/0.6/0.3	1.28/0.77/0.38	50	50	78
2015.00-D0PR01*								

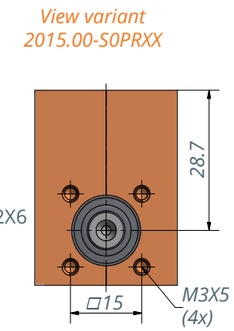
1) The values of F_R apply only when F_A = 0 N
2) The values of F_A apply only when F_R = 0 N

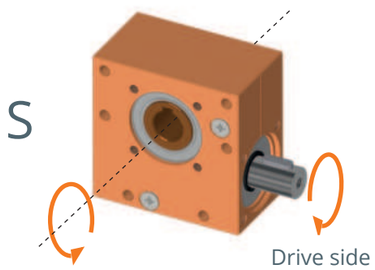
* Backlash on the output shaft 2°± 0.5°



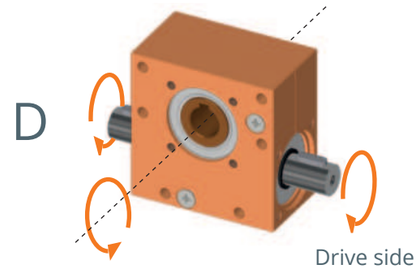








Variant 2015.00-**S**0PRXX
with one drive pin



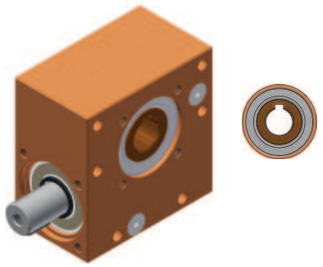
Variant 2015.00-**D**0PRXX
with through going axis

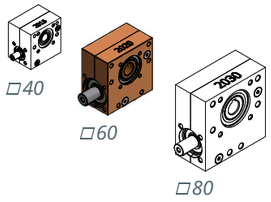
Technical notes

- Permissible force on drive side: F_A= 200 N when F_R= 0 N and F_R= 200 N when F_A= 0 N
- The positions of the feather keys as standard in variant D are not in line. Possible on enquiry if needed

Worm gear reducer Ket-Motion 2020 P

With feather key groove





Description

Universally usable and maintenance-free worm gear with unit an **axis distance of 20 mm** and with nine different reduction ratios. The aluminium or zinc housing is encapsulated to prevent the escape of grease and the ingress of dust. The worm gear pair is left-handed. The direction of rotation on the shaft is arbitrary.

Special features

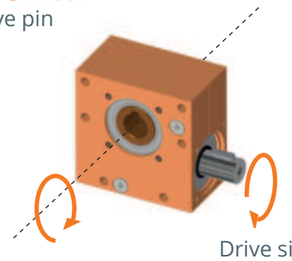
- **Axis distance 20 mm**
- Maintenance-free grease lubrication
- Aluminium housing , anodized
  (Color on customer request) or
  Zinc housing in a material-saving design
- 9 reduction ratios from 1:1 to 65:1
- Backlash on the drive shaft 1° ± 0.5°, (for i=1:1 2°± 0.5°)
- Duty cycle of 20 % at 5 min (1 min ON, 4 min OFF)
- Service life of 1,000 hours with:
  - full load and
  - input speed of 500 rpm and
  - duty cycle 20% with 5 min and
  - ambient temperature 20 °C

Variant key

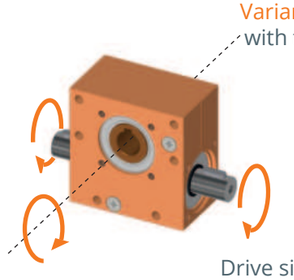
Ket-Motion	Configuration of drive side	
2020.00	S	With one drive pin
	D	With through going axis
	Housing: Material & Optics	
	0	Alu, orange anodized (standard)
	1	Alu, silver anodized
	X_i	Alu, Color according to customer requirements
	Z	Zinc die-cast housing
	Configuration of output side	
	P	Feather key groove
	Reduction ratio R	
	RXX	9 Reduction variants of R01 (i= 1:1) to R65 (i=65:1)
2020.00-	S	0 P R65 **Example**

Variant 2020.00-**S**XPRXX
with one drive pin

S



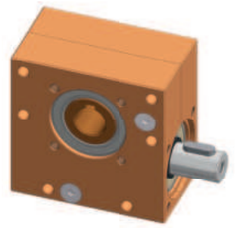
Variant 2020.00-**D**XPRXX
with through going axis



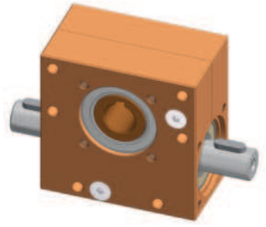
D

2020 P Gearbox with aluminium housing, anodized

With one drive pin
2020.00-S0PRXX



With through-screw
2020.00-D0PRXX

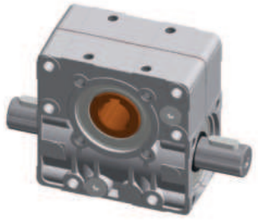


- Lower point load due to full-surface contact during bolting
- Free choice of color through anodizing
- Noble design in the visible area

2020 P Gearbox with material-saving zinc housing

With one drive pin
2020.00-SZPRXX

With through-screw
2020.00-DZPRXX



- Lower CO2 imprint than ALU
- Cost-optimized
- Industrial Design

Technical data

Item number	*Reduction ratio i*	*Self-locking static*	*Output-speed n in min^{-1}*	*Max. output torque M in Nm*	*Max. drive torque M in Nm*	*Drive side*		*Degree of efficiency %*
						Radial-force[1] F_R in N	*Axial-force[2] F_A in N*	
2020.00-XXPR65	65 : 1	Yes	100/500/1000	4.5/3.8/3	0.2/0.2/0.2	500	500	29
2020.00-XXPR40	40 : 1	Yes	100/500/1000	5.5/4.8/4	0.4/0.3/0.3	400	400	39
2020.00-XXPR30	30 : 1	No	100/500/1000	8.5/7/5.5	0.6/0.5/0.4	350	350	45
2020.00-XXPR23	23 : 1	No	100/500/1000	10/8/6	0.9/0.7/0.5	250	250	50
2020.00-XXPR18	18 : 1	No	100/500/1000	11/9/7	1.1/0.9/0.7	250	250	55
2020.00-XXPR15	15 : 1	No	100/500/1000	12/10/8	1.5/1.3/1	250	200	52
2020.00-XXPR13	13 : 1	No	100/500/1000	15/13/11	2.1/1.8/1.5	200	200	56
2020.00-XXPR05	5 : 1	No	100/500/1000	10/8/6	2.9/2.3/1.7	200	200	70
2020.00-XXPR01*	1 : 1	No	100/500/1000	1.5/1/0.65	2.1/1.4/0.9	250	250	73

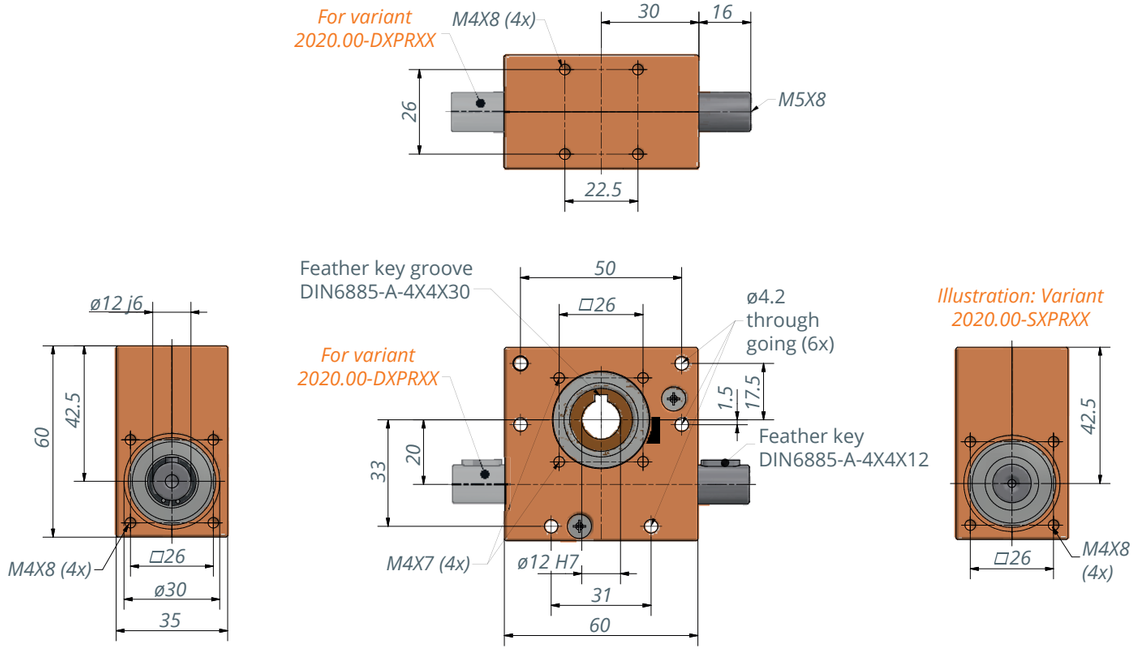
1) The values of F_R apply only when F_A = 0 N
2) The values of F_A apply only when F_R = 0 N

* Backlash on the output shaft 2°± 0.5°

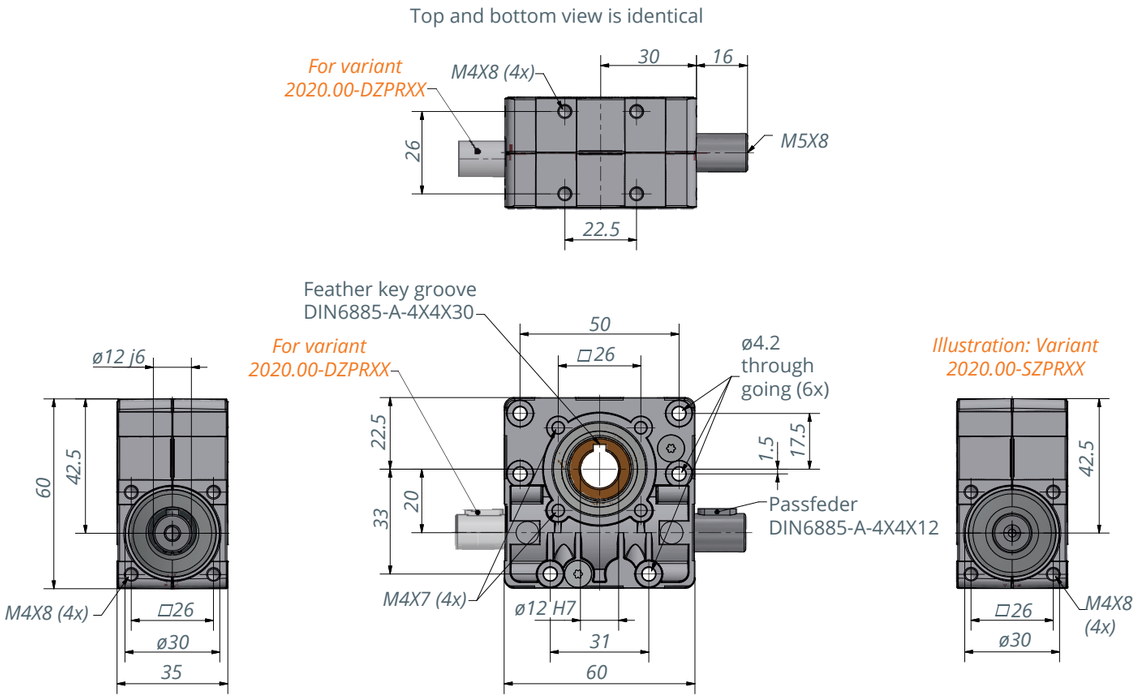
Technical notes

- Variant with feather key groove: Permissible force on drive side F_A= 500 N at F_R= 0 N and F_R= 500 N at F_A= 0 N
- The positions of the feather keys as standard in variant D are not in line. Possible on enquiry if needed

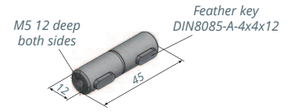
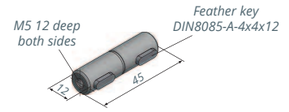
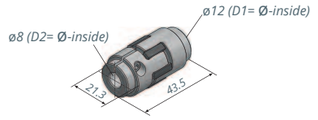
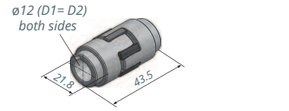
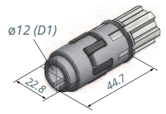
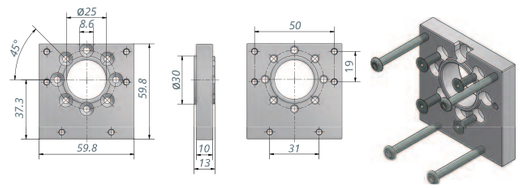
Variant with **Aluminium housing**: With one drive pin or through going axis



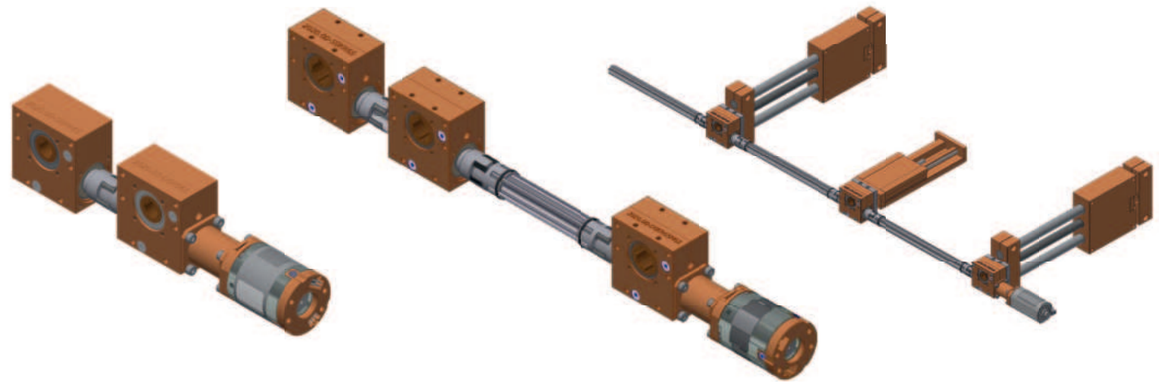
Variant with **Zinc housing**: With one drive pin or through going axis



Mechanical accessories

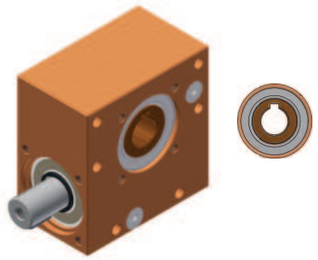
	Item number	Illustration
Alu shaft ***(Gear connector)*** ***with feather key DIN6885-A-4x4x12***	5708.39-0000	
Steel shaft ***(Gear connector)*** ***with feather key DIN6885-A-4x4x12***	5708.39-0001	
Claw coupling ***D1= 12/ D2= 8*** ***for shaft connection***	5790.12-0003	
Claw coupling ***D1= 12/ D2= 12*** ***for shaft connection***	5790.12-0001	
Claw coupling ***D1= 12*** ***for slinde shaft profil (DIN5463-6x12x20)***	5790.12-0007	
Mounting flange 45° latching	2010.15-0001	

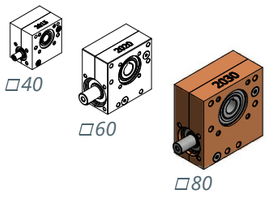
Application example



Worm gear reducer Ket-Motion 2030 P

with feather key groove





Universally usable and maintenance-free worm gear with an **axis distance of 30 mm** and with nine different reduction ratios. The housing is encapsulated to prevent the escape of grease and the ingress of dust. The worm gear pair is left-handed. The direction of rotation on the shaft is arbitrary.

Special features

- **Axis distance 30 mm**
- Maintenance-free grease lubrication
- Housing anodized aluminum, orange as standard, other colors possible to suit customer requirement
- 9 reduction ratios from 1:1 to 64:1
- Backlash on the output shaft 1° ± 0.5°, (for i=1:1 2°± 0.5°)
- Duty cycle 20 % for 5 min (1 min ON, 4 min OFF)
- Service life of 1,000 hours with:
  - full load and
  - input speed of 500 rpm and
  - duty cycle 20 % for 5 min and
  - ambient temperature 20 °C

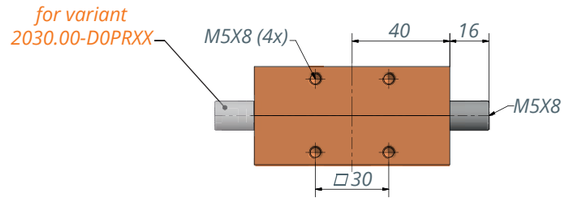
Variant key

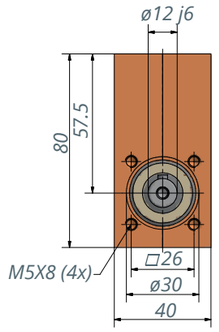
- Variant 2030.00-**S**0PRXX with one drive pin
- Variant 2030.00-**D**0PRXX with through going axis

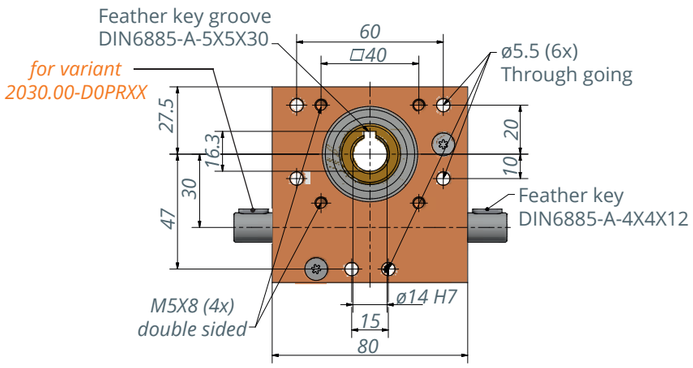
Item number	Ratio i	Self-locking static	Output-speed n in min^{-1}	Max. output-torque M in Nm	Max. drive-torque M in Nm	Drive side: Radial-force[1] F_R in N	Drive side: Axial-force[2] F_A in N	Degree of efficiency %
2030.00-S0PR64	64 : 1	Yes	100/500/1000	8.5/7.5/6.0	0.5/0.4/0.3	700	600	27
2030.00-D0PR64								
2030.00-S0PR45	45 : 1	up to 5 Nm	100/500/1000	10.5/9.5/9.0	0.9/0.8/0.8	700	600	25
2030.00-D0PR45								
2030.00-S0PR34	34 : 1	up to 5 Nm	100/500/1000	12.0/11.0/10.0	1.2/1.1/1.0	600	500	29
2030.00-D0PR34								
2030.00-S0PR25	25 : 1	No	100/500/1000	13.5/12.0/11.0	1.3/1.2/1.1	500	500	41
2030.00-D0PR25								
2030.00-S0PR20	20 : 1	No	100/500/1000	15.0/13.5/12.0	1.7/1.6/1.4	500	400	43
2030.00-D0PR20								
2030.00-S0PR17	17 : 1	No	100/500/1000	17.0/15.0/14.0	2.2/1.9/1.8	400	400	46
2030.00-D0PR17								
2030.00-S0PR10	10 : 1	No	100/500/1000	20.0/18.0/16.0	3.4/3.1/2.8	400	300	58
2030.00-D0PR10								
2030.00-S0PR05	5 : 1	No	100/500/1000	19.0/17.0/15.0	5.4/4.9/4.3	400	300	70
2030.00-D0PR05								
2030.00-S0PR01*	1 : 1	No	100/500/1000	2.0/1.5/1.0	2.7/2.1/1.4	400	300	73
2030.00-D0PR01*								

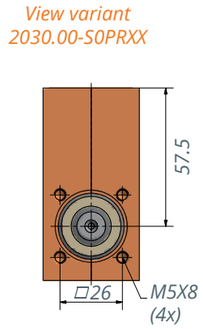
1) The values of F_R apply only when F_A = 0 N
2) The values of F_A apply only when F_R = 0 N

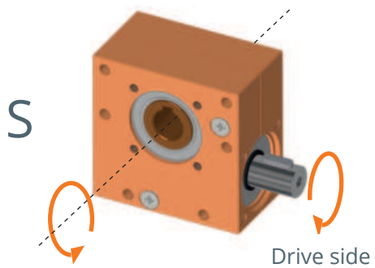
* Backlash on the output shaft 2°±0.5°



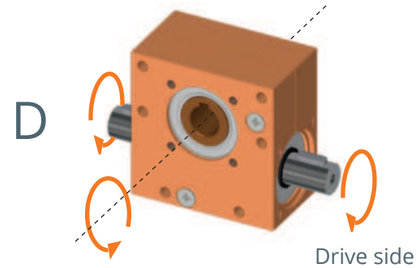








Variant 2030.00-**S**0PRXX
with one drive pin



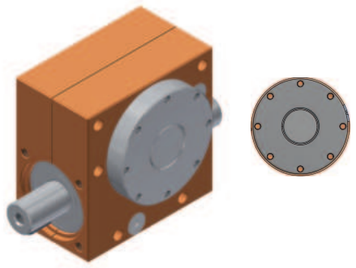
Variant 2030.00-**D**0PRXX
with through going axis

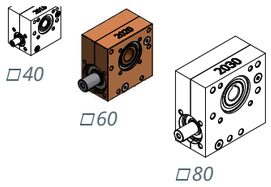
Technical notes

- Permissible force on drive side: F_A= 800 N when F_R= 0 N and F_R= 800 N when F_A= 0 N
- The positions of the feather keys as standard in variant D are not in line. Possible on enquiry if needed

Worm gear reducer Ket-Motion 2020 D

With turntable





Description

Universally usable and maintenance-free worm gear unit with an **axis distance of 20 mm** and with nine different reduction ratios. The aluminium or zinc housing is encapsulated to prevent the escape of grease and the ingress of dust. The worm gear pair is left-handed. The direction of rotation on the shaft is arbitrary.

Special features

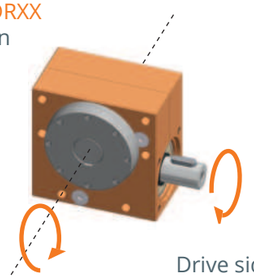
- **Axis distance 20 mm**
- Maintenance-free grease lubrication
- Aluminium housing , anodized
  (Color on customer request) or
  Zinc housing in a material-saving design
- 9 reduction ratios from 1:1 to 65:1
- Backlash on the drive shaft 1° ± 0.5°, (for i=1:1 2°± 0.5°)
- Duty cycle of 20 % at 5 min (1 min ON, 4 min OFF)
- Service life of 1,000 hours with:
  - full load and
  - input speed of 500 rpm and
  - duty cycle 20% with 5 min and
  - ambient temperature 20 °C

Variant key

Ket-Motion	Configuration of drive side				
2020.00	S	With one drive pin			
	D	With through going axis			
		Housing: Material & Optics			
		0	Alu, orange anodized (standard)		
		1	Alu, silver anodized		
		X_i	Alu, Color according to customer requirements		
		Z	Zinc die-cast housing		
			Configuration of output side		
			D	Turntable	
				Reduction ratio R	
				RXX	9 Reduction variants of R01 (i= 1:1) to R65 (i=65:1)
2020.00-	**S**	**0**	**D**	**R65**	**Example**

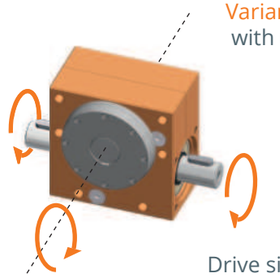
Variant 2020.00-**S**XDRXX
with one drive pin

S



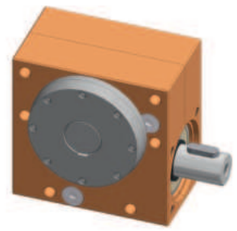
Variant 2020.00-**D**XDRXX
with through going axis

D

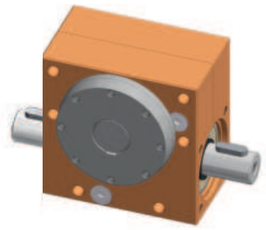


2020 D Gearbox with aluminium housing

With one drive pin
2020.00-S0DRXX



With through-screw
2020.00-D0DRXX



- Lower point load due to full-surface contact during bolting
- Free choice of color through anodizing
- Noble design in the visible area

2020 D Gearbox with zinc die casting housing

With one drive pin
2020.00-SZDRXX

With through-screw
2020.00-DZDRXX

- Lower CO2 imprint than ALU
- Cost-optimized
- Industrial Design

Technical data

Item number	*Reduction ratio i*	*Self-locking static*	*Output-speed n in min⁻¹*	*Max. output-torque M in Nm*	*Max. drive-torque M in Nm*	*Drive side*		*Degree of efficiency %*
						Radial-force[1] F_R in N	*Axial-force[2] F_A in N*	
2020.00-XXDR65	65 : 1	Yes	100/500/1000	4.5/3.8/3	0.2/0.2/0.2	500	500	29
2020.00-XXDR40	40 : 1	Yes	100/500/1000	5.5/4.8/4	0.4/0.3/0.3	400	400	39
2020.00-XXDR30	30 : 1	No	100/500/1000	8.5/7/5.5	0.6/0.5/0.4	350	350	45
2020.00-XXDR23	23 : 1	No	100/500/1000	10/8/6	0.9/0.7/0.5	250	250	50
2020.00-XXDR18	18 : 1	No	100/500/1000	11/9/7	1.1/0.9/0.7	250	250	55
2020.00-XXDR15	15 : 1	No	100/500/1000	12/10/8	1.5/1.3/1	250	200	52
2020.00-XXDR13	13 : 1	No	100/500/1000	15/13/11	2.1/1.8/1.5	200	200	56
2020.00-XXDR05	5 : 1	No	100/500/1000	10/8/6	2.9/2.3/1.7	200	200	70
2020.00-XXDR01*	1 : 1	No	100/500/1000	1.5/1/0.65	2.1/1.4/0.9	250	250	73

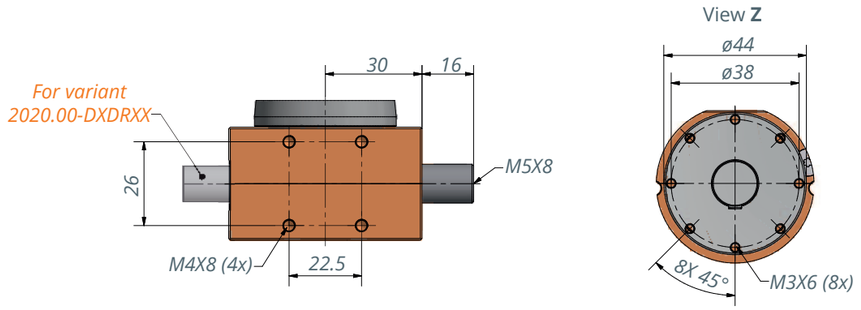
1) The values of FR apply only when FA = 0 N
2) The values of FA apply only when FR = 0 N

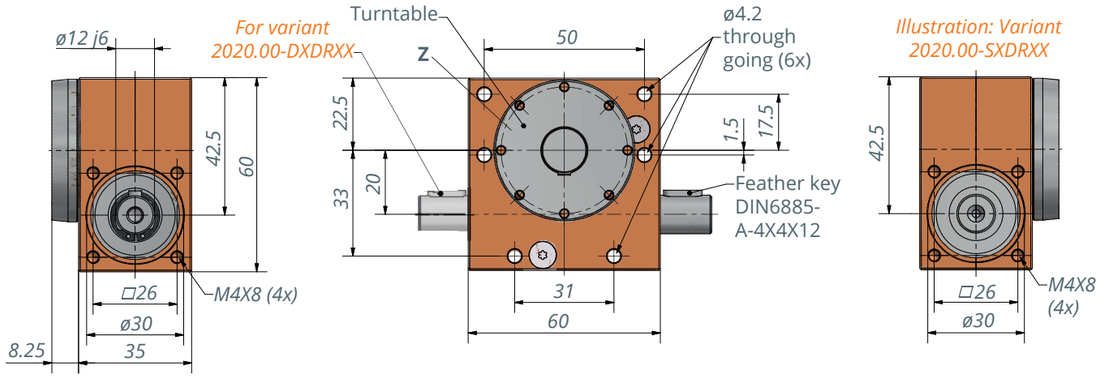
* Backlash on the output shaft 2°± 0.5°

Technical notes

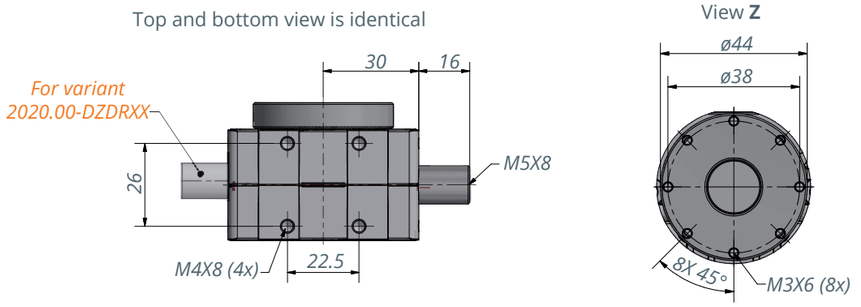
- Variant with **turntable**: Permissible forces on drive side FA =1,500 N
- The positions of the feather keys as standard in variant D are not in line. Possible on enquiry if needed

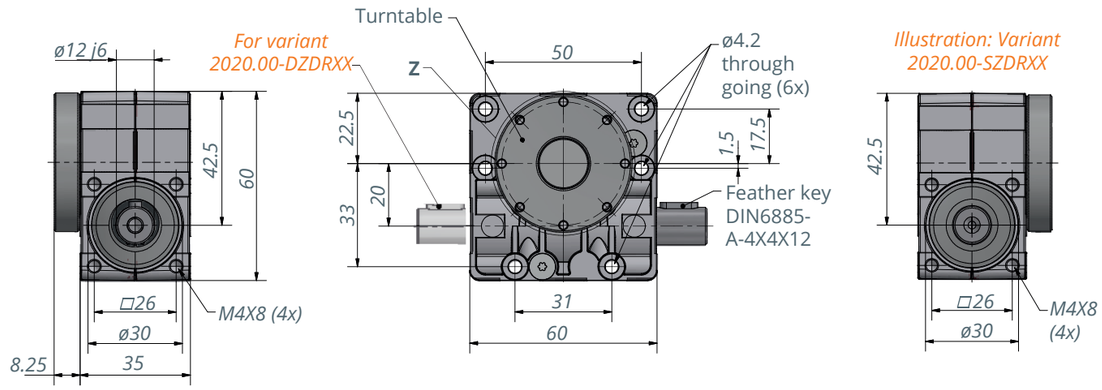
Variant with **Aluminium housing**: With one drive pin or through going axis



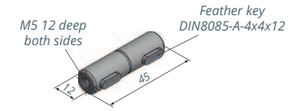
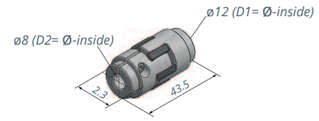
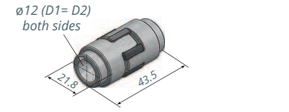
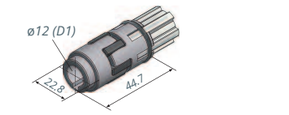
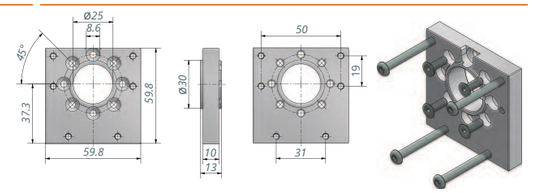


Variant with **Zinc housing**: With one drive pin or through going axis

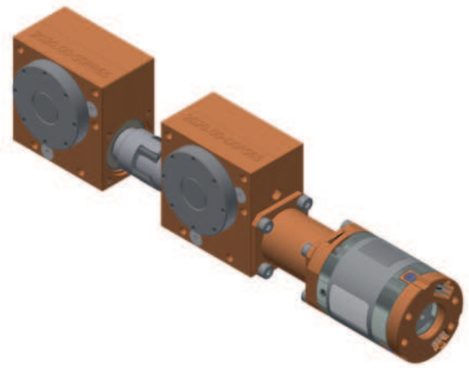




Mechanical accessories

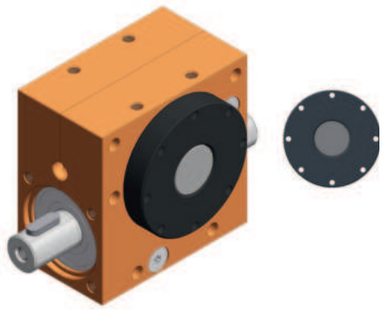
	Item number	*Illustration*
Shaft (Gear connector) with feather key DIN6885-A-4x4x12	5708.39-0000	
Claw coupling D1= 12/ D2= 8 for shaft connection	5790.12-0003	
Claw coupling D1= 12/ D2= 12 for shaft connection	5790.12-0001	
Claw coupling D1= 12 for slinde shaft profil (DIN5463-6x12x20)	5790.12-0007	
Mounting flange 45° latching	2010.15-0001	

Application example



Low-backlash gear Ket-Motion 2020 DS

with turntable



A low-backlash, maintenance-free worm gear unit for demanding applications in positioning or for high-precision measuring tasks. The housing is encapsulated to prevent the escape of grease and the ingress of dust. The direction of rotation on the shaft is arbitrary.

Special features

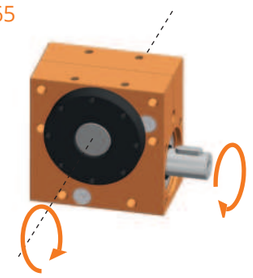
- Maintenance-free grease lubrication
- Housing: Aluminium anodized
  (Zinc housing on customer request)
- Reduction ratios of 65:1 in standard
  (Other reduction ratios also possible on request)
- Backlash: ≤ 0.05° (3') to M_{Drive} = 0.1 Nm
  ≤ 0.5° (30') to M_{Drive} = 1 Nm
- Duty cycle of 10 % at 5 min (0.5 min ON, 4.5 min OFF)
- Service life of 1,000 hours with:
  - full load and
  - input speed of 100 rpm and
  - duty cycle 10% with 5 min and
  - ambient temperature 20 °C

Variant key

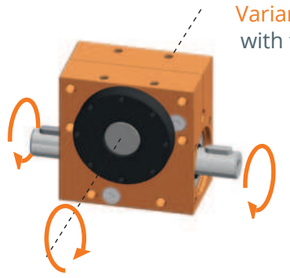
Ket-Motion	Configuration of drive side				
2020.00	S	With one drive pin			
	D	With through going axis			
		Housing: Material & Optics			
		0	Alu, orange anodized (standard)		
		1	Alu, silver anodized		
		X_i	Alu, Color according to customer requirements		
		Z	Zinc die-cast housing (on request)		
			Configuration of output side		
			D	Turntable	
				Reduction ratio	
				S65	i = 65:1 other reduction variants on request
2020.00-	S	0	D	S65	**Example**

Variant 2020.00-**S**0DS65
with one drive pin

S



Drive side



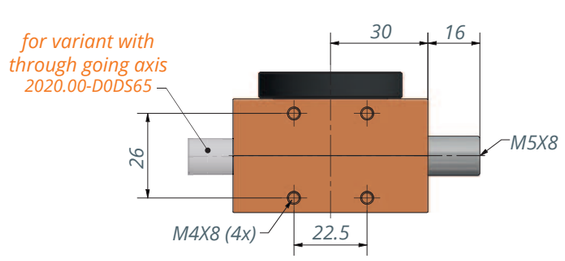
Variant 2020.00-**D**0DS65
with through going axis

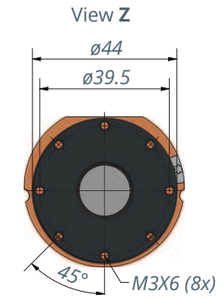
D

Technical data

Item number	Reduction ratio i	Self-locking static	Max. output-speed n in min^{-1}	Max. output-torque M in Nm	Max. drive-torque M in Ncm	Max. axial load on drive side in N	Max. axial load on output side in N	Degree of efficiency in %
2020.00-S0DS65 2020.00-D0DS65	65 : 1	Yes	100	1	5	600	1500	35

Other translations on request





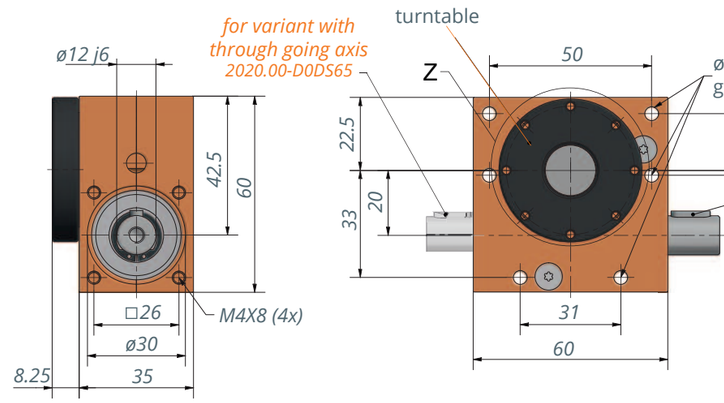
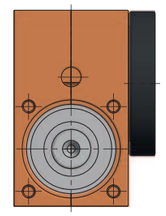


Illustration variant with one drive pin 2020.00-S0DS65

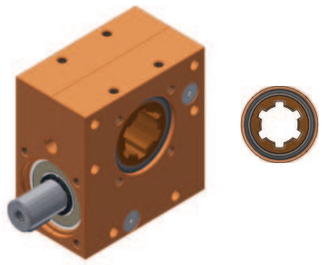


Technical notes

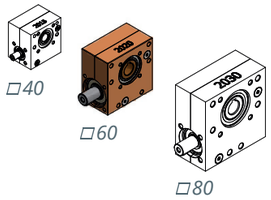
- Variant with **turntable**: Permissible axial forces on drive side FA =1,500 N
- The positions of the feather keys as standard in variant D are not in line. Possible on enquiry if needed

Worm gear reducer Ket-Motion 2020 K

With splined shaft connection



□40 □60 □80



Description

Universally usable and maintenance-free worm gear unit with an **axis distance of 20 mm** and with nine different reduction ratios. The aluminium or zinc housing is encapsulated to prevent the escape of grease and the ingress of dust. The worm gear pair is left-handed. The direction of rotation on the shaft is arbitrary.

Special features

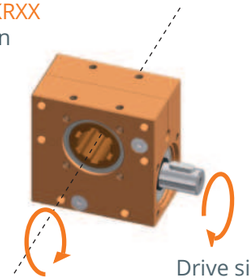
- **Axis distance 20 mm**
- Maintenance-free grease lubrication
- Aluminium housing, anodized
  (Color on customer request) or
  Zinc housing in a material-saving design
- 9 reduction ratios from 1:1 to 65:1
- Backlash on the drive shaft 1° ± 0.5°, (for i=1:1 2°± 0.5°)
- Duty cycle of 20 % at 5 min (1 min ON, 4 min OFF)
- Service life of 1,000 hours with:
  - full load and
  - input speed of 500 rpm and
  - duty cycle 20% with 5 min and
  - ambient temperature 20 °C

Variant key

Ket-Motion	Configuration of drive side	
2020.00	S	With one drive pin
	D	With through going axis
	Housing: Material & Optics	
	0	Alu, orange anodized (standard)
	1	Alu, silver anodized
	X_i	Alu, Color according to customer requirements
	Z	Zinc die-cast housing
	Configuration of output side	
	K	Splined shaft connection
	Reduction ratio R	
	RXX	9 Reduction variants of R01 (i= 1:1) to R65 (i=65:1)
2020.00-	S	0 K R65 Example

Variant 2020.00-**S**0KRXX
with one drive pin

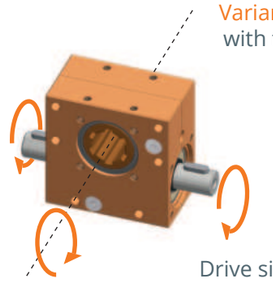
S



Drive side

Variant 2020.00-**D**0KRXX
with through going axis

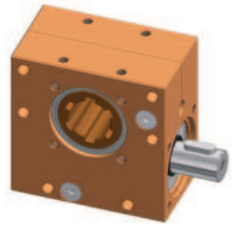
D



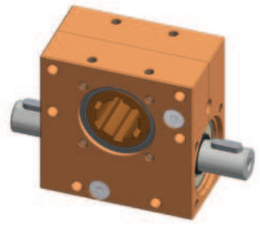
Drive side

2020 K Gearbox with aluminium housing, anodized

With one drive pin
2020.00-S0KRXX



With through-screw
2020.00-D0KRXX



- Lower point load due to full-surface contact during bolting
- Free choice of color through anodizing
- Noble design in the visible area

2020 K Gearbox with material-saving zinc housing

With one drive pin
2020.00-SZKRXX

With through-screw
2020.00-DZKRXX

- Lower CO2 imprint than ALU
- Cost-optimized
- Industrial Design

Technical data

Item number	*Reduction ratio i*	*Self-locking static*	*Output-speed n in min⁻¹*	*Max. output-torque M in Nm*	*Max. drive-torque M in Nm*	*Drive side*		*Degree of efficiency %*
						Radial-force[1] F_R in N	*Axial-force[2] F_A in N*	
2020.00-XXKR65	65 : 1	Yes	100/500/1000	4.5/3.8/3	0.2/0.2/0.2	500	500	29
2020.00-XXKR40	40 : 1	Yes	100/500/1000	5.5/4.8/4	0.4/0.3/0.3	400	400	39
2020.00-XXKR30	30 : 1	No	100/500/1000	8.5/7/5.5	0.6/0.5/0.4	350	350	45
2020.00-XXKR23	23 : 1	No	100/500/1000	10/8/6	0.9/0.7/0.5	250	250	50
2020.00-XXKR18	18 : 1	No	100/500/1000	11/9/7	1.1/0.9/0.7	250	250	55
2020.00-XXKR15	15 : 1	No	100/500/1000	12/10/8	1.5/1.3/1	250	200	52
2020.00-XXKR13	13 : 1	No	100/500/1000	15/13/11	2.1/1.8/1.5	200	200	56
2020.00-XXKR05	5 : 1	No	100/500/1000	10/8/6	2.9/2.3/1.7	200	200	70
2020.00-XXKR01*	1 : 1	No	100/500/1000	1.5/1/0.65	2.1/1.4/0.9	250	250	73

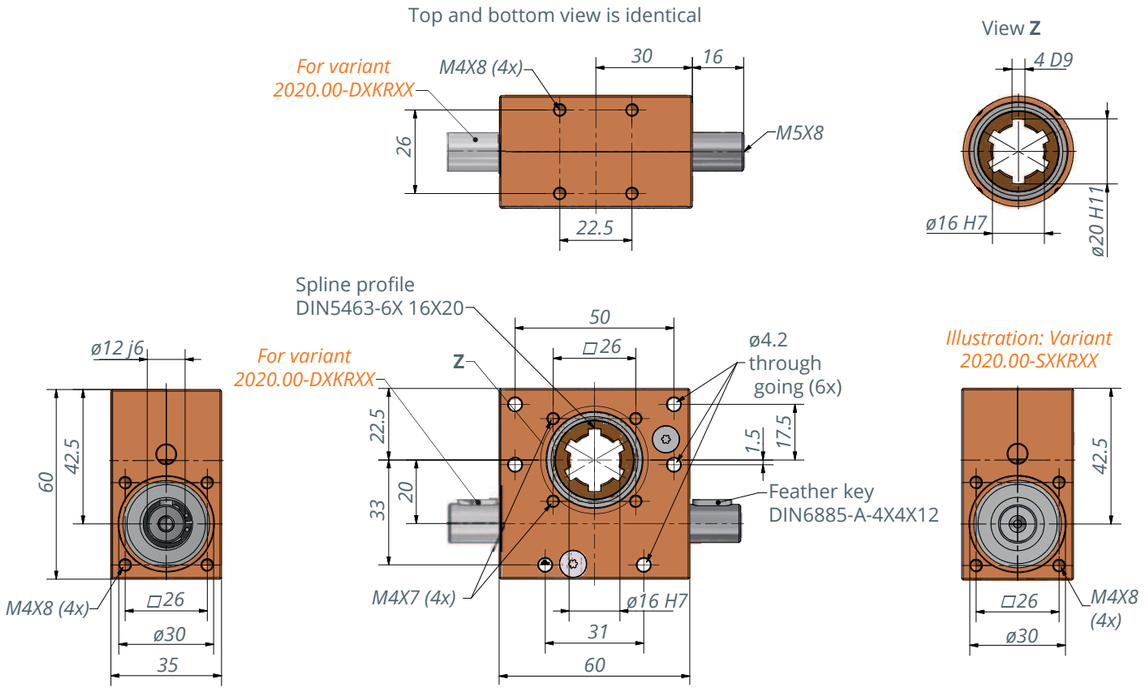
1) The values of F_R apply only when F_A = 0 N
2) The values of F_A apply only when F_R = 0 N

* Backlash on the output shaft 2°± 0.5°

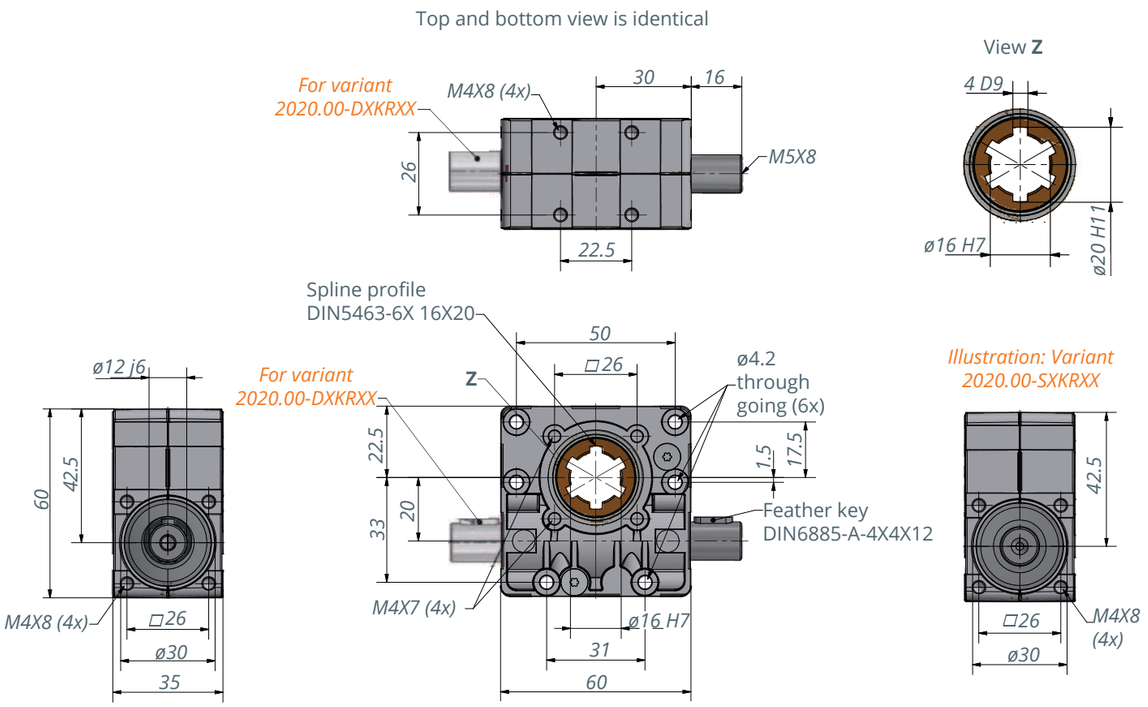
Technical notes

- Variant with **splined shaft connection**: Permissible force on drive side F_A= 120 N at F_R= 0 N and F_R= 120 N at F_A= 0 N
- The positions of the feather keys as standard in variant D are not in line. Possible on enquiry if needed

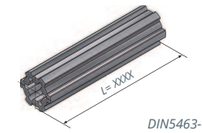
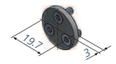
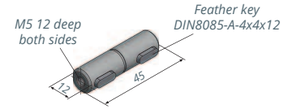
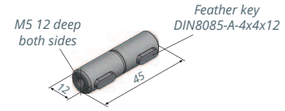
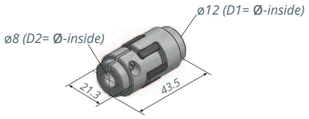
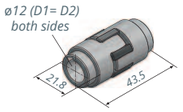
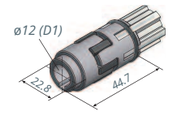
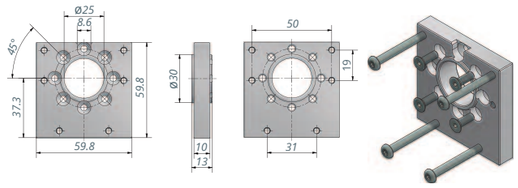
Variant with **Aluminium housing**: With one drive pin or through going axis



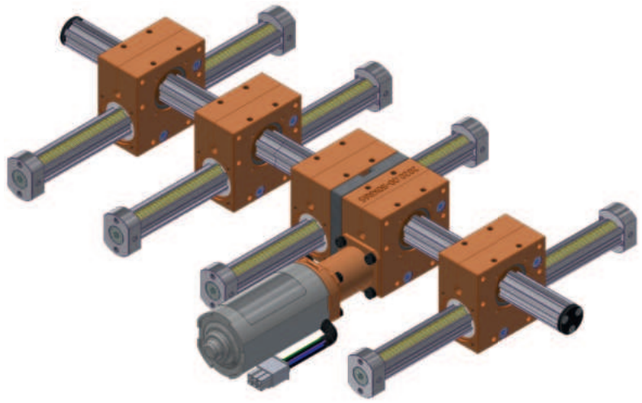
Variant with **Zinc housing**: With one drive pin or through going axis



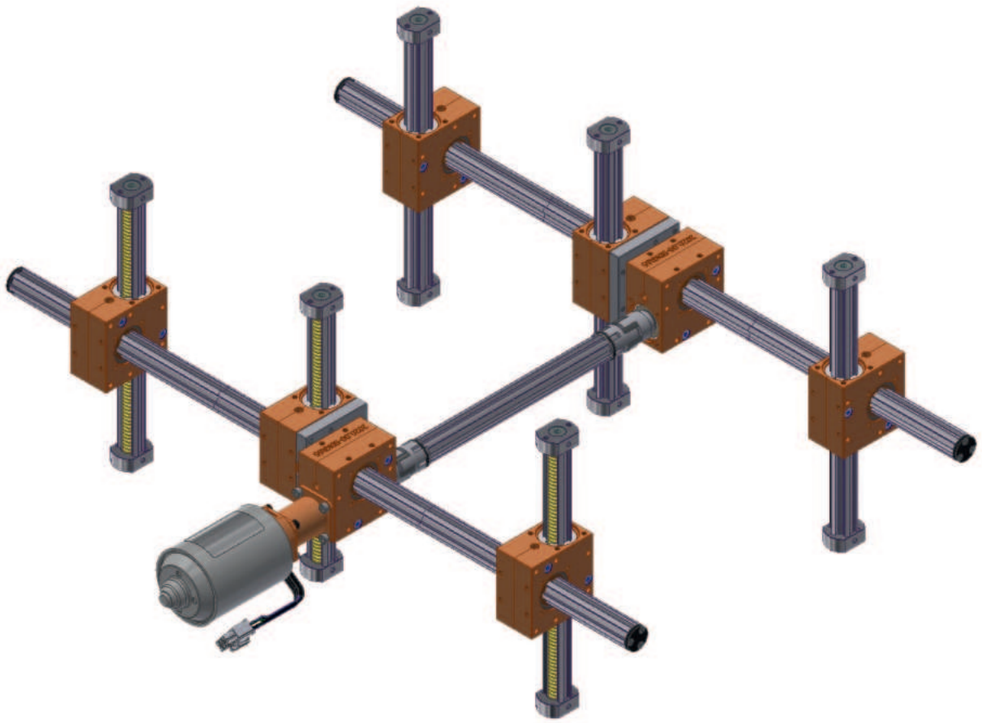
Mechanical accessories

	Item number	*Illustration*
Multifunction splined shaft profile	2010.11-V02LXXXX Preferred variant 2010.11-V02L1000	
End cap for splined shaft profile	2010.02-0001	
Alu Shaft ***(Gear connector)*** ***with feather key DIN6885-A-4x4x12***	5708.39-0000	
Steel Shaft ***(Gear connector)*** ***with feather key DIN6885-A-4x4x12***	5708.39-0001	
Claw coupling ***D1= 12/ D2= 8*** ***for shaft connection***	5790.12-0003	
Claw coupling ***D1= 12/ D2= 12*** ***for shaft connection***	5790.12-0001	
Claw coupling ***D1= 12*** ***for slinde shaft profile (DIN5463-6x12x20)***	5790.12-0007	
Mounting flange 45° latching	2010.15-0001	

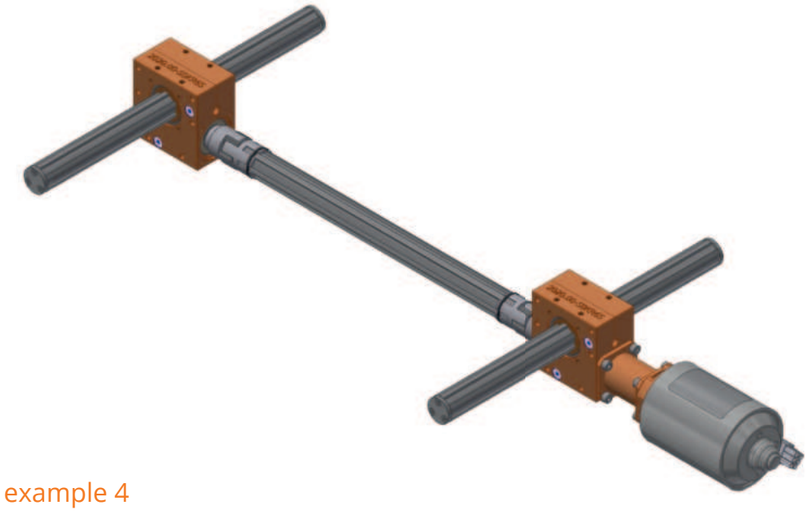
Application example 1



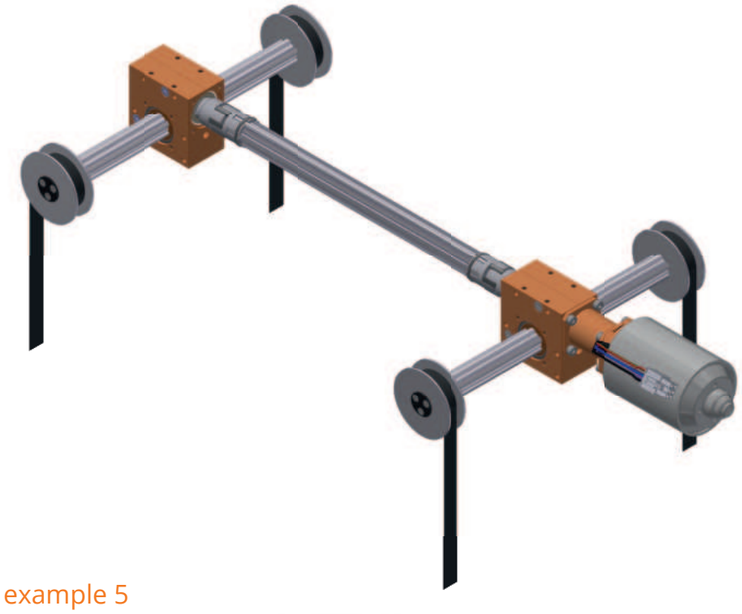
Application example 2



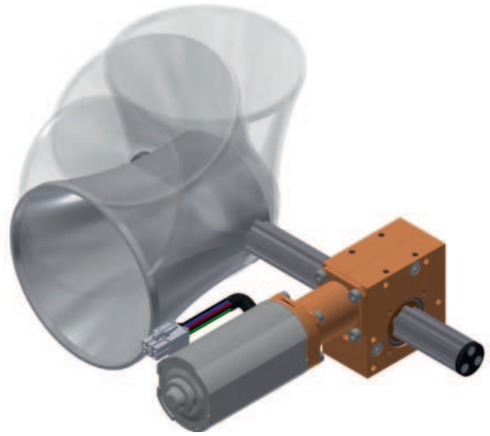
Application example 3



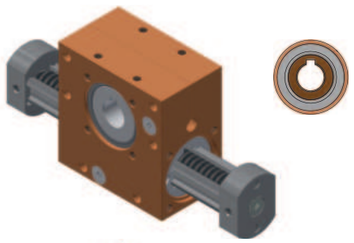
Application example 4



Application example 5



Rack and pinion gear Ket-Motion 2020 ZxP



Description

The function of the universally applicable linear gear units is to convert rotating movements into axial ones.
They are used wherever vertical or horizontal transport, lifting, pushing or steering is required. As an electromechanical variant, these special gear-boxes often replace hydraulics and pneumatics.
Thanks to a rack that can be freely scaled in length, the stroke can be freely selected to suit the application.

Special features

- **Axis distance 20 mm**
- Housing: Either anodized aluminum (color according to customer's request) or with zinc housing in a material saving design
- Feed per revolution 87 mm
- Backlash < 0.5 mm
- Max. Speed 100 mm/s
- Application temperature -20°C to +60°C
- Lubrication and maintenance free
- Stroke HXXXX: freely selectable

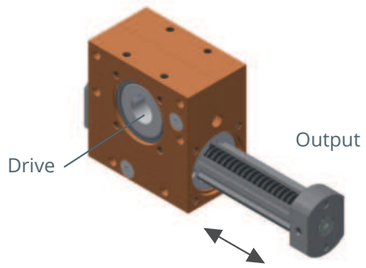
Technical data

Item number	Stroke XXXX in mm	Feed per revolution in mm	Self locking	Drive torque max. M_A in Nm	Axial force output side	
					max. F_A in N	max. F_A peak** in N
2020.00-Z0PHXXXX 2020.00-ZZPHXXXX	variable*	87	No	2.3	100	1300
2020.00-Z0PH0150 2020.00-ZZPH0150	150					
2020.00-Z0PH0250 2020.00-ZZPH0250	250					
2020.00-Z0PH0500 2020.00-ZZPH0500	500					

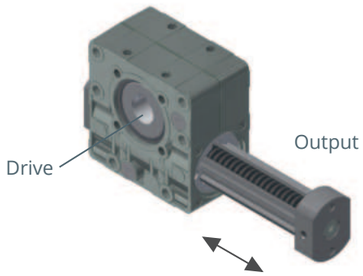
* Max. stroke length 2500 mm
** Short-term peak load < 1 s

Variant key

Ket-Motion					
2020.00	Z	Linear gear			
		Housing: Material & Optics			
		0	Alu, orange anodized (standard)		
		X_i	Alu, Color according to customer requirements		
		Z	Zinc die-cast housing		
			Configuration of drive side		
			P	Splined shaft connection	
				Stroke H	
				HXXXX	Stroke length in mm
2020.00-	Z	0	P	H0150	**Example**



Variant with Alu-housing

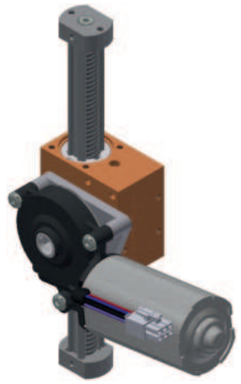


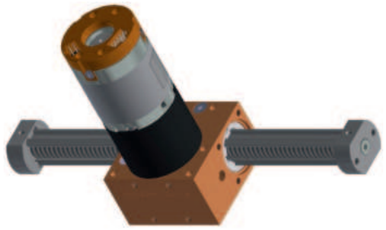
Variant with Zinc-housing

Application examples and accessories

Several gear units can be synchronized by means of connecting flanges, connecting shafts and electronic control.
2020 worm gear units are available with three different motor types.
If required, a suitable control system can also be supplied. The parts required for this can be found in our extensive range of accessories.

Application examples

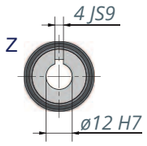




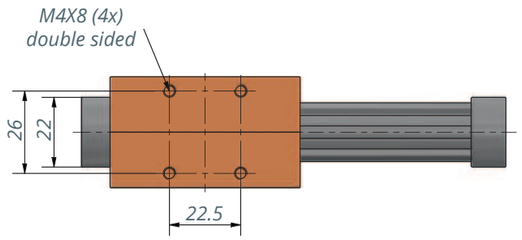
Variant with **Aluminium-housing** 2020.00-ZOPHXXXX

View **Z**

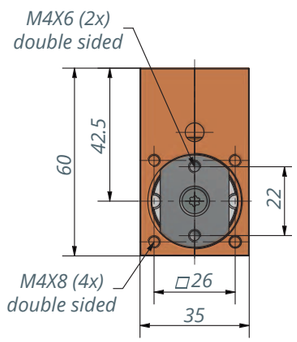
Feather key groove
DIN5463-6X16X20



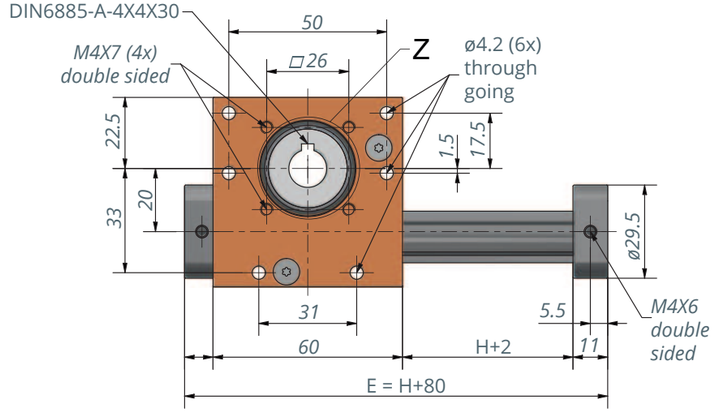
Top and bottom view identical



View right/left identical



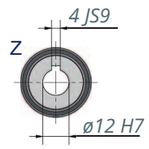
Feather key
DIN6885-A-4X4X30



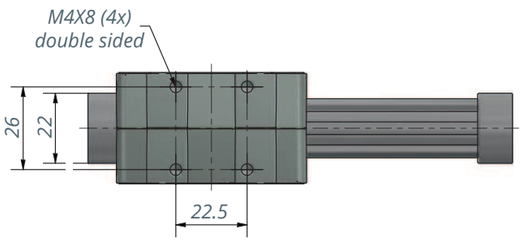
Variant with **Zink-housing** 2020.00-ZZPHXXXX

View **Z**

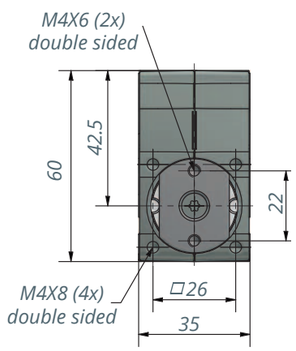
Feather key groove
DIN5463-6X16X20



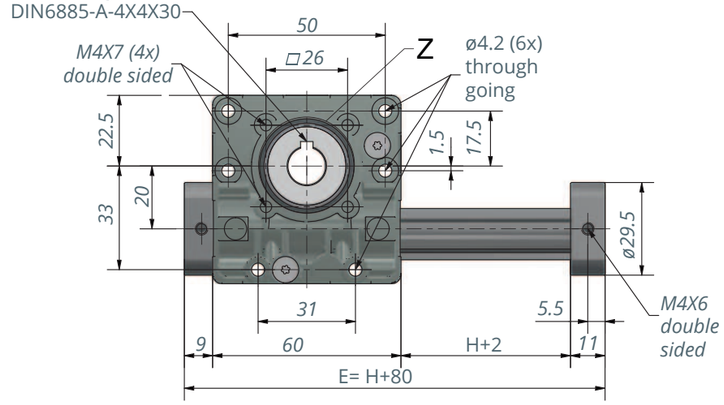
Top and bottom view identical



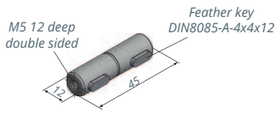
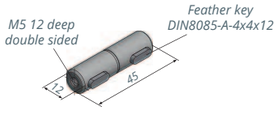
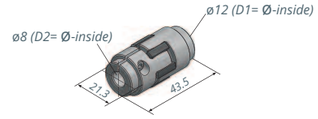
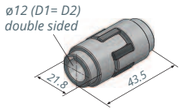
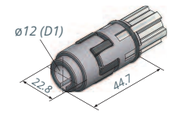
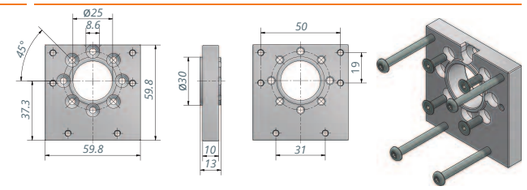
View right/left identical



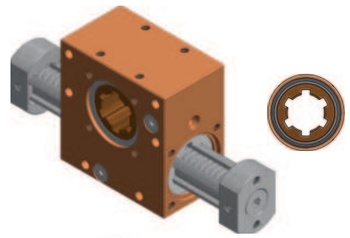
Feather key
DIN6885-A-4X4X30

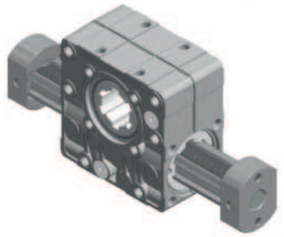


Mechanical accessories

	Item number	*Illustration*
Alu shaft ***(Gear connector)*** ***with feather key DIN6885-A-4x4x12***	5708.39-0000	
Steel shaft ***(Gear connector)*** ***with feather key DIN6885-A-4x4x12***	5708.39-0001	
Claw coupling ***D1= 12/ D2= 8*** ***for shaft connection***	5790.12-0003	
Claw coupling ***D1= 12/ D2= 12*** ***for shaft connection***	5790.12-0001	
Claw coupling D1= 12 ***for splined shaft profile*** ***(DIN5463-6x12x20)***	5790.12-0007	
Mounting flange 45° latching	2010.15-0001	

Rack and pinion gear Ket-Motion 2020 ZxK





Description

The function of the universally applicable linear gear units is to convert rotating movements into axial ones.
They are used wherever vertical or horizontal transport, lifting, pushing or steering is required. As an electromechanical variant, these special gear-boxes often replace hydraulics and pneumatics.
Thanks to a rack that can be freely scaled in length, the stroke can be freely selected to suit the application.

Special features

- **Axis distance 20 mm**
- Housing: Either anodized aluminum (color according to customer's request) or with zinc housing in a material saving design
- Feed per revolution 87 mm
- Backlash < 0.5 mm
- Max. Speed 100 mm/s
- Application temperature -20°C to +60°C
- Lubrication and maintenance free
- Stroke HXXXX: freely selectable

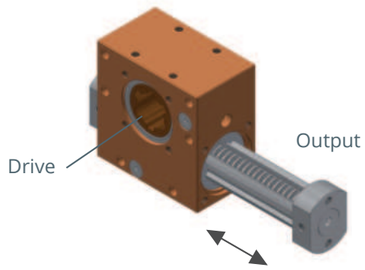
Technical data

Item number	Stroke XXXX in mm	Feed per revolution in mm	Self locking	Drive torque max. M_A in Nm	Axial force output side	
					max. F_A in N	max. F_A peak** in N
2020.00-Z0KHXXXX **2020.00-ZZKHXXXX**	variable*	87	No	2.3	100	1300
2020.00-Z0KH0150 **2020.00-ZZKH0150**	150					
2020.00-Z0KH0250 **2020.00-ZZKH0250**	250					
2020.00-Z0KH0500 **2020.00-ZZKH0500**	500					

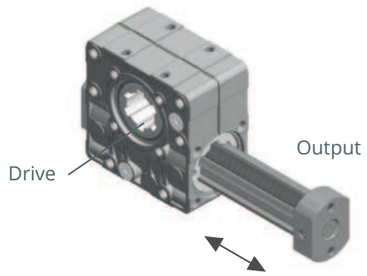
* Max. stroke length 2500 mm
** Short-term peak load < 1 s

Variant key

Ket-Motion					
2020.00	Z	Linear gear unit			
		Housing: Material & Optics			
		0	Alu, orange anodized (standard)		
		X_i	Alu, Color according to customer requirements		
		Z	Zinc die-cast housing		
			Configuration of drive side		
			K	Splined shaft connection	
				Stroke H	
				HXXXX	Stroke length in mm
2020.00-	**Z**	**0**	**K**	**H0150**	**Example**



Variant with Alu-housing

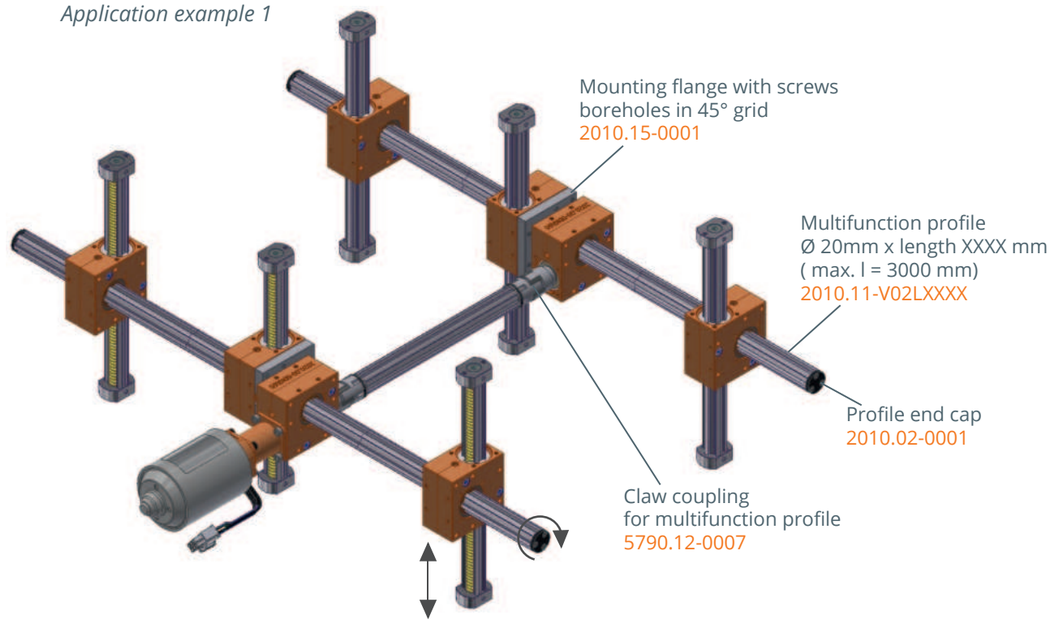


Variant with Zinc-housing

Application examples and accessories

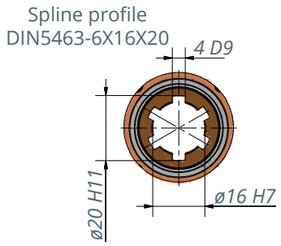
Several gear units can be synchronized by means of connecting flanges, connecting shafts and electronic control.
2020 worm gear units are available with three different motor types.
If required, a suitable control system can also be supplied. The parts required for this can be found in our extensive range of accessories.

Application example 1

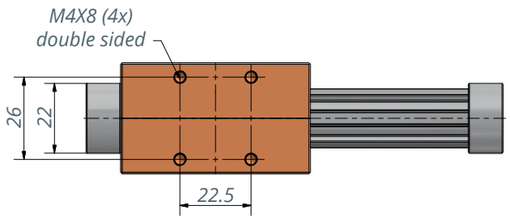


Variant with **Aluminium-housing** 2020.00-Z0KHXXXX

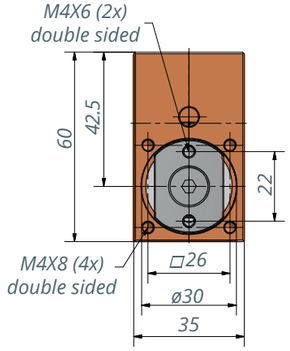
View **Z**

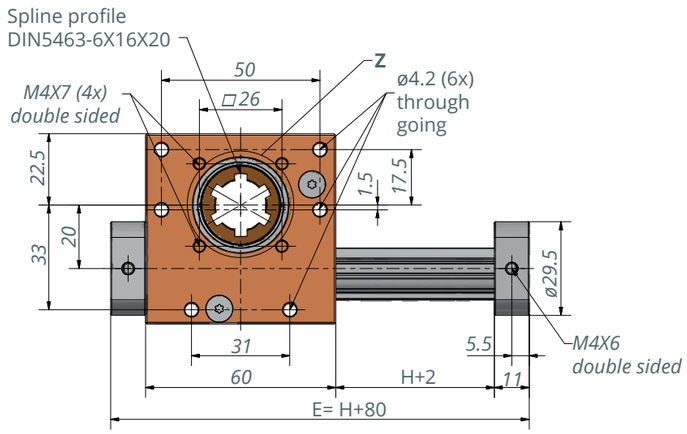


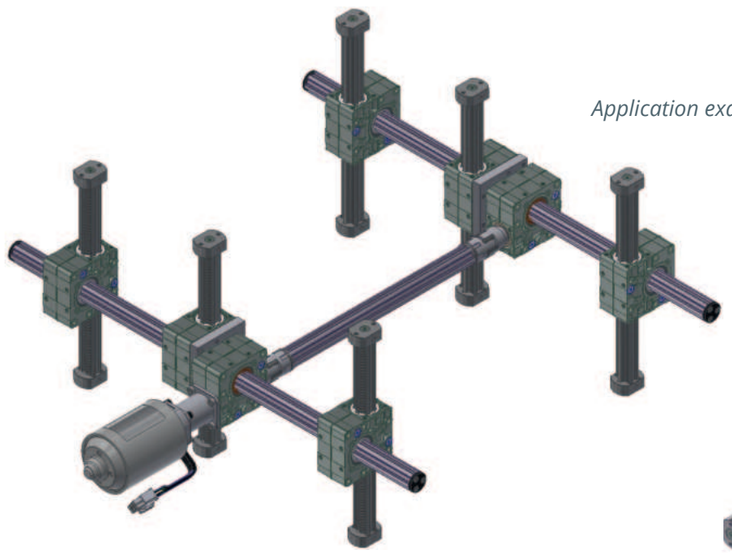
Top and bottom view identical



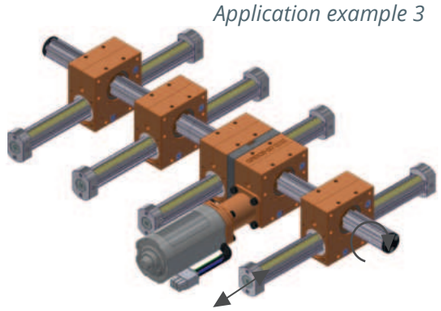
View right/ left identical







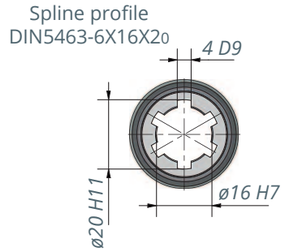
Application example 2



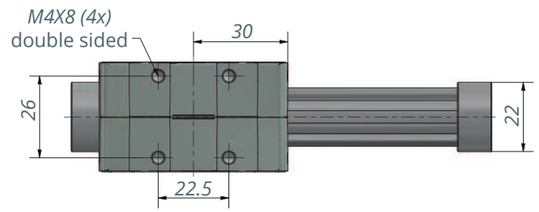
Application example 3

Variant with **Zinc-housing** 2020.00-ZZKHXXXX

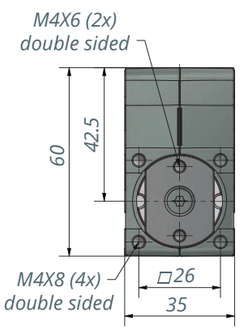
View **Z**

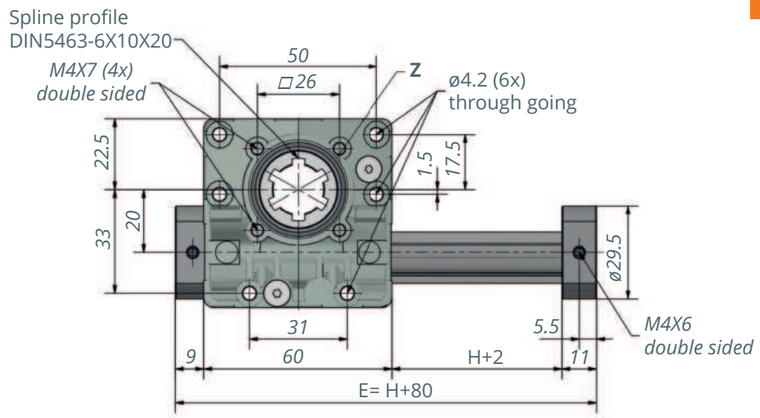


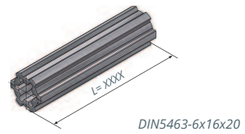
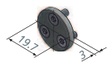
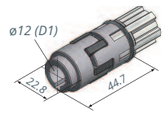
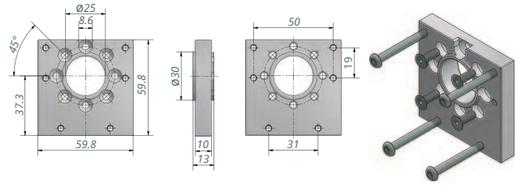
Top and bottom view identical



View right/ left identical





Mechanical accessories	*Item number*	*Illustration*
Multifunction splined shaft profile	2010.11-V02LXXXX Preferred variant 2010.11-V02L1000	
End cap for splined shaft profile	2010.02-0001	
Claw coupling D1= 12 for splined shaft profile (DIN5463-6x12x20)	5790.12-0007	
Mounting flange 45° latching	2010.15-0001	

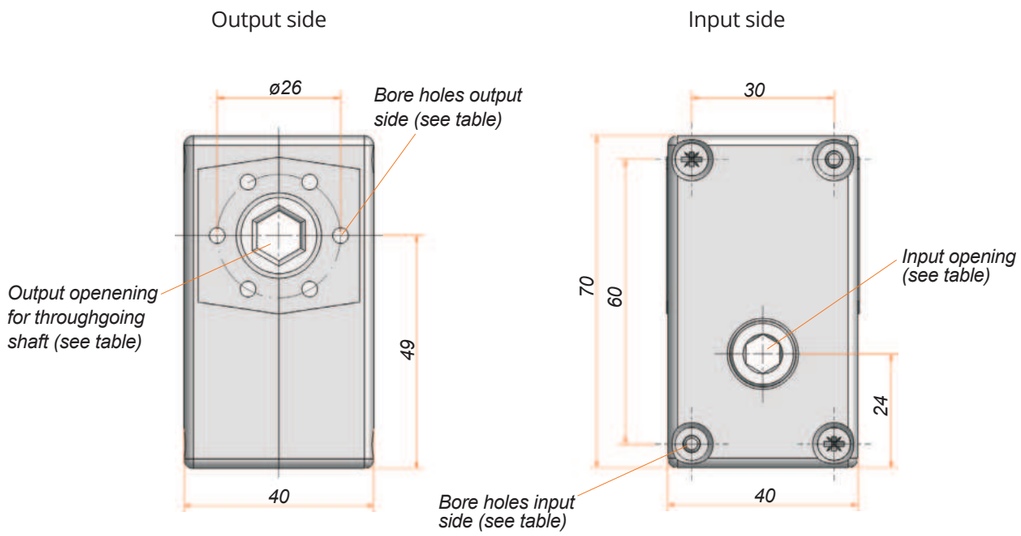
Worm gear reducer 4731/4739/...

Description

Worm gear reducer 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
- 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
1XXX	2XXX	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-XXXX*	*4745.00-XXXX*
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 reducer 4747/4749/...

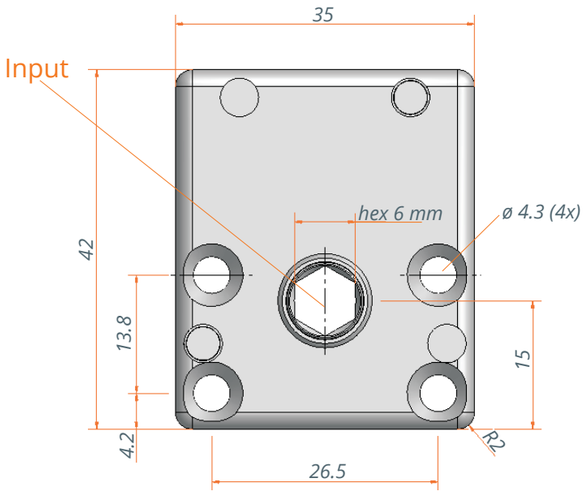
Input broad side

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

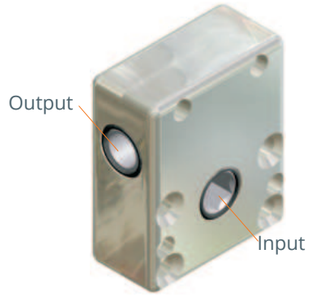
- **Axial distance 14 mm**
- Maintenance-free grease lubrication
- Case hardened worm and cog wheel
- Housing made of zinc die-casting
- Duty cycle 10 % at 5 min
- On request also possible with counter-clockwise-ascending worm and wheel set and other ratios



Technical data

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	3 Nm	3 Nm	3 Nm
Max. input torque	1.9 Nm	2.6 Nm	5.2 Nm

Model	*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	3 Nm	3 Nm	3 Nm
Max. input torque	2.4 Nm	1.8 Nm	1.3 Nm



Worm gear reducer 4748/4750/...

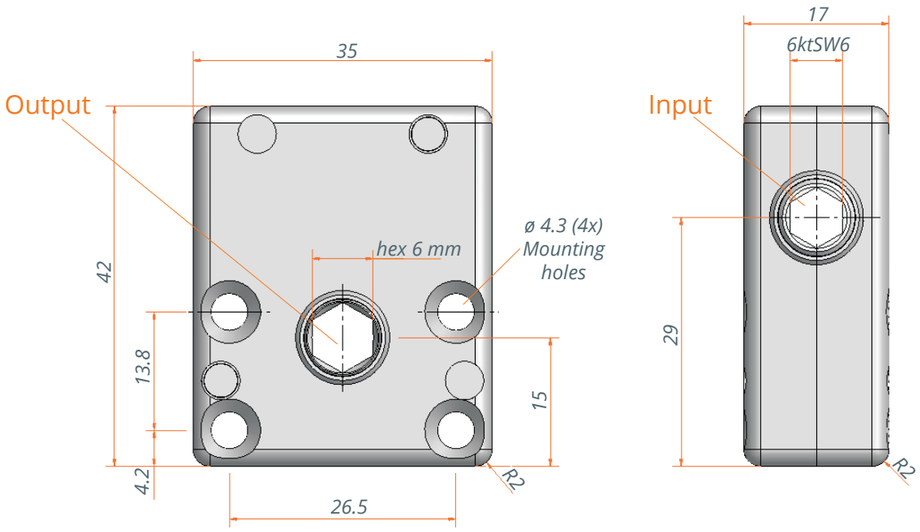
Input narrow side

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

- **Axial distance 14 mm**
- Maintenance-free grease lubrication
- Case hardened worm and cog wheel
- Housing made of zinc die-casting
- Duty cycle 10 % at 5 min
- On request also possible with counter-clockwise-ascending worm and wheel set and other ratios

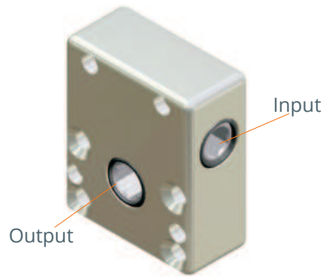


Technical data

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	3 Nm	4 Nm	2 Nm	3 Nm
Max. input torque	1.7 Nm	1.7 Nm	4 Nm	2 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	3 Nm
Max. input torque	1.8 Nm	1.3 Nm	1 Nm	2.8 Nm

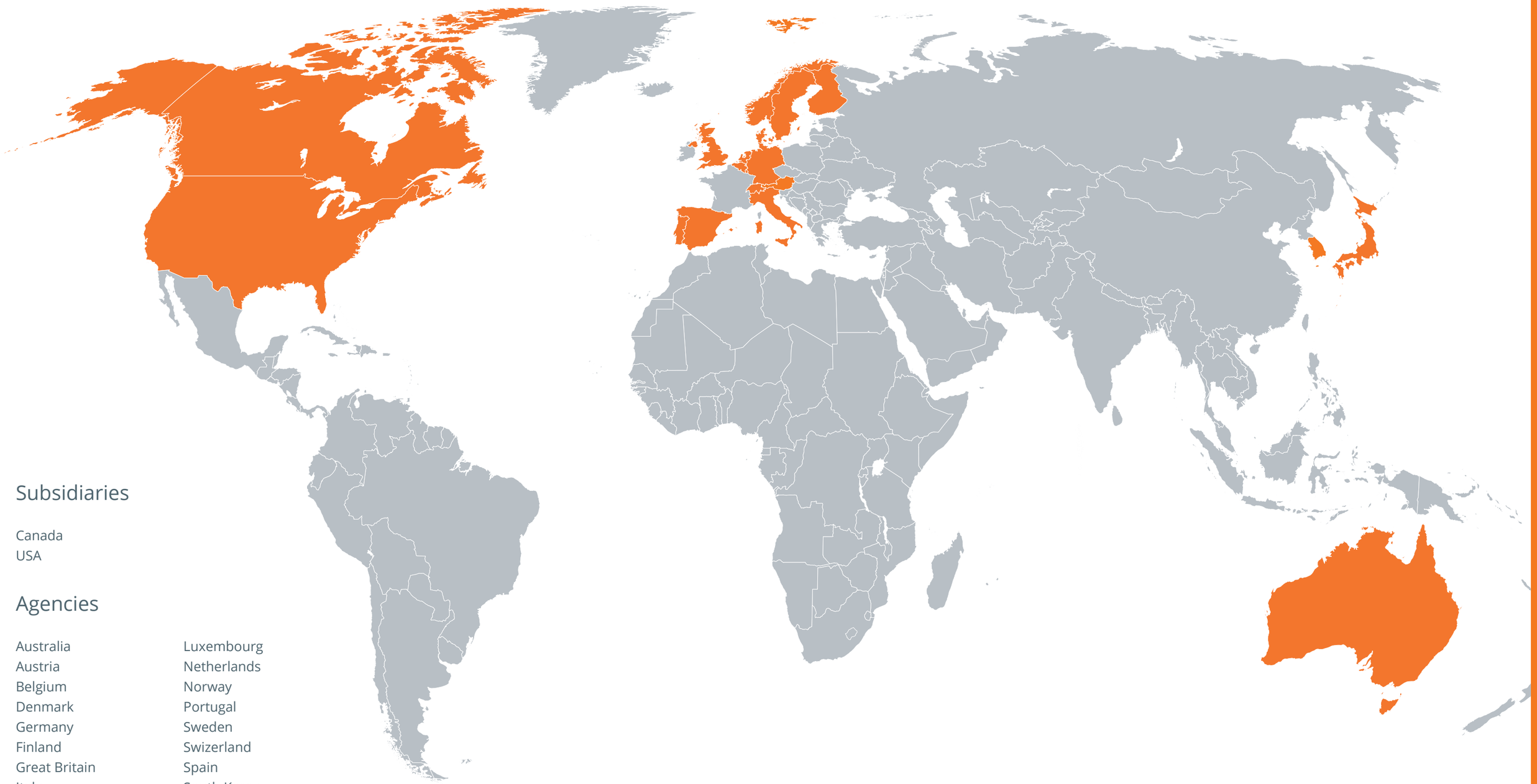
Note: The values were determined at a speed of 70 rpm and room temperature



Technical notes

Only the mounting holes (see drawing) are to be used for gear unit mounting.

USED AROUND THE WORLD



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