

Worm Gear Units KES 20

Angular drives with hollow output shaft for high torques at very low dimensions. Suitable in a wide variety of applications. Center distance 20 mm, in 7 ratios.

Housing: Aluminium, silver anodized. Sealed against lubricant leaks, protected against dust. Can be mounted in any position. Worm shaft in vertically position not recommended for continuous operation.

Gearing: Worm from steel, wheel from special brass.

Bearing: Ball bearings with rubber seal RS.

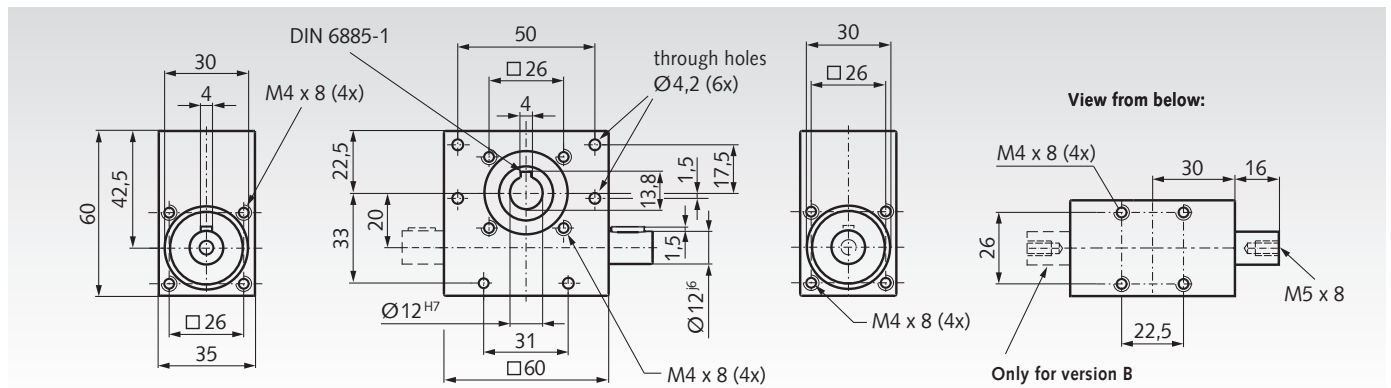
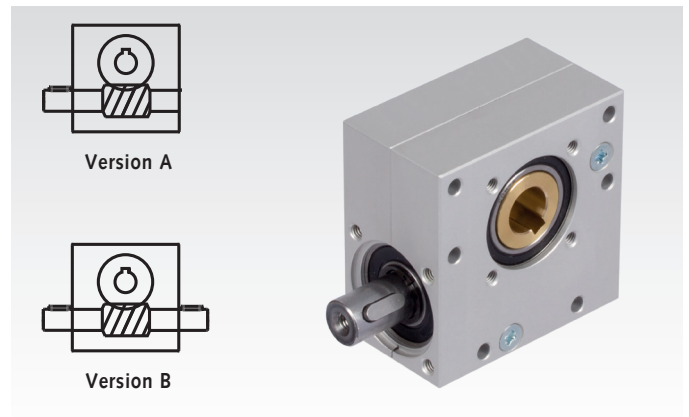
Lubrication: Maintenance free grease lubrication.

Angular backlash: $1^\circ \pm 0,5^\circ$. **Operating time:** 20% at 5 min.

Life time: approx. 1,000 hours at max. performance at speed 500 min^{-1} and operating time 20%, at $+20^\circ\text{C}$.

Permiss. operating temperature: -20° to $+60^\circ\text{C}$.

Ordering Details: e.g.: Product No. 420 020 13 Bevel Gearbox KES 20 A Ratio 13:1



Performance Data

Product No. Version A	Product No. Version B	Ratio i	Self-locking static	Permittable Output Torque at Speed*			Permittable Input Power at Speed*			Efficiency approx. η	Shaft Load		Weight g
				100 min^{-1} Nm	500 min^{-1} Nm	1.000 min^{-1} Nm	100 min^{-1} W	500 min^{-1} W	1.000 min^{-1} W		F_R^{**} N	F_A^{***} N	
420 020 13	420 020 13B	13:1	no	15	13	11	21,6	93,5	158,2	0,56	200	200	422
420 020 15	420 020 15B	15:1	no	12	10	8	16,1	67,1	107,4	0,52	250	250	425
420 020 18	420 020 18B	18:1	yes	11	9	7	11,6	47,6	74,0	0,55	250	250	426
420 020 23	420 020 23B	23:1	yes	10	8	6	9,1	36,4	54,6	0,5	250	250	428
420 020 30	420 020 30B	30:1	yes	8,5	7	5,5	6,6	27,1	42,7	0,45	350	350	438
420 020 40	420 020 40B	40:1	yes	5,5	4,8	4	3,7	16,1	26,8	0,39	400	400	426
420 020 65	420 020 65B	65:1	yes	4,5	3,8	3	2,5	10,6	16,7	0,29	500	500	432

* Input speed, at the worm shaft.

** Permiss. radial force at $F_A=0$.

*** Permiss. axial force at $F_R=0$.

Note to the keys:

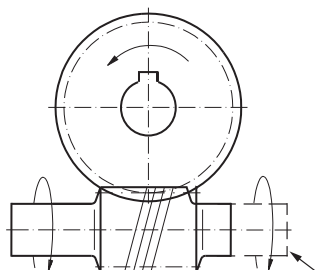
The position of the keyway to the tothing is not defined.

The positions of the keyways on the shaft are also not defined, they are not aligned to each other.

Rotational Sense (Rot. direction interchangeable)

The gears set is left-handed.

Output:
Worm wheel on hollow shaft



Input:
Worm shaft

Only for version B

Torque Conversion

Output torque = Input Torque x Efficiency x Transmission

$$\text{Input torque} = \frac{\text{Output torque}}{\text{Efficiency} \times \text{Ratio}}$$

$$\text{Power } P = \frac{M \times n}{9550}$$

$$\text{Torque } M = \frac{9550 \times P}{n}$$

M = Torque [Nm]

P = Power [kW]

n = Speed [min^{-1}]