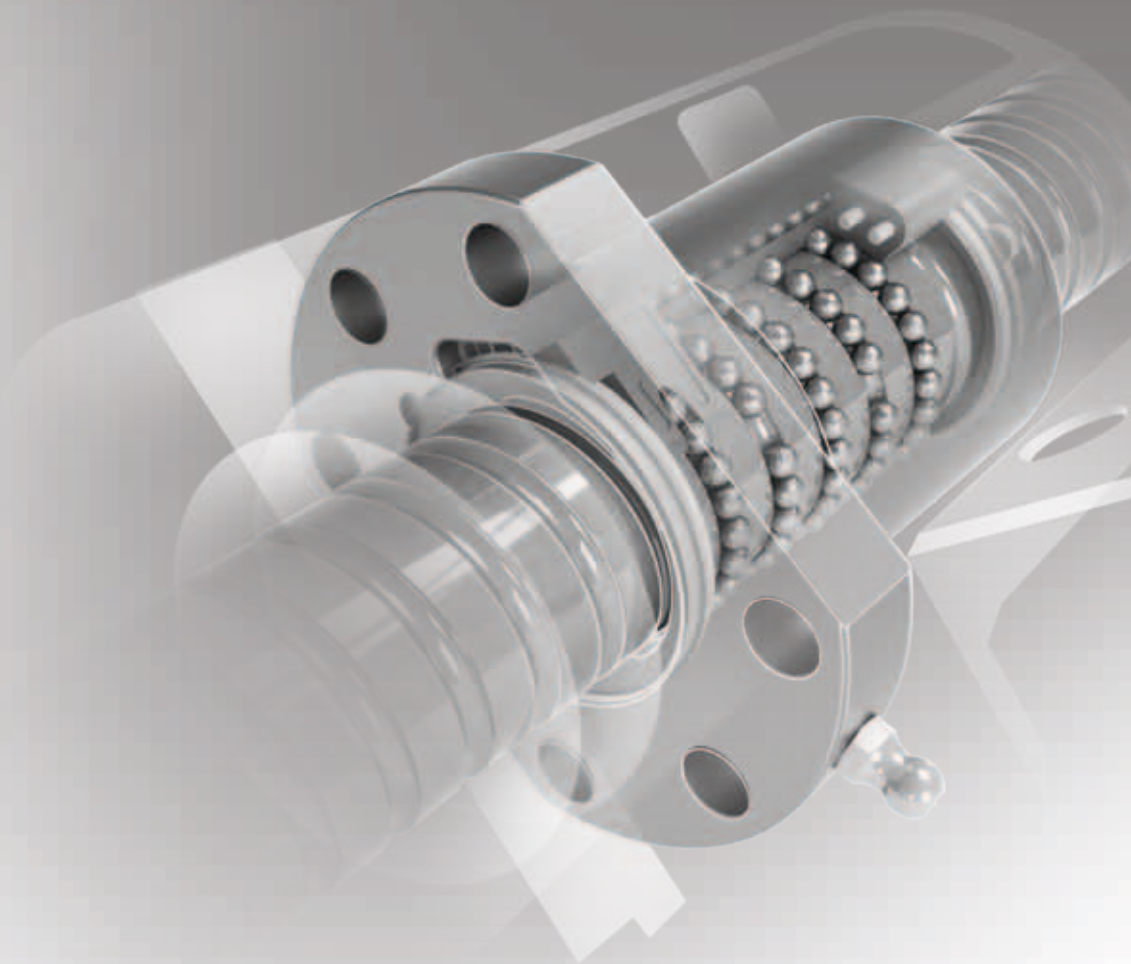


BALL SCREWS



02

BALL SCREWS

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02

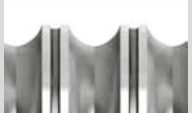


Ball screws

General informations

1.1 Basic range of ball screws

Manufacturing method	Accuracy class Max. path deviation v_{300p} over 300 mm	Diameter range	Lead range
Rolled	T 5 (0.023 / 300 mm) T 7 (0.052 / 300 mm)	8 - 63 mm	2.5 - 40 mm
Peeled	P 5 (0.023 / 300 mm) P 7 (0.052 / 300 mm)	16 - 80 mm	5 - 20 mm
Ground	P 1 (0.006 / 300 mm) P 3 (0.012 / 300 mm) P 5 (0.023 / 300 mm)	6 - 100 mm	1 - 50 mm

1.2 Procedure for the selection of a ballscrew

	Rolled	Peeled	Ground
Profile			
Manufacturing process	Forming process	Cutting process	Grinding process
Typical applications	Transportation	Transportation and positioning	Positioning
Nut shapes	Flange nut Cylindrical nut	Flange nut Cylindrical nut Double nut	Flange nut Cylindrical nut Double nut

1.3 Material and hardness of the ball screws

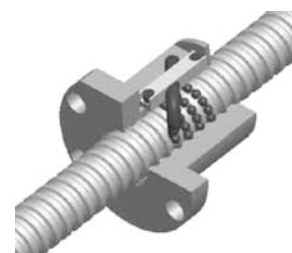
Type	W. Nr.	DIN	Hardness [HRC]
Spindle	1.1213	Cf 53	58 - 62
Nut	1.6523	21 NiCrMo 2	58 - 62
Ball	1.3505	100 Cr 6	62 - 66

1.4 Ball recirculation systems

HIWIN ballscrews are available with three different recirculation systems.

The external recirculation system comprises the ballscrew shaft, ballscrew nut, steel balls, ball recirculation system and clamping plate. The balls are placed in the ball track between the ballscrew shaft and nut. At the end of the nut, they are guided out of the ball track and back to the start via a return tube; ball circulation is therefore a closed circuit.

External recirculation type nut with return tubes



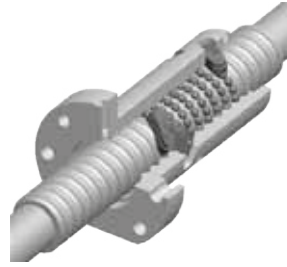
Ball screws

General informations

The internal single recirculation system comprises the ballscrew shaft, ballscrew nut, steel balls and deflecting parts. The balls undertake just one circuit around the shaft. The circuit is closed by a deflecting part in the ballscrew nut and allows the balls to return to the start via the rear of the thread. The position of the ball deflection in the nut gives the internal single recirculation system its name.

The third type of return is the endcap recirculation system. It has the same basic principle as the external return, however, the balls are returned via a channel in the ballscrew nut. The balls perform one complete cycle in the ballscrew nut. The endcap return or "internal total recirculation" provides good loading capacity with short track lengths and small nut diameters.

Internal single recirculation type nut with return caps



Endcap recirculation type nut with recirculation system



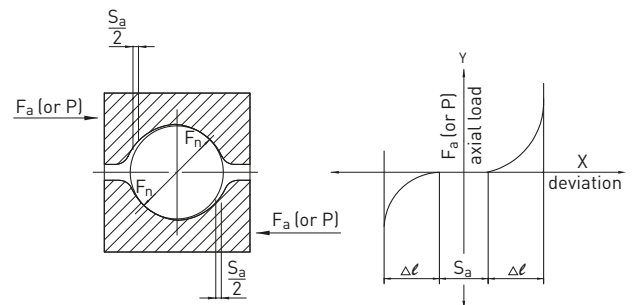
1.5 Preload and play

The Gothic arch profile permits a ball contact angle of 45°. The axial force F , caused by outer drive forces or inner preload forces, produces two kinds of axial play. Firstly, axial play S_a , that originates from the air between the ball and ball track.

By default, rolled and peeled ballscrews are delivered with slight play. This is sufficient for most applications, and has the advantage that the ballscrews run smoothly and a low starting torque is required.

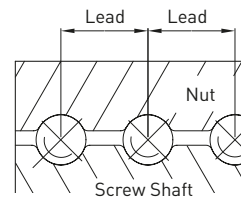
If increased demands are placed on the positioning accuracy and rigidity, the axial play can be neutralised by a preload force P . For this purpose, different methods are available.

Fig. 2.16 Gothic arch profile and preload



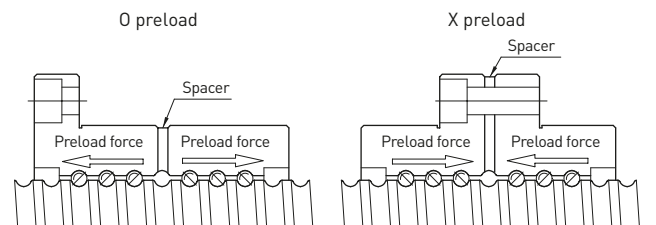
Preloaded single nuts

Preload method with oversized balls involves balls which are slightly larger than the space in the ball track; the ball therefore makes contact at four points.



Preloaded double nuts

The preload is generated by inserting a spacer between the nuts. The 0 preload results from fitting an oversized spacer which pushes the halves of the nut apart. The X preload is generated with an undersized spacer which pulls the nuts together.



Ball screws

Rolled

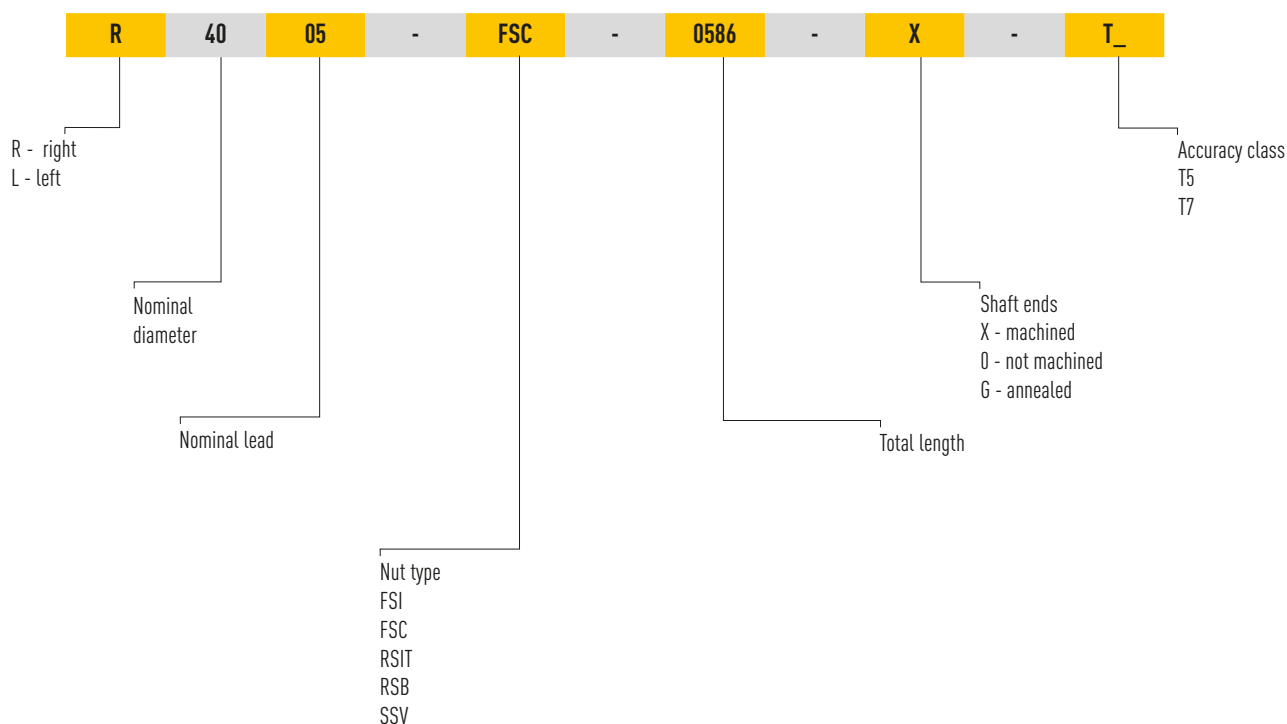
2.1 Properties of rolled ball screws

One of the benefits of rolled ballscrews is that feed systems equipped with them have less friction and are quieter than standard threads.

HIWIN manufactures them using state-of-the-art rolling technologies where the processes of material selection, rolling, heat treatment, machining and assembly are very closely coordinated. Rolled ballscrews from HIWIN can be flexibly used in virtually all areas of industry. Rolled ballscrew shafts with diameters of 8 mm to 63

mm are always kept in stock and can be supplied at short notice. They can be supplied with or without end machining. Complete bearing units combined with standardised shaft ends enable us to supply complete ballscrews.

2.2 Order code of rolled ball screws



2.3 Product range of rolled ball screws

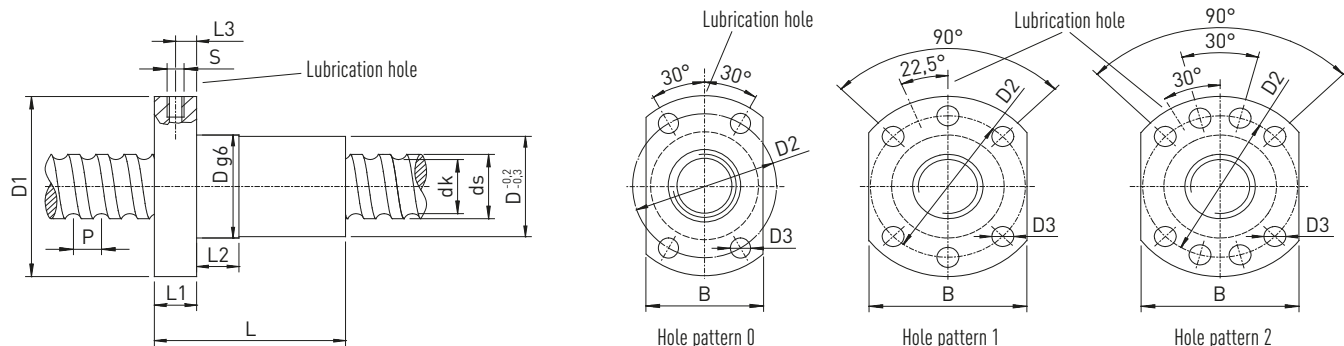
Lead [mm]	Nominal diameter of ball screw [mm]										
	8	10	12	15	16	20	25	32	40	50	63
2.5	RSIT	RSIT									
4		RSIT	RSIT								
5			FSC	FSC	FSI, RSB, SSV	FSC, RSB, SSV	FSC, RSB, SSV	FSC, RSB	FSC	FSC	
10			FSC		FSC	FSC	FSC	FSC	FSC	FSC	FSI
16					FSC						
20					FSC	FSC/DFSC		FSC	FSC	FSC	
25							FSC/DFSC				
32								FSC/DFSC			
40									FSC/DFSC	FSC/DFSC	
Max. length [mm]	800	1500	1500	3000	3000	3000	4500	4500	5600	5600	5600

Rolled ball screws with left ball thread on request.

Ball screws

Rolled

2.4. Simple flanged nut FSC/FSI acc. DIN 69051 part 5



Nut type	Size	ds ±0.1	P	D	D1	D2	D3	Hole pattern	L	L1	L2	L3	S	B	dk	C _{dyn} [N]	C ₀ [N]	Axial play max. [mm]	Nut weight [kg]	Shaft weight [kg/m]	Accuracy class T5
R12-05K4-FSCDIN	12x5	11.7	5	24	40	32	4.5	0	33	8	8	4	M3	26	9.9	5500	12000	0.02	0.11	0.80	●
R12-10K3-FSCDIN	12x10	11.8	10	24	40	32	4.5	0	43	8	8	4	M3	26	9.6	5100	10100	0.02	0.13	0.77	●
R15-05K4-FSCDIN	15x5	13.8	5	28	48	38	5.5	1	38	10	10	5	M6	40	11.8	12600	21000	0.04	0.17	1.07	-
R16-05T3-FSIDIN	16x5	15.5	5	28	48	38	5.5	1	40	10	10	5	M6	40	12.9	7320	12470	0.04	0.17	1.26	●
R16-10K3-FSCDIN	16x10	14.6	10	28	48	38	5.5	1	45	10	10	5	M6	40	12.5	9100	19300	0.04	0.19	1.17	●
R16-16K3-FSCDIN	16x16	14.4	16	28	48	38	5.5	1	61	12	20	6	M6	40	13.0	9100	19300	0.04	0.30	1.13	●
R16-20K2-FSCDIN	16x20	13.9	20	28	48	38	5.5	1	56	10	10	5	M6	40	11.8	5200	10400	0.04	0.25	1.13	●
R20-05K4-FSCDIN	20x5	19.5	5	36	58	47	6.6	1	40	10	10	5	M6	44	16.9	13400	32740	0.04	0.29	2.07	●
R20-10K3-FSCDIN	20x10	19.3	10	36	58	47	6.6	1	48	10	10	5	M6	44	16.6	10000	23500	0.04	0.32	2.07	●
R20-20K2-FSCDIN	20x20	19.5	20	36	58	47	6.6	1	57	10	10	5	M6	44	17.1	6800	15300	0.04	0.36	2.40	●
R20-20K4-DFSCDIN	20x20	19.5	20	36	58	47	6.6	1	57	10	10	5	M6	44	17.1	12300	30500	0.04	0.36	2.40	●
R25-05K4-FSCDIN	25x5	24.9	5	40	62	51	6.6	1	43	10	12	5	M6	48	22.3	14900	41500	0.04	0.31	3.42	●
R25-10K4-FSCDIN	25x10	24.4	10	40	62	51	6.6	1	61	10	16	5	M6	48	21.8	15900	40400	0.04	0.39	3.42	●
R25-25K2-FSCDIN	25x25	24.7	25	40	62	51	6.6	1	70	10	16	5	M6	48	22.1	7500	19300	0.04	0.43	3.42	●
R25-25K4-DFSCDIN	25x25	24.7	25	40	62	51	6.6	1	70	10	16	5	M6	48	22.1	13500	38200	0.04	0.43	3.42	●
R32-05K6-FSCDIN	32x5	31.7	5	50	80	65	9.0	1	48	12	12	6	M6	62	29.1	23900	81900	0.04	0.59	6.31	●
R32-10K5-FSCDIN	32x10	31.8	10	50	80	65	9.0	1	77	12	16	6	M6	62	28.6	31500	80100	0.04	1.02	6.31	●
R32-20K3-FSCDIN	32x20	31.8	20	50	80	65	9.0	1	88	12	16	7	M6	62	28.6	17000	48500	0.04	1.02	6.15	●
R32-32K2-FSCDIN	32x32	31.9	32	50	80	65	9.0	1	88	12	12	6	M6	62	28.7	11600	31800	0.04	1.20	6.15	●
R32-32K4-DFSCDIN	32x32	31.9	32	50	80	65	9.0	1	88	12	12	6	M6	62	28.7	20600	62200	0.04	1.33	6.15	●
R40-05K6-FSCDIN	40x5	39.4	5	63	93	78	9.0	2	50	14	10	7	M8x1	70	36.8	25900	100600	0.04	1.10	9.87	●
R40-10K4-FSCDIN	40x10	37.8	10	63	93	78	9.0	2	70	14	16	7	M8x1	70	32.8	45000	123000	0.04	1.25	7.70	●
R40-20K3-FSCDIN	40x20	37.8	20	63	93	78	9.0	2	88	14	16	7	M8x1	70	32.8	34850	94000	0.07	1.45	7.70	●
R40-40K2-FSCDIN	40x40	37.8	40	63	93	78	9.0	2	102	14	16	7	M8x1	70	32.9	23000	58400	0.07	1.60	8.60	●
R40-40K4-DFSCDIN	40x40	37.8	40	63	93	78	9.0	2	102	14	16	7	M8x1	70	32.9	41500	115800	0.07	1.60	8.60	●
R50-05K6-FSCDIN	50x5	49.3	5	75	110	93	11	2	50	16	10	8	M8x1	85	46.8	28300	127200	0.07	1.30	15.41	-
R50-10K6-FSCDIN	50x10	47.9	10	75	110	93	11	2	90	16	16	8	M8x1	85	42.9	74500	250000	0.07	2.20	13.86	-
R50-20K5-FSCDIN	50x20	48.0	20	75	110	93	11	2	132	18	25	9	M8x1	85	42.9	62000	208000	0.07	2.50	14.81	-
R50-40K3-FSCDIN	50x40	50.3	40	75	110	93	11	2	149	18	45	9	M8x1	85	45.0	39000	123000	0.07	3.30	14.81	-
R50-40K6-DFSCDIN	50x40	50.3	40	75	110	93	11	2	149	18	45	9	M8x1	85	45.0	70300	242600	0.07	3.37	14.81	-
R63-10T6-FSIDIN	63x10	63.1	10	90	125	108	11	2	120	18	16	9	M8x1	95	58.0	61920	214090	0.07	3.10	22.30	-

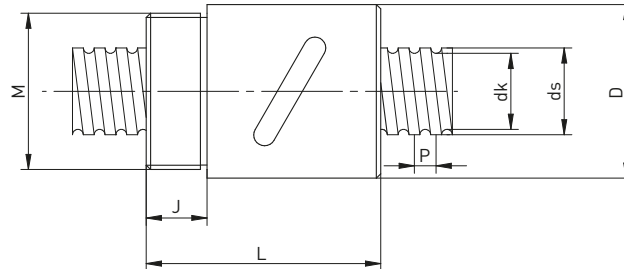
Dimensions in [mm]

- Nuts for rolled ball screws
- Dimensions acc. DIN 69051 part 5
- Nuts with sealings
- Simple flanged nut
- Standard accuracy class T7
- Accuracy class T5 on request
- Housings for nuts available
- DFSCDIN - double start nut

Ball screws

Rolled

2.5 Simple cylindrical nut with thread RSB

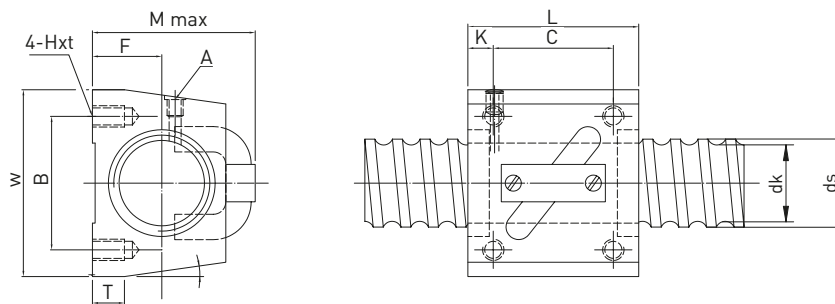


Nut type	Size	ds	P	D	M	L	J	dk	Dyn. capacity C_{dyn} [N]	Stat. capacity C_0 [N]	Max. axial play [mm]	Nut weight [kg]	Shaft weight [kg/m]	Accuracy class T5
R16-05B1-RSB	16x5	16	5	32.5	M26x1.5	42	12	12.9	6790	12260	0.04	0.26	1.26	●
R20-05C1-RSB	20x5	20	5	40.0	M36x1.5	54	14	16.9	10010	21490	0.04	0.34	2.07	●
R25-05B2-RSB	25x5	25	5	46.0	M42x1.5	69	19	22.3	15340	39750	0.04	0.54	3.42	●
R32-05B2-RSB	32x5	32	5	54.0	M50x2.0	69	19	29.1	17020	50980	0.04	0.73	6.31	●

Dimensions in [mm]

- Nut with sealing
- Standard accuracy class T7
- Accuracy class T5 on request

2.6 Square nut SSV



Nut type	Size	ds	P	W	F	H x t	L	B	C	K	T	A	Mmax	dk	Dyn. capacity C_{dyn} [N]	Stat. capacity C_0 [N]	Max. axial play [mm]	Nut weight [kg]	Shaft weight [kg/m]	Accuracy class T5
R16-05B1-SSV	16x5	16	5	42	16	M5x8	36	32	22	6	21.5	M6	35.0	12.9	6790	12260	0.04	0.26	1.26	●
R20-05B1-SSV	20x5	20	5	48	17	M6x10	35	35	22	5	9.0	M6	39.0	16.9	7450	15260	0.04	0.27	2.07	●
R25-05B1-SSV	25x5	25	5	60	20	M8x12	35	40	22	7	9.5	M6	45.0	22.3	8450	19870	0.04	0.41	3.42	●

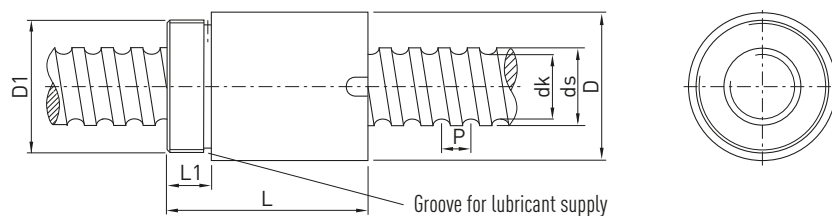
Dimensions in [mm]

- Nut with sealing
- Standard accuracy class T7
- Accuracy class T5 on request

Ball screws

Rolled

2.7 Simple cylindrical nut with thread RSIT for small diameters



Nut type	Size	ds	P	D -0.2	D1	L -0.5	L1	dk	Dyn. capacity C _{dyn} [N]	Stat. capacity C ₀ [N]	Max. axial play [mm]	Nut weight [kg]	Shaft weight [kg/m]	Accuracy class T5
R08-25T2-RSIT**	8x2.5	7.7	2.5	17.5	M15x1	27.5	7.5	6.1	1300	1750	0.04	0.04	0.33	-
R10-25T2-RSIT*	10x2.5	9.9	2.5	19.5	M17x1	25.0	7.5	8.1	1780	2630	0.04	0.06	0.62	-
R10-04-T2-RSIT *	10x4	9.9	4.0	24.0	M22x1	32.0	10.0	7.7	1980	2820	0.04	0.08	0.62	-
R12-04B1-RSIT**	12x4	12.0	4.0	25.5	M20x1	34.0	10.0	9.5	3000	5700	0.04	0.10	0.71	-

Dimensions in [mm]

○ Standard accuracy class T7

* without sealing

** one side sealing

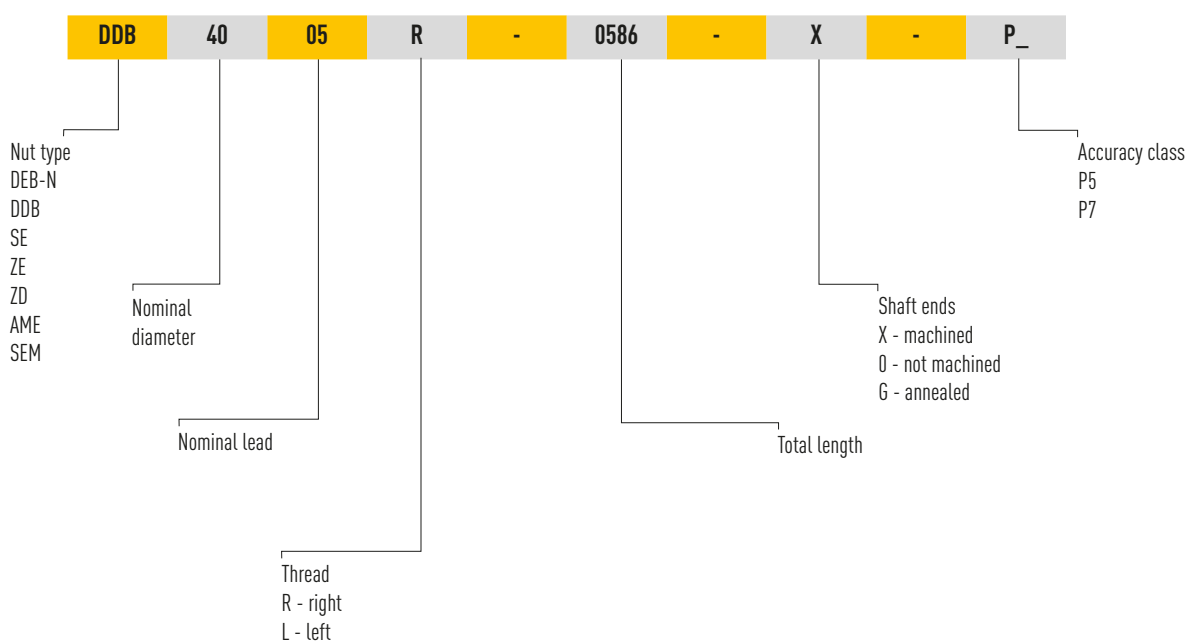
Ball screws

Peeled

3.1 Properties of peeled ball screws

In terms of quality, peeled ballscrews from HIWIN fall between rolled and ground ballscrews and can therefore be used for numerous transport or positioning applications. On request, we are happy to produce a lead measurement report for them. A number of nut shapes are available for peeled ballscrews, as both single and double nuts. Customised complete ballscrews can be produced with short lead times. Complete bearing units combined with standardised shaft ends minimise the amount of design work involved.

3.2 Order code of peeled ball screws



3.3 Sortiment okružovaných kuličkových šroubů

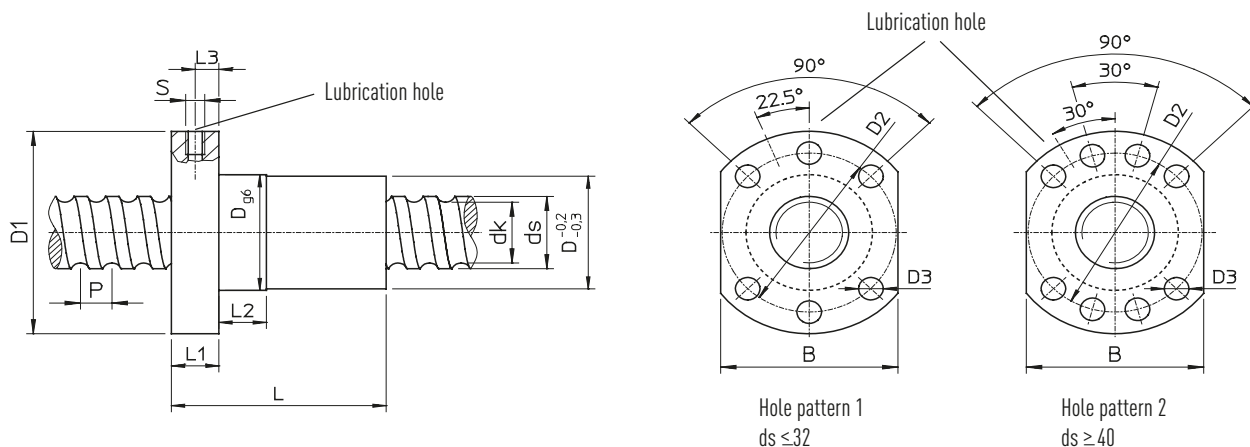
Lead [mm]	Nominal diameter of ball screw [mm]							
	16	20	25	32	40	50	63	80
5	DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DDB, SE, ZE, ZD, AME		
10	DEB-N	DEB-N	DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DEBH-N, DDB, SE, ZE, ZD, AME, SEM	DEB-N, DDB, SE, ZE, ZD, AME, SEM	DEB-N, DDB, SE, ZE, ZD, AME, SEM	DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DDB, ZE, ZD
16	DEB-N							
20		DEB-N		DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DDB, SE, ZE, ZD, AME, SEM	DEB-N, DDB, SE, ZE, ZD, AME	DEB-N, DEBH-N, DDB, SE, ZE, ZD, SEM	DEB-N, DEBH-N, DDB, ZE, ZD, SEM
25			DEB-N					
40					DEB-N			
Max. length [mm]	3300	5500	5500	6500	6500	6500	6500	6500

Peel ball screws can be delivered with right and left ball thread.

Ball screws

Peeled

3.4 Single flanged nut DEB



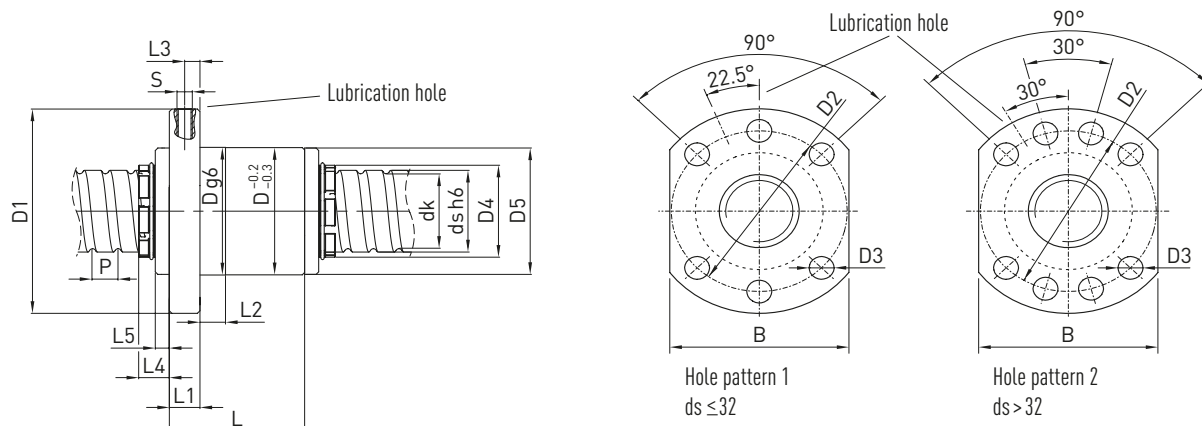
Nut parameters (wiper option N and F)

Nut type	ds	P	D	D1	D2	D3	L	L1	L2	L3	S	B	dk	Dyn. capacity C_{dyn} [N]	Stat. capacity C_0 [N]	Max. axial play [mm]	Nut weight [kg]
R16-05K4-DEB-N/F	15	5	28	48	38	5.5	47	10	10	5.0	M6	40	12.9	10,400	16,400	0.02	0.15
R16-10K3-DEB-N/F	15	10	28	48	38	5.5	53	10	10	5.0	M6	40	12.9	8,200	12,800	0.02	0.17
R16-16K2-DEB-N/F	15	16	28	48	38	5.5	55	10	10	5.0	M6	40	12.9	5,600	8,300	0.02	0.18
R20-05K4-DEB-N/F	20	5	36	58	47	6.6	48	10	10	5.0	M6	44	17.3	13,900	23,300	0.02	0.29
R20-10K3-DEB-N/F	20	10	36	58	47	6.6	55	10	10	5.0	M6	44	17.3	9,900	17,400	0.02	0.30
R20-20K2-DEB-N/F	20	20	36	58	47	6.6	65	10	10	5.0	M6	44	17.3	7,000	11,800	0.02	0.32
R25-05K4-DEB-N/F	25	5	40	62	51	6.6	53	10	10	5.0	M6	48	22.3	15,600	29,800	0.02	0.32
R25-10K4-DEB-N/F	25	10	40	62	51	6.6	70	10	10	5.0	M6	48	22.3	14,300	29,700	0.02	0.38
R25-25K2-DEB-N/F	25	25	40	62	51	6.6	79	10	10	5.0	M6	48	22.3	7,700	14,900	0.02	0.41
R32-05K5-DEB-N/F	32	5	50	80	65	9.0	53	12	10	6.0	M6	62	29.3	20,700	48,700	0.02	0.60
R32-10K5-DEB-N/F	32	10	50	80	65	9.0	83	14	20	7.0	M6	62	28.7	30,900	72,800	0.02	0.68
R32-10K5-DEBH-N/F	32	10	56	86	71	9.0	87	14	20	7.0	M6	65	26.9	55,500	108,800	0.02	0.75
R32-20K2-DEB-N/F	32	20	56	86	71	9.0	72	14	20	7.0	M6	65	26.9	24,800	43,000	0.02	0.75
R40-05K5-DEB-N/F	40	5	63	93	78	9.0	56	14	10	7.0	M8 × 1	70	37.3	22,500	61,700	0.02	0.90
R40-10K4-DEB-N/F	38	10	63	93	78	9.0	81	14	20	7.0	M8 × 1	70	32.9	50,500	105,800	0.02	1.13
R40-20K2-DEB-N/F	38	20	63	93	78	9.0	79	14	20	7.0	M8 × 1	70	32.9	27,500	52,400	0.03	1.10
R40-40K2-DEB-N/F	38	40	63	93	78	9.0	113	14	20	7.0	M8 × 1	70	32.9	27,200	53,300	0.04	1.60
R50-05K5-DEB-N/F	50	5	75	110	93	11.0	58	16	10	8.0	M8 × 1	85	47.3	24,900	77,900	0.02	1.20
R50-10K5-DEB-N/F	50	10	75	110	93	11.0	93	16	20	8.0	M8 × 1	85	44.9	70,500	179,100	0.02	1.80
R50-20K3-DEB-N/F	50	20	75	110	93	11.0	101	16	20	8.0	M8 × 1	85	44.9	45,100	106,900	0.03	1.95
R63-10K6-DEB-N/F	63	10	90	125	108	11.0	103	18	10	9.0	M8 × 1	95	57.9	90,800	271,500	0.04	2.90
R63-20T5-DEB-N/F	63	20	95	135	115	13.5	169	20	25	10.0	M8 × 1	100	55.5	129,000	315,400	0.04	4.10
R63-20K6-DEBH-N/F	63	20	125	165	145	13.5	185	25	25	12.5	M8 × 1	130	53.2	295,900	723,500	0.04	9.50
R80-10K6-DEB-N/F	80	10	105	145	125	13.5	105	20	12	10.0	M8 × 1	110	74.9	101,800	355,800	0.04	3.00
R80-20K5-DEB-N/F	80	20	125	165	145	13.5	157	25	25	12.5	M8 × 1	130	72.5	151,700	437,400	0.05	7.80
R80-20K6-DEBH-N/F	78	20	135	175	155	13.5	175	25	25	12.5	M8 × 1	140	68.2	336,500	931,200	0.05	13.50
R80-20K7-DEBH-N/F	78	20	135	175	155	13.5	195	25	25	12.5	M8 × 1	140	68.2	384,100	1,086,400	0.05	15.00

Dimensions in [mm]

Ball screws

Peeled



Nut parameters (wiper option K and V)

Nut type	ds	P	D	D1	D2	D3	D4	D5	L	L1	L2	L3	L4	L5	S	B	dk	Dyn. capacity C _{dyn} [N]	Stat. capacity C ₀ [N]	Max. axial. play [mm]	Nut weight [kg]
R16-05K4-DEB-K/V	15	5	28	48	38	5.5	22	28	47	10	10	5.0	14.0	8	M6	40	12.9	10,400	16,400	0.02	0.15
R16-10K3-DEB-K/V	15	10	28	48	38	5.5	22	28	53	10	10	5.0	14.0	8	M6	40	12.9	8,200	12,800	0.02	0.17
R16-16K2-DEB-K/V	15	16	28	48	38	5.5	22	28	55	10	10	5.0	14.0	8	M6	40	12.9	5,600	8,300	0.02	0.18
R20-05K4-DEB-K/V	20	5	36	58	47	6.6	25	36	48	10	10	5.0	10.5	5	M6	44	17.3	13,900	23,300	0.02	0.29
R20-10K3-DEB-K/V	20	10	36	58	47	6.6	25	36	55	10	10	5.0	10.5	5	M6	44	17.3	9,900	17,400	0.02	0.30
R20-20K2-DEB-K/V	20	20	36	58	47	6.6	25	36	65	10	10	5.0	12.0	6	M6	44	17.3	7,000	11,800	0.02	0.32
R25-05K4-DEB-K/V	25	5	40	62	51	6.6	30	40	53	10	10	5.0	11.5	6	M6	48	22.3	15,600	29,800	0.02	0.32
R25-10K4-DEB-K/V	25	10	40	62	51	6.6	30	40	70	10	10	5.0	12.0	6	M6	48	22.3	14,300	29,700	0.02	0.38
R25-25K2-DEB-K/V	25	25	40	62	51	6.6	30	40	79	10	10	5.0	12.0	6	M6	48	22.3	7,700	14,900	0.02	0.41
R32-05K5-DEB-K/V	32	5	50	80	65	9.0	36	50	53	12	10	6.0	12.5	6	M6	62	29.3	20,700	48,700	0.02	0.60
R32-10K5-DEB-K/V	32	10	50	80	65	9.0	40	50	83	14	20	7.0	11.0	6	M6	62	28.7	30,900	72,800	0.02	0.68
R32-10K5-DEBH-K/V	32	10	56	86	71	9.0	41	56	87	14	20	7.0	12.0	6	M6	65	26.9	55,500	108,800	0.02	0.75
R32-20K2-DEB-K/V	32	20	56	86	71	9.0	41	56	72	14	20	7.0	11.0	6	M6	65	26.9	24,800	43,000	0.02	0.75
R40-05K5-DEB-K/V	40	5	63	93	78	9.0	50	59	56	14	10	7.0	11.0	5	M8×1	70	37.3	22,500	61,700	0.02	0.90
R40-10K4-DEB-K/V	38	10	63	93	78	9.0	50	62	81	14	20	7.0	11.0	5	M8×1	70	32.9	50,500	105,800	0.02	1.13
R40-20K2-DEB-K/V	38	20	63	93	78	9.0	50	62	79	14	20	7.0	12.0	5	M8×1	70	32.9	27,500	52,400	0.03	1.10
R40-40K2-DEB-K/V	38	40	63	93	78	9.0	50	62	113	14	20	7.0	11.0	5	M8×1	70	32.9	27,200	53,300	0.04	1.60
R50-05K5-DEB-K/V	50	5	75	110	93	11.0	58	74	58	16	10	8.0	12.0	6	M8×1	85	47.3	24,900	77,900	0.02	1.20
R50-10K5-DEB-K/V	50	10	75	110	93	11.0	58	74	93	16	20	8.0	12.0	6	M8×1	85	44.9	70,500	179,100	0.02	1.80
R50-20K3-DEB-K/V	50	20	75	110	93	11.0	58	74	101	16	20	8.0	12.0	6	M8×1	85	44.9	45,100	106,900	0.03	1.95
R63-10K6-DEB-K/V	63	10	90	125	108	11.0	72	90	103	18	10	9.0	13.0	7	M8×1	95	57.9	90,800	271,500	0.04	2.90
R63-20T5-DEB-K/V	63	20	95	135	115	13.5	78	95	169	20	25	10.0	15.0	9	M8×1	100	55.5	129,000	315,400	0.04	4.10
R63-20K6-DEBH-K/V	63	20	125	165	145	13.5	83	125	185	25	25	12.5	18.0	10	M8×1	130	53.2	295,900	723,500	0.04	9.50
R80-10K6-DEB-K/V	80	10	105	145	125	13.5	88	104	105	20	12	10.0	14.0	6	M8×1	110	74.9	101,800	355,800	0.04	3.00
R80-20K5-DEB-K/V	80	20	125	165	145	13.5	92	124	157	25	25	12.5	17.0	9	M8×1	130	72.5	151,700	437,400	0.05	7.80
R80-20K6-DEBH-K/V	78	20	135	175	155	13.5	100	134	175	25	25	12.5	19.0	11	M8×1	140	68.2	336,500	931,200	0.05	13.50
R80-20K7-DEBH-K/V	78	20	135	175	155	13.5	100	134	195	25	25	12.5	19.0	11	M8×1	140	68.2	384,100	1,086,400	0.05	15.00

Dimensions in [mm]

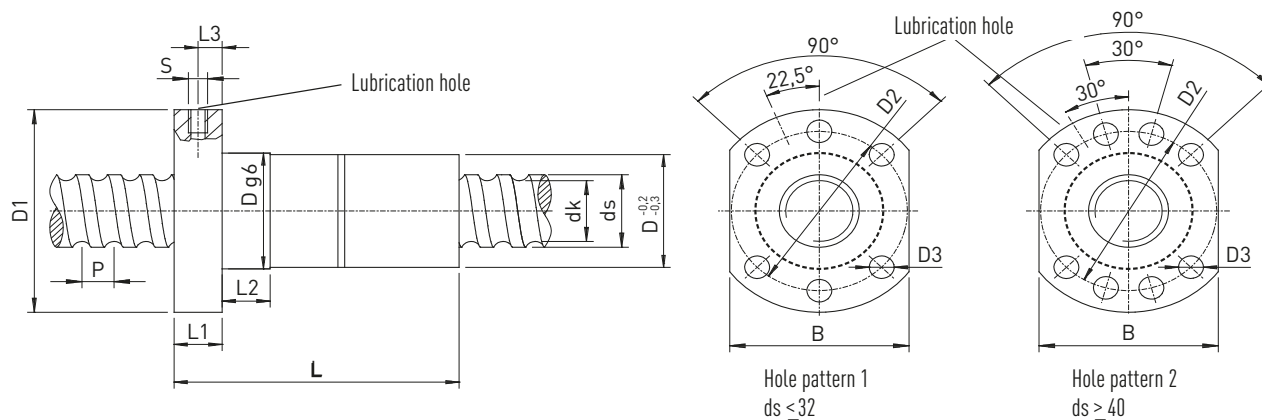
Wiper option:

- DEB-N ... standard wiper NBR (nitrile rubber)
- DEB-F ... felt wiper
- DEB-K ... NBR + finger wiper
- DEB-V ... felt + finger wiper

Ball screws

Peeled

3.5 Preloaded flanged double nut DDB



Nut type	ds	P	D	D1	D2	D3	Arrange-ment of holes	L	L1	L2	L3	S	B	dk	Dyn. capacity C_{dyn} [N]	Stat. capacity C_0 [N]	Nut weight [kg/ks]
DDB1605-R-3EF	16	5	28	48	38	5.5	1	80	10	10	5	M6	40	13.5	9600	12700	0.25
DDB2005-R-4EF	20	5	36	58	47	6.6	1	82	10	10	5	M6	44	17.5	13900	21800	0.42
DDB2505-R-4EF	25	5	40	62	51	6.6	1	95	10	10	5	M6	48	22.5	15600	27900	0.52
DDB2510-R-3EF	25	10	40	62	51	6.6	1	115	10	16	5	M6	48	21.0	24100	36200	0.57
DDB3205-R-5EF	32	5	50	80	65	9.0	1	95	12	10	6	M6	62	29.5	20700	43900	0.97
DDB3210-R-4EF	32	10	50	80	65	9.0	1	138	14	16	7	M6	62	27.8	40900	63200	1.01
DDB3220-R-2EB	32	20	50	80	65	9.0	1	138	14	16	7	M6	62	27.8	20300	26800	1.01
DDB4005-R-5EF	40	5	63	93	78	9.0	2	109	14	10	7	M8x1	70	37.5	22500	54600	1.55
DDB4010-R-4EF	40	10	63	93	78	9.0	2	150	14	16	7	M8x1	70	35.8	46800	82600	2.13
DDB4020-R-2EB	40	20	63	93	78	9.0	2	150	14	16	7	M8x1	70	35.8	23800	36400	1.80
DDB5005-R-5EF	50	5	75	110	93	11.0	2	112	16	10	8	M8x1	85	47.5	24900	69800	2.16
DDB5010-R-4EF	50	10	75	110	93	11.0	2	164	16	16	8	M8x1	85	45.8	52800	106800	2.50
DDB5020-R-3EB	50	20	75	110	93	11.0	2	196	16	16	8	M8x1	85	45.8	40000	76200	4.34
DDB6310-R-6EF	63	10	90	125	108	11.0	2	205	18	16	9	M8x1	95	58.8	84700	210800	4.34
DDB6320-R-4EP	63	20	95	135	115	13.5	2	270	20	25	10	M8x1	100	55.4	120000	250000	6.95
DDB8010-R-6EF	80	10	105	145	125	13.5	2	205	20	16	10	M8x1	110	75.8	93400	269200	4.71
DDB8020-R-4EP	80	20	125	165	145	13.5	2	280	25	25	12	M8x1	130	72.4	135000	322000	13.8

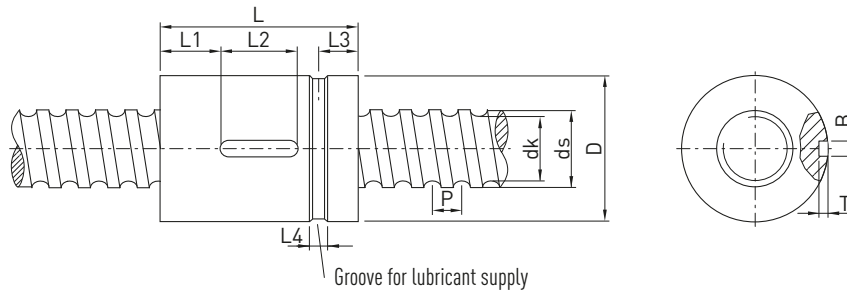
Dimensions in [mm]

- Nuts for peeled ball screws
- Dimensions acc. DIN 69051 part 5
- Single flanged nut
- Housings for nuts available
- Accuracy class P5 and P7

Ball screws

Peeled

3.6 Simple cylindrical nut ZE



Nut type	ds	P	D g7	L ±0,2	L1	L2	L3	L4	T +0,1	B P9	dk	Max. axial play [mm]	Dyn. capacity C _{dyn} [N]	Stat. capacity C ₀ [N]	Nut weight [kg/ks]
ZE1605-R-3EF	16	5	28	40	12	16	9	4	2.4	4	13.5	0.02	9600	12700	0.10
ZE2005-R-4EF	20	5	36	51	15	20	10	4	2.4	4	17.5	0.02	13900	21800	0.23
ZE2505-R-4EF	25	5	40	60	20	20	12	5	2.4	4	22.5	0.02	15600	27900	0.29
ZE2510-R-3EF	25	10	48	65	22	20	15	5	2.4	4	21.0	0.02	24100	36200	0.50
ZE3205-R-5EF	32	5	48	60	20	20	12	5	2.4	4	29.5	0.02	20700	43900	0.38
ZE3210-R-4EF	32	10	56	80	27	25	15	5	2.4	4	27.8	0.02	40900	63200	0.74
ZE3220-R-2EB	32	20	56	80	27	25	15	5	2.4	4	27.8	0.02	20300	26800	0.70
ZE4005-R-5EF	40	5	56	68	24	20	15	6	2.4	4	37.5	0.02	22500	54600	0.44
ZE4010-R-4EF	40	10	62	88	31	25	15	6	2.4	4	35.8	0.02	46800	82600	0.85
ZE4020-R-2EB	40	20	62	88	31	25	15	6	2.4	4	35.8	0.03	23800	36400	0.88
ZE5005-R-5EF	50	5	68	69	24	20	15	6	2.4	4	47.5	0.02	24900	69800	0.72
ZE5010-R-4EF	50	10	72	100	37	25	17	6	2.4	4	45.8	0.02	52800	106800	1.04
ZE5020-R-3EB	50	20	72	114	44	25	17	6	2.4	4	45.8	0.03	40000	76200	1.10
ZE6310-R-6EF	63	10	85	120	44	32	17	6	3.5	6	58.8	0.04	84700	210800	1.73
ZEN6320-R-4EP	63	20	95	135	52	32	17	6	3.5	6	55.4	0.04	105000	250000	3.80
ZE8010-R-6EF	80	10	105	120	44	32	17	8	3.5	6	75.8	0.04	93400	269200	2.80
ZE8020-R-4EP	80	20	125	150	52	45	17	8	3.5	6	72.4	0.05	135000	322000	7.80
ZEH8020-R-6EP	78	20	130	182	68.5	45	19	8	4.0	8	68.2	0.05	200000	510000	11.00

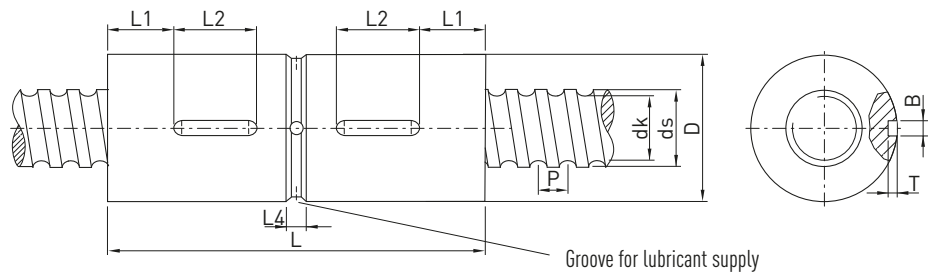
Dimensions in [mm]

- Nuts for peeled ball screws
- Accuracy class P5 and P7

Ball screws

Peeled

3.7 Double preloaded cylindrical nut ZD



Nut type	ds	P	D g7	L ±0.2	L1	L2	L4	T +0.1	B P9	dk	Dyn. capacity C _{dyn} [N]	Stat. capacity C ₀ [N]	Nut weight [kg/ks]
ZD1605-R-3EF	16	5	28	72	14	16	4	2.4	4	13.5	9600	12700	0.20
ZD2005-R-4EF	20	5	36	86	15	20	4	2.4	4	17.5	13900	21800	0.39
ZD2505-R-4EF	25	5	40	100	20	20	5	2.4	4	22.5	15600	27900	0.48
ZD2510-R-3EF	25	10	48	115	20	20	5	2.4	4	21.0	24100	36200	0.80
ZD3205-R-5EF	32	5	48	100	20	20	5	2.4	4	29.5	20700	43900	0.63
ZD3210-R-3EF	32	10	56	136	25	25	6	2.4	4	27.8	32000	47500	1.30
ZD3220-R-2EB	32	20	56	142	28	25	6	2.4	4	27.8	20300	26800	1.30
ZD4005-R-5EF	40	5	56	108	20	20	6	2.4	4	37.5	22500	54600	0.78
ZD4010-R-4EF	40	10	62	142	28	25	6	2.4	4	35.8	46800	82600	1.34
ZD4020-R-2EB	40	20	62	146	30	25	6	2.4	4	35.8	23800	36400	1.51
ZD5005-R-5EF	50	5	68	108	20	20	6	2.4	4	47.5	24900	69800	1.40
ZD5010-R-4EF	50	10	72	168	35	25	8	2.4	4	45.8	52800	106800	1.72
ZD5020-R-3EB	50	20	72	190	47	25	6	2.4	4	45.8	40000	76200	1.95
ZD6310-R-6EF	63	10	85	208	44	32	6	3.5	6	58.8	84700	210800	2.81
ZDN6320-R-4EP	63	20	95	260	65	32	6	3.5	6	55.4	105000	250000	7.30
ZD8010-R-6EF	80	10	105	208	44	32	6	3.5	6	75.8	93400	269200	5.50
ZD8020-R-4EP	80	20	125	285	55	32	8	4.1	8	72.4	135000	322000	14.90

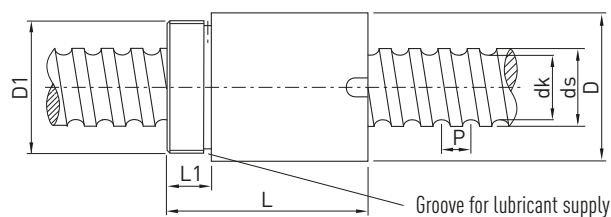
Dimensions in [mm]

- Nuts for peeled ball screws
- Standard preload 7% C_{dyn}
- Accuracy class P5 and P7

Ball screws

Peeled

3.8 Simple cylindrical nut with thread SE



Nut type	ds	P	D -0,2	D1	L -0,5	L1	dk	Max. axial play [mm]	Dyn. capacity C _{dyn} [N]	Stat. capacity C ₀ [N]	Nut weight [kg/ks]
SE1605-R-3EF	16	5	36	M30x1.5	42	12	13.5	0.02	9600	12700	0.45
SE2005-R-4EF	20	5	40	M35x1.5	52	12	17.5	0.02	13900	21800	0.53
SE2505-R-4EF	25	5	45	M40x1.5	60	15	22.5	0.02	15600	27900	0.82
SE2510-R-3EF	25	10	48	M45x1.5	70	15	21.0	0.02	24100	36200	1.00
SE3205-R-5EF	32	5	52	M48x1.5	60	15	29.5	0.02	20700	43900	1.13
SE3210-R-4EF	32	10	56	M52x1.5	90	15	27.8	0.02	34100	56100	1.62
SE3220-R-2EB	32	20	56	M52x1.5	80	15	27.8	0.02	20300	26800	1.44
SE4005-R-5EF	40	5	65	M60x1.5	68	18	37.5	0.02	22500	54600	1.63
SE4010-R-4EF	40	10	65	M60x1.5	88	18	35.8	0.02	46800	82600	1.75
SE4020-R-2EB	40	20	65	M60x1.5	88	18	35.8	0.03	23800	36400	1.75
SE5010-R-4EF	50	10	80	M75x1.5	100	20	45.8	0.02	52800	106800	2.96
SE5020-R-3EB	50	20	80	M75x1.5	114	20	45.8	0.03	40000	76200	3.15
SE6310-R-6EF	63	10	95	M85x2.0	120	20	58.8	0.04	84700	210800	4.37
SE6320-R-3EP	63	20	95	M85x2.0	138	20	55.4	0.04	96000	189000	4.40

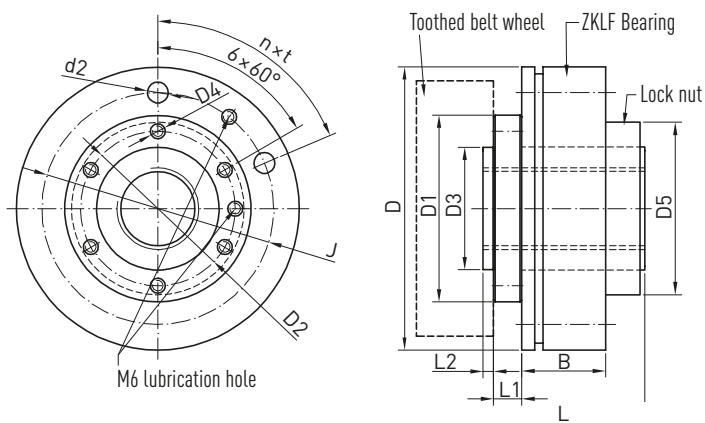
Dimensions in [mm]

- Nut for peeled ball screws
- Accuracy class P5 and P7

Ball screws

Ball screws for special requirements

4.1 Driven nut unit AME



Nut type	Shaft dimensions			Nut dimensions								Bearing	Lock nut	Dyn. capacity C _{dyn} [N]	Stat. capacity C ₀ [N]	n max [ot/min]
	ds	P	dk	D1	D2	D3h7	D4	D5	L	L1	L2					
AME1605-R-3EF	16	5	13.5	50	40	30	M6	45	50	10	3	ZKLF3080	HIR - 30	9600	12700	4000
AME2005-R-4EF	20	5	17.5	63	52	40	M6	60	60	12	5	ZKLF40100	HIR - 40	13900	21800	3300
AME2505-R-4EF	25	5	22.5	76	60	50	M6	72	63	15	5	ZKLF50115	HIR - 50	15600	27900	3000
AME2510-R-3EF	25	10	21.0	76	60	50	M6	72	74	15	5	ZKLF50115	HIR - 50	24100	36200	3000
AME3205-R-5EF	32	5	29.5	76	62	50	M8	72	70	15	5	ZKLF50115	HIR - 50	20700	43900	3000
AME3210-R-4EF	32	10	27.8	76	62	50	M8	72	105	15	5	ZKLF50115	-	40900	63200	3000
AME3220-R-2EB	32	20	27.8	76	62	50	M8	72	100	15	5	ZKLF50115	-	20300	26800	3000
AME4005-R-5EF	40	5	37.5	90	70	60	M8	82	76	15	5	ZKLF60145	HIR - 60	22500	54600	2800
AME4010-R-3EF	40	10	35.8	90	70	60	M8	82	85	15	5	ZKLF60145	HIR - 60	37100	61900	2800
AME4020-R-2EB	40	20	35.8	90	70	60	M8	82	105	15	5	ZKLF60145	HIR - 60	23800	36400	2800
AME5005-R-5EF	50	5	47.5	100	84	70	M10	94	70	15	5	ZKLF70155	HIR - 70	24900	69800	2500
AME5010-R-4EF	50	10	45.8	100	84	70	M10	94	95	15	5	ZKLF70155	HIR - 70	52800	106800	2500
AME5020-R-3EB	50	20	45.8	100	84	70	M10	94	120	15	5	ZKLF70155	HIR - 70	40000	76200	2500
AME6310-R-6EF	63	10	58.8	130	110	90	M10	122	120	20	7	ZKLF90190	HIR - 90	84700	210800	2000

Dimensions in [mm]

- Nuts for peeled ball screw
- Accuracy class P5 and P7
- Recommended shaft end S3-xx

Ball screws

Ball screws for special requirements

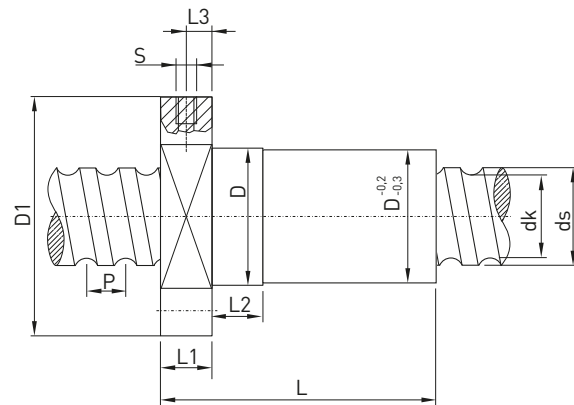
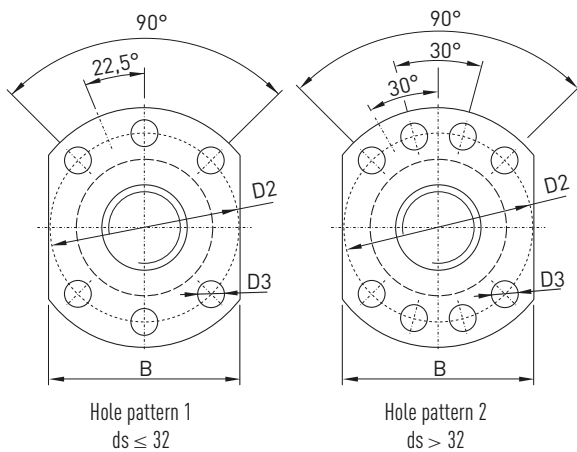
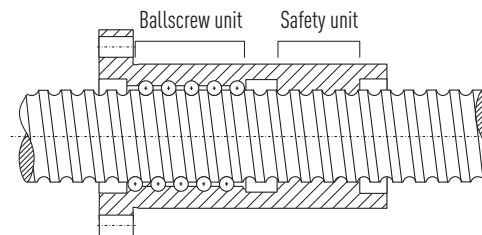
4.2 Safety nut SEM

The safety nut comprises a ball thread unit and safety unit. The safety nut basically works like a normal ballscrew nut. If the axial play is increased due to wear, ball failure or ball loss, the thread of the safety unit comes into contact with the ball thread. The nut cannot therefore break out. The normal function of the unit is guaranteed up to an axial play of 0.4 mm.



Areas of application:

- Lifting equipment
- Clamping fixtures
- Lifting platforms
- Elevators



Nut type	ds	P	D g7	D1	D2	D3	Hole pattern	L	L1	L2	L3	S	L4	dk	C _{dyn} [N]	C ₀ [N]
SEM3210-R-4EF	32	10	56	86	70	9	1	130	15	16	7.5	M6	66	27.8	40900	63200
SEM4010-R-4EF	40	10	63	93	78	9	2	130	15	16	7.5	M8x1	70	35.8	46800	82500
SEM4020-R-2EB	40	20	63	93	78	9	2	140	15	16	7.5	M8x1	70	35.8	23800	36400
SEM5010-R-5EF	50	10	75	110	93	11	2	145	16	16	8.0	M8x1	85	45.8	63900	133300
SEM6320-R-4EF	63	20	95	135	115	13.5	2	205	20	25	10.0	M8x1	100	55.4	105000	250000
SEM8020-R-5EF	80	20	125	168	145	13.5	2	230	25	25	12.5	M8x1	130	72.4	161500	398000

Dimensions in [mm]

○ Accuracy class P5 and P7

Ball screws

Bearing housings

5.1 Fixed bearing housing type SFA

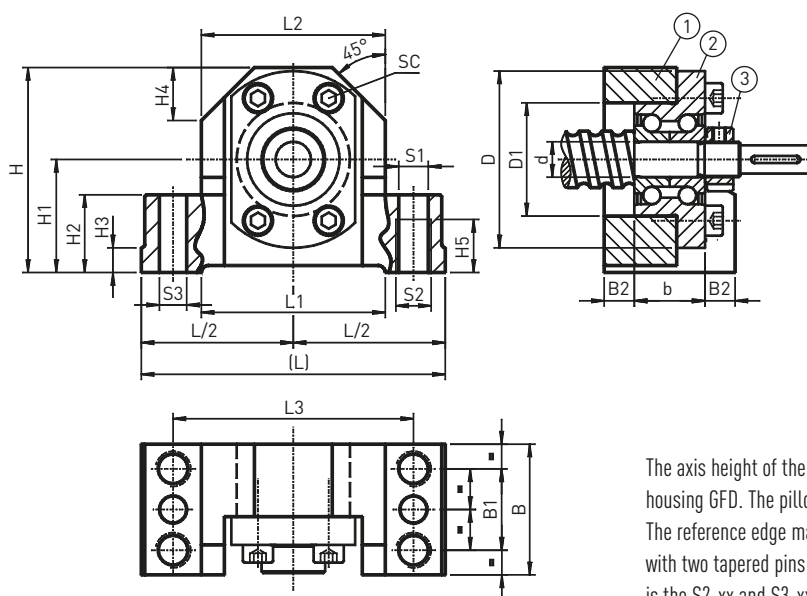
Precise bearing housings SFA are recommended for peeled and ground ball screws.

Fixed bearing housing SFA includes:

- Steel housing
- Angular contact ball bearing ZKLF
- Lock nut



SFA-06 ÷ SFA-10



(1) Steel housing, (2) Bearing, (3) Lock nut

The axis height of the fixed bearing is matched to supported bearing SLA and nut housing GFD. The pillow block can be screwed on from above (S1) and below (S2). The reference edge makes it easier to align the unit. The fixed bearing can be pinned with two tapered pins or cylindrical pins. The end machining suited to the fixed bearing is the S2-xx and S3-xx type.

Bearing unit dimensions

Ball screw size	Type	L	L1	L2	L3	H	H1 JS7	H2	H3	H4	H5	d	D	D1	b	B	B1	B2	S1 H12	S2	S3	SC DIN 912 10.9
12	SFA-06	62	34	38	50	41	22	13	5	11	9	6	30	19	12	32	16	10.0	5.3	M6	3.7	4xM3x12
16	SFA-10	86	52	52	68	58	32	22	7	15	15	10	50	32	20	37	23	8.5	8.4	M10	7.7	4xM5x20

Dimensions in [mm]

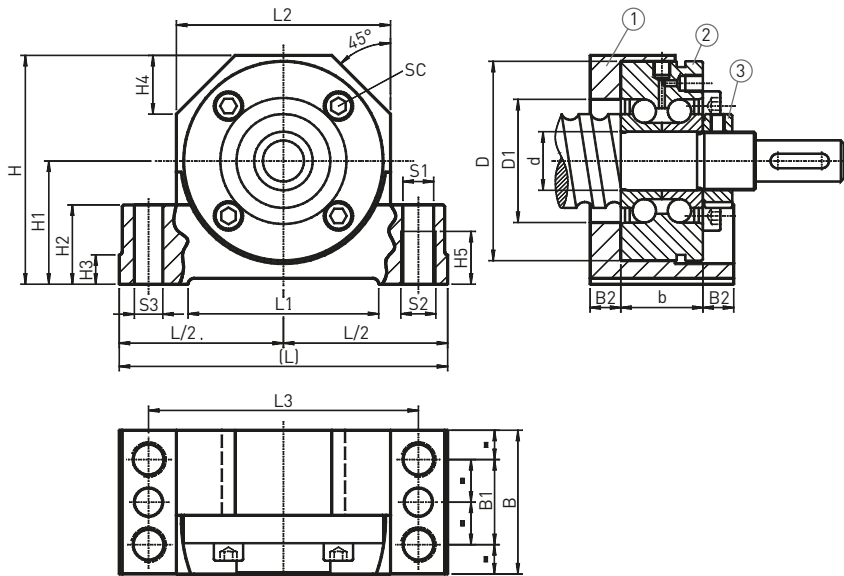
Technical data of bearing and lock nut

Unit type	Bearing type	C _i axial [N]	C _{dyn} axial [N]	Max. speed [n/min]	Lock nut			
					Type	Nut tightening torque [Nm]	Screw size	Screw tightening torque [Nm]
SFA-06	ZKLFA0630-2Z	6100	4900	14000	HIR 06	2	M4	1
SFA-10	ZKLFA1050-2RS	8500	6900	6800	HIR 10	6	M4	1

Ball screws

Bearing housings

SFA-12 ÷ SFA-40



(1) Steel housing, (2) Bearing, (3) Lock nut



Bearing unit dimensions

Ball screw size	Type	L	L1	L2	L3	H	H1 JS7	H2	H3	H4	H5	d	D	D1	b	B	B1	B2	S1 H12	S2	S3	SC DIN 912 10.9
20	SFA-12	94	52	60	77	64	34	22	7	17	15	12	55	32	25	42	25	8.5	8.4	M10	7.7	3xM6x35
25	SFA-17	108	65	66	88	72	39	27	10	19	18	17	62	36	25	46	29	10.5	10.5	M12	9.7	3xM6x35
32	SFA-20	112	65	73	92	78	42	27	10	20	18	20	68	42	28	49	29	10.5	10.5	M12	9.7	4xM6x40
40	SFA-30	126	82	84	105	92	50	32	13	23	21	30	80	52	28	53	32	12.5	12.6	M14	9.7	6xM6x40
50	SFA-40	146	82	104	125	112	60	32	13	30	21	40	100	66	34	59	34	12.5	12.6	M14	9.7	4xM8x50

Dimensions in [mm]

Technical data of bearing and lock nut

Unit type	Bearing type	C ₀ axial [N]	C _{dyn} axial [N]	Max. speed [n/min]	Lock nut			
					Type	Nut tightening torque [Nm]	Screw size	Screw tightening torque [Nm]
SFA-12	ZKLF1255-2RS	24700	17000	3800	HIR 12	8	M4	1
SFA-17	ZKLF1762-2RS	31000	18800	3300	HIR 17	15	M5	3
SFA-20	ZKLF2068-2RS	47000	26000	3000	HIR 20 × 1	18	M5	3
SFA-30	ZKLF3080-2RS	64000	29000	2200	HIR 30	32	M6	5
SFA-40	ZKLF40100-2RS	101000	43000	1800	HIR 40	55	M6	5

Ball screws

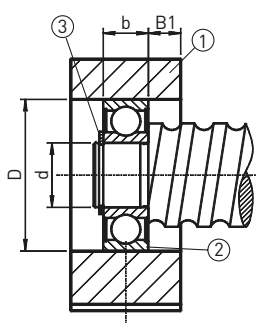
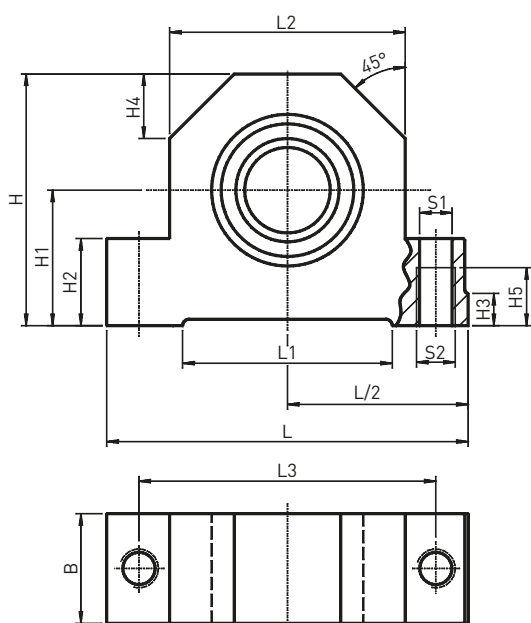
Bearing housings

5.2 Simple bearing housing type SLA

Precise bearing housings SLA are recommended for peeled and ground ball screws.

Simple bearing housing SLA includes:

- Steel housing
- Radial bearing
- Circlip



(1) Steel housing, (2) Radial bearing, (3) Circlip

The axis height of the supported bearing is matched to fixed bearing SFA and nut housing GFD. The housing can be screwed on from above (S1) and below (S2). The reference edge makes it easier to align the unit. The end machining suited to the supported bearing is the S5-xx or S1-xx type.

Ball screw size	Type	L	L1	L2	L3	H	H1 JS7	H2	H3	H4	H5	b	B	B1	S1 H12	S2	d	D J6	Circlip DIN 471	Radial bearing DIN 623
12	SLA-06	62	34	38	50	41	22	13	5	11	9	6	15	4.5	5.3	M6	6	19	6x0.7	626.2RS
16	SLA-10	86	52	52	68	58	32	22	7	15	15	9	24	7.5	8.4	M10	10	30	10x1.0	6200.2RS
20	SLA-12	94	52	60	77	64	34	22	7	17	15	10	26	8.0	8.4	M10	12	32	12x1.0	6201.2RS
25	SLA-17	108	65	66	88	72	39	27	10	19	18	12	28	8.0	10.5	M12	17	40	17x1.0	6203.2RS
32	SLA-20	112	65	72	92	78	42	27	10	20	18	14	34	10.0	10.5	M12	20	47	20x1.2	6204.2RS
40	SLA-30	126	82	84	105	92	50	32	13	23	21	16	38	11.0	12.6	M14	30	62	30x1.5	6206.2RS
50	SLA-40	146	82	104	125	112	60	32	13	30	21	18	44	13.0	12.6	M14	40	80	40x1.75	6208.2RS

Dimensions in [mm]

Ball screws

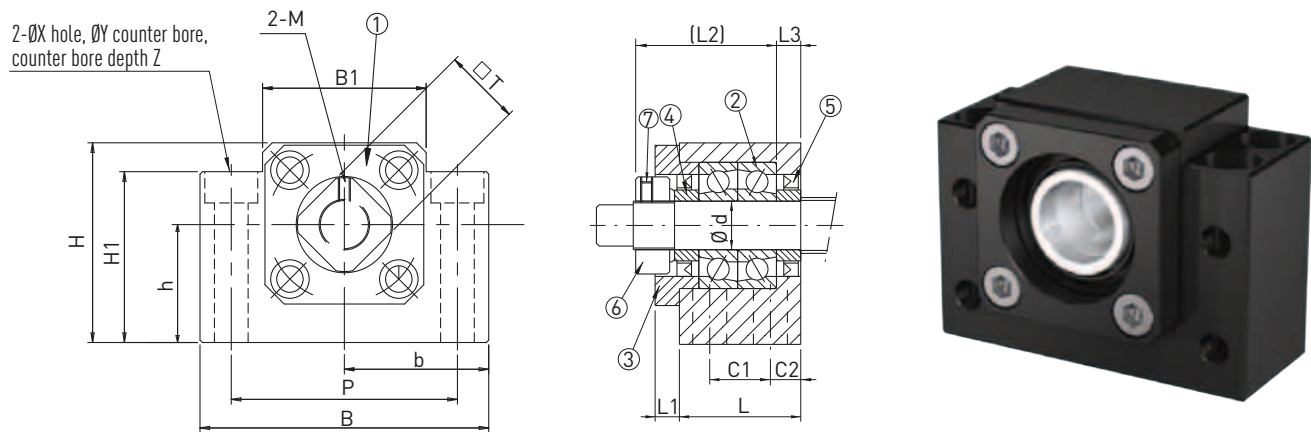
Bearing housings

5.3 Fixed bearing housing type BK

The axis height of the fixed bearing BK is matched to supported bearing BF.
The end machining suited to fixed bearing BK is the E2B-xx type.

Fixed bearing set BK includes:

- Steel bearing housing
- Angular contact ball bearing (2 pcs)
- Spacer (2 pcs)
- Radial lock nut



(1) Housing, (2) Bearing, (3) Retaining cover, (4) Support ring, (5) Seal, (6) Clamping nut, (7) Allen set screw

Type	Ød	L	L1	L2	L3	B	H	b ±0.02	h ±0.02	B1	H1	P	C1	C2	X	Y	Z	M	T	End machining	Bearing
BK-10	10	25	5	29.5	5	60	39	30	22	34	32.5	46	13	6	6.6	10.8	5.1	M3	16	E2B-10	7000A
BK-12	12	25	5	29.5	5	60	43	30	25	34	32.5	46	13	6	6.6	10.8	5.5	M4	19	E2B-12	7001A
BK-15	15	27	6	32.0	6	70	48	35	28	40	38.0	54	15	6	6.6	11.0	6.5	M4	22	E2B-15	7202A
BK-17	17	35	9	44.0	7	86	64	43	39	50	55.0	68	19	8	9.0	14.0	8.5	M4	24	E2B-17	7003A
BK-20	20	35	8	43.0	8	88	60	44	34	52	50.0	70	19	8	9.0	14.0	8.5	M4	30	E2B-20	7204A
BK-25	25	42	12	54.0	9	106	80	53	48	64	70.0	85	22	10	11.0	17.0	11.0	M6	35	E2B-25	7205A
BK-30	30	45	14	61.0	9	128	89	64	51	76	78.0	102	23	11	14.0	20.0	13.0	M6	40	E2B-30	7206A
BK-40	40	61	18	76.0	15	160	110	80	60	100	90.0	130	33	14	18.0	26.0	17.5	M6	50	E2B-35	7208A

Dimensions in [mm]

Ball screws

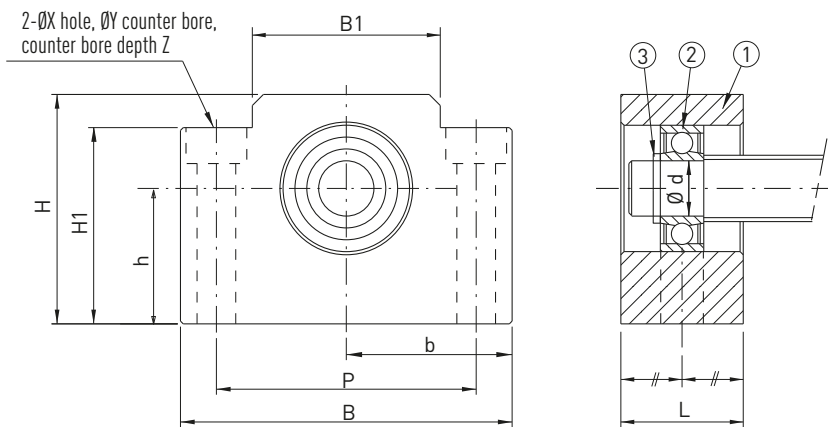
Bearing housings

5.4 Simple bearing housing type BF

The axis height of the supported bearing is matched to fixed bearing BK.
The end machining suited to supported bearing BF is the E5B-xx type.

Simple bearing housing set BF includes:

- Steel housing
- Radial ball bearing
- Circlip



(1) Housing, (2) Bearing, (3) Circlip



Type	Ød	L	B	H	b ±0.02	h ±0.02	B1	H1	P	X	Y	Z	End machining	Bearing
BF-10	8	20	60	39	30	22	34	32.5	46	6.6	10.8	5.0	E5B-10	608ZZ
BF-12	10	20	60	43	30	25	34	32.5	46	6.6	10.8	5.5	E5B-12	6000ZZ
BF-15	15	20	70	48	35	28	40	38.0	54	6.6	11.0	6.5	E5B-15	6002ZZ
BF-17	17	23	86	64	43	39	50	55.0	68	9.0	14.0	8.5	E5B-17	6003ZZ
BF-20	20	26	88	60	44	34	52	50.0	70	9.0	14.0	8.5	E5B-20	6004ZZ
BF-25	25	30	106	80	53	48	64	70.0	85	11.0	17.0	11.0	E5B-25	6205ZZ
BF-30	30	32	128	89	64	51	76	78.0	102	14.0	20.0	13.0	E5B-30	6206ZZ
BF-40	40	37	160	110	80	60	100	90.0	130	18.0	26.0	17.5	E5B-35	6208ZZ

Dimensions in [mm]

Ball screws

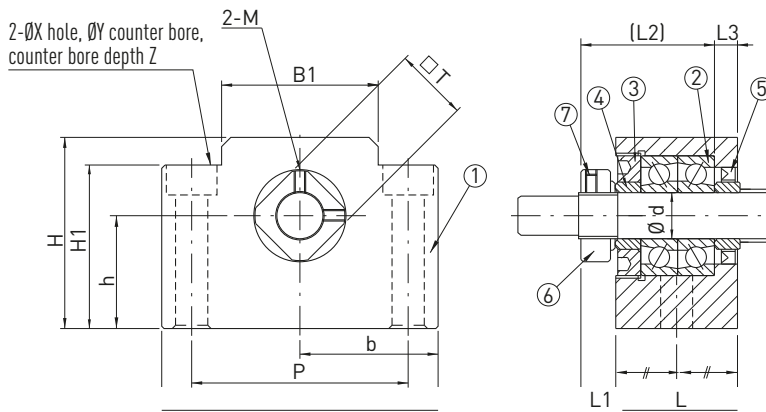
Bearing housings

5.5 Fixed bearing housing type EK

The axis height of the fixed bearing is matched to supported bearing EF.
The end machining suited to fixed bearing EK is the EZE-xx type.

Fixed bearing set EK includes:

- Steel bearing housing
- Angular contact ball bearing (2 pcs)
- Spacer (2 pcs)
- Radial lock nut



(1) Housing, (2) Bearing, (3) Retaining cover, (4) Support ring, (5) Seal, (6) Clamping nut, (7) Allen set screw

Type	Ball screw size	d	L	L1	L2	L3	B	H	b ± 0.02	h ± 0.02	B1	H1	P	X	Y	Z	M	T	End machi- ning	Bearing
EK-06	8, 10*	6	20	5.5	22	3.5	42	25	21	13	18	20	30	5.8	9.5	11	M3	12	EZE-06	706A
EK-08	10*, 12	8	23	7.0	26	4.0	52	32	26	17	25	26	38	6.6	11.0	12	M3	14	EZE-08	708A

*EK-06 suitable for ball screws 10x4
EK-08 suitable for ball screws 10x2.5

Dimensions in [mm]

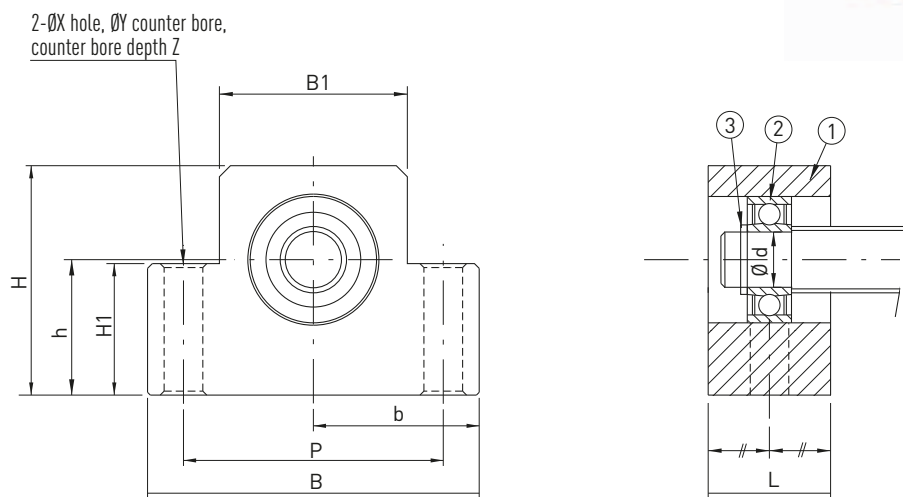
Ball screws

Bearing housings

5.6 Simple bearing housing type EF

Simple bearing set EF includes:

- Steel bearing housing
- Radial bearing
- Circlip



(1) Housing, (2) Bearing, (3) Circlip

Type	Ball screw size	d	L	B	H	b ± 0.02	h ± 0.02	B1	H1	P	X	Y	Z	End machi- ning	Bearing
EF-06	8, 10*	6	12	42	25	21	13	18	20	30	5.5	9.5	11	E5E-06	606ZZ
EF-08	10*, 12	6	14	52	32	26	17	25	26	38	6.6	11.0	12	E5E-08	606ZZ

*EF-06 suitable for ball screws 10x4
 EF-08 suitable for ball screws 10x2.5

Dimensions in [mm]

Ball screws

Bearing housings

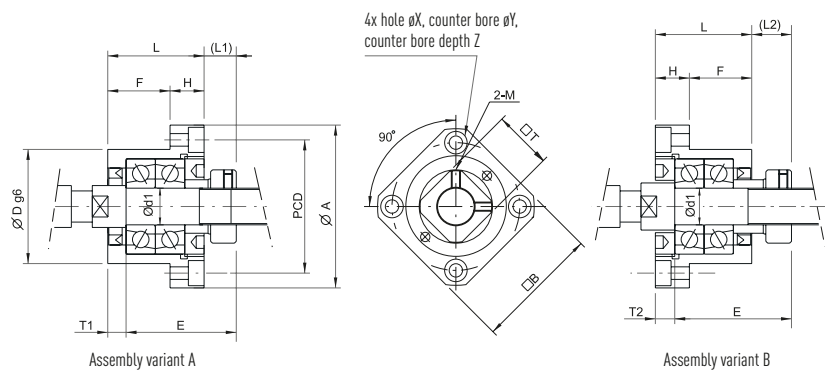
5.7 Fixed bearing housing type FK

The associated supporting bearing unit is the FF bearing series.
The end machining suited to fixed bearing FK is the E2F-xx type.

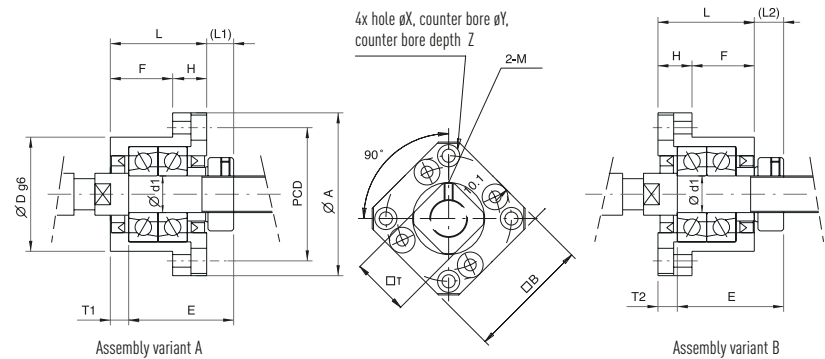
Fixed bearing set FK includes:

- Steel bearing housing
- Angular contact ball bearing (2 pcs)
- Spacer (2 pcs)
- Radial lock nut

FK-06 - FK-08



FK-10 - FK-30



Type	Ød1	L	H	F	E	ØDg6	ØA	PCD	B	L1	T1	L2	T2	X	Y	Z	M	T	End machining	Bearing
FK-06	6	20	7	13	22.0	22	36	28	28	5.5	3.5	6.5	4.5	3.4	6.5	4	M3	12	E2F-06	706A
FK-08	8	23	9	14	26.0	28	43	35	35	7.0	4.0	8.0	5.0	3.4	6.5	4	M3	14	E2F-08	708A
FK-10	10	27	10	17	29.5	34	52	42	42	7.5	5.0	8.5	6.0	4.5	8.0	4	M3	16	E2F-10	7000A
FK-12	12	27	10	17	29.5	36	54	44	44	7.5	5.0	8.5	6.0	4.5	8.0	4	M4	19	E2F-12	7001A
FK-15	15	32	15	17	36.0	40	63	50	52	10.0	6.0	12.0	8.0	5.5	9.5	6	M4	22	E2F-15	7002A
FK-17	17	45	22	23	47.0	50	77	62	61	11.0	9.0	14.0	12.0	6.6	11.0	10	M4	24	E2F-17	7203A
FK-20	20	52	22	30	50.0	57	85	70	68	8.0	10.0	12.0	14.0	6.6	11.0	10	M4	30	E2F-20	7204A
FK-25	25	57	27	30	59.0	63	98	80	79	13.0	10.0	20.0	17.0	9.0	15.0	13	M5	35	E2F-25	7205A
FK-30	30	62	30	32	61.0	75	117	95	93	11.0	12.0	17.0	18.0	11.0	17.5	15	M6	40	E2F-30	7206A

Dimensions in [mm]

Ball screws

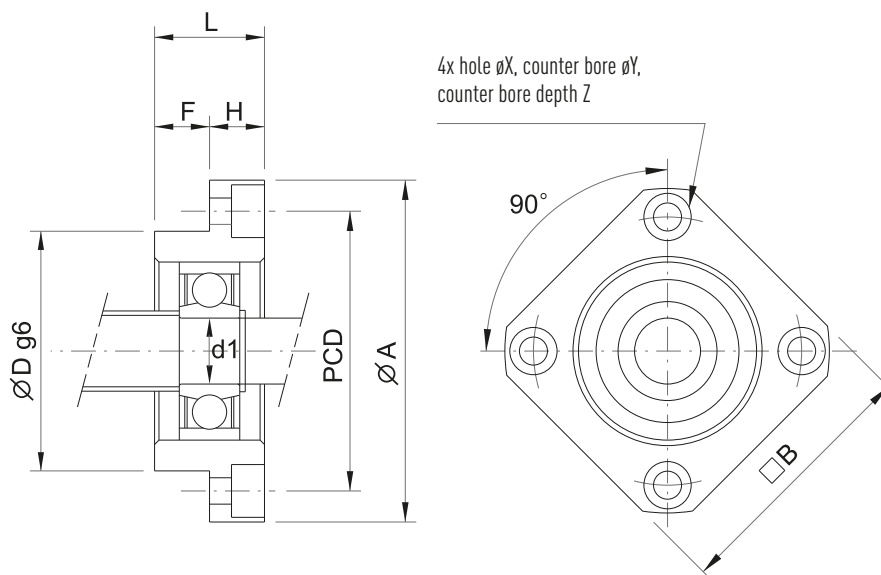
Bearing housings

5.8 Simple bearing housing type FF

The associated fixed bearing unit is the FK bearing series.
The end machining suited to supported bearing FF is the E5F-xx type.

Simple bearing housing set FF includes:

- Steel housing
- Radial ball bearing
- Circlip



Type	Ød1	L	H	F	ØDg6	ØA	PCD	B	X	Y	Z	End machining	Bearing
FF-06	6	10	6	4	22	36	28	28	3.4	6.5	4.0	E5F-08	606ZZ
FF-10	8	12	7	5	28	43	35	35	3.4	6.5	4.0	E5F-10	608ZZ
FF-12	10	15	7	8	34	52	42	42	4.5	8.0	4.0	E5F-12	6000ZZ
FF-15	15	17	9	8	40	63	50	52	5.5	9.5	5.5	E5F-15	6002ZZ
FF-17	17	20	11	9	50	77	62	61	6.6	11.0	6.5	E5F-17	6203ZZ
FF-20	20	20	11	9	57	85	70	68	6.6	11.0	6.5	E5F-20	6204ZZ
FF-25	25	24	14	10	63	98	80	79	9.0	14.0	8.5	E5F-25	6205ZZ
FF-30	30	27	18	9	75	117	95	93	11.0	17.0	11.0	E5F-30	6206ZZ

Dimensions in [mm]

Ball screws

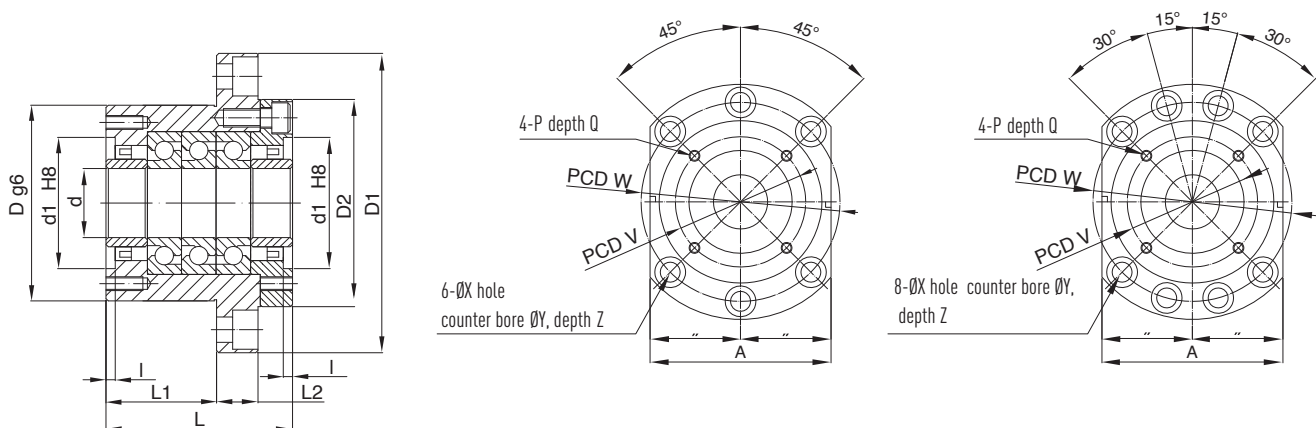
Bearing housings

5.9 WBK bearing housings for high load

Thanks to their robust steel bearing housing, the flange bearing units of the WBK series are especially suited to use in heavy-duty ballscrews. Depending on the axial loads present, the WBK bearing units are available with the DF, DFD and DFF bearing arrangements. The end machining processes suited to the WBK fixed bearing are types WS2 and WS3.

High load bearing set WBK includes:

- Steel bearing housing
- Angular contact ball bearing (2, 3 or 4 pcs)
- Spacer (2 pcs)
- Lock nut



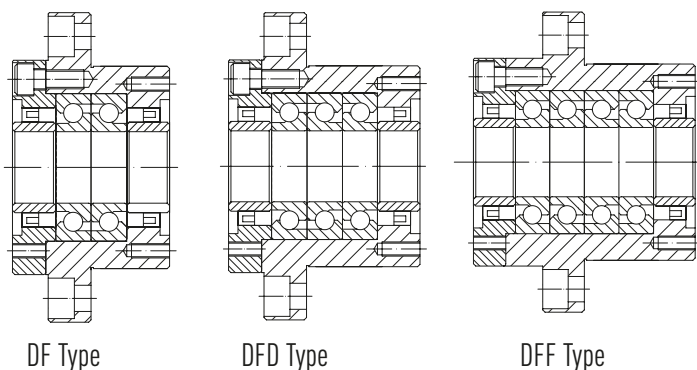
Type	Ball screw size	d	D	D1	D2	L	L1	L2	A	W	X	Y	Z	d1	l	V	P	Q
WBK-15-DF	20	15	70	106	72	60	32	15	80	88	9	14	8.5	45	3	58	M5	10
WBK-17-DF	25	17	70	106	72	60	32	15	80	88	9	14	8.5	45	3	58	M5	10
WBK-20-DF	25	20	70	106	72	60	32	15	80	88	9	14	8.5	45	3	58	M5	10
WBK-25-DF	32	25	85	130	90	66	33	18	100	110	11	17.5	11	57	4	70	M6	12
WBK-25-DFD	32	25	85	130	90	81	48	18	100	110	11	17.5	11	57	4	70	M6	12
WBK-25-DFF	32	25	85	130	90	96	48	18	100	110	11	17.5	11	57	4	70	M6	12
WBK-30-DF	40	30	85	130	90	66	33	18	100	110	11	17.5	11	57	4	70	M6	12
WBK-30-DFD	40	30	85	130	90	81	48	18	100	110	11	17.5	11	57	4	70	M6	12
WBK-30-DFF	40	30	85	130	90	96	48	18	100	110	11	17.5	11	57	4	70	M6	12
WBK-35-DF	40	35	95	142	102	66	33	18	106	121	11	17.5	11	69	4	80	M6	12
WBK-35-DFD	40	35	95	142	102	81	48	18	106	121	11	17.5	11	69	4	80	M6	12
WBK-35-DFF	40	35	95	142	102	96	48	18	106	121	11	17.5	11	69	4	80	M6	12
WBK-40-DF	50	40	95	142	102	66	33	18	106	121	11	17.5	11	69	4	80	M6	12
WBK-40-DFD	50	40	95	142	102	81	48	18	106	121	11	17.5	11	69	4	80	M6	12
WBK-40-DFF	50	40	95	142	102	96	48	18	106	121	11	17.5	11	69	4	80	M6	12

Dimensions in [mm]

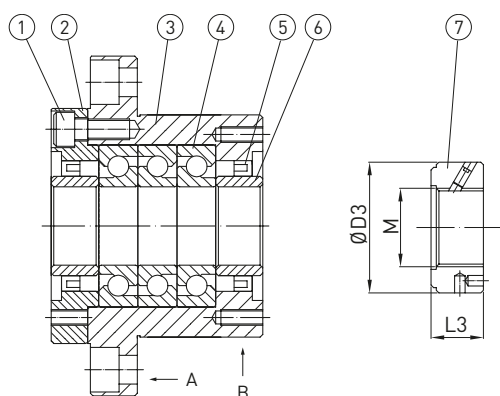
Ball screws

Bearing housings

Bearing arrangements



Bearing structure



(1) Mounting bolt, (2) Bearing cover, (3) Bearing housing, (4) Bearing, (5) Seal, (6) Spacer, (7) Lock nut

Note:

1. Use reference planes A and B for alignment during assembly.
2. To ensure high accuracy, parts 1 – 6 may not be disassembled..

Type	Dynamic capacity [kN]	Max. axial force [kN]	Preload [kN]	Axial rigidity [N/µm]	Starting torque [Nm]	Lock nut			Weight [kg]
						M	D3	L3	
WBK-15-DF	21.9	26.6	2.15	750	0.19	M15x1	30	14	1.20
WBK-17-DF	22.4	27.1	2.20	750	0.19	M17x1	37	18	1.24
WBK-20-DF	22.4	27.1	2.20	750	0.19	M20x1	40	18	2.0
WBK-25-DF	29.1	41.5	3.20	1000	0.29	M25x1.5	45	20	3.3
WBK-25-DFD	4.7	83.0	4.40	1500	0.40	M25x1.5	45	20	3.8
WBK-25-DFF	4.7	83.0	6.40	2000	0.50	M25x1.5	45	20	4.5
WBK-30-DF	29.8	44.0	3.40	1050	0.30	M30x1.5	50	20	3.2
WBK-30-DFD	48.5	88.0	4.60	1550	0.40	M30x1.5	50	20	3.7
WBK-30-DFF	48.5	88.0	6.80	2050	0.52	M30x1.5	50	20	4.3
WBK-35-DF	31.5	51.0	3.90	1200	0.35	M35x1.5	55	22	3.8
WBK-35-DFD	51.5	102.0	5.30	1750	0.46	M35x1.5	55	22	4.5
WBK-35-DFF	51.5	102.0	7.80	2400	0.60	M35x1.5	55	22	5.2
WBK-40-DF	32.5	53.0	4.00	1250	0.37	M40x1.5	60	22	3.7
WBK-40-DFD	52.5	106.0	5.40	1850	0.47	M40x1.5	60	22	4.2
WBK-40-DFF	52.5	106.0	8.00	2450	0.62	M40x1.5	60	22	5.0

Dimensions in [mm]

Ball screws

Bearing housings

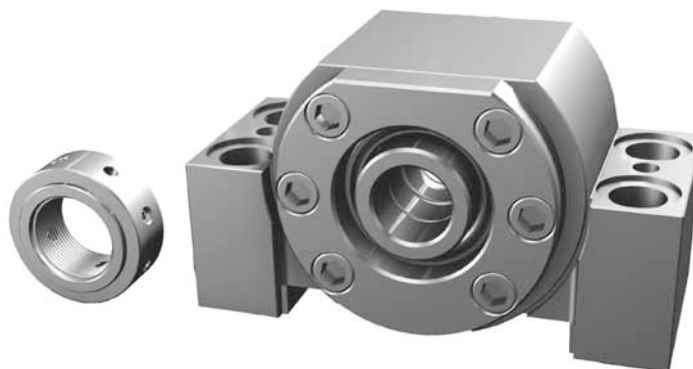
5.10 SBK bearing housings for high load

Thanks to their robust steel bearing housing, the bearing units of the SBK series are especially suited to use in heavy-duty ballscrews. Depending on the axial loads present, the SBK bearing units are available with the DF and DFD bearing arrangements.

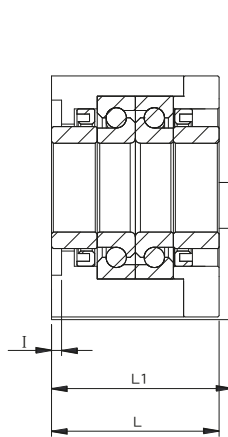
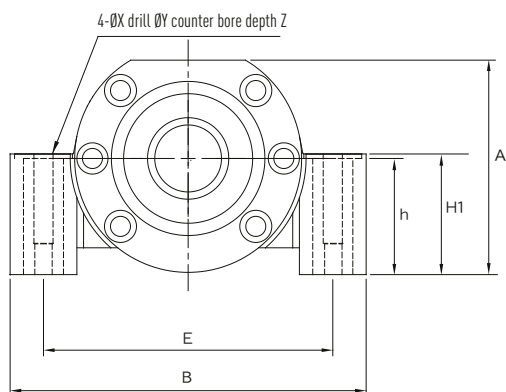
The end machining processes suited to the SBK fixed bearing are types WS2 and WS3.

High load bearing set SBK includes:

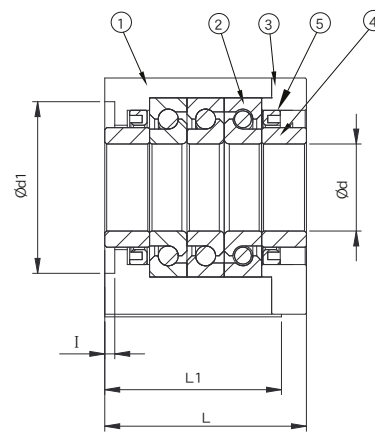
- Steel bearing housing
- Angular contact ball bearing (2 or 3 pcs)
- Spacer (2 pcs)
- Lock nut



Bearing arrangements



DF Type



DFD Type

Note:

1. To ensure high accuracy, parts 1 – 5 may not be disassembled..

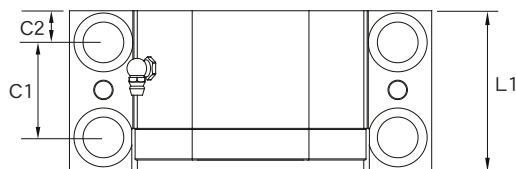
(1) Steel housing, (2) Bearing, (3) Bearing cover, (4) Spacer, (5) Seal, (6) Lock nut

Type	Ball screw size	d	A	h ± 0.02	H1	L	L1	L3	B	d1	E	C2	C1	X	Y	Z	I	V	P	Q	H
SBK-25-DF	32	25	89	51	53	66	71	18	160	57	130	15.5	40	18	26	2	4	70	M6	10	M6
SBK-25-DFD	32	25	89	51	53	81	71	18	160	57	130	15.5	40	18	26	2	4	70	M6	10	M6
SBK-30-DF	40	30	89	51	53	66	71	18	160	57	130	15.5	40	18	26	2	4	70	M6	10	M6
SBK-30-DFD	40	30	89	51	53	81	71	18	160	57	130	15.5	40	18	26	2	4	70	M6	10	M6
SBK-35-DF	40	35	96	52	54	66	71	18	160	69	130	15.5	40	18	26	2	4	80	M6	10	M6
SBK-35-DFD	40	35	96	52	54	81	71	18	160	69	130	15.5	40	18	26	2	4	80	M6	10	M6
SBK-40-DF	50	40	96	52	54	66	71	18	160	69	130	15.5	40	18	26	2	4	80	M6	10	M6
SBK-40-DFD	50	40	96	52	54	81	71	18	160	69	130	15.5	40	18	26	2	4	80	M6	10	M6

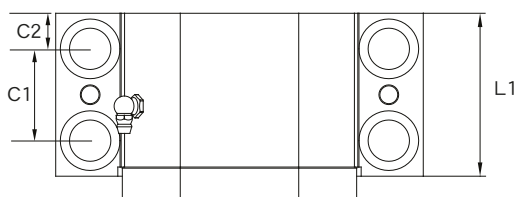
Dimensions in [mm]

Ball screws

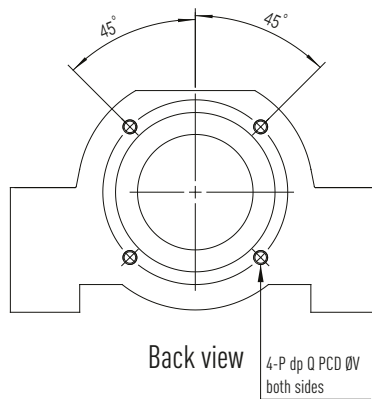
Bearing housings



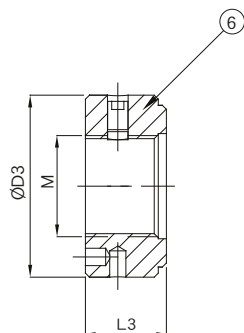
DF Type



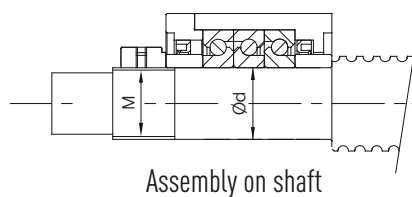
DFD Type



Back view



Lock nut



Assembly on shaft

Type	Dynamic capacity [kN]	Max. axial force [kN]	Preload [kN]	Axial rigidity [N/µm]	Starting torque [Nm]	Lock nut			Weight [kg]
						M	D3	L3	
SBK-25-DF	29.1	41.5	3.2	1000	0.29	M25x1.5	45	20	4.46
SBK-25-DFD	47.0	83.0	4.4	1500	0.40	M25x1.5	45	20	5.25
SBK-30-DF	29.8	44.0	3.4	1050	0.30	M30x1.5	50	20	4.35
SBK-30-DFD	48.5	88.0	4.6	1550	0.40	M30x1.5	50	20	5.09
SBK-35-DF	31.5	51.0	3.9	1200	0.35	M35x1.5	55	22	4.57
SBK-35-DFD	51.5	102.0	5.3	1750	0.46	M35x1.5	55	22	5.30
SBK-40-DF	32.5	53.0	4.0	1250	0.37	M40x1.5	60	22	4.60
SBK-40-DFD	52.5	106.0	5.4	1850	0.47	M40x1.5	60	22	5.15

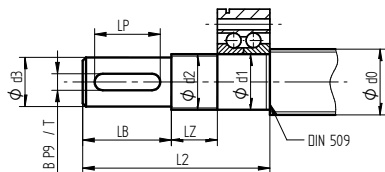
Dimensions in [mm]

Ball screws

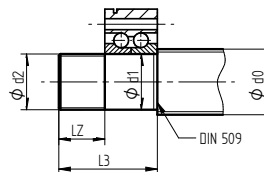
Shaft ends

6.1 Standard shaft ends for SFA fixed bearing housings

Type S2



Type S3



Dimensional table for S2 and S3 shaft ends for SFA bearing housing

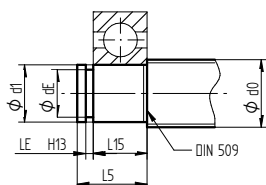
Type S2	Type S3	Bearing housing	d0	d1	d2	d3	L2	L3	LB	LZ	LP	B x X
S2-06	S3-06	SFA-06	8, 10, 12	6 h5	M6x0.5	5 j6	37	21	16	10	-	-
S2-10	S3-10	SFA-10	16	10 h5	M10x0.75	8 j6	50	30	20	12	14	2x1.2
S2-12	S3-12	SFA-12	20	12 h5	M12x1	10 j6	58	35	23	12	16	3x1.8
S2-17	S3-17	SFA-17	25	17 h5	M17x1	14 j6	73	43	30	20	20	5x3.0
S2-20	S3-20	SFA-20	25, 32	20 h5	M20x1	14 j6	76	46	30	20	20	5x3.0
S2-25	S3-25	-	32, 40	25 h5	M25x1.5	20 j6	96	46	50	21	36	6x3.5
S2-30	S3-30	SFA-30	40	30 h5	M30x1.5	25 j6	108	48	60	22	45	8x4.0
S2-40	S3-40	SFA-40	50	40 h5	M40x1.5	32 k6	135	55	80	24	56	10x5.0
S2-50	S3-50	-	63	50 h5	M50x1.5	40 k6	155	55	100	24	70	12x4.0
S2-60	S3-60	-	80	60 h5	M60x2	50 k6	177	67	110	25	70	14x5.0

S2 type without keyway - S21

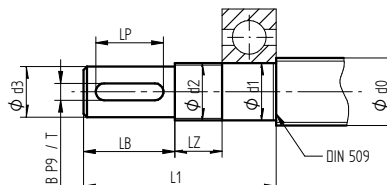
Dimensions in [mm]

6.2 Standard shaft ends for SLA simple bearing housings

Type S5



Type S1



Dimensional table for S5 and S1 shaft end for SLA bearing housing

Type S5	Type S1	Bearing housing	d0	d1	d2	d3	dE	L1	L5	L15	LB	LZ	LP	LE	B x T
S5-06	S1-06	SLA-06	8, 10, 12	6 j6	M6x0.5	5 j6	5.7 h10	31	8	6	16	10	-	0.8	-
S5-10	S1-10	SLA-10	16	10 j6	M10x0.75	8 j6	9.6 h10	39	12	9	20	12	14	1.1	2x1.2
S5-12	S1-12	SLA-12	20	12 j6	M12x1	10 j6	11.5 h11	43	13	10	23	12	16	1.1	3x1.8
S5-17	S1-17	SLA-17	25	17 j6	M17x1	14 j6	16.2 h11	60	15	12	30	20	20	1.1	5x3.0
S5-20	S1-20	SLA-20	25, 32	20 j6	M20x1	14 j6	19 h12	42	17	14	30	20	20	1.3	5x3.0
S5-25	S1-25	-	32, 40	25 j6	M25x1.5	20 j6	23.9 h13	83	18	15	50	21	36	1.3	6x3.5
S5-30	S1-30	SLA-30	40	30 j6	M30x1.5	25 j6	28.6 h12	95	20	16	60	22	45	1.6	8x4.0
S5-40	S1-40	SLA-40	50	40 j6	M40x1.5	32 k6	37.5 h12	119	22	18	80	24	56	1.85	10x5.0
S5-50	S1-50	-	63	50 j6	M50x1.5	40 k6	47 h12	142	25	20	100	24	70	2.15	12x5.0
S5-60	S1-60	-	80	60 j6	M60x2	50 k6	57 h12	155	28	22	110	25	70	2.15	14x5.0

S1 type without keyway - S11

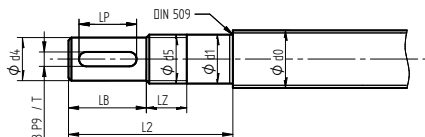
Dimensions in [mm]

Ball screws

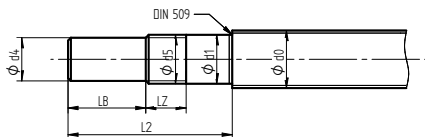
Shaft ends

6.3 Standard shaft end E2B for BK fixed bearing housing

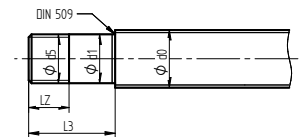
Type E2B1



Type E2B2



Type E2B3

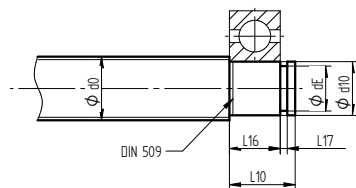


Dimensional table of E2B shaft end for BK bearing housing											
Type	Bearing housing	d0	d1	d4	d5	LB	LZ	L2	L3	LP	B x T
E2B_-10	BK-10	12	10 h6	8 j6	M10x1	15	16	51	36	9	2x1.2
E2B_-12	BK-12	16	12 h6	10 j6	M12x1	15	14	51	36	9	3x1.8
E2B_-15	BK-15	20	15 h6	12 j6	M15x1	20	12	60	40	12	4x2.5
E2B_-17	BK-17	25	17 h6	15 j6	M17x1	23	17	76	53	15	5x3.0
E2B_-20	BK-20	25	20 h6	17 j6	M20x1	25	15	78	53	15	5x3.0
E2B_-25	BK-25	32	25 h6	20 j6	M25x1.5	30	18	95	65	16	6x3.5
E2B_-30	BK-30	40	30 h6	25 j6	M30x1.5	38	25	110	72	23	8x4.0
E2B_-40	BK-40	50	40 h6	35 j6	M40x1.5	50	35	143	83	26	10x5.0

Dimensions in [mm]

6.4 Standard shaft end E5B for BF simple bearing housing

Type E5B



Dimensional table for E5B shaft end for BF bearing housing							
Type	Bearing housing	d0	d10 j6	dE -0.2	L10	L16	L17 H13
E5B-10	BF-10	12	8	7.6	10	7	0.9
E5B-12	BF-12	16	10	9.6	11	8	1.15
E5B-15	BF-15	20	15	14.3	13	9	1.15
E5B-17	BF-17	25	17	16.2	16	12	1.15
E5B-20	BF-20	25	20	19.0	16	12	1.35
E5B-25	BF-25	32	25	23.9	20	15	1.35
E5B-30	BF-30	40	30	28.6	21	16	1.75
E5B-40	BF-40	50	40	38.0	23	18	1.95

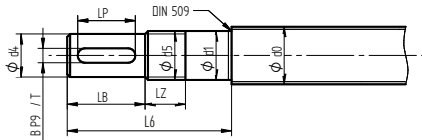
Dimensions in [mm]

Ball screws

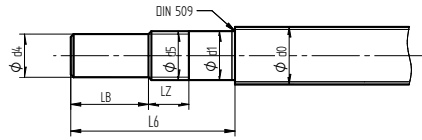
Shaft ends

6.5 Standard shaft end E2E for EK fixed bearing housing

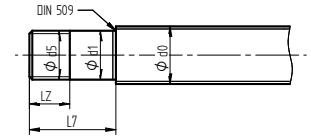
Type E2E1



Type E2E2



Type E2E3



Dimensional table of E2E shaft end for EK bearing housing

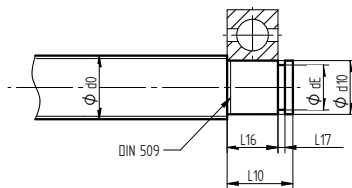
Type	Bearing housing	d0	d1	d4	d5	LB	LZ	L6	L7	LP	B x T
E2E_-06	EK-06	8, 10*	6 h6	4 j6	M6x0.75	8	8	36	28	-	-
E2E_-08	EK-08	10*, 12	8 h6	6 j6	M8x1	9	10	41	32	6	2x1.2

*E2E_-06 suitable for ball screws 10x4
E2E_-08 suitable for ball screws 10x2.5

Dimensions in [mm]

6.6 Standard shaft end E5E for EF simple bearing housing

Type E5E



Dimensional table for E5E shaft end for EF bearing housing

Type	Bearing housing	d0	d10 j6	dE -0.2	L10	L16	L17 H13
E5E-06	EF-06	8, 10*	6	5.7	9	6	0.8
E5E-08	EF-08	10*, 12	6	5.7	9	6	0.8

*E5E_-06 suitable for ball screws 10x4
E5E_-08 suitable for ball screws 10x2.5

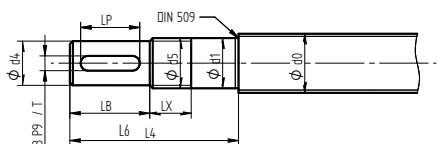
Dimensions in [mm]

Ball screws

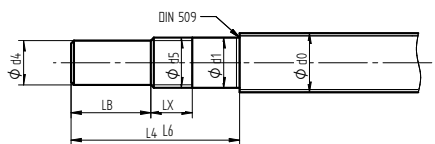
Shaft ends

6.7 Standard shaft end E2F for FK fixed bearing housing

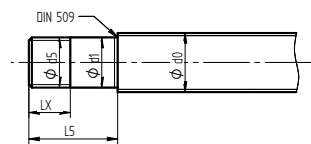
Type E2F1



Type E2F2



Type E2F3



Dimensional table for E2F shaft ends for FK bearing housing

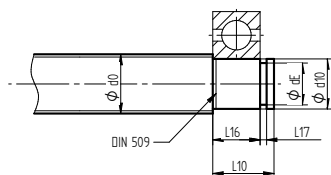
Type	Bearing housing	d0	d1	d4	d5	LB	LX	L4	L5	LP	B x T
E2F_-06	FK-06	8, 10*	6 h6	4 j6	M6x0.75	8	8	36	28	-	-
E2F_-08	FK-08	10*, 12	8 h6	6 j6	M8x1	9	10	41	32	6	2x1.2
E2F_-10	FK-10	12	10 h6	8 j6	M10x1	15	16	51	36	9	2x1.2
E2F_-12	FK-12	16	12 h6	10 j6	M12x1	15	14	51	36	9	3x1.8
E2F_-15	FK-15	20	15 h6	12 j6	M15x1	20	12	67	47	12	4x2.5
E2F_-17	FK-17	25	17 h6	15 j6	M17x1	23	17	81	58	15	5x3.0
E2F_-20	FK-20	25	20 h6	17 j6	M20x1	25	15	87	62	15	5x3.0
E2F_-25	FK-25	32	25 h6	20 j6	M25x1.5	30	20	106	76	16	6x3.5
E2F_-30	FK-30	40	30 h6	25 j6	M30x1.5	38	25	110	72	23	8x4.0

*E2F_-06 suitable for ball screws 10x4
E2F_-08 suitable for ball screws 10x2.5

Dimensions in [mm]

6.8 Standard shaft end E5F for FF simple bearing housing

Type E5F



Dimensional table for E5F shaft end for FF bearing housing

Type	Bearing housing	d0	d1 j6	dE -0.2	L10	L16	L17 H13	Bearing
E5F-08	FF-06	8, 10	6	5.7	9	6	0.8	606ZZ
E5F-10	FF-10	12	8	7.6	10	7	0.9	608ZZ
E5F-12	FF-12	16	10	9.6	11	8	1.15	6000ZZ
E5F-15	FF-15	20	15	14.3	13	9	1.15	6002ZZ
E5F-17	FF-17	25	17	16.2	16	12	1.15	6203ZZ
E5F-20	FF-20	25	20	19.0	19	14	1.35	6204ZZ
E5F-25	FF-25	32	25	23.9	20	15	1.35	6205ZZ
E5F-30	FF-30	40	30	28.6	21	16	1.75	6206ZZ

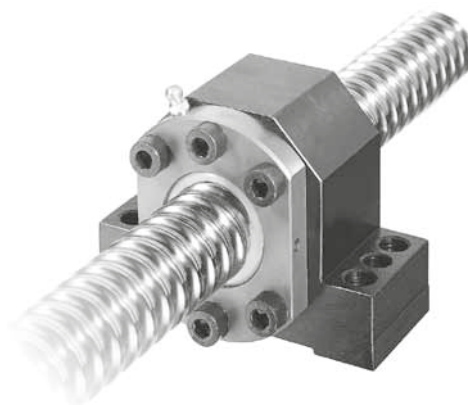
Dimensions in [mm]

Ball screws

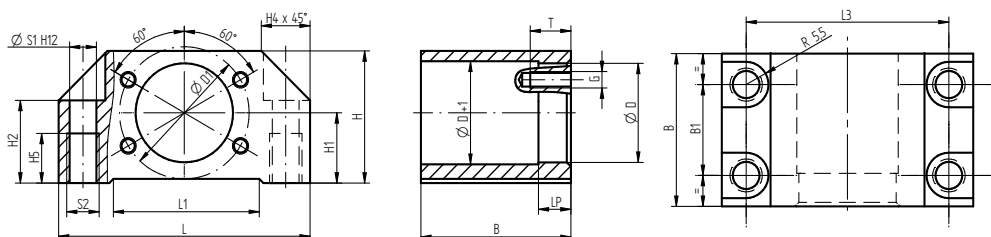
Accessories

7.1 Nut housing GFD for flanged nuts acc. DIN69501 part 5

The nut housing is suitable for assembling flange nuts DEB, DDB and FSCDIN.
 The axis height of the housing is matched to fixed bearing SFA and the supported bearing SLA.
 The housing can be screwed on from above (S1) and below (S2).
 The housing GFD-16 ... 50 can be pinned with two tapered pins or cylindrical pins.
 Screws of strength class 8.8 should be used for the fastening.



GFD-12

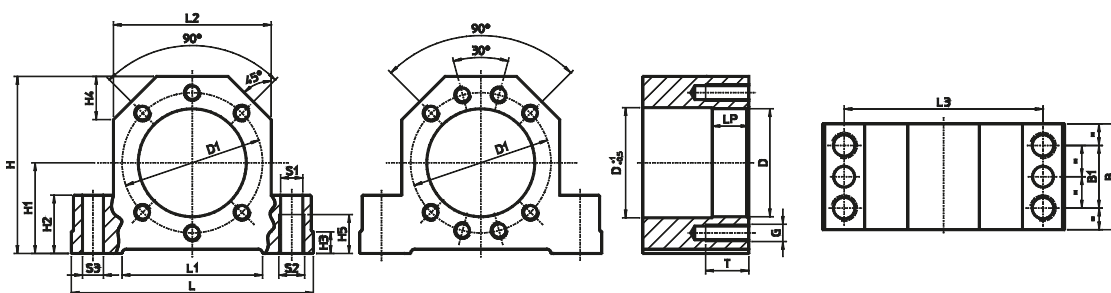


Hole pattern 0

Ball screw diameter	Type	L	L1	L2	L3	H	H1 JS7	H2	H3	H4	H5	D H8	D1	LP	B	B1	S1 H12	S2	S3	Hole pattern	G	T
12	GFD-12	62	36	-	50	32	17	20	-	12	12	24	32	8	37	22	6.6	M8	-	0	M4	10

Dimensions in [mm]

GFD-16 ... 50



Hole pattern 1

Hole pattern 2

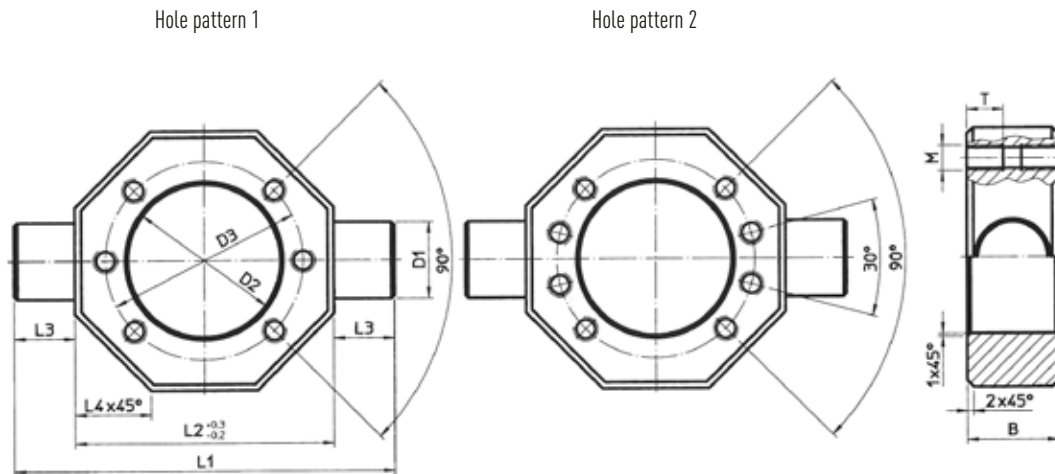
Ball screw diameter	Type	L	L1	L2	L3	H	H1 JS7	H2	H3	H4	H5	D H8	D1	LP	B	B1	S1 H12	S2	S3	Hole pattern	G	T
16	GFD-16	86	52	52	68	58	32	22	7	15	15	28	38	10	37	23	8.4	M10	7.7	1	M5	12
20	GFD-20	94	52	60	77	64	34	22	7	17	15	36	47	16	42	25	8.4	M10	7.7	1	M6	15
25	GFD-25	108	65	66	88	72	39	27	10	19	18	40	51	16	46	29	10.5	M12	9.7	1	M6	15
32	GFD-32	112	65	72	92	82	42	27	10	19	18	50	65	16	49	29	10.5	M12	9.7	1	M8	20
40	GFD-40	126	82	84	105	97	50	32	13	23	21	63	78	16	53	32	12.6	M14	9.7	2	M8	20
50	GFD-50	146	82	104	125	115	60	32	13	30	21	75	93	16	59	34	12.6	M14	9.7	2	M10	25

Dimensions in [mm]

Ball screws

Accessories

7.2 Cardnic nut housings GKD for flanged nut



Cardanic nut housings for nuts acc. DIN69051 part 5



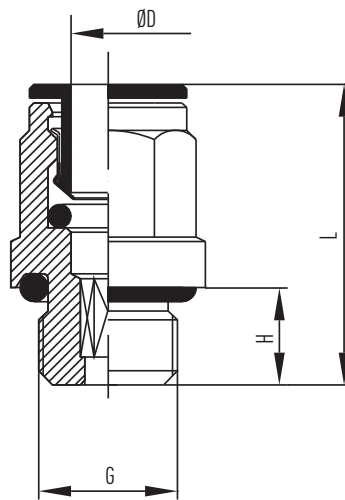
Ball screw diameter	Type	L1	L2	L3	L4	B	D1 f8	D2 H7	D3	Hole pattern	M	T	Weight [kg/ks]
16	GKD-16	70	50	10	15	20	12	28	38	1	M5	10	0.2
20	GKD-20	85	58	13.5	17	25	16	36	47	1	M6	12	0.3
25	GKD-25	95	65	15	19	25	18	40	51	1	M6	12	0.4
32	GKD-32	125	85	20	25	30	25	50	65	1	M8	12	0.9
40	GKD-40	140	100	20	29	40	30	63	78	2	M8	14	1.7
50	GKD-50	165	115	25	34	50	40	75	93	2	M10	16	2.6

Dimensions in [mm]

Ball screws

Accessories

7.3 Tube connector for central lubrication system



Type	Nominal diameter of ball screw	Form	Thread G	Tube $\varnothing D$	H	L
TCS-661	15 - 32	straight	M6	6	5	23
TCS-67	40 - 80	straight	M8x1	6	8	25

Dimensions in [mm]

Ball screws

Accessories

7.4 Spiral spring cover

Spiral Springs are manufactured specifically to suit horizontal or vertical operation. For horizontal applications, the extension is reduced (see tabulations).

SD - Maximum outside diameter of the part to becovered *value is reduced by 6 mm when using flanges

ID - Inside diameter of spiral spring (± 1 mm)

AD - Outside diameter of spiral spring (± 2 mm)

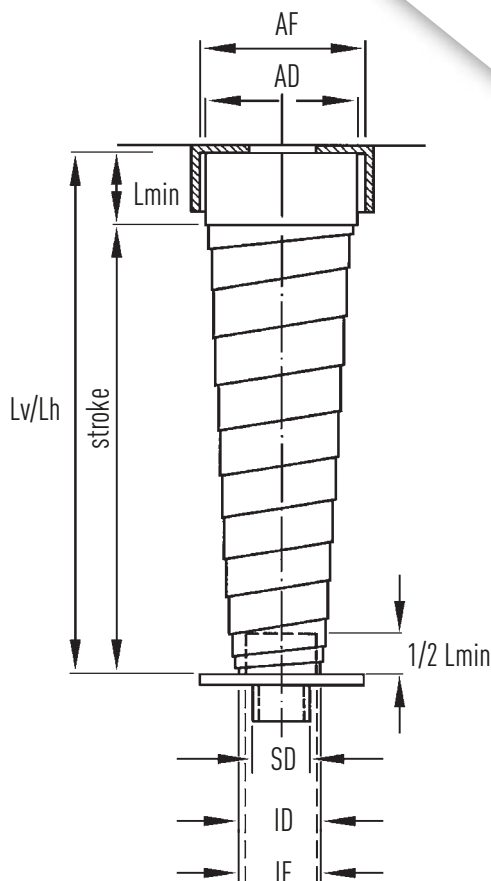
Lh - Maximum extension length for horizontal installation position

Lv - Maximum extension length for vertical installation position

BB - Band width, corresponds to Lmin

Installation

- Before installing the coil spring ensure that the flanges on the machine have the tolerances specified in the catalogue.
- The coil spring must be installed in accordance with the mounting label H (horizontal) or V (vertical). When installed vertically the spring's larger mounting diameter is uppermost.
- The wires must not be removed until after the coil spring has been installed at its intended position and the flanges are about two to three coil strip widths apart.
- Remove all of the wiring.
- After removing the wiring insert the coil spring carefully into the flange receiver. Do not let the coil spring snap out!
- Note: When installed coil springs must move freely and must not be screwed or riveted!



Type	SD	ID	AD	Lh	Lv	BB
15-70-20	11	15	22	-	70	20
15-100-20	11	15	22	60	100	20
15-120-20	11	15	22	90	120	20
15-150-20	11	15	28	110	150	20
15-200-20	11	15	31	160	200	20
15-300-20	11	15	32	260	300	20
20-100-20	16	20	30	60	100	20
20-150-20	16	20	33	110	150	20
20-200-20	16	20	36	160	200	20
20-250-20	16	20	39	210	250	20
20-300-20	16	20	41	260	300	20
20-250-30	16	20	36	210	250	30
20-300-30	16	20	39	260	300	30
20-350-30	16	20	41	310	350	30
20-400-30	16	20	43	360	400	30
20-400-40	16	20	35	360	400	40
20-450-40	16	20	41	410	450	40
20-500-40	16	20	48	460	500	40
25-100-20	21	25	36	60	100	20
25-150-20	21	25	38	110	150	20
25-200-20	21	25	40	160	200	20
25-250-20	21	25	44	210	250	20
25-300-20	21	25	46	260	300	20
25-300-30	21	25	42	240	300	30
25-350-30	21	25	45	290	350	30
25-400-30	21	25	48	340	400	30
25-450-30	21	25	49	390	450	30

Type	SD	ID	AD	Lh	Lv	BB
25-450-40	21	25	48	370	450	40
25-500-40	21	25	49	420	500	40
25-450-50	21	25	41	390	450	50
25-550-50	21	25	43	490	550	50
25-600-50	21	25	44	540	600	50
25-650-50	21	25	45	590	650	50
25-750-50	21	25	47	690	750	50
25-900-50	21	25	57	840	900	50
30-150-30	26	30	39	90	150	30
30-200-30	26	30	42	140	200	30
30-250-30	26	30	44	190	250	30
30-300-30	26	30	46	240	300	30
30-350-30	26	30	49	290	350	30
30-400-30	26	30	50	340	400	30
30-450-30	26	30	53	390	450	30
30-450-40	26	30	53	370	450	40
30-500-40	26	30	55	440	500	40
30-550-40	26	30	58	490	550	40
30-600-40	26	30	58	540	600	40
30-650-40	26	30	60	590	650	40
30-700-40	26	30	64	640	700	40
30-150-50	26	30	40	90	150	50
30-250-50	26	30	42	190	250	50
30-350-50	26	30	45	290	350	50
30-450-50	26	30	46	390	450	50
30-550-50	26	30	48	490	550	50
30-650-50	26	30	55	590	650	50

Type	SD	ID	AD	Lh	Lv	BB
30-750-50	26	30	58	690	750	50
30-650-60	26	30	58	590	650	60
30-750-60	26	30	55	690	750	60
30-900-60	26	30	58	840	900	60
30-1000-60	26	30	60	940	1000	60
35-100-20	31	35	45	60	100	20
35-100-30	31	35	44	60	100	30
35-150-30	31	35	48	90	150	30
35-200-30	31	35	50	140	200	30
35-250-30	31	35	52	190	250	30
35-300-30	31	35	55	240	300	30
35-350-30	31	35	61	290	350	30
35-400-30	31	35	63	340	400	30
35-300-40	31	35	48	240	300	40
35-350-40	31	35	50	290	350	40
35-400-40	31	35	54	340	400	40
35-450-40	31	35	58	390	450	40
35-500-40	31	35	60	440	500	40
35-550-40	31	35	62	490	550	40
35-350-50	31	35	51	290	350	50
35-400-50	31	35	52	340	400	50
35-450-50	31	35	54	390	450	50
35-500-50	31	35	55	440	500	50
35-650-50	31	35	60	590	650	50
35-750-50	31	35	64	690	750	50
35-850-50	31	35	65	790	850	50
35-450-60	31	35	53	390	450	60

Yellow field - available also from Stainless Steel.

Dimensions in [mm]

Ball screws

Accessories

Type	SD	ID	AD	Lh	Lv	BB
35-550-60	31	35	56	490	550	60
35-650-60	31	35	59	590	650	60
35-750-60	31	35	60	690	750	60
35-850-60	31	35	60	790	850	60
35-550-75	31	35	54	490	550	75
35-650-75	31	35	55	590	650	75
35-750-75	31	35	57	690	750	75
35-850-75	31	35	59	790	850	75
40-150-30	36	40	51	90	150	30
40-250-30	36	40	56	190	250	30
40-350-30	36	40	60	290	350	30
40-450-30	36	40	64	390	450	30
40-350-40	36	40	61	290	350	40
40-400-40	36	40	63	340	400	40
40-450-40	36	40	64	390	450	40
40-500-40	36	40	65	440	500	40
40-550-40	36	40	68	490	550	40
40-350-50	36	40	56	250	350	50
40-450-50	36	40	59	350	450	50
40-550-50	36	40	61	450	550	50
40-650-50	36	40	65	550	650	50
40-750-50	36	40	69	650	750	50
40-850-50	36	40	71	750	850	50
40-350-60	36	40	55	230	350	60
40-550-60	36	40	59	430	550	60
40-650-60	36	40	62	530	650	60
40-750-60	36	40	66	630	750	60
40-900-60	36	40	70	780	900	60
40-650-75	36	40	63	500	650	75
40-750-75	36	40	66	600	750	75
40-900-75	36	40	71	750	900	75
40-1100-75	36	40	78	950	1100	75
40-1300-75	36	40	84	1150	1300	75
40-1500-75	36	40	90	-	1500	75
40-1000-100	36	40	68	800	1000	100
40-1200-100	36	40	71	1000	1200	100
40-1300-100	36	40	75	1100	1300	100
40-1400-100	36	40	76	1200	1400	100
40-1500-100	36	40	78	1300	1500	100
40-1600-100	36	40	81	1400	1600	100
40-1800-100	36	40	82	1600	1800	100
40-1800-120	36	40	82	1560	1800	120
40-2000-120	36	40	86	1760	2000	120
40-2200-120	36	40	90	-	2200	120
45-150-30	41	45	56	90	150	30
45-250-30	41	45	61	190	250	30
45-350-30	41	45	65	290	350	30
45-400-30	41	45	66	340	400	30
45-350-40	41	45	65	290	350	40
45-400-40	41	45	68	340	400	40
45-450-40	41	45	69	390	450	40
45-450-50	41	45	66	350	450	50
45-550-50	41	45	68	450	550	50
45-650-50	41	45	75	550	650	50
45-350-60	41	45	63	230	350	60
45-450-60	41	45	65	330	450	60
45-550-60	41	45	65	430	550	60
45-650-60	41	45	69	530	650	60
45-700-60	41	45	70	630	700	60

Type	SD	ID	AD	Lh	Lv	BB
45-650-75	41	45	67	500	650	75
45-750-75	41	45	76	600	750	75
45-900-75	41	45	78	750	900	75
45-1100-75	41	45	84	950	1100	75
45-1200-75	41	45	86	1150	1200	75
45-1300-75	41	45	89	-	1300	75
45-1000-100	41	45	71	800	1000	100
45-1200-100	41	45	75	1000	1200	100
45-1300-100	41	45	79	1100	1300	100
45-1400-100	41	45	81	1200	1400	100
45-1500-100	41	45	83	1300	1500	100
45-1600-100	41	45	87	1400	1600	100
45-1800-100	41	45	87	-	1800	100
45-1800-120	41	45	87	1560	1800	120
45-2000-120	41	45	91	1760	2000	120
45-2200-120	41	45	100	-	2200	120
50-150-30	46	50	63	90	150	30
50-250-30	46	50	68	190	250	30
50-350-30	46	50	73	290	350	30
50-250-50	46	50	62	150	250	50
50-350-50	46	50	66	250	350	50
50-450-50	46	50	70	350	450	50
50-550-50	46	50	73	450	550	50
50-650-50	46	50	76	550	650	50
50-350-60	46	50	66	230	350	60
50-450-60	46	50	65	330	450	60
50-550-60	46	50	68	430	550	60
50-600-60	46	50	72	480	600	60
50-650-60	46	50	73	530	650	60
50-750-60	46	50	80	630	750	60
50-900-60	46	50	81	780	900	60
50-750-75	46	50	78	600	750	75
50-900-75	46	50	84	750	900	75
50-1100-75	46	50	90	950	1100	75
50-1200-75	46	50	94	1050	1200	75
50-1100-100	46	50	77	900	1100	100
50-1300-100	46	50	80	1100	1300	100
50-1500-100	46	50	88	1300	1500	100
50-1600-100	46	50	89	1400	1600	100
50-1700-100	46	50	91	-	1700	100
50-1800-100	46	50	94	-	1800	100
50-1700-120	46	50	91	1460	1700	120
50-1900-120	46	50	96	1660	1900	120
50-2100-120	46	50	100	1860	2100	120
50-2300-120	46	50	105	-	2300	120
50-2500-120	46	50	115	-	2500	120
50-2800-120	46	50	118	-	2800	120
50-2500-150	46	50	116	2200	2500	150
50-2800-150	46	50	118	2500	2800	150
50-3000-150	46	50	123	2500	3000	150
50-3000-180	46	50	123	2640	3000	180
50-3250-180	46	50	128	-	3250	180
50-3250-200	46	50	128	2850	3250	200
50-3500-200	46	50	134	-	3500	200
55-150-30	51	55	67	90	150	30
55-250-30	51	55	73	190	250	30
55-300-40	51	55	71	220	300	40
55-450-40	51	55	76	370	450	40
55-250-50	51	55	66	150	250	50

Type	SD	ID	AD	Lh	Lv	BB
55-350-50	51	55	71	250	350	50
55-450-50	51	55	74	350	450	50
55-550-50	51	55	78	450	550	50
55-650-50	51	55	80	450	650	50
55-550-60	51	55	75	430	550	60
55-650-60	51	55	79	530	650	60
55-750-60	51	55	83	630	750	60
55-800-60	51	55	86	680	800	60
55-900-60	51	55	89	780	900	60
55-1000-60	51	55	92	-	1000	60
55-600-75	51	55	80	450	600	75
55-750-75	51	55	83	600	750	75
55-900-75	51	55	89	750	900	75
55-1100-75	51	55	94	950	1100	75
55-1100-100	51	55	85	900	1100	100
55-1300-100	51	55	89	1100	1300	100
55-1500-100	51	55	94	1300	1500	100
55-1800-100	51	55	102	1600	1800	100
55-1300-120	51	55	92	1060	1300	120
55-1500-120	51	55	94	1260	1500	120
55-1700-120	51	55	96	1460	1700	120
55-1900-120	51	55	100	1660	1900	120
55-2100-120	51	55	105	1860	2100	120
55-2300-120	51	55	110	2060	2300	120
55-2500-120	51	55	116	2200	2500	120
55-2800-120	51	55	123	2500	2800	120
55-2500-150	51	55	118	2200	2500	150
55-2800-150	51	55	121	2500	2800	150
55-3000-150	51	55	126	-	3000	150
55-3500-150	51	55	130	2500	3500	150
55-2800-180	51	55	114	2500	2800	180
55-3000-180	51	55	126	2640	3000	180
55-3250-180	51	55	130	2500	3250	180
55-3500-200	51	55	137	-	3500	180
60-150-30	56	60	73	90	150	30
60-250-30	56	60	78	190	250	30
60-250-50	56	60	73	150	250	50
60-350-50	56	60	78	250	350	50
60-450-50	56	60	82	350	450	50
60-550-50	56	60	85	450	550	50
60-450-60	56	60	78	430	450	60
60-550-60	56	60	81	430	550	60
60-650-60	56	60	85	530	650	60
60-750-60	56	60	89	630	750	60
60-800-60	56	60	96	680	800	60
60-900-60	56	60	98	-	900	60
60-750-75	56	60	89	600	750	75
60-900-75	56	60	95	750	900	75
60-1100-75	56	60	102	950	1100	75
60-1300-75	56	60	104	1150	1300	75
60-900-100	56	60	85	700	900	100
60-1100-100	56	60	90	900	1100	100
60-1300-100	56	60	94	1100	1300	100
60-1500-100	56	60	100	1300	1500	100
60-1800-100	56	60	109	1600	1800	100
60-1700-120	56	60	101	1460	1700	120
60-1900-120	56	60	104	1660	1900	120
60-2100-120	56	60	108	1860	2100	120
60-2300-120	56	60	114	2060	2300	120

Yellow field - available also from Stainless Steel.

Dimensions in [mm]

Ball screws

Accessories

Type	SD	ID	AD	Lh	Lv	BB
60-2500-120	56	60	118	2300	2500	120
60-2800-120	56	60	126	2500	2800	120
60-2500-150	56	60	118	2300	2500	150
60-2800-150	56	60	123	2500	2800	150
60-3000-150	56	60	128	-	3000	150
60-3500-150	56	60	138	-	3500	150
60-3000-180	56	60	126	2640	3000	180
60-3250-180	56	60	132	-	3250	180
60-3250-200	56	60	132	2850	3250	200
60-3500-200	56	60	139	-	3500	200
65-100-30	61	65	76	90	100	30
65-150-30	61	65	78	90	150	30
65-250-30	61	65	85	190	250	30
65-250-50	61	65	76	150	250	50
65-350-50	61	65	84	250	350	50
65-450-50	61	65	88	350	450	50
65-550-50	61	65	92	450	550	50
65-500-60	61	65	86	380	500	60
65-550-60	61	65	88	430	550	60
65-650-60	61	65	93	530	650	60
65-700-60	61	65	94	580	700	60
65-750-60	61	65	95	630	750	60
65-800-60	61	65	98	680	800	60
65-900-60	61	65	103	780	900	60
65-750-75	61	65	93	600	750	75
65-800-75	61	65	96	650	800	75
65-900-75	61	65	99	750	900	75
65-1100-75	61	65	107	900	1100	75
65-1300-75	61	65	111	1100	1300	75
65-1500-75	61	65	115	-	1500	75
65-1000-100	61	65	91	800	1000	100
65-1100-100	61	65	95	900	1100	100
65-1300-100	61	65	99	1100	1300	100
65-1500-100	61	65	108	1300	1500	100
65-1700-100	61	65	113	-	1700	100
65-1800-100	61	65	119	1600	1800	100
65-1500-120	61	65	100	1260	1500	120
65-1700-120	61	65	106	1460	1700	120
65-1900-120	61	65	109	1660	1900	120
65-2100-120	61	65	113	1860	2100	120
65-2300-120	61	65	118	2060	2300	120
65-2500-120	61	65	128	2300	2500	120
65-2800-120	61	65	134	2500	2800	120
65-2400-150	61	65	120	2100	2400	150
65-2800-150	61	65	132	2500	2800	150
65-3000-150	61	65	142	2500	3000	150
65-3000-180	61	65	136	2640	3000	180
65-3250-180	61	65	145	-	3250	180
65-3250-200	61	65	138	2850	3250	200
65-3500-200	61	65	148	-	3500	200
70-150-30	66	70	85	90	150	30
70-250-30	66	70	93	190	250	30
70-350-30	66	70	99	290	350	30
70-250-50	66	70	85	150	250	50
70-350-50	66	70	89	250	350	50
70-450-50	66	70	94	350	450	50
70-550-50	66	70	97	450	550	50
70-650-50	66	70	100	-	650	50
70-550-60	66	70	94	430	550	60

Type	SD	ID	AD	Lh	Lv	BB
70-650-60	66	70	97	530	650	60
70-750-60	66	70	102	630	750	60
70-900-60	66	70	113	800	900	60
70-500-75	66	70	91	350	500	75
70-600-75	66	70	94	450	600	75
70-700-75	66	70	98	550	700	75
70-800-75	66	70	102	650	800	75
70-900-75	66	70	104	750	900	75
70-1100-75	66	70	113	900	1100	75
70-700-100	66	70	88	700	700	100
70-900-100	66	70	98	900	900	100
70-1100-100	66	70	102	900	1100	100
70-1300-100	66	70	106	1100	1300	100
70-1500-100	66	70	115	1300	1500	100
70-1800-100	66	70	124	1700	1800	100
70-1500-120	66	70	110	1260	1500	120
70-1800-120	66	70	118	1560	1800	120
70-2000-120	66	70	125	1760	2000	120
70-2200-120	66	70	129	1960	2200	120
70-2400-120	66	70	136	2200	2400	120
70-2600-120	66	70	143	-	2600	120
70-3000-120	66	70	147	-	3000	120
70-2000-150	66	70	129	1700	2000	150
70-2400-150	66	70	135	2100	2400	150
70-2800-150	66	70	139	-	2800	150
70-3000-150	66	70	149	-	3000	150
70-2800-180	66	70	138	2440	2800	180
70-3000-180	66	70	141	-	3000	180
70-3250-180	66	70	152	2500	3250	180
70-3250-200	66	70	144	2500	3250	200
70-3500-200	66	70	155	2500	3500	200
75-150-30	71	75	92	90	150	30
75-250-30	71	75	98	190	250	30
75-250-50	71	75	89	150	250	50
75-350-50	71	75	94	250	350	50
75-450-50	71	75	101	350	450	50
75-500-50	71	75	105	400	500	50
75-550-60	71	75	100	430	550	60
75-650-60	71	75	103	530	650	60
75-750-60	71	75	109	630	750	60
75-650-75	71	75	99	500	650	75
75-750-75	71	75	104	600	750	75
75-900-75	71	75	111	750	900	75
75-1000-75	71	75	114	850	1000	75
75-1100-75	71	75	118	950	1100	75
75-900-100	71	75	102	-	900	100
75-1100-100	71	75	108	900	1100	100
75-1200-100	71	75	112	1000	1200	100
75-1300-100	71	75	112	1100	1300	100
75-1500-100	71	75	120	1300	1500	100
75-1700-100	71	75	126	1500	1700	100
75-1800-100	71	75	128	1600	1800	100
75-2000-100	71	75	133	1700	2000	100
75-2200-100	71	75	136	1900	2200	100
75-1500-120	71	75	115	1260	1500	120
75-1800-120	71	75	122	1560	1800	120
75-2000-120	71	75	127	1760	2000	120
75-2200-120	71	75	132	1900	2200	120
75-2400-120	71	75	138	2000	2400	120

Type	SD	ID	AD	Lh	Lv	BB
75-2600-120	71	75	142	2200	2600	120
75-2800-120	71	75	147	-	2800	120
75-2000-150	71	75	135	1700	2000	150
75-2400-150	71	75	140	2100	2400	150
75-2600-150	71	75	144	2300	2600	150
75-2800-150	71	75	145	2500	2800	150
75-3000-150	71	75	152	-	3000	150
75-2800-180	71	75	143	2440	2800	180
75-3000-180	71	75	148	-	3000	180
75-3250-180	71	75	156	2500	3250	180
75-3250-200	71	75	148	2850	3250	200
75-3500-200	71	75	158	-	3500	200
80-150-30	76	80	98	90	150	30
80-250-30	76	80	106	190	250	30
80-250-50	76	80	96	150	250	50
80-450-50	76	80	111	350	450	50
80-550-50	76	80	114	450	550	50
80-450-60	76	80	102	330	450	60
80-550-60	76	80	105	430	550	60
80-650-60	76	80	110	530	650	60
80-750-60	76	80	115	630	750	60
80-550-75	76	80	99	400	550	75
80-600-75	76	80	102	450	600	75
80-650-75	76	80	105	500	650	75
80-750-75	76	80	108	600	750	75
80-900-75	76	80	119	750	900	75
80-1000-75	76	80	123	850	1000	75
80-1200-75	76	80	128	1000	1200	75
80-1100-100	76	80	115	900	1100	100
80-1300-100	76	80	120	1100	1300	100
80-1500-100	76	80	126	1300	1500	100
80-1800-100	76	80	134	1600	1800	100
80-1300-120	76	80	115	1060	1300	120
80-1500-120	76	80	121	1260	1500	120
80-1800-120	76	80	128	1560	1800	120
80-2000-120	76	80	133	1700	2000	120
80-2200-120	76	80	137	1700	2200	120
80-2400-120	76	80	142	-	2400	120
80-2800-120	76	80	145	-	2800	120
80-2000-150	76	80	139	1700	2000	150
80-2200-150	76	80	142	1900	2200	150
80-2400-150	76	80	146	2100	2400	150
80-2600-150	76	80	148	2300	2600	150
80-2800-150	76	80	152	-	2800	150
80-3000-150	76	80	157	-	3000	150
80-2800-180	76	80	148	2440	2800	180
80-3000-180	76	80	154	-	3000	180
80-3250-180	76	80	157	-	3250	180
80-3000-200	76	80	154	2600	3000	200
80-3250-200	76	80	160	-	3250	200
80-3500-200	76	80	163	2500	3500	200
85-150-30	81	85	103	90	150	30
85-250-30	81	85	111	190	250	30
85-250-50	81	85	105	150	250	50
85-350-50	81	85	109	250	350	50
85-450-50	81	85	116	350	450	50
85-550-50	81	85	119	450	550	50
85-650-60	81	85	115	530	650	60
85-550-75	81	85	108	400	550	75

Yellow field - available also from Stainless Steel.

Dimensions in [mm]

Ball screws

Accessories

Type	SD	ID	AD	Lh	Lv	BB	Type	SD	ID	AD	Lh	Lv	BB	Type	SD	ID	AD	Lh	Lv	BB
85-900-75	81	85	125	750	900	75	100-1500-150	96	100	147	1200	1500	150	130-250-60	126	130	145	210	250	60
85-1500-100	81	85	127	1300	1500	100	100-1800-150	96	100	151	1500	1800	150	130-350-60	126	130	155	-	350	60
85-1500-120	81	85	126	1260	1500	120	100-2000-150	96	100	157	1700	2000	150	130-450-60	126	130	156	410	450	60
85-2000-120	81	85	138	1700	2000	120	100-2500-150	96	100	164	-	2500	150	130-250-75	126	130	145	220	250	75
85-2400-150	81	85	151	2100	2400	150	100-3000-150	96	100	188	-	3000	150	130-350-75	126	130	150	310	350	75
85-3500-200	81	85	168	-	3500	200	100-2500-180	96	100	162	2140	2500	180	130-450-75	126	130	156	410	450	75
90-150-30	86	90	110	90	150	30	100-2800-180	96	100	168	-	2800	180	130-650-100	126	130	157	600	650	100
90-250-30	86	90	116	190	250	30	100-2800-200	96	100	165	-	2800	200	130-800-100	126	130	164	-	800	100
90-150-50	86	90	112	50	150	50	100-3000-200	96	100	170	-	3000	200	130-600-120	126	130	158	360	600	120
90-250-50	86	90	116	150	250	50	110-250-50	106	110	130	-	250	50	130-800-120	126	130	161	560	800	120
90-350-50	86	90	121	250	350	50	110-250-60	106	110	130	130	250	60	130-1000-120	126	130	164	760	1000	120
90-450-50	86	90	125	350	450	50	110-350-60	106	110	135	230	350	60	130-1100-120	126	130	163	-	1100	120
90-350-60	86	90	112	230	350	60	110-450-60	106	110	139	330	450	60	130-900-150	126	130	163	500	900	150
90-450-60	86	90	114	330	450	60	110-350-75	106	110	130	200	350	75	130-1300-150	126	130	170	1000	1300	150
90-450-75	86	90	115	300	450	75	110-450-75	106	110	134	300	450	75	130-1500-150	126	130	174	1200	1500	150
90-550-75	86	90	119	400	550	75	110-600-75	106	110	140	450	600	75	130-1800-150	126	130	185	-	1800	150
90-650-75	86	90	124	500	650	75	110-800-75	106	110	154	650	800	75	130-1650-180	126	130	170	1650	1650	180
90-750-75	86	90	128	600	750	75	110-650-100	106	110	129	450	650	100	130-2000-200	126	130	180	2000	2000	200
90-900-75	86	90	133	750	900	75	110-750-100	106	110	134	560	750	100							
90-750-100	86	90	115	550	750	100	110-900-100	106	110	139	700	900	100							
90-900-100	86	90	120	700	900	100	110-1100-120	106	110	139	860	1100	120							
90-1100-100	86	90	126	900	1100	100	110-1300-120	106	110	145	1060	1300	120							
90-1300-100	86	90	132	1100	1300	100	110-1500-120	106	110	155	1260	1500	120							
90-1500-100	86	90	144	1300	1500	100	110-1500-150	106	110	155	1200	1500	150							
90-1300-120	86	90	126	1060	1300	120	110-1800-150	106	110	157	1500	1800	150							
90-1500-120	86	90	131	1260	1500	120	110-2000-150	106	110	160	1700	2000	150							
90-1800-120	86	90	138	1600	1800	120	110-2200-180	106	110	165	1840	2200	180							
90-2000-120	86	90	148	-	2000	120	110-2400-180	106	110	170	-	2400	180							
90-1800-150	86	90	144	1500	1800	150	110-2400-200	106	110	162	2000	2400	200							
90-2000-150	86	90	149	1700	2000	150	110-2800-200	106	110	172	2500	2800	200							
90-2300-150	86	90	154	-	2300	150	110-3000-200	106	110	176	-	3000	200							
90-2600-150	86	90	159	-	2600	150	110-3500-200	106	110	189	-	3500	200							
90-2800-150	86	90	160	-	2800	150	120-250-50	116	120	141	-	250	50							
90-3000-150	86	90	166	-	3000	150	120-350-50	116	120	143	-	350	50							
90-2600-180	86	90	152	2240	2600	180	120-250-60	116	120	141	130	250	60							
90-2800-180	86	90	158	-	2800	180	120-350-60	116	120	145	230	350	60							
90-3000-180	86	90	164	-	3000	180	120-450-60	116	120	150	330	450	60							
90-2600-200	86	90	153	2400	2600	200	120-350-75	116	120	140	200	350	75							
90-3000-200	86	90	162	2500	3000	200	120-450-75	116	120	145	300	450	75							
90-3250-200	86	90	166	2500	3250	200	120-600-75	116	120	153	450	600	75							
90-3500-200	86	90	170	-	3500	200	120-650-100	116	120	142	450	650	100							
90-3700-200	86	90	173	2500	3700	200	120-750-100	116	120	147	550	750	100							
90-4000-200	86	90	182	-	4000	200	120-900-100	116	120	150	700	900	100							
90-4200-200	86	90	185	-	4200	200	120-900-120	116	120	148	660	900	120							
90-4500-200	86	90	194	-	4500	200	120-1100-120	116	120	153	860	1100	120							
100-250-60	96	100	121	130	250	60	120-1300-120	116	120	158	1100	1300	120							
100-350-60	96	100	126	230	350	60	120-1500-120	116	120	162	1300	1500	120							
100-350-75	96	100	119	200	350	75	120-1300-150	116	120	156	1000	1300	150							
100-450-75	96	100	124	300	450	75	120-1500-150	116	120	163	1200	1500	150							
100-600-75	96	100	129	450	600	75	120-1800-150	116	120	167	1500	1800	150							
100-800-75	96	100	138	650	800	75	120-2000-150	116	120	177	1600	2000	150							
100-800-100	96	100	126	600	800	100	120-1600-180	116	120	158	1240	1600	180							
100-1000-100	96	100	132	800	1000	100	120-1800-180	116	120	161	1440	1800	180							
100-1200-100	96	100	137	1000	1200	100	120-2000-180	116	120	169	1640	2000	180							
100-1500-100	96	100	146	1300	1500	100	120-2200-180	116	120	174	-	2200	180							
100-1100-120	96	100	129	860	1100	120	120-2200-200	116	120	165	1800	2200	200							
100-1300-120	96	100	136	1060	1300	120	120-2400-200	116	120	170	2100	2400	200							
100-1500-120	96	100	144	-	1500	120	120-2600-200	116	120	174	-	2600	200							
100-1800-120	96	100	148	-	1800	120	130-170-50	126	130	150	-	170	50							

Dimensions in [mm]

Yellow field - available also from Stainless Steel.

Ball screws

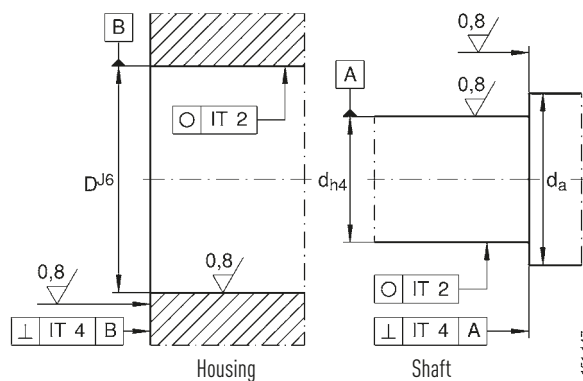
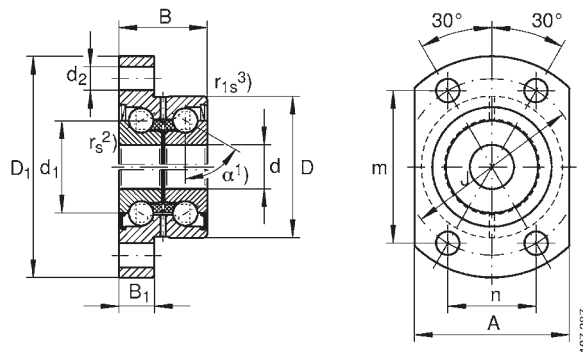
Accessories

7.5 Angular contact ball bearing ZKLFA

- Double-row angular contact ball bearing in 0 arrangement with 60° contact angle
- Outer ring suitable for flange mounting
- Split inner ring with defined gap for matching of preload
- Lubricated for life for most applications

The ball cages are made from plastic, permissible continuous operating temperature 120 °C.

- 1) Contact angle $\alpha = 60^\circ$.
- 2) min. $r_s = 0.3$ mm.
- 3) min. $r_{is} = 0.6$ mm; min. $r_{is} = 0.3$ mm.
- 4) Minimum diameter required of installation surface.
If these diameters are not reached, D_1 and d_1 should be noted.



Housing and shaft tolerances ZKLFA...

Ball screws

Accessories

Dimensions and connecting dimensions for angular ball bearing unit ZKLFA

Shaft diameter [mm]	Code	Weight [kg]	Dimensions [mm]													Mating dim. [mm]	
			d _{-0.005}	D	B _{-0.25}	D ₁	B ₁	J	d ₂	l	m	n	A	d ₁	d	D _a ⁴⁾	d _a ⁴⁾
6	ZKLFA0630.2Z	0.05	6	19	12	30	5	24	3.5	-	21.0	12.0	22	12	30	-	9
	ZKLFA0640.2RS	0.08	6	24	15	40	6	32	4.5	-	27.5	16.0	27	14	40	-	9
	ZKLFA0640.2Z	0.08	6	24	15	40	6	32	4.5	-	27.5	16.0	27	14	40	-	9
8	ZKLFA0850.2RS	0.17	8	32	20	50	8	40	5.5	-	34.5	20.0	35	19	50	-	12
	ZKLFA0850.2Z	0.17	8	32	20	50	8	40	5.5	-	34.5	20.0	35	19	50	-	12
10	ZKLFA1050.2RS	0.18	10	32	20	50	8	40	5.5	-	34.5	20.0	35	21	50	-	14
	ZKLFA1050.2Z	0.18	10	32	20	50	8	40	5.5	-	34.5	20.0	35	21	50	-	14
12	ZKLFA1263.2RS	0.30	12	42	25	63	10	53	6.5	-	46.0	26.5	45	25	63	-	16
	ZKLFA1263.2Z	0.30	12	42	25	63	10	53	6.5	-	46.0	26.5	45	25	63	-	16
15	ZKLFA1563.2RS	0.31	15	42	25	63	10	53	6.5	-	46.0	26.5	45	28	63	-	20
	ZKLFA1563.2Z	0.31	15	42	25	63	10	53	6.5	-	46.0	26.5	45	28	63	-	20

Technical data of angular ball bearing unit ZKLFA

Shaft diameter [mm]	Code	Mounting bolts DIN 912 10.9 ¹⁾	Axial load rating		Limit speed	Bearing friction torque ²⁾	Axial rigidity	Resistance to tilting	Recommended lock nut ¹⁾	Tightening torque ¹⁾	
		Number n x t	C _{dyn} [kN]	C ₀ [kN]	Grease [min ⁻¹]	M _{RL} [Nm]	C _{AL} [N/μm]	C _{KL} [Nm/mrad]	Article number	M _A [Nm]	
6	ZKLFA0630.2Z	M3	4	4.9	6.1	14000	0.01	150	4	HIR-06	2
	ZKLFA0640.2RS	M4	4	6.9	8.5	6800	0.02	200	8	HIR-06	2
	ZKLFA0640.2Z	M4	4	6.9	8.5	12000	0.02	200	8	HIR-06	2
8	ZKLFA0850.2RS	M5	4	12.5	16.3	5100	0.04	250	20	HIR-08	4
	ZKLFA0850.2Z	M5	4	12.5	16.3	9500	0.04	250	20	HIR-08	4
10	ZKLFA1050.2RS	M5	4	13.4	18.8	4600	0.06	325	25	HIR-10	6
	ZKLFA1050.2Z	M5	4	13.4	18.8	8600	0.06	325	25	HIR-10	6
12	ZKLFA1263.2RS	M6	4	17.0	24.7	3800	0.08	375	50	HIR-12	8
	ZKLFA1263.2Z	M6	4	17.0	24.7	7600	0.08	375	50	HIR-12	8
15	ZKLFA1563.2RS	M6	4	17.9	28.0	3500	0.10	400	65	HIR-15	10
	ZKLFA1563.2Z	M6	4	17.9	28.0	7000	0.10	400	65	HIR-15	10

The ball cages are made from plastic, permissible operating temperature 120 °C (continuous operation)

1) Tightening torque of mounting bolts according to details from manufacturer.

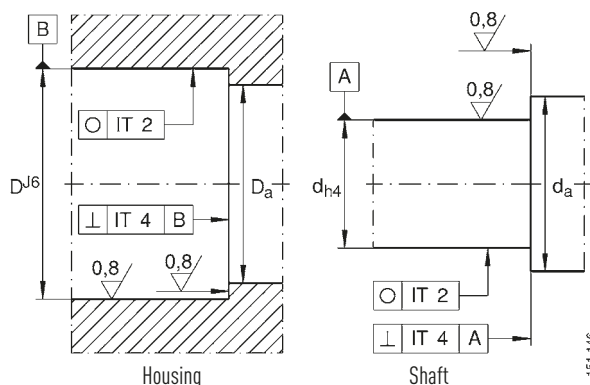
Screws according to DIN 912 are not supplied.

2) Bearing friction torque with gap seal (.2Z). With contact seal (.2RS) = 2 × M

Ball screws Accessories

7.6 Angular contact ball bearing ZKLF

- Double-row angular contact ball bearing in 0 arrangement with 60° contact angle
- Outer ring suitable for flange mounting
- Split inner ring with defined gap for matching of preload
- Lubricated for life for most applications
- Circumferential extraction slot at the outside surface of the outer ring
- Radial and axial lubrication hole M6 each



Housing and shaft tolerances ZKLF...

Dimensions and connecting dimensions for angular ball bearing unit ZKLF

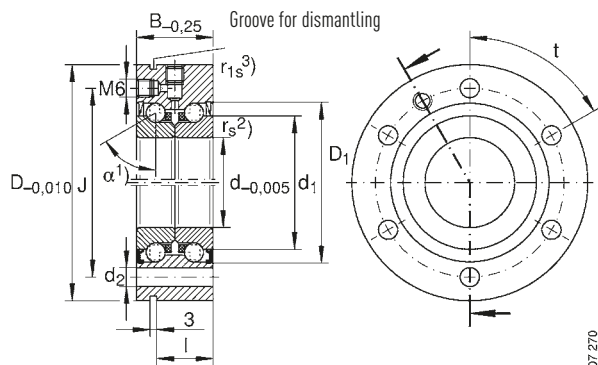
Shaft diameter [mm]	Code	Weight [kg]	Dimensions [mm]													Mating dim. [mm]	
			d -0.005	D	B -0.25	D ₁	B ₁	J	d ₂	l	m	n	A	d ₁	d	D _a ¹⁾	d _a ¹⁾
12	ZKLF1255.2Z	0.37	12	55	25	-	-	42	6.5	17	-	-	-	25	33.5	33	16
	ZKLF1255.2RS	0.37	12	55	25	-	-	42	6.5	17	-	-	-	25	33.5	33	16
15	ZKLF1560.2Z	0.43	15	60	25	-	-	46	6.5	17	-	-	-	28	36	35	20
	ZKLF1560.2RS	0.43	15	60	25	-	-	46	6.5	17	-	-	-	28	36	35	20
17	ZKLF1762.2Z	0.45	17	62	25	-	-	48	6.5	17	-	-	-	30	38	37	23
	ZKLF1762.2RS	0.45	17	62	25	-	-	48	6.5	17	-	-	-	30	38	37	23
20	ZKLF2068.2Z	0.61	20	68	28	-	-	53	6.5	19	-	-	-	34.5	44	43	25
	ZKLF2068.2RS	0.61	20	68	28	-	-	53	6.5	19	-	-	-	34.5	44	43	25
25	ZKLF2575.2Z	0.72	25	75	28	-	-	58	6.5	19	-	-	-	40.5	49	48	32
	ZKLF2575.2RS	0.72	25	75	28	-	-	58	6.5	19	-	-	-	40.5	49	48	32
30	ZKLF3080.2Z	0.78	30	80	28	-	-	63	6.5	19	-	-	-	45.5	54	53	40
	ZKLF3080.2RS	0.78	30	80	28	-	-	63	6.5	19	-	-	-	45.5	54	53	40
30	ZKLF30100.2Z	1.63	30	100	38	-	-	80	8.5	30	-	-	-	51	65	64	47
	ZKLF30100.2RS	1.63	30	100	38	-	-	80	8.5	30	-	-	-	51	65	64	47
35	ZKLF3590.2Z	1.13	35	90	34	-	-	75	8.5	25	-	-	-	52	63	62	45
	ZKLF3590.2RS	1.13	35	90	34	-	-	75	8.5	25	-	-	-	52	63	62	45
40	ZKLF40100.2Z	1.46	40	100	34	-	-	80	8.5	25	-	-	-	58	68	67	50
	ZKLF40100.2RS	1.46	40	100	34	-	-	80	8.5	25	-	-	-	58	68	67	50
40	ZKLF40115.2Z	2.20	40	115	46	-	-	94	8.5	36	-	-	-	65	80	80	56
	ZKLF40115.2RS	2.20	40	115	46	-	-	94	8.5	36	-	-	-	65	80	80	56
50	ZKLF50115.2Z	1.86	50	115	34	-	-	94	8.5	25	-	-	-	72	82	82	63
	ZKLF50115.2RS	1.86	50	115	34	-	-	94	8.5	25	-	-	-	72	82	82	63
50	ZKLF50140.2Z	4.70	50	140	54	-	-	113	10.5	45	-	-	-	80	98	98	63
	ZKLF50140.2RS	4.70	50	140	54	-	-	113	10.5	45	-	-	-	80	98	98	63
60	ZKLF60145.2Z	4.30	60	145	45	-	-	120	8.5	35	-	-	-	85	100	100	82
70	ZKLF70155.2Z	4.90	70	155	45	-	-	130	8.5	35	-	-	-	95	110	110	92
80	ZKLF80165.2Z	5.30	80	165	45	-	-	140	8.5	35	-	-	-	105	120	120	102
90	ZKLF90190.2Z	8.70	90	190	55	-	-	165	10.5	45	-	-	-	120	138	138	116
100	ZKLF100200.2Z	9.30	100	200	55	-	-	175	10.5	45	-	-	-	132	150	150	128

The ball cages are made from plastic, permissible operating temperature 120 °C (continuous operation)
1) Minimum diameter required of installation surface. If these diameters are not reached, D₁ and d₁ should be noted.

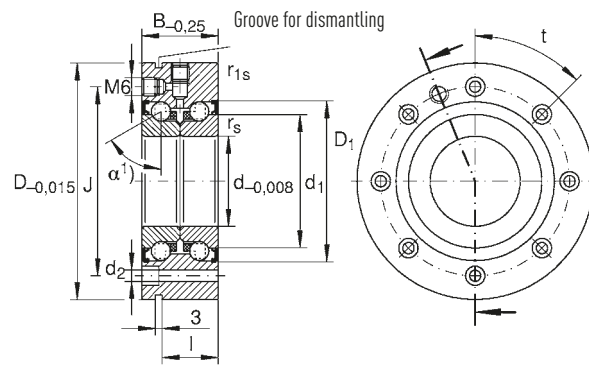
.2Z = Gap seal
.2RS = Contact seal

Ball screws

Accessories



ZKLF... (d ≤ 50)



ZKLF...ZZ (60 ≤ d ≤ 100)

- 1) Contact angle $\alpha = 60^\circ$
- 2) min. $r_s = 0.3 \text{ mm}$
- 3) min. $r_{1s} = 0.6 \text{ mm}$; min. $r_{1s} = 0.3 \text{ mm}$

Technical data of angular ball bearing unit ZKLF

Shaft diameter [mm]	Code	Mounting bolts DIN 912 10.9 ¹⁾		Axial load rating		Limit speed	Bearing friction torque ²⁾	Axial rigidity	Resistance to tilting	Recommended lock nut ¹⁾	Tightening torque ¹⁾
		Number	n x t	C _{dyn} [kN]	C ₀ [kN]						
12	ZKLF1255.ZZ	M6	3 × 120°	17.0	24.7	7600	0.08	375	50	HIR-12	8
	ZKLF1255.2RS	M6	3 × 120°	17.0	24.7	3800	0.08	375	50	HIR-12	8
15	ZKLF1560.ZZ	M6	3 × 120°	17.9	28.0	7000	0.10	400	65	HIR-15	10
	ZKLF1560.2RS	M6	3 × 120°	17.9	28.0	3500	0.10	400	65	HIR-15	10
17	ZKLF1762.ZZ	M6	6 × 60°	18.8	31.0	6600	0.12	450	80	HIR-17/HIA-17	15
	ZKLF1762.2RS	M6	6 × 60°	18.8	31.0	3300	0.12	450	80	HIR-17/HIA-17	15
20	ZKLF2068.ZZ	M6	8 × 45°	26.0	47.0	5400	0.15	650	140	HIR-20/HIA-20	18
	ZKLF2068.2RS	M6	8 × 45°	26.0	47.0	3000	0.15	650	140	HIR-20/HIA-20	18
25	ZKLF2575.ZZ	M6	8 × 45°	27.5	55.0	4700	0.20	750	200	HIR-25/HIA-25	25
	ZKLF2575.2RS	M6	8 × 45°	27.5	55.0	2600	0.20	750	200	HIR-25/HIA-25	25
30	ZKLF3080.ZZ	M6	12 × 30°	29.0	64.0	4300	0.25	850	300	HIR-30/HIA-30	32
	ZKLF3080.2RS	M6	12 × 30°	29.0	64.0	2200	0.25	850	300	HIR-30/HIA-30	32
30	ZKLF30100.ZZ	M8	8 × 45°	59.0	108.0	4000	0.40	950	400	HIA-30	65
	ZKLF30100.2RS	M8	8 × 45°	59.0	108.0	2100	0.40	950	400	HIA-30	65
35	ZKLF3590.ZZ	M8	8 × 45°	41.0	89.0	3800	0.30	900	400	HIR-35/HIA-35	40
	ZKLF3590.2RS	M8	8 × 45°	41.0	89.0	2000	0.30	900	400	HIR-35/HIA-35	40
40	ZKLF40100.ZZ	M8	8 × 45°	43.0	101.0	3300	0.35	1000	555	HIR-40/HIA-40	55
	ZKLF40100.2RS	M8	8 × 45°	43.0	101.0	1800	0.35	1000	555	HIR-40/HIA-40	55
40	ZKLF40115.ZZ	M8	12 × 30°	72.0	149.0	3100	0.65	1200	750	HIA-40	110
	ZKLF40115.2RS	M8	12 × 30°	72.0	149.0	1600	0.65	1200	750	HIA-40	110
50	ZKLF50115.ZZ	M8	12 × 30°	46.5	126.0	3000	0.45	1250	1000	HIR-50/HIA-50	85
	ZKLF50115.2RS	M8	12 × 30°	46.5	126.0	1500	0.45	1250	1000	HIR-50/HIA-50	85
50	ZKLF50140.ZZ	M10	12 × 30°	113.0	250.0	2500	1.30	1400	1500	HIA-50	150
	ZKLF50140.2RS	M10	12 × 30°	113.0	250.0	1200	1.30	1400	1500	HIA-50	150
60	ZKLF60145.ZZ	M8	8 × 45°	84.0	214.0	2400	1.00	1300	1650	HIR-60/HIA-60	100
70	ZKLF70155.ZZ	M8	8 × 45°	88.0	241.0	2200	1.20	1450	2250	HIR-70/HIA-70	130
80	ZKLF80165.ZZ	M8	8 × 45°	91.0	265.0	2100	1.40	1575	3000	HIR-80/HIA-80	160
90	ZKLF90190.ZZ	M10	8 × 45°	135.0	395.0	1800	2.30	1700	4400	HIA-90	200
100	ZKLF100200.ZZ	M10	8 × 45°	140.0	435.0	1700	2.60	1900	5800	HIA-100	250

The ball cages are made from plastic, permissible operating temperature 120 °C (continuous operation).

1) Tightening torque of mounting bolts according to details from manufacturer.

Screws according to DIN 912 are not supplied.

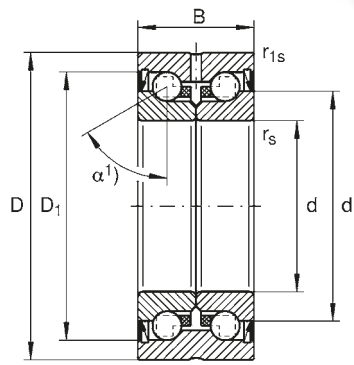
2) Bearing friction torque with gap seal (.ZZ). With contact seal (.2RS) = 2 × M_{RL}.

Ball screws

Accessories

7.7 Angular contact ball bearing ZKLN

- Angular contact ball bearing with 60° contact angle
- Split inner ring with defined gap for matching of preload
- High limiting speeds, even with grease lubrication
- Lubricated for life for most applications
- Lubrication groove and three lubrication holes at the outside surface of the outer ring



acting on two sides
Series ZKLN...2RS, ZKLN...ZZ

Parameters of ZKLN bearing

Shaft diameter	Code	Weight [kg]	Dimensions [mm]								
			d -0.005	D -0.01	B -0.25	rs min.	r1s min.	d1	D1	Da 2)	da 2)
6	ZKLN0619-ZZ	0.02	6	19	12	0.3	0.3	12.0	16.5	16	9
	ZKLN0624-2RS*	0.03	6	24	15	0.3	0.6	14.0	19.5	19	9
	ZKLN0624-ZZ	0.03	6	24	15	0.3	0.6	14.0	19.5	19	9
8	ZKLN0832-2RS	0.09	8	32	20	0.3	0.6	19.0	26.5	26	12
	ZKLN0832-ZZ	0.09	8	32	20	0.3	0.6	19.0	26.5	26	12
10	ZKLN1034-2RS*	0.10	10	34	20	0.3	0.6	21.0	28.5	28	14
	ZKLN1034-ZZ	0.10	10	34	20	0.3	0.6	21.0	28.5	28	14
12	ZKLN1242-2RS*	0.20	12	42	25	0.3	0.6	25.0	33.5	33	16
	ZKLN1242-ZZ	0.20	12	42	25	0.3	0.6	25.0	33.5	33	16
15	ZKLN1545-2RS*	0.21	15	45	25	0.3	0.6	28.0	36.0	35	20
	ZKLN1545-ZZ	0.21	15	45	25	0.3	0.6	28.0	36.0	35	20
17	ZKLN1747-2RS*	0.22	17	47	25	0.3	0.6	30.0	38.0	37	23
	ZKLN1747-ZZ	0.22	17	47	25	0.3	0.6	30.0	38.0	37	23
20	ZKLN2052-2RS*	0.31	20	52	28	0.3	0.6	34.5	44.0	43	25
	ZKLN2052-ZZ	0.31	20	52	28	0.3	0.6	34.5	44.0	43	25
25	ZKLN2557-2RS*	0.34	25	57	28	0.3	0.6	40.5	49.0	48	32
	ZKLN2557-ZZ	0.34	25	57	28	0.3	0.6	40.5	49.0	48	32
30	ZKLN3062-2RS*	0.39	30	62	28	0.3	0.6	45.5	54.0	53	40
	ZKLN3062-ZZ	0.39	30	62	28	0.3	0.6	45.5	54.0	53	40
	ZKLN3072-2RS	0.72	30	72	38	0.3	0.6	51.0	65.0	64	47
35	ZKLN3072-ZZ	0.72	30	72	38	0.3	0.6	51.0	65.0	64	47
	ZKLN3572-2RS*	0.51	35	72	34	0.3	0.6	52.0	63.0	62	45
40	ZKLN3572-ZZ	0.51	35	72	34	0.3	0.6	52.0	63.0	62	45
	ZKLN4075-2RS*	0.61	40	75	34	0.3	0.6	58.0	68.0	67	50
50	ZKLN4075-ZZ	0.61	40	75	34	0.3	0.6	58.0	68.0	67	50
	ZKLN4090-2RS	0.95	40	90	46	0.6	0.6	65.0	80.0	80	56
	ZKLN4090-ZZ	0.95	40	90	46	0.6	0.6	65.0	80.0	80	56
60	ZKLN5090-2RS*	0.88	50	90	34	0.3	0.6	72.0	82.0	82	63
	ZKLN5090-ZZ	0.88	50	90	34	0.3	0.6	72.0	82.0	82	63
	ZKLN50110-2RS	2.50	50	110	54	0.6	0.6	80.0	98.0	98	63
70	ZKLN50110-ZZ	2.50	50	110	54	0.6	0.6	80.0	98.0	98	63
	ZKLN60110-2Z	2.20	60	110	45	0.6	0.6	85.0	100	100	85
80	ZKLN70120-2Z	2.40	70	120	45	0.6	0.6	95.0	110	110	92
90	ZKLN80130-2Z	2.70	80	130	45	0.6	0.6	105.0	120	120	102
100	ZKLN90150-2Z	4.50	90	150	55	0.6	0.6	120.0	138	138	116
100	ZKLN100160-2Z	4.90	100	160	55	0.6	0.6	132.0	150	150	128

The ball cages are made from plastic, permissible operating temperature 120 °C (continuous operation).

1) Contact angle $\alpha = 60^\circ$.

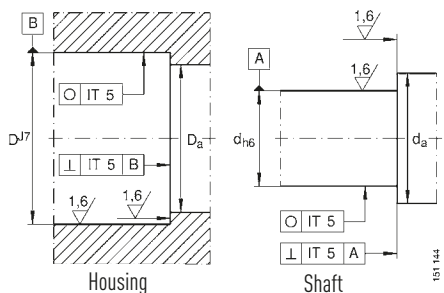
2) Minimum diameter required of installation surface.

.ZZ = Gap seal

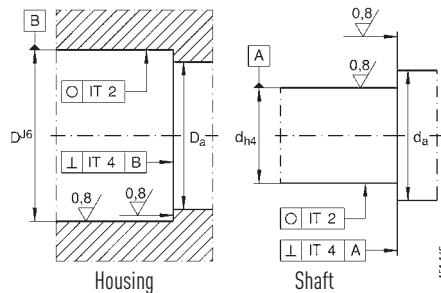
.2RS = Contact seal

Ball screws

Accessories



Housing and shaft tolerances ZKLN...2RSPE



Housing and shaft tolerances ZKLN...2RS/...2Z

Technical data of angular ball bearing unit ZKLN

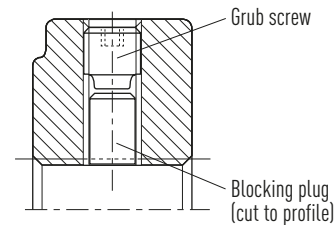
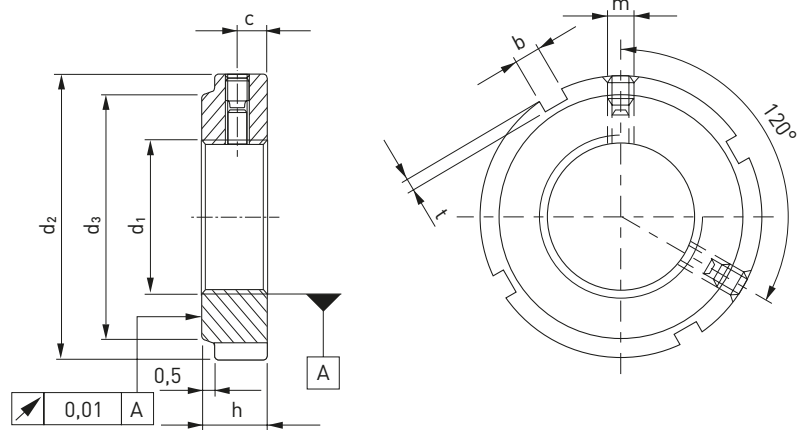
Shaft diameter	Code	Dynamic axial load	Static axial load	Max. speed	Bearing friction torque ³⁾	Axial rigidity	Resistance to tilting	Lock nut ⁴⁾	Tightening torque
		C _{dyn} [kN]	C _o [kN]	Grease [min ⁻¹]	M _{RL} [Nm]	C _{AL} [N/μm]	C _{KL} [Nm/mrad]	Model	M _A [Nm]
6	ZKLN0619-2Z	4.9	6.1	14000	0.01	150	4	HIR-6	2
	ZKLN0624-2RS*	6.9	8.5	6800	0.02	200	8	HIR-6	2
	ZKLN0624-2Z	6.9	8.5	12000	0.02	200	8	HIR-6	2
8	ZKLN0832-2RS	12.5	16.3	5100	0.04	250	20	HIR-8	4
	ZKLN0832-2Z	12.5	16.3	9500	0.04	250	20	HIR-8	4
10	ZKLN1034-2RS*	13.4	18.8	4600	0.06	325	25	HIR-10	6
	ZKLN1034-2Z	13.4	18.8	8600	0.06	325	25	HIR-10	6
12	ZKLN1242-2RS*	17.0	24.7	3800	0.08	375	50	HIR-12	8
	ZKLN1242-2Z	17.0	24.7	7600	0.08	375	50	HIR-12	8
15	ZKLN1545-2RS*	17.9	28.0	3500	0.10	400	65	HIR-15	10
	ZKLN1545-2Z	17.9	28.0	7000	0.10	400	65	HIR-15	10
17	ZKLN1747-2RS*	18.8	31.0	3300	0.12	450	80	HIR-17/HIA-17	15
	ZKLN1747-2Z	18.8	31.0	6600	0.12	450	80	HIR-17/HIA-17	15
20	ZKLN2052-2RS*	26.0	47.0	3000	0.15	650	140	HIR-20/HIA-20	18
	ZKLN2052-2Z	26.0	47.0	5400	0.15	650	140	HIR-20/HIA-20	18
25	ZKLN2557-2RS*	27.5	55.0	2600	0.20	750	200	HIR-25/HIA-25	25
	ZKLN2557-2Z	27.5	55.0	4700	0.20	750	200	HIR-25/HIA-25	25
30	ZKLN3062-2RS*	29.0	64.0	2200	0.25	850	300	HIR-30/HIA-30	32
	ZKLN3062-2Z	29.0	64.0	4300	0.25	850	300	HIR-30/HIA-30	32
	ZKLN3072-2RS	59.0	108.0	2100	0.40	950	400		
35	ZKLN3072-2Z	59.0	108.0	4000	0.40	950	400		
	ZKLN3572-2RS*	41.0	89.0	2000	0.30	900	400	HIR-35/HIA-35	40
	ZKLN3572-2Z	41.0	89.0	3800	0.30	900	400	HIR-35/HIA-35	40
40	ZKLN4075-2RS*	43.0	101.0	1800	0.35	1000	555	HIR-40/HIA-40	55
	ZKLN4075-2Z	43.0	101.0	3300	0.35	1000	555	HIR-40/HIA-40	55
	ZKLN4090-2RS	72.0	149.0	1600	0.65	1200	750		
50	ZKLN4090-2Z	72.0	149.0	3100	0.65	1200	750		
	ZKLN5090-2RS*	46.5	126.0	1500	0.45	1250	1000	HIR-50/HIA-50	85
	ZKLN5090-2Z	46.5	126.0	3000	0.45	1250	1000	HIR-50/HIA-50	85
60	ZKLN50110-2RS	113.0	250.0	1200	1.30	1400	1500		
	ZKLN50110-2Z	113.0	250.0	2500	1.30	1400	1500		
70	ZKLN60110-2Z	84.0	214.0	2400	1.00	1300	1650	HIR-60/HIA-60	100
80	ZKLN70120-2Z	88.0	241.0	2200	1.20	1450	2250	HIR-70/HIA-70	130
80	ZKLN80130-2Z	91.0	265.0	2100	1.40	1575	3000	HIR-80/HIA-80	160
90	ZKLN90150-2Z	135.0	395.0	1800	2.30	1700	4400	HIR-90/HIA-90	200
100	ZKLN100160.2Z	140.0	435.0	1700	2.60	1900	5800	HIR-100/HIA-100	250

3) Bearing friction torque with gap seal (.2Z). With seal disc (.2RS) = 2 × M .

4) Lock nuts are not supplied; order separately!

Ball screws Accessories

7.8 HIR lock nut, radial clamping



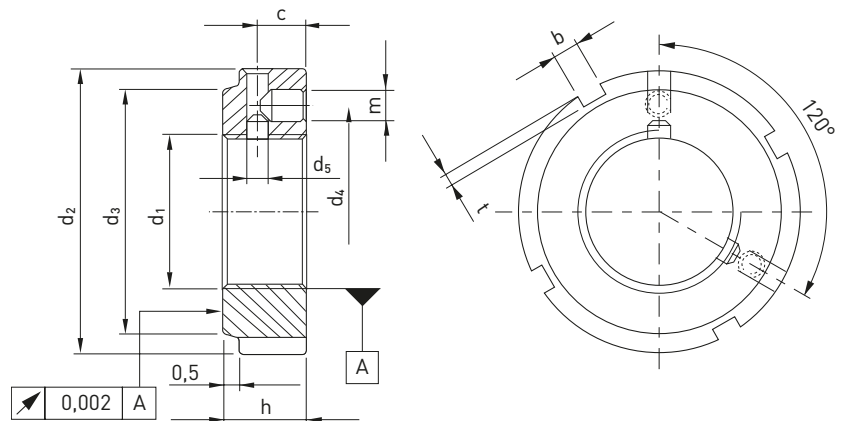
Right-hand thread, left-hand thread on request.
The thread and plane surface are produced in a single clamping process.
Thread quality 4H.

Type	Thread	D	h	g	t	d1	c	m	Screw max. tightening torque [Nm]
HIR-08	M8×0.75	16	8	3	2.0	11	4	M4	2.6
HIR-10	M10×0.75	18	8	3	2.0	13	4	M4	2.6
HIR-12	M12×1.00	22	8	3	2.0	18	4	M4	2.6
HIR-15	M15×1.00	25	8	3	2.0	21	4	M4	2.6
HIR-17	M17×1.00	28	10	4	2.0	23	5	M5	5.0
HIR-20	M20×1.00	32	10	4	2.0	27	5	M5	5.0
HIR-20 × 1.5	M20×1.50	32	10	4	2.0	27	5	M5	5.0
HIR-25	M25×1.50	38	12	5	2.0	33	6	M6	9.0
HIR-30	M30×1.50	45	12	5	2.0	40	6	M6	9.0
HIR-35	M35×1.50	52	12	5	2.0	47	6	M6	9.0
HIR-40	M40×1.50	58	14	6	2.5	52	7	M6	9.0
HIR-45	M45×1.50	65	14	6	2.5	59	7	M6	9.0
HIR-50	M50×1.50	70	14	6	2.5	64	7	M6	9.0
HIR-55	M55×2.00	75	16	7	3.0	68	8	M6	9.0
HIR-60	M60×2.00	80	16	7	3.0	73	8	M6	9.0
HIR-65	M65×2.00	85	16	7	3.0	78	8	M6	9.0
HIR-70	M70×2.00	92	18	8	3.5	85	9	M8	22.0
HIR-75	M75×2.00	98	18	8	3.5	90	9	M8	22.0
HIR-80	M80×2.00	105	18	8	3.5	95	9	M8	22.0
HIR-85	M85×2.00	110	18	8	3.5	102	9	M8	22.0
HIR-90	M90×2.00	120	20	10	4.0	108	10	M8	22.0
HIR-95	M95×2.00	125	20	10	4.0	113	10	M8	22.0
HIR-100	M100×2.00	130	20	10	4.0	120	10	M8	22.0

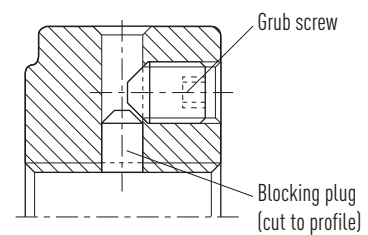
Dimensions in [mm]

Ball screws Accessories

7.9 HIA lock nut, axial clamping



Right-hand thread, left-hand thread on request.
The thread and plane surface are produced in a single clamping process.
Thread quality 4H.



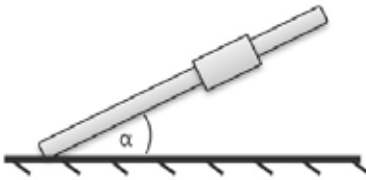
Type	Thread	D	h	g	t	d1	A	m	Screw max. tightening torque [Nm]
HIA-17	M17×1.0	28	16	4	2.0	23	22.5	M4	1.8
HIA-20	M20×1.0	32	16	4	2.0	27	26.0	M4	1.8
HIA-20 × 1.5	M20×1.5	32	16	4	2.0	27	26.0	M4	1.8
HIA-25	M25×1.5	38	18	5	2.0	33	31.5	M5	3.5
HIA-30	M30×1.5	45	18	5	2.0	40	37.5	M5	3.5
HIA-35	M35×1.5	52	18	5	2.0	47	43.5	M5	3.5
HIA-40	M40×1.5	58	20	6	2.5	52	49.0	M6	6.3
HIA-45	M45×1.5	65	20	6	2.5	59	55.0	M6	6.3
HIA-50	M50×1.5	70	20	6	2.5	64	60.0	M6	6.3
HIA-55	M55×2.0	75	22	7	3.0	68	65.0	M6	6.3
HIA-60	M60×2.0	80	22	7	3.0	73	70.0	M6	6.3
HIA-65	M65×2.0	85	22	7	3.0	78	75.0	M6	6.3
HIA-70	M70×2.0	92	24	8	3.5	85	81.0	M8	15.0
HIA-75	M75×2.0	98	24	8	3.5	90	87.0	M8	15.0
HIA-80	M80×2.0	105	24	8	3.5	95	93.0	M8	15.0
HIA-85	M85×2.0	110	24	8	3.5	102	98.0	M8	15.0
HIA-90	M90×2.0	120	26	10	4.0	108	105.0	M8	15.0
HIA-95	M95×2.0	125	26	10	4.0	113	110.0	M8	15.0
HIA-100	M100×2.0	130	26	10	4.0	120	115.0	M8	15.0

Dimensions in [mm]

Ball screws


Project planning sheet

Customer Data	
Company:	Contact Person:
	Department:
	Phone:
Project:	Fax:
	Email:

Mounting Position	System Parameters
 <p> $\alpha = 0^\circ$ horizontal <input type="checkbox"/> $\alpha = 90^\circ$ vertical <input type="checkbox"/> $\alpha = ___\circ$ </p>	Nut type Ballscrew diameter d_s [mm] Lead P [mm] Total length l_g [mm] Load m [kg] Unsupported shaft length l_k [mm] Preload in percent [%] Friction force F_R [N] Other information:

Type of bearing	Lubrication	Operating temperature
Fixed - Fixed <input type="checkbox"/> Fixed - Supported <input type="checkbox"/> Supported - Supported <input type="checkbox"/> Fixed - Free <input type="checkbox"/>	Oil <input type="checkbox"/> Grease <input type="checkbox"/>	min. $^\circ\text{C}$ max. $^\circ\text{C}$ Special operating conditions (e.g. dust, chips, fluid)

Cycle data							
Phase n	Direction of motion, see (1)	Process force $(\pm) F_p$ [N], see (2)	Acceleration a [m/s ²]	Deceleration a [m/s ²]	Rotation speed [1/min]		Time slice [%]
					n_1	n_2	
1							
2							
3							
4							
5							
6							
7							
8							
9							

Stroke	$l_{Hub} =$	[mm]	Account the sign (2)  (1) Direction of motion: left, right, up, down
Way of the motion sequence described above	$l_{zyk.} =$	[mm]	
Total travel time	$t_{zyk.} =$	[s]	
Max. velocity	$v_{max} =$	[m/s]	
Other information:			

Operation time	Required lifetime
Cycles/hour [z/h] = Working days/year [d/y] =	1-shift-operating <input type="checkbox"/> 2-shift-operating <input type="checkbox"/> 3-shift-operating <input type="checkbox"/> Cycles [z] $L_z =$ Kilometers [km] $L_{km} =$ Years [y] $L_y =$

Other notes

An editable version of this project planning sheet can be found at www.hiwin.cz



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