

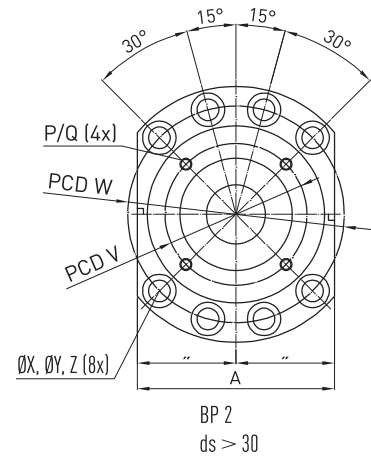
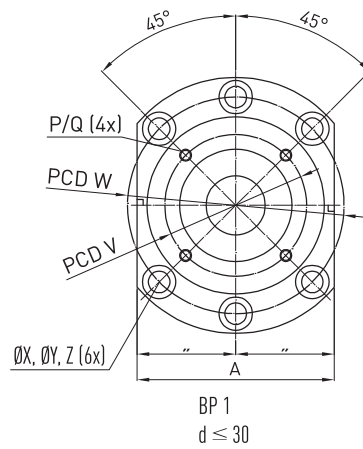
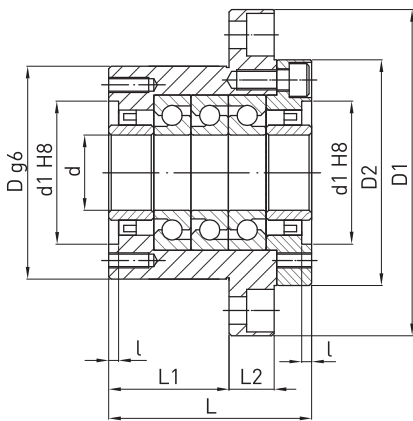
Ballscrews

Shaft ends and accessories

8.2 WBK bearing series

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 bearings are lubricated for life.

The end machining processes suited to the WBK fixed bearing are types W1, W2 and W3 (Section 8.1).



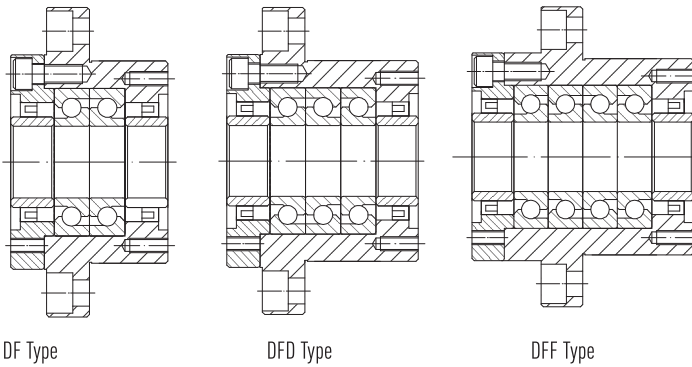
BP Hole pattern

Table 8.11 Bearing unit dimensions

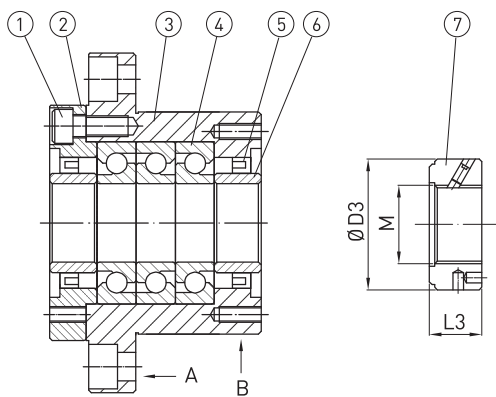
Type	Shaft nominal \emptyset	d	D	D1	D2	L	L1	L2	A	W	Hole X	Counter bore Y	Counter bore depth Z	d1	l	V	P	Q
WBK15DF	20	15	70	106	72	60	32	15	80	88	9	14.0	8.5	45	3	58	M5	10
WBK17DF	25	17	70	106	72	60	32	15	80	88	9	14.0	8.5	45	3	58	M5	10
WBK20DF	25	20	70	106	72	60	32	15	80	88	9	14.0	8.5	45	3	58	M5	10
WBK25DF	32	25	85	130	90	66	33	18	100	110	11	17.5	11.0	57	4	70	M6	12
WBK25DFD	32	25	85	130	90	81	48	18	100	110	11	17.5	11.0	57	4	70	M6	12
WBK30DF	40	30	85	130	90	66	33	18	100	110	11	17.5	11.0	57	4	70	M6	12
WBK30DFD	40	30	85	130	90	81	48	18	100	110	11	17.5	11.0	57	4	70	M6	12
WBK35DF	45	35	95	142	102	66	33	18	106	121	11	17.5	11.0	69	4	80	M6	12
WBK35DFD	45	35	95	142	102	81	48	18	106	121	11	17.5	11.0	69	4	80	M6	12
WBK35DFF	45	35	95	142	102	96	48	18	106	121	11	17.5	11.0	69	4	80	M6	12
WBK40DF	50	40	95	142	102	66	33	18	106	121	11	17.5	11.0	69	4	80	M6	12
WBK40DFD	50	40	95	142	102	81	48	18	106	121	11	17.5	11.0	69	4	80	M6	12
WBK40DFF	50	40	95	142	102	96	48	18	106	121	11	17.5	11.0	69	4	80	M6	12

Unit: mm

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 must not be disassembled.

Table 8.12 **Technical data of bearing**

Type	Dynamic load rating C_{dyn} [kN]	Permissible axial load [kN]	Preload [kN]	Axial rigidity [N/µm]	Starting torque [Nm]	Lock nut				Weight [kg]	Article number
						M	D3	L3	Nut tightening torque [Nm]		
WBK15DF	21.9	26.6	2.15	750	0.19	M15 × 1	30	14	35	1.9	18-000023
WBK17DF	21.9	26.6	2.15	750	0.19	M17 × 1	32	16	42	1.9	18-000024
WBK20DF	21.9	26.6	2.15	750	0.19	M20 × 1	38	16	46	1.9	18-000025
WBK25DF	28.5	40.5	3.15	1,000	0.29	M25 × 1.5	38	18	87	3.1	18-000026
WBK25DFD	46.5	81.5	4.30	1,470	0.39	M25 × 1.5	38	18	87	3.4	18-000027
WBK30DF	29.2	43.0	3.35	1,030	0.30	M30 × 1.5	45	18	105	3.0	18-000028
WBK30DFD	47.5	86.0	4.50	1,520	0.40	M30 × 1.5	45	18	105	3.3	18-000029
WBK35DF	31.0	50.0	3.80	1,180	0.34	M35 × 1.5	52	18	340	3.4	18-000030
WBK35DFD	50.5	100.0	5.20	1,710	0.45	M35 × 1.5	52	18	340	4.3	18-000031
WBK35DFF	50.5	100.0	7.65	2,350	0.59	M35 × 1.5	52	18	340	5.0	18-000032
WBK40DF	31.5	52.0	3.90	1,230	0.36	M40 × 1.5	58	20	500	3.6	18-000033
WBK40DFD	51.5	104.0	5.30	1,810	0.47	M40 × 1.5	58	20	500	4.2	18-000034
WBK40DFF	51.5	104.0	7.85	2,400	0.61	M40 × 1.5	58	20	500	5.7	18-000035

Ballscrews

Shaft ends and accessories

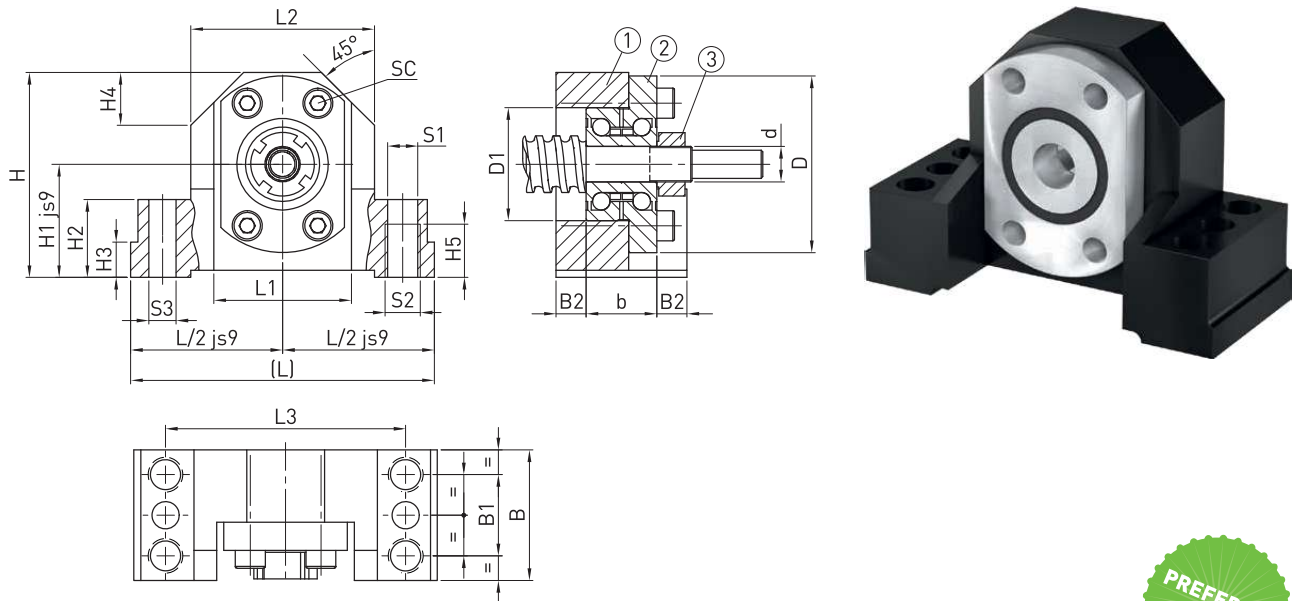
8.3 SFA/SLA bearing series

8.3.1 Fixed bearing SFA

The axis height of the fixed bearing is matched to supported bearing SLA (Section 8.3.2) and nut housing GFD (Section 8.4). 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/S3-xx type (Section 8.1).

SFA06/SFA10



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



Type	Shaft nominal \varnothing	L	L/2	L1	L2	L3	H	H1	H2	H3	H4	H5	d	D	D1	b
SFA06	12	62	31	34	38	50	41	22	13	5	11	9	6	30	19	12
SFA10	16	86	43	52	52	68	58	32	22	10	15	15	10	50	32	20

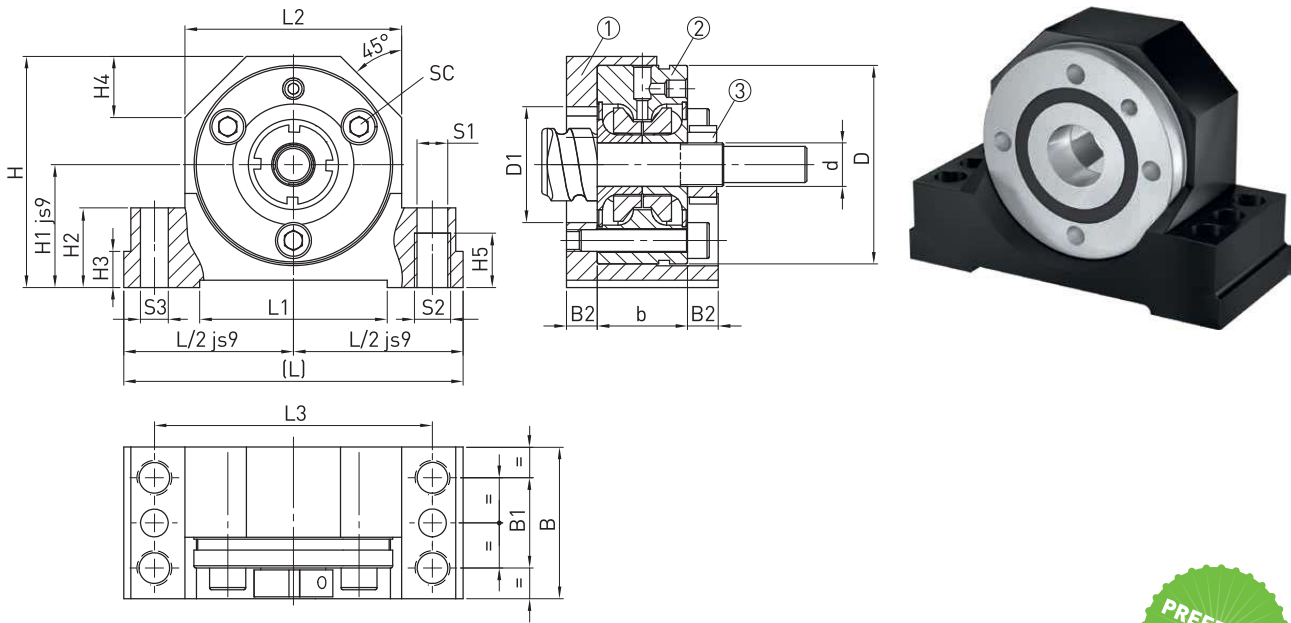
Unit: mm

Type	Shaft nominal \varnothing	B	B1	B2	S1	S2	S3	SC ISO 4762-10.9
SFA06	12	32	16	10.0	5.3	M6	3.7	4 × M3 × 12
SFA10	16	37	23	8.5	8.5	M10	7.7	4 × M5 × 20

Unit: mm

Type	Bearing type	C_0 axial [N]	C_{dyn} axial [N]	Permissible speed [rpm]	Lock nut				Article number
					Type	Nut tightening torque [Nm]	Screw size	Screw tightening torque [Nm]	
SFA06	ZKLFA0630.2Z	6,100	4,900	14,000	HIR 06	2	M4	1	18-000109
SFA10	ZKLFA1050.2RS	8,500	6,900	6,800	HIR 10	6	M4	1	18-000111

SFA12 – SFA40



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



Table 8.16 Bearing unit dimensions

Type	Shaft nominal \varnothing	L	L/2	L1	L2	L3	H	H1	H2	H3	H4	H5	d	D	D1	b
SFA12	20	94	47	52	60	77	64	34	22	10	17	15	12	55	32	25
SFA17	25	108	54	65	66	88	72	39	27	10	19	18	17	62	36	25
SFA20	32	112	56	65	73	92	78	42	27	10	20	18	20	68	42	28
SFA30	40	126	63	82	84	105	92	50	32	13	23	21	30	80	52	28
SFA40	50	146	73	82	104	125	112	60	32	13	30	21	40	100	66	34

Unit: mm

Table 8.17 Bearing unit dimensions

Type	Shaft nominal \varnothing	B	B1	B2	S1	S2	S3	Lock nut	SC ISO 4762-10.9
SFA12	20	42	25	8.5	8.5	M10	7.7	HIR 12	3 × M6 × 35
SFA17	25	46	29	10.5	10.5	M12	9.7	HIR 17	3 × M6 × 35
SFA20	32	49	29	10.5	10.5	M12	9.7	HIR 20 × 1	4 × M6 × 40
SFA30	40	53	32	12.5	12.6	M14	9.7	HIR 30	6 × M6 × 40
SFA40	50	59	34	12.5	12.6	M14	9.7	HIR 40	4 × M8 × 50

Unit: mm

Table 8.18 Technical data of bearing

Type	Bearing type	C_0 axial [N]	C_{dyn} axial [N]	Permissible speed [rpm]	Lock nut				Article number
					Type	Nut tightening torque [Nm]	Screw size	Screw tightening torque [Nm]	
SFA12	ZKLF1255.2RS-PE	24,700	18,600	3,800	HIR 12	8	M4	1	18-000113
SFA17	ZKLF1762.2RS-PE	31,000	20,700	3,300	HIR 17	15	M5	3	18-000116
SFA20	ZKLF2068.2RS-PE	47,000	28,500	3,000	HIR 20 × 1	18	M5	3	18-000274
SFA30	ZKLF3080.2RS-PE	64,000	32,000	2,200	HIR 30	32	M6	5	18-000121
SFA40	ZKLF40100.2RS-PE	101,000	47,500	1,800	HIR 40	55	M6	5	18-000123

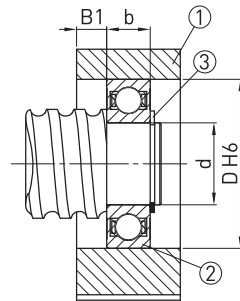
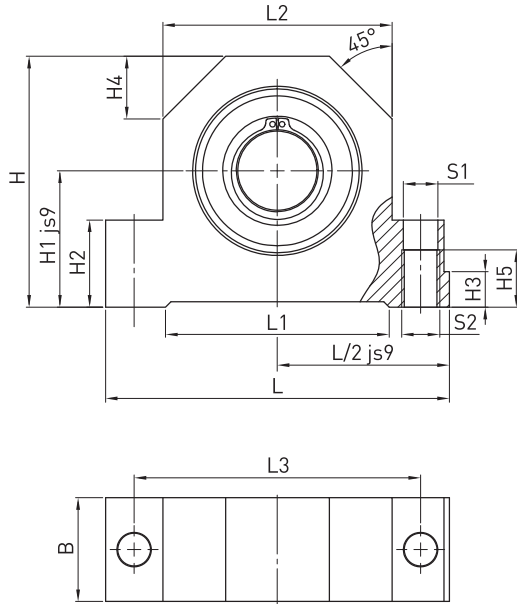
Ballscrews

Shaft ends and accessories

8.3.2 Supported bearing SLA

The axis height of the supported bearing is matched to fixed bearing SFA (Section 8.3.1) and nut housing GFD (Section 8.4). The pillow block 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 S1-x type (Section 8.1).



(1) Steel pillow block housing, (2) Bearing, (3) Circlip



Table 8.19 Bearing unit dimensions

Type	Shaft nominal \varnothing	L	L/2	L1	L2	L3	H	H1	H2	H3	H4	H5	b
SLA06	12	62	31	34	38	50	41	22	13	5	11	9	6
SLA10	16	86	43	52	52	68	58	32	22	7	15	15	9
SLA12	20	94	47	52	60	77	64	34	22	10	17	15	10
SLA17	25	108	54	65	66	88	72	39	27	10	19	18	12
SLA20	32	112	56	65	72	92	78	42	27	10	20	18	14
SLA30	40	126	63	82	84	105	92	50	32	13	23	21	16
SLA40	50	146	73	82	104	125	112	60	32	13	30	21	18

Unit: mm

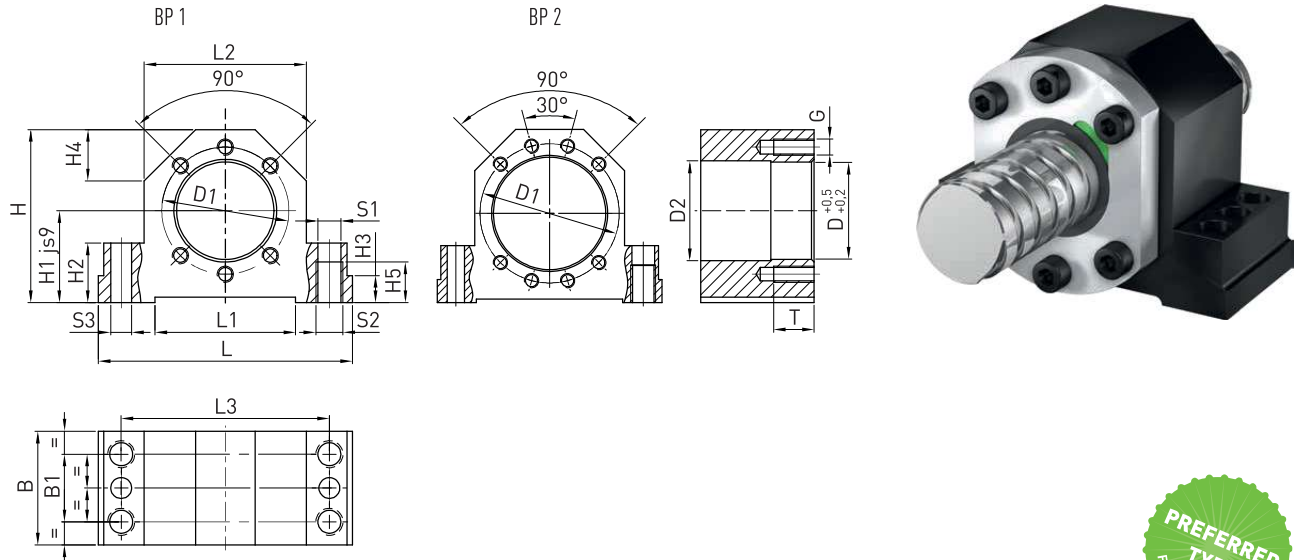
Table 8.20 Bearing unit dimensions

Type	Shaft nominal \varnothing	B	B1	S1	S2	d	D	Circlip DIN 471	Deep groove ball bearing DIN 625	Article number
SLA06	12	15	4.5	5.3	M6	6	19	6 × 0.7	626.2RS	18-000125
SLA10	16	24	7.5	8.4	M10	10	30	10 × 1	6200.2RS	18-000127
SLA12	20	26	8.0	8.4	M10	12	32	12 × 1	6201.2RS	18-000129
SLA17	25	28	8.0	10.5	M12	17	40	17 × 1	6203.2RS	18-000132
SLA20	32	34	10.0	10.5	M12	20	47	20 × 1.2	6204.2RS	18-000134
SLA30	40	38	11.0	12.6	M14	30	62	30 × 1.5	6206.2RS	18-000137
SLA40	50	44	13.0	12.6	M14	40	80	40 × 1.75	6208.2RS	18-000139

Unit: mm

8.4 Housing for flange nuts (DIN 69051 Part 5)

The nut housing is suitable for assembling flange nuts DEB-x, DDB-x and FSCDIN. The axis height of the housing is matched to fixed bearing SFA (Section 8.3.1) and the supported bearing SLA (Section 8.3.2). The housing can be screwed on from above (S1) and below (S2). The housing can be pinned with two tapered pins or cylindrical pins. Screws of strength class 8.8 should be used for the fastening.



BP Hole pattern

Table 8.21 Housing dimensions

Type	Shaft nominal \varnothing	L	L1	L2	L3	H	H1	H2	H3	H4	H5
GFD16	16	86	52	52	68	58	32	22	7	15	15
GFD20	20	94	52	60	77	64	34	22	7	17	15
GFD25	25	108	65	66	88	72	39	27	10	19	18
GFD32	32	112	65	72	92	82	42	27	10	19	18
GFD40	40	126	82	84	105	97	50	32	13	23	21
GFD50	50	146	82	104	125	115	60	32	13	30	21

Unit: mm

Table 8.22 Housing dimensions

Type	Shaft nominal \varnothing	D	D1	D2	B	B1	S1	S2	S3	Hole pattern	G	T	Article number
GFD16	16	28	38	29	37	23	8.4	M10	7.7	1	M5	12	1-000016
GFD20	20	36	47	37	42	25	8.4	M10	7.7	1	M6	15	1-000017
GFD25	25	40	51	41	46	29	10.5	M12	9.7	1	M6	15	1-000027
GFD32	32	50	65	51	49	29	10.5	M12	9.7	1	M8	20	1-000028
GFD40	40	63	78	64	53	32	12.6	M14	9.7	2	M8	20	1-000039
GFD50	50	75	93	76	59	34	12.6	M14	9.7	2	M10	25	1-000062

Unit: mm

Ballscrews

Shaft ends and accessories

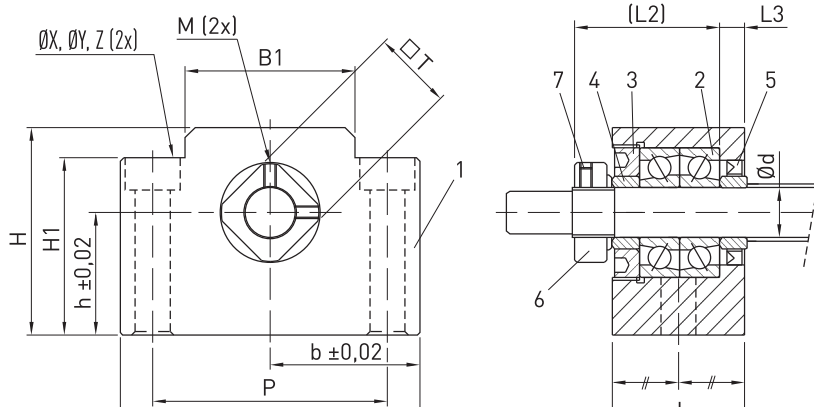
8.5 EK/EF bearing series

8.5.1 Fixed bearing EK

The axis height of the fixed bearing is matched to supported bearing EF (Section 8.5.2).

The end machining suited to fixed bearing EK is the E8-xx type (Section 8.1).

The bearings are lubricated for life.



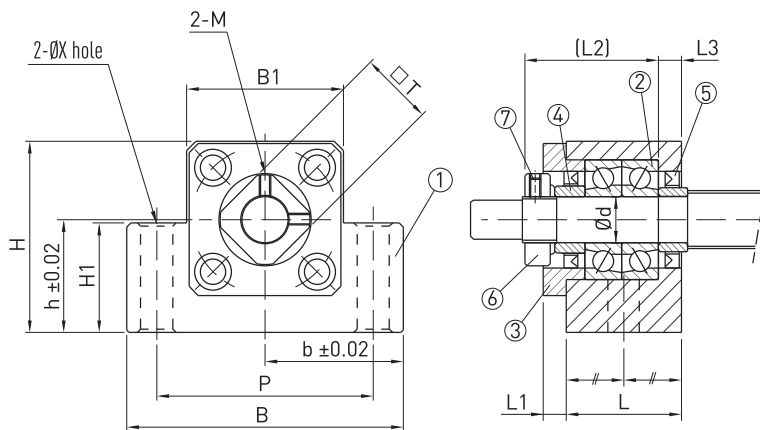
(1) Housing, (2) Bearing, (3) Retaining cover, (4) Support ring, (5) Seal, (6) Clamping nut, (7) Allen set screw



Table 8.23 Bearing unit dimensions

Type	Shaft nominal \varnothing	d	L	L2	L3	B	H	b	h	B1	H1	P	Hole X	Counter bore Y	Counter bore depth Z	M	T
EK08	12	8	23	26	4	52	32	26	17	25	26	38	6.6	11	12	M3	14

Unit: mm



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



Table 8.24 Bearing unit dimensions

Type	Shaft nominal \varnothing	d	L	L1	L2	L3	B	H	b	h	B1	H1	P	X	M	T
EK10	16	10	24	6	29.5	6	70	43	35.0	25	36	24	52	9	M3	16
EK12	16 ¹⁾	12	24	6	29.5	6	70	43	35.0	25	36	24	52	9	M4	19
EK15	20	15	25	6	36.0	5	80	49	40.0	30	41	25	60	11	M4	22
EK20	25	20	42	10	50.0	10	95	58	47.5	30	56	25	75	11	M4	30

Unit: mm

¹⁾ Depending on actual shaft outer diameter $d_{s \min} = 15.5$

Table 8.25 Technical data of bearing

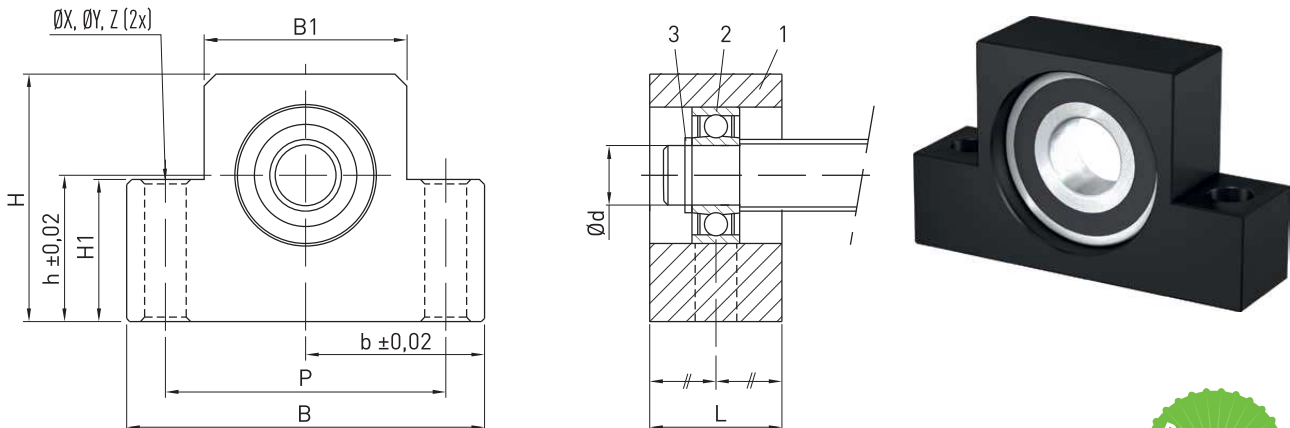
Type	Bearing type	C ₀ axial [N]	C _{dyn} axial [N]	Max. permissible axial load [N]	Lock nut				Article number
					Type	Nut tightening torque [Nm]	Screw size	Screw tightening torque [Nm]	
EK08	708	4,800	2,800	1,100	RN8	2.5	M3	0.6	18-000428
EK10	7000A P0	8,800	5,200	2,000	RN10	2.9	M3	0.6	18-000429
EK12	7001A P0	9,400	6,000	2,200	RN12	6.4	M4	1.5	18-000430
EK15	7002A P0	10,000	6,900	2,400	RN15	7.9	M4	1.5	18-000431
EK20	7204B P0	21,600	15,200	6,800	RN20	16.7	M4	1.5	18-000432

8.5.2 Supported bearing EF

The axis height of the supported bearing is matched to fixed bearing EK (Section 8.5.1).

The end machining suited to supported bearing EF is the E10-xx type (Section 8.1).

The bearings are lubricated for life.



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



Table 8.26 Bearing unit dimensions

Type	Shaft nominal Ø	d	L	B	H	b	h	B1	H1	P	Hole X	Counter bore Y	Counter bore depth Z	Bearing	Circlip	Article number
EF08	12	6	14	52	32	26.0	17	25	26	38	6.6	11	12	606ZZ	S 06	18-000433
EF10	16	8	20	70	43	35.0	25	36	24	52	9.0	—	—	608ZZ	S 08	18-000434
EF12	16 ¹⁾	10	20	70	43	35.0	25	36	24	52	9.0	—	—	6000ZZ	S 10	18-000435
EF15	20	15	20	80	49	40.0	30	41	25	60	9.0	—	—	6002ZZ	S 15	18-000436
EF20	25	20	26	95	58	47.5	30	56	25	75	11.0	—	—	6204ZZ	S 20	18-000437

Unit: mm

¹⁾ Depending on actual shaft outer diameter $d_{s \min} = 15.5$

Ballscrews

Shaft ends and accessories

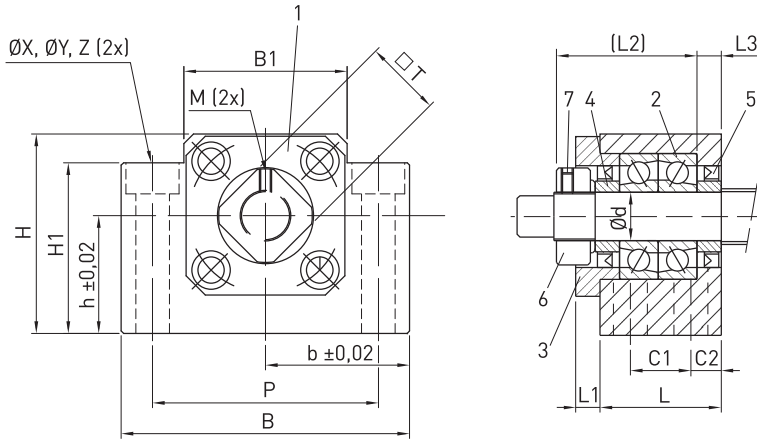
8.6 BK/BF bearing series

8.6.1 Fixed bearing BK

The axis height of the fixed bearing is matched to supported bearing BF (Section 8.6.2).

The end machining suited to fixed bearing BK is the E9-xx type (Section 8.1).

The bearings are lubricated for life.



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

Table 8.27 Bearing unit dimensions

Type	Shaft nominal \varnothing	d	L	L1	L2	L3	B	H	b	h
BK25	32	25	42	12	54	9	106	80	53	48
BK30	40	30	45	14	61	9	128	89	64	51
BK40	50	40	61	18	76	15	160	110	80	60

Unit: mm

Table 8.28 Bearing unit dimensions

Type	Shaft nominal \varnothing	B1	H1	P	C1	C2	Hole X	Counter bore Y	Counter bore depth Z	M	T
BK25	32	64	70	85	22	10	11	17	11.0	M6	35
BK30	40	76	78	102	23	11	14	20	13.0	M6	40
BK40	50	100	90	130	33	14	18	26	17.5	M6	50

Unit: mm

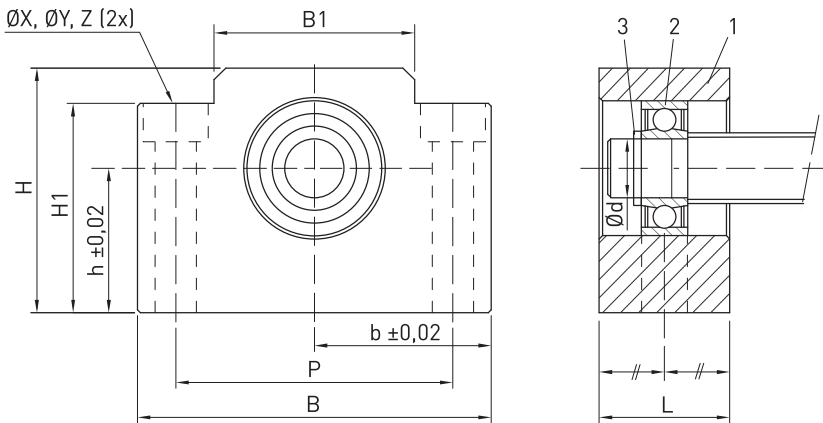
Table 8.29 Technical data of bearing

Type	Bearing type	C_0 axial [N]	C_{dyn} axial [N]	Max. permissible axial load [N]	Lock nut				Article number
					Type	Nut tightening torque [Nm]	Screw size	Screw tightening torque [Nm]	
BK25	7205A P0	26,300	20,500	7,000	RN25	21	M6	5	18-000439
BK30	7206B P0	33,500	27,000	10,600	RN30	31	M6	5	18-000440
BK40	7208B P0	52,000	46,100	18,000	RN40	71	M6	5	18-000441

8.6.2 Supported bearing BF

The axis height of the supported bearing is matched to fixed bearing BK (Section 8.6.1). The end machining suited to supported bearing BF is the E10-xx type (Section 8.1).

The bearings are lubricated for life.



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

Table 8.30 Bearing unit dimensions

Type	Shaft nominal Ø	d	L	B	H	b	h	B1	H1	P	Hole X	Counter bore Y	Counter bore depth Z	Bearing	Circlip	Article number
BF25	32	25	30	106	80	53	48	64	70	85	11	17	11.0	6205ZZ	S 25	18-000443
BF30	40	30	32	128	89	64	51	76	78	102	14	20	13.0	6206ZZ	S 30	18-000444
BF40	50	40	37	160	110	80	60	100	90	130	18	26	17.5	6208ZZ	S 40	18-000445

Unit: mm

Ballscrews

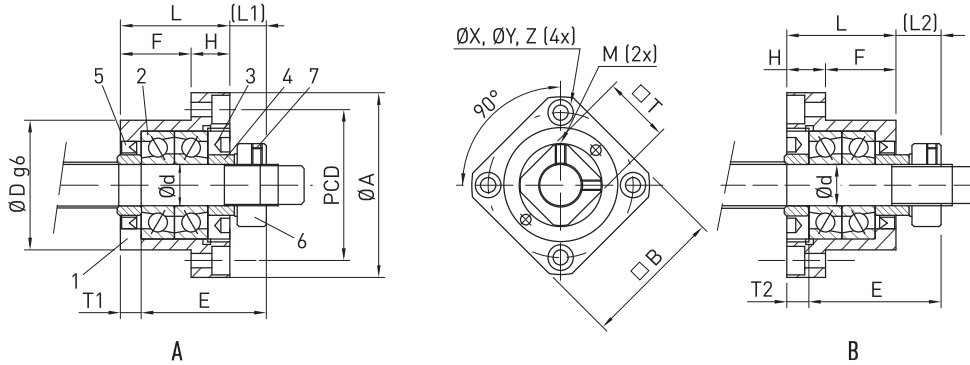
Shaft ends and accessories

8.7 FK/FF bearing series

8.7.1 Fixed bearing FK

The associated supporting bearing unit is the FF bearing series (Section 8.7.2). The end machining suited to fixed bearing FK is the E8-xx type (Section 8.1).

The bearings are lubricated for life.



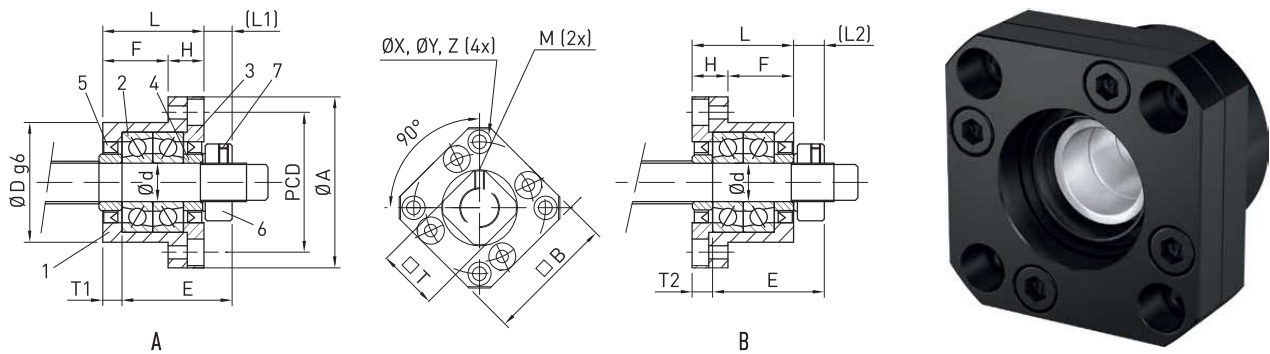
(1) Housing, (2) Bearing, (3) Retaining cover, (4) Support ring, (5) Seal, (6) Clamping nut, (7) Allen set screw



Table 8.31 Bearing unit dimensions

Type	Shaft nominal \varnothing	d	L	H	F	E	D	A	PCD	B	Assembly variant A		Assembly variant B		Hole X	Counter bore Y	Counter bore depth Z	M	T
											L1	T1	L2	T2					
FK08	12	8	23	9	14	26	28	43	35	35	7	4	8	5	3.4	6.5	4	M3	14

Unit: mm



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



Table 8.32 Bearing unit dimensions

Type	Shaft nominal \varnothing	d	L	H	F	E	D	A	PCD	B	Assembly variant A		Assembly variant B		Hole X	Counter bore Y	Counter bore depth Z	M	T
											L1	T1	L2	T2					
FK10	16	10	27	10	17	29.5	34	52	42	42	7.5	5	8.5	6	4.5	8.0	5	M3	16
FK12	16 ¹⁾	12	27	10	17	29.5	36	54	44	44	7.5	5	8.5	6	4.5	8.0	5	M4	19
FK15	20	15	32	15	17	36.0	40	63	50	52	10.0	6	12.0	8	5.5	9.5	6	M4	22
FK20	25	20	52	22	30	50.0	57	85	70	68	8.0	10	12.0	14	6.6	11.0	10	M4	30
FK25	32	25	57	27	30	60.0	63	98	80	79	13.0	10	20.0	17	9.0	15.0	13	M6	35
FK30	40	30	62	30	32	61.0	75	117	95	93	11.0	12	17.0	18	11.0	17.5	15	M6	40

Unit: mm

¹⁾ Depending on actual shaft outer diameter $d_{s\min} = 15.5$

Table 8.33 Technical data of bearing

Type	Bearing type	C_0 axial [N]	C_{dyn} axial [N]	Max. permissible axial load [N]	Lock nut				Article number
					Type	Nut tightening torque [Nm]	Screw size	Screw tightening torque [Nm]	
FK08	708	4,800	2,800	1,000	RN8	2.5	M3	0.6	18-000446
FK10	7000A P0	8,800	5,200	1,900	RN10	2.9	M3	0.6	18-000037
FK12	7001A P0	9,400	6,000	2,200	RN12	6.4	M4	1.5	18-000447
FK15	7002A P0	10,000	6,900	2,400	RN15	7.9	M4	1.5	18-000448
FK20	7204B P0	21,600	15,300	6,800	RN20	16.7	M4	1.5	18-000449
FK25	7205B P0	24,000	19,000	8,100	RN25	20.6	M6	4.9	18-000450
FK30	7206B P0	33,500	27,000	10,600	RN30	31.4	M6	4.9	18-000451

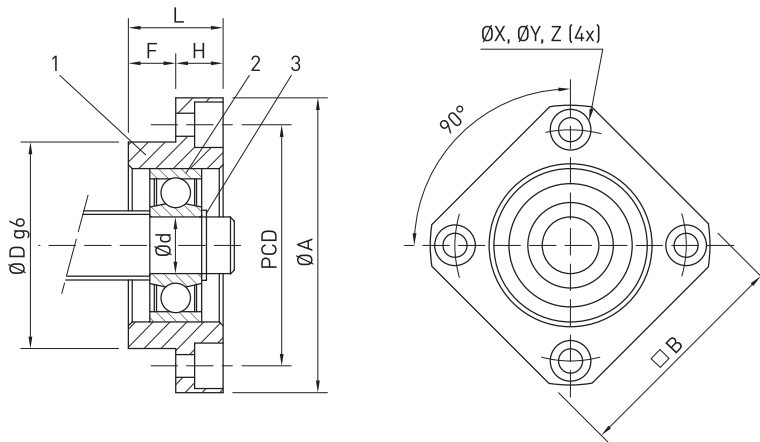
Ballscrews

Shaft ends and accessories

8.7.2 Supported bearing FF

The associated fixed bearing unit is the FK bearing series (Section 8.7.1). The end machining suited to supported bearing FF is the E10-xx type (Section 8.1).

The bearings are lubricated for life.



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

Table 8.34 Bearing unit dimensions

Type	Shaft nominal Ø	d	L	H	F	D	A	PCD	B	Hole X	Counter bore Y	Counter bore depth Z	Bearing	Circlip	Article number
FF10	16	8	12	7	5	28	43	35	35	3.4	6.5	4.0	608ZZ	S 08	18-000452
FF12	16 ¹⁾	10	15	7	8	34	52	42	42	4.5	8.0	4.0	6000ZZ	S 10	18-000453
FF15	20	15	17	9	8	40	63	50	52	5.5	9.5	5.5	6002ZZ	S 15	18-000454
FF20	25	20	20	11	9	57	85	70	68	6.6	11.0	6.5	6204ZZ	S 20	18-000455
FF25	32	25	24	14	10	63	98	80	79	9.0	14.0	8.5	6205ZZ	S 25	18-000456
FF30	40	30	27	18	9	75	117	95	93	11.0	17.0	11.0	6206ZZ	S 30	18-000457

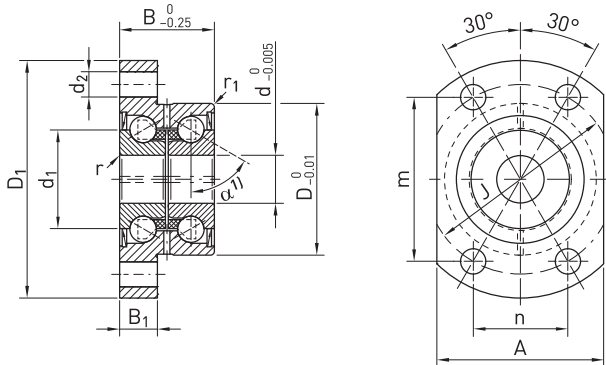
Unit: mm

¹⁾ Depending on actual shaft outer diameter $d_{s\ min} = 15.5$

8.8 Axial angular contact ball bearing

8.8.1 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



Housing and shaft tolerances:

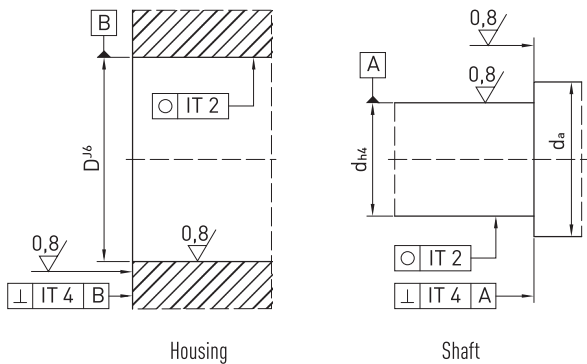


Table 8.35 Dimensions and connecting dimensions for angular ball bearing unit ZKLFA

Type	Shaft diameter [mm]	Weight [kg]	Dimensions [mm]											Connecting dimensions [mm]			
			d	D	B	D ₁	B ₁	J	d ₂	m	n	A	d ₁	r _{min}	r _{1 min}	d _{a max}	d _{a min}
ZKLFA0630.2Z	6	0.05	6	19	12	30	5	24	3.5	21.0	12.0	22	12	0.3	0.3	15	9
ZKLFA0640.2RS	6	0.08	6	24	15	40	6	32	4.5	27.5	16.0	27	14	0.3	0.6	18	9
ZKLFA0640.2Z	6	0.08	6	24	15	40	6	32	4.5	27.5	16.0	27	14	0.3	0.6	18	9
ZKLFA0850.2RS	8	0.17	8	32	20	50	8	40	5.5	34.5	20.0	35	19	0.3	0.6	25	11
ZKLFA0850.2Z	8	0.17	8	32	20	50	8	40	5.5	34.5	20.0	35	19	0.3	0.6	25	11
ZKLFA1050.2RS	10	0.18	10	32	20	50	8	40	5.5	34.5	20.0	35	21	0.3	0.6	27	14
ZKLFA1050.2Z	10	0.18	10	32	20	50	8	40	5.5	34.5	20.0	35	21	0.3	0.6	27	14
ZKLFA1263.2RS	12	0.30	12	42	25	63	10	53	6.8	46.0	26.5	45	25	0.3	0.6	31	16
ZKLFA1263.2Z	12	0.30	12	42	25	63	10	53	6.8	46.0	26.5	45	25	0.3	0.6	31	16
ZKLFA1563.2RS	15	0.31	15	42	25	63	10	53	6.8	46.0	26.5	45	28	0.3	0.6	34	20
ZKLFA1563.2Z	15	0.31	15	42	25	63	10	53	6.8	46.0	26.5	45	28	0.3	0.6	34	20

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

¹⁾ Contact angle $\alpha = 60^\circ$

Ballscrews

Shaft ends and accessories

Table 8.36 Technical data of angular ball bearing unit ZKLFA

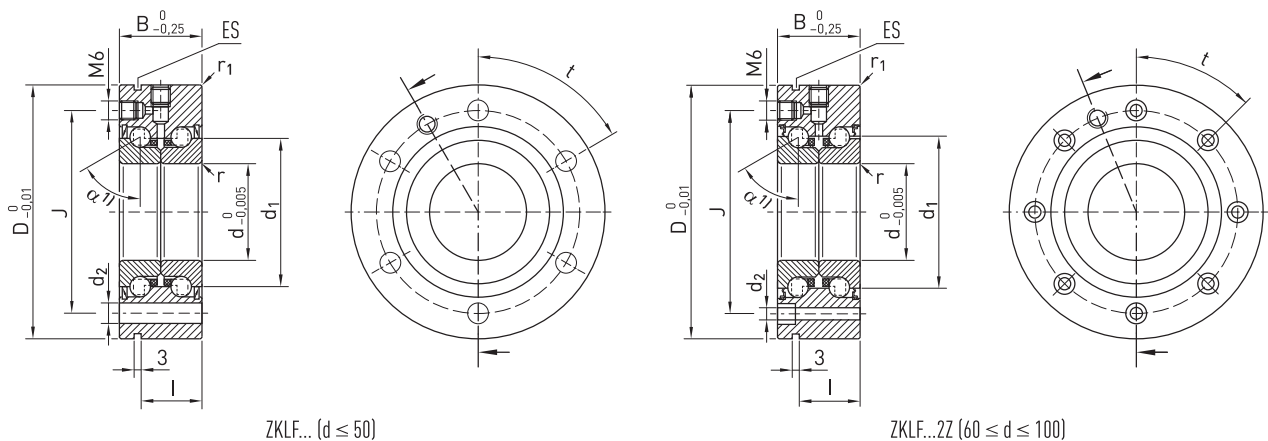
Type	Shaft diameter [mm]	Mounting bolts DIN912 10.9 ¹⁾		Axial load ratings		Permissible speed	Bearing friction torque	Axial rigidity	Resistance to tilting	Recommended lock nut ¹⁾	Tightening torque ¹⁾	Article number
		Number n × t	C _{dyn} [N]	C ₀ [N]	Grease [rpm]							
ZKLFA0630.2Z	6	M3	4	4,900	6,100	14,000	0.01	150	4	HIR06	2	18-000210
ZKLFA0640.2RS	6	M4	4	6,900	8,500	6,800	0.04	200	8	HIR06	2	18-000211
ZKLFA0640.2Z	6	M4	4	6,900	8,500	12,000	0.02	200	8	HIR06	2	18-000212
ZKLFA0850.2RS	8	M5	4	12,500	16,300	5,100	0.08	250	20	HIR08	4	18-000213
ZKLFA0850.2Z	8	M5	4	12,500	16,300	9,500	0.04	250	20	HIR08	4	18-000214
ZKLFA1050.2RS	10	M5	4	13,400	18,800	4,600	0.12	325	25	HIR10	6	18-000215
ZKLFA1050.2Z	10	M5	4	13,400	18,800	8,600	0.06	325	25	HIR10	6	18-000216
ZKLFA1263.2RS	12	M6	4	16,900	24,700	3,800	0.16	375	50	HIR12	8	18-000217
ZKLFA1263.2Z	12	M6	4	16,900	24,700	7,600	0.08	375	50	HIR12	8	18-000218
ZKLFA1563.2RS	15	M6	4	17,900	28,000	3,500	0.20	400	65	HIR15	10	18-000219
ZKLFA1563.2Z	15	M6	4	17,900	28,000	7,000	0.10	400	65	HIR15	10	18-000220

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

8.8.2 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 with allen set screw



ES Extraction slot

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

¹⁾ Contact angle $\alpha = 60^\circ$

Housing and shaft tolerances ZKLF...2RS/...ZZ

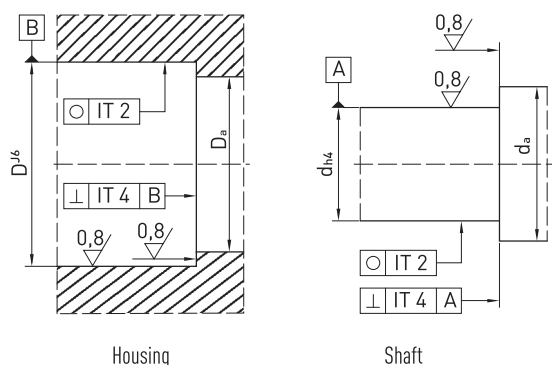


Table 8.37 Dimensions and connecting dimensions for angular ball bearing unit ZKLF

Type	Shaft diameter [mm]	Weight [kg]	Dimensions [mm]										Connecting dimensions [mm]	
			d	D	B	J	d ₂	l	d ₁	r _{min}	r _{1 min}	D _{a max} ¹⁾	d _{a min} ¹⁾	
ZKLF1255.ZZ-XL	12	0.37	12	55	25	42	6.8	17	25.0	0.3	0.6	33	16	
ZKLF1255.2RS-XL	12	0.37	12	55	25	42	6.8	17	25.0	0.3	0.6	33	16	
ZKLF1560.ZZ-XL	15	0.43	15	60	25	46	6.8	17	28.0	0.3	0.6	35	20	
ZKLF1560.2RS-XL	15	0.43	15	60	25	46	6.8	17	28.0	0.3	0.6	35	20	
ZKLF1762.ZZ-XL	17	0.45	17	62	25	48	6.8	17	30.0	0.3	0.6	37	23	
ZKLF1762.2RS-XL	17	0.45	17	62	25	48	6.8	17	30.0	0.3	0.6	37	23	
ZKLF2068.ZZ-XL	20	0.61	20	68	28	53	6.8	19	34.5	0.3	0.6	43	25	
ZKLF2068.2RS-XL	20	0.61	20	68	28	53	6.8	19	34.5	0.3	0.6	43	25	
ZKLF2575.ZZ-XL	25	0.72	25	75	28	58	6.8	19	40.5	0.3	0.6	48	32	
ZKLF2575.2RS-XL	25	0.72	25	75	28	58	6.8	19	40.5	0.3	0.6	48	32	
ZKLF3080.ZZ-XL	30	0.78	30	80	28	63	6.8	19	45.5	0.3	0.6	53	40	
ZKLF3080.2RS-XL	30	0.78	30	80	28	63	6.8	19	45.5	0.3	0.6	53	40	
ZKLF30100.ZZ-XL	30	1.63	30	100	38	80	8.8	30	51.0	0.3	0.6	64	47	
ZKLF30100.2RS-XL	30	1.63	30	100	38	80	8.8	30	51.0	0.3	0.6	64	47	
ZKLF3590.ZZ-XL	35	1.13	35	90	34	75	8.8	25	52.0	0.3	0.6	62	45	
ZKLF3590.2RS-XL	35	1.13	35	90	34	75	8.8	25	52.0	0.3	0.6	62	45	
ZKLF40100.ZZ-XL	40	1.46	40	100	34	80	8.8	25	58.0	0.3	0.6	67	50	
ZKLF40100.2RS-XL	40	1.46	40	100	34	80	8.8	25	58.0	0.3	0.6	67	50	
ZKLF40115.ZZ-XL	40	2.20	40	115	46	94	8.8	36	65.0	0.6	0.6	80	56	
ZKLF40115.2RS-XL	40	2.20	40	115	46	94	8.8	36	65.0	0.6	0.6	80	56	
ZKLF50115.ZZ-XL	50	1.86	50	115	34	94	8.8	25	72.0	0.3	0.6	82	63	
ZKLF50115.2RS-XL	50	1.86	50	115	34	94	8.8	25	72.0	0.3	0.6	82	63	
ZKLF50140.ZZ-XL	50	4.70	50	140	54	113	11.0	45	80.0	0.6	0.6	98	63	
ZKLF50140.2RS-XL	50	4.70	50	140	54	113	11.0	45	80.0	0.6	0.6	98	63	
ZKLF60145.ZZ-XL	60	4.30	60	145	45	120	8.8	35	85.0	0.6	0.6	100	82	
ZKLF70155.ZZ-XL	70	4.90	70	155	45	130	8.8	35	95.0	0.6	0.6	110	92	
ZKLF80165.ZZ-XL	80	5.30	80	165	45	140	8.8	35	105.0	0.6	0.6	120	102	
ZKLF90190.ZZ-XL	90	8.70	90	190	55	165	11.0	45	120.0	0.6	0.6	138	116	
ZKLF100200.ZZ-XL	100	9.30	100	200	55	175	11.0	45	132.0	0.6	0.6	150	128	

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

¹⁾ Recommended diameter of installation surface

.ZZ = Gap seal

.2RS = Contact seal

Ballscrews

Shaft ends and accessories

Table 8.38 Technical data of angular ball bearing unit ZKLF

Type	Shaft diameter [mm]	Mounting bolts DIN912 10.9 ¹⁾		Axial load ratings		Permissible speed	Bearing friction torque	Axial rigidity	Resistance to tilting	Recommended lock nut ¹⁾	Tightening torque ¹⁾	Article number
		Quantity n × t	C _{dyn} [N]	C ₀ [N]	Grease [rpm]	M _{RL} [Nm]	C _{aL} [N/μm]	C _{kL} [Nm/mrad]	Article number	M _A [Nm]		
ZKLF1255.2RS-XL	12	M6	3 × 120°	18,600	24,700	3,800	0.16	375	50	HIR12	8	18-000160
ZKLF1560.2Z-XL	15	M6	3 × 120°	19,600	28,000	7,000	0.10	400	65	HIR15	10	18-000165
ZKLF1560.2RS-XL	15	M6	3 × 120°	19,600	28,000	3,500	0.20	400	65	HIR15	10	18-000163
ZKLF1762.2Z-XL	17	M6	3 × 120°	20,700	31,000	6,600	0.12	450	80	HIR17/HIA17	15	18-000169
ZKLF1762.2RS-XL	17	M6	3 × 120°	20,700	31,000	3,300	0.24	450	80	HIR17/HIA17	15	18-000167
ZKLF2068.2Z-XL	20	M6	4 × 90°	28,500	47,000	5,400	0.15	650	140	HIR20/HIA20	18	18-000173
ZKLF2068.2RS-XL	20	M6	4 × 90°	28,500	47,000	3,000	0.30	650	140	HIR20/HIA20	18	18-000171
ZKLF2575.2Z-XL	25	M6	4 × 90°	30,500	55,000	4,700	0.20	750	200	HIR25/HIA25	25	18-000177
ZKLF2575.2RS-XL	25	M6	4 × 90°	30,500	55,000	2,600	0.40	750	200	HIR25/HIA25	25	18-000174
ZKLF3080.2Z-XL	30	M6	6 × 60°	32,000	64,000	4,300	0.25	850	300	HIR30/HIA30	32	18-000182
ZKLF3080.2RS-XL	30	M6	6 × 60°	32,000	64,000	2,200	0.50	850	300	HIR30/HIA30	32	18-000180
ZKLF3590.2Z-XL	35	M8	4 × 90°	45,000	89,000	3,800	0.30	900	400	HIR35/HIA35	40	18-000188
ZKLF3590.2RS-XL	35	M8	4 × 90°	45,000	89,000	2,000	0.60	900	400	HIR35/HIA35	40	18-000185
ZKLF40100.2Z-XL	40	M8	4 × 90°	47,500	101,000	3,300	0.35	1,000	550	HIR40/HIA40	55	18-000192
ZKLF40100.2RS-XL	40	M8	4 × 90°	47,500	101,000	1,800	0.70	1,000	550	HIR40/HIA40	55	18-000190
ZKLF40115.2Z-XL	40	M8	12 × 30°	79,000	149,000	3,100	0.65	1,200	750	HIA40	110	18-000196
ZKLF40115.2RS-XL	40	M8	12 × 30°	79,000	149,000	1,600	1.30	1,200	750	HIA40	110	18-000194
ZKLF50115.2Z-XL	50	M8	6 × 60°	51,000	126,000	3,000	0.45	1,250	1,000	HIR50/HIA50	85	18-000201
ZKLF50115.2RS-XL	50	M8	6 × 60°	51,000	126,000	1,500	0.90	1,250	1,000	HIR50/HIA50	85	18-000198
ZKLF50140.2Z-XL	50	M10	12 × 30°	125,000	250,000	2,500	1.30	1,400	1,500	HIA50	150	18-000204
ZKLF50140.2RS-XL	50	M10	12 × 30°	125,000	250,000	1,200	2.60	1,400	1,500	HIA50	150	18-000203
ZKLF60145.2Z-XL	60	M8	8 × 45°	93,000	214,000	3,000	1.00	1,300	1,650	HIR60/HIA60	100	18-000206
ZKLF70155.2Z-XL	70	M8	8 × 45°	97,000	241,000	2,800	1.20	1,450	2,250	HIR70/HIA70	130	18-000207
ZKLF80165.2Z-XL	80	M8	8 × 45°	100,000	265,000	2,700	1.40	1,600	3,000	HIR80/HIA80	160	18-000208
ZKLF90190.2Z-XL	90	M10	8 × 45°	149,000	395,000	2,300	2.30	1,700	4,400	HIA90	200	18-000209

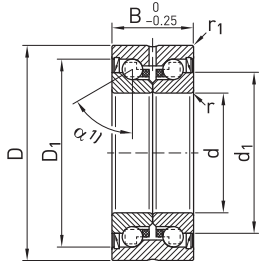
The ball cages are made from plastic, permissible operating temperature 120 °C (continuous operation)

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

Screws according to DIN 912 are not supplied

8.8.3 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

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

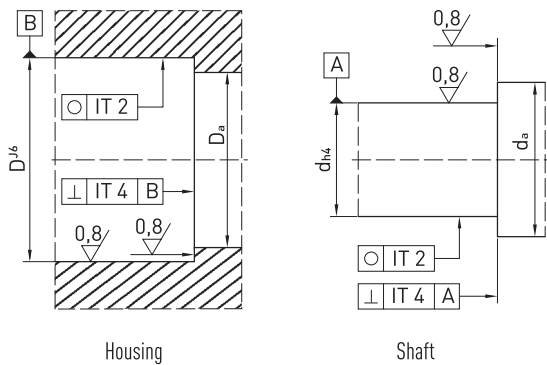


Table 8.39 Dimensions and connecting dimensions for angular ball bearing unit ZKLN

Type	Shaft diameter [mm]	Weight [kg]	Dimensions [mm]							Connecting dimensions [mm]	
			d ²⁾	D ³⁾	B	r _{min}	r _{1 min}	d ₁	D ₁	D _{a max} ⁴⁾	d _{a min} ⁴⁾
ZKLN0619.2Z-XL	6	0.02	6	19	12	0.3	0.3	12.0	16.5	16	9
ZKLN0624.2RS-XL	6	0.03	6	24	15	0.3	0.6	14.0	19.5	19	9
ZKLN0624.2Z-XL	6	0.03	6	24	15	0.3	0.6	14.0	19.5	19	9
ZKLN0832.2RS-XL	8	0.09	8	32	20	0.3	0.6	19.0	26.5	26	11
ZKLN0832.2Z-XL	8	0.09	8	32	20	0.3	0.6	19.0	26.5	26	11
ZKLN1034.2RS-XL	10	0.10	10	34	20	0.3	0.6	21.0	28.5	28	14
ZKLN1034.2Z-XL	10	0.10	10	34	20	0.3	0.6	21.0	28.5	28	14
ZKLN1242.2RS-XL	12	0.20	12	42	25	0.3	0.6	25.0	33.5	33	16
ZKLN1242.2Z-XL	12	0.20	12	42	25	0.3	0.6	25.0	33.5	33	16
ZKLN1545.2RS-XL	15	0.21	15	45	25	0.3	0.6	28.0	36.0	35	20
ZKLN1545.2Z-XL	15	0.21	15	45	25	0.3	0.6	28.0	36.0	35	20
ZKLN1747.2RS-XL	17	0.22	17	47	25	0.3	0.6	30.0	38.0	37	23
ZKLN1747.2Z-XL	17	0.22	17	47	25	0.3	0.6	30.0	38.0	37	23

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

¹⁾ Contact angle $\alpha = 60^\circ$

²⁾ Hole diameter tolerance as of $d = 6 \text{ mm}: D_{-0.003}^{+0.002}$; $d = 10 - 50 \text{ mm}: D_{-0.005}^0$; $d = 60 - 100 \text{ mm}: D_{-0.008}^0$

³⁾ Outer diameter tolerance as of $d = 6 - 50 \text{ mm}: d_{-0.01}^0$; $d = 60 - 100 \text{ mm}: d_{-0.015}^0$

⁴⁾ Recommended diameter of installation surface

.ZZ = Gap seal

.2RS = Contact seal

Ballscrews

Shaft ends and accessories

Table 8.39 Dimensions and connecting dimensions for angular ball bearing unit ZKLN

Type	Shaft diameter [mm]	Weight [kg]	Dimensions [mm]							Connecting dimensions [mm]	
			d ²⁾	D ³⁾	B	r _{min}	r _{1 min}	d ₁	D ₁	D _{a max} ⁴⁾	d _{a min} ⁴⁾
ZKLN2052.2RS-XL	20	0.31	20	52	28	0.3	0.6	34.5	44	43	25
ZKLN2052.2Z-XL	20	0.31	20	52	28	0.3	0.6	34.5	44	43	25
ZKLN2557.2RS-XL	25	0.34	25	57	28	0.3	0.6	40.5	49	48	32
ZKLN2557.2Z-XL	25	0.34	25	57	28	0.3	0.6	40.5	49	48	32
ZKLN3062.2RS-XL	30	0.39	30	62	28	0.3	0.6	45.5	54	53	40
ZKLN3062.2Z-XL	30	0.39	30	62	28	0.3	0.6	45.5	54	53	40
ZKLN3072.2RS-XL	30	0.72	30	72	38	0.3	0.6	51.0	65	64	47
ZKLN3572.2RS-XL	35	0.51	35	72	34	0.3	0.6	52.0	63	62	45
ZKLN3572.2Z-XL	35	0.51	35	72	34	0.3	0.6	52.0	63	62	45
ZKLN4075.2RS-XL	40	0.61	40	75	34	0.3	0.6	58.0	68	67	50
ZKLN4075.2Z-XL	40	0.61	40	75	34	0.3	0.6	58.0	68	67	50
ZKLN4090.2RS-XL	40	0.95	40	90	46	0.6	0.6	65.0	80	80	56
ZKLN4090.2Z-XL	40	0.95	40	90	46	0.6	0.6	65.0	80	80	56
ZKLN5090.2RS-XL	50	0.88	50	90	34	0.3	0.6	72.0	82	82	63
ZKLN5090.2Z-XL	50	0.88	50	90	34	0.3	0.6	72.0	82	82	63
ZKLN50110.2RS-XL	50	2.50	50	110	54	0.6	0.6	80.0	98	98	63
ZKLN50110.2Z-XL	50	2.50	50	110	54	0.6	0.6	80.0	98	98	63
ZKLN60110.2Z-XL	60	2.20	60	110	45	0.6	0.6	85.0	100	100	82
ZKLN70120.2Z-XL	70	2.40	70	120	45	0.6	0.6	95.0	110	110	92

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

¹⁾ Contact angle $\alpha = 60^\circ$

²⁾ Hole diameter tolerance as of $d = 6 \text{ mm}: d_{-0.003}^0; d = 10 - 50 \text{ mm}: d_{-0.005}^0; d = 60 - 100 \text{ mm}: d_{-0.008}^0$

³⁾ Outer diameter tolerance as of $d = 6 - 50 \text{ mm}: D_{-0.01}^0; d = 60 - 100 \text{ mm}: D_{-0.015}^0$

⁴⁾ Recommended diameter of installation surface

.2Z = Gap seal

.2RS = Contact seal

Table 8.40 Technical data of angular ball bearing unit ZKLN

Type	Shaft diameter [mm]	Axial load ratings		Permissible speed	Bearing friction torque	Axial rigidity	Resistance to tilting	Recommended lock nut ¹⁾	Tightening torque ¹⁾	Article number
		C _{dyn} [N]	C ₀ [N]	Grease [rpm]	M _{RL} [Nm]	C _{aL} [N/μm]	C _{kL} [Nm/mrad]	Article number	M _A [Nm]	
ZKLN0619.2Z-XL	6	5,400	6,100	14,000	0.01	150	4	HIR6	1	18-000222
ZKLN0624.2RS-XL	6	7,600	8,500	6,800	0.04	200	8	HIR6	2	18-000223
ZKLN0624.2Z-XL	6	7,600	8,500	12,000	0.02	200	8	HIR6	2	18-000224
ZKLN0832.2RS-XL	8	13,800	16,300	5,100	0.08	250	20	HIR8	4	18-000225
ZKLN0832.2Z-XL	8	13,800	16,300	9,500	0.04	250	20	HIR8	4	18-000226
ZKLN1034.2RS-XL	10	14,700	18,800	4,600	0.12	325	25	HIR10	6	18-000228
ZKLN1034.2Z-XL	10	14,700	18,800	8,600	0.06	325	25	HIR10	6	18-000230
ZKLN1242.2RS-XL	12	18,600	24,700	3,800	0.16	375	50	HIR12	8	18-000231
ZKLN1242.2Z-XL	12	18,600	24,700	7,600	0.08	375	50	HIR12	8	18-000233
ZKLN1545.2RS-XL	15	19,600	28,000	3,500	0.20	400	65	HIR15	10	18-000234
ZKLN1545.2Z-XL	15	19,600	28,000	7,000	0.10	400	65	HIR15	10	18-000236
ZKLN1747.2RS-XL	17	20,700	31,000	3,300	0.24	450	80	HIR17/HIA17	15	18-000237
ZKLN1747.2Z-XL	17	20,700	31,000	6,600	0.12	450	80	HIR17/HIA17	15	18-000239
ZKLN2052.2RS-XL	20	28,500	47,000	3,000	0.30	650	140	HIR20/HIA20	18	18-000240
ZKLN2052.2Z-XL	20	28,500	47,000	5,400	0.15	650	140	HIR20/HIA20	18	18-000242
ZKLN2557.2RS-XL	25	30,500	55,000	2,600	0.40	750	200	HIR25/HIA25	25	18-000244
ZKLN2557.2Z-XL	25	30,500	55,000	4,700	0.20	750	200	HIR25/HIA25	25	18-000247
ZKLN3062.2RS-XL	30	32,000	64,000	2,200	0.50	850	300	HIR30/HIA30	32	18-000248
ZKLN3062.2Z-XL	30	32,000	64,000	4,300	0.25	850	300	HIR30/HIA30	32	18-000251
ZKLN3072.2RS-XL	30	65,000	108,000	2,100	0.80	950	400	HIA30	65	18-000253
ZKLN3572.2RS-XL	35	45,000	89,000	2,000	0.60	900	400	HIR35/HIA35	40	18-000254
ZKLN3572.2Z-XL	35	45,000	89,000	3,800	0.30	900	400	HIR35/HIA35	40	18-000255
ZKLN4075.2RS-XL	40	47,500	101,000	1,800	0.70	1,000	550	HIR40/HIA40	55	18-000256
ZKLN4075.2Z-XL	40	47,500	101,000	3,300	0.35	1,000	550	HIR40/HIA40	55	18-000258
ZKLN4090.2Z-XL	40	79,000	149,000	3,100	0.65	1,200	750	HIA40	110	18-000259
ZKLN5090.2RS-XL	50	51,000	126,000	1,500	0.90	1,250	1,000	HIR50/HIA50	85	18-000261
ZKLN5090.2Z-XL	50	51,000	126,000	3,000	0.45	1,250	1,000	HIR50/HIA50	85	18-000264
ZKLN50110.2RS-XL	50	125,000	250,000	1,200	2.60	1,400	1,500	HIA50	150	18-000260
ZKLN60110.2Z-XL	60	93,000	214,000	3,000	1.00	1,300	1,650	HIR60/HIA60	100	18-000265
ZKLN70120.2Z-XL	70	97,000	241,000	2,800	1.20	1,450	2,250	HIR70/HIA70	130	18-000266

¹⁾ Lock nuts are not supplied; please order separately!