K-series super thin section ball bearings

Koyo K-series super thin section ball bearings were developed to meet current engineering needs for

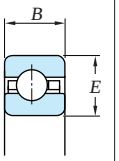
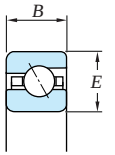
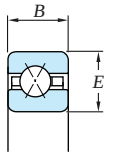
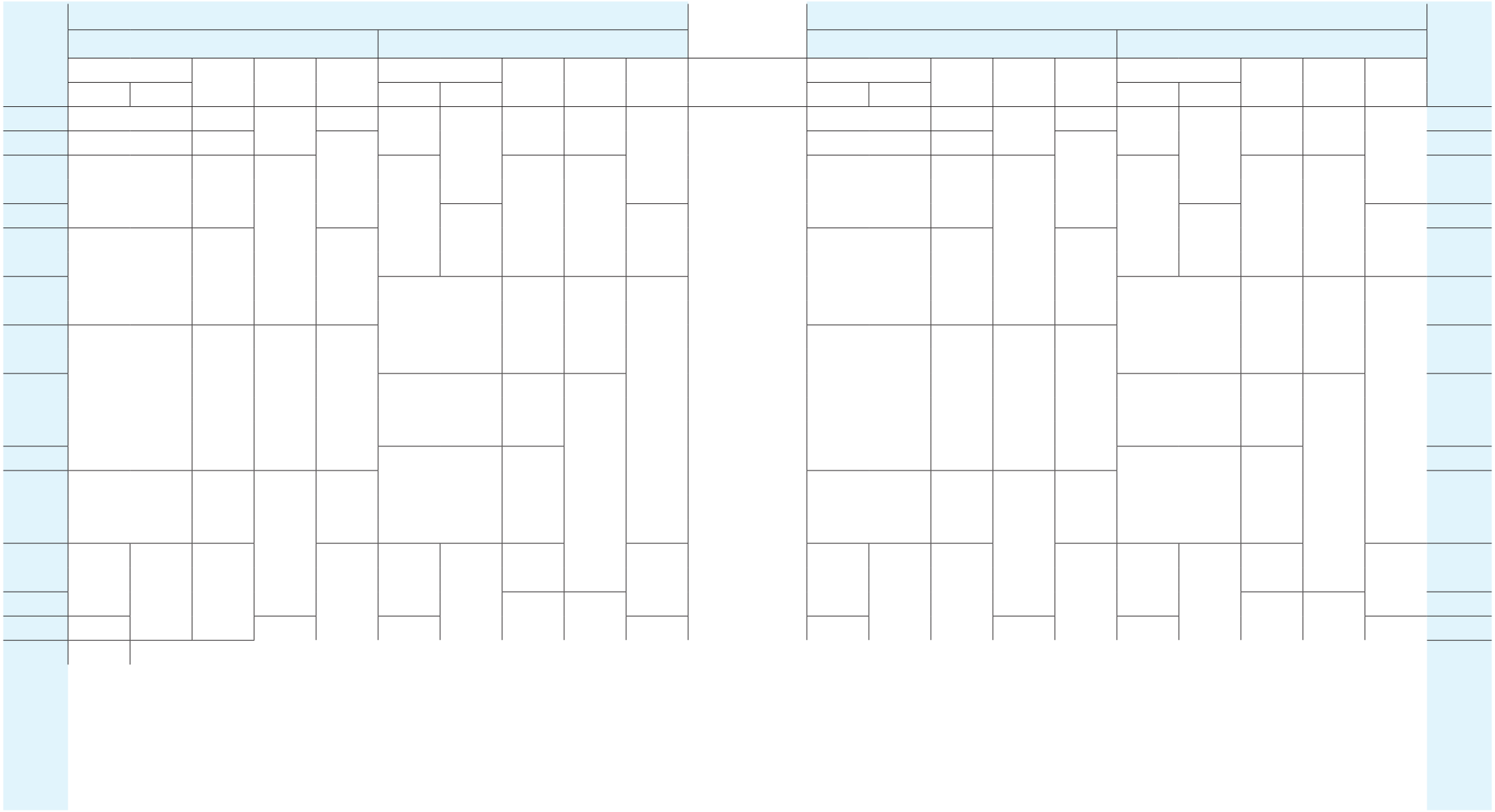
Dimension series code	Cross-sectional dimension $B = E$ (mm)	Bearing type code C (Deep groove type)	Bearing type code A (Angular contact type)	Bearing type code X (Four-point contact type)	Bore diameter (mm)
					
T	4.762	K T C	K T A	K T X	25.4 to 38.1
A	6.35	K A C	K A A	K A X	50.8 to 304.8
B	7.938	K B C	K B A	K B X	50.8 to 508
C	9.525	K C C	K C A	K C X	101.6 to 762
D	12.7	K D C	K D A	K D X	
F	19.05	K F C	K F A	K F X	101.6 to 1 016
G	25.4	K G C	K G A	K G X	
J	$B = 11.1$ $E = 9.525$	–	KJA...RD 	–	101.6 to 304.8
U	$B = 12.7$ $E = 9.525$	KUC...2RD 	–	KUX...2RD 	

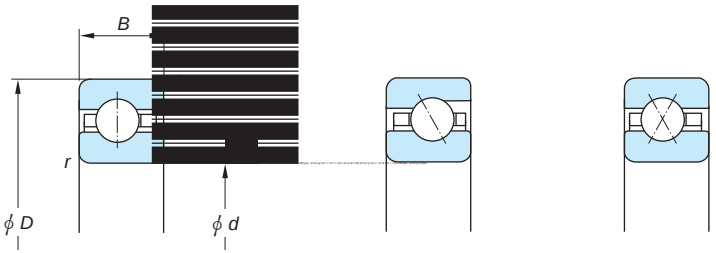
Table 1 K-series super thin section ball bearings : tolerance

Unit : μm

Table 4 Shaft diameter and housing bore diameter tolerance

Unit : μm



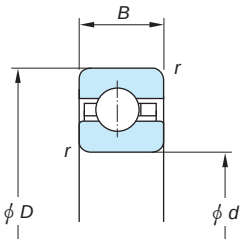


Deep groove type

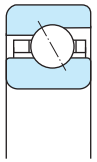
Angular contact type

Four-point contact type

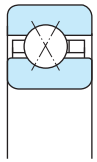
Boundary dimensions (mm)	Deep groove type		Angular contact type		Four-point contact type	(Refer.) Mass (kg)
	Bearing No.	Basic load ratings	Bearing No.	Basic load ratings		



Deep groove type

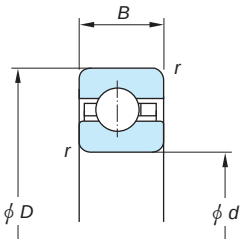


Angular contact type

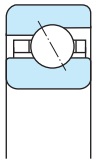


Four-point contact type

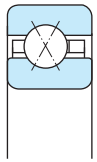
254	266.7	6.35	0.6	KAC100	7.95	18.6	KAA100	8.30	21.4	11.0	64.8	KAX100	6.85	16.0	10.7	81.4	0.227	0.204	0.227
	269.875	7.938	1	KBC100	11.2	24.4	KBA100	11.9	28.4	15.6	86.1	KBX100	9.75	21.1	15.3	106	0.331	0.322	0.331
	273.05	9.525	1	KCC100	14.2	28.4	KCA100	15.6	34.9	20.5	106	KCX100	12.3	24.5	19.5	123	0.481	0.472	0.481
	279.4	12.7	1.5	KDC100	21.6	38.6	KDA100	22.7	44.4	29.8	135	KDX100	18.7	33.3	29.8	164	0.853	0.848	0.853
	292.1	19.05	2	KFC100	38.8	60.2	KFA100	41.6	71.1	54.7	215	KFX100	33.7	51.8	54.3	249	1.95	2.00	1.95
	304.8	25.4	2	KGC100	59.0	83.2	KGA100	62.0	95.3	81.6	289	KGX100	51.2	71.5	83.1	334	3.58	3.63	3.58
279.4	292.1	6.35	0.6	KAC110	8.20	20.3	KAA110	8.60	23.4	11.3	71.0	KAX110	7.10	17.6	11.1	89.5	0.236	0.227	0.236
	295.275	7.938	1	KBC110	11.6	26.7	KBA110	12.3	31.0	16.1	94.0	KBX110	10.1	23.1	15.7	117	0.340	0.354	0.340
	298.45	9.525	1	KCC110	14.7	31.1	KCA110	16.1	38.0	21.1	115	KCX110	12.7	26.8	20.1	135	0.526	0.517	0.526
	304.8	12.7	1.5	KDC110	22.3	42.2	KDA110	23.4	48.5	30.8	147	KDX110	19.3	36.4	30.7	180	0.934	0.930	0.934
	317.5	19.05	2	KFC110	40.2	65.5	KFA110	43.2	78.0	56.9	236	KFX110	34.8	56.4	55.9	273	2.18	2.15	2.18
	330.2	25.4	2	KGC110	61.0	90.3	KGA110	64.1	104	84.3	314	KGX110							



Deep groove type

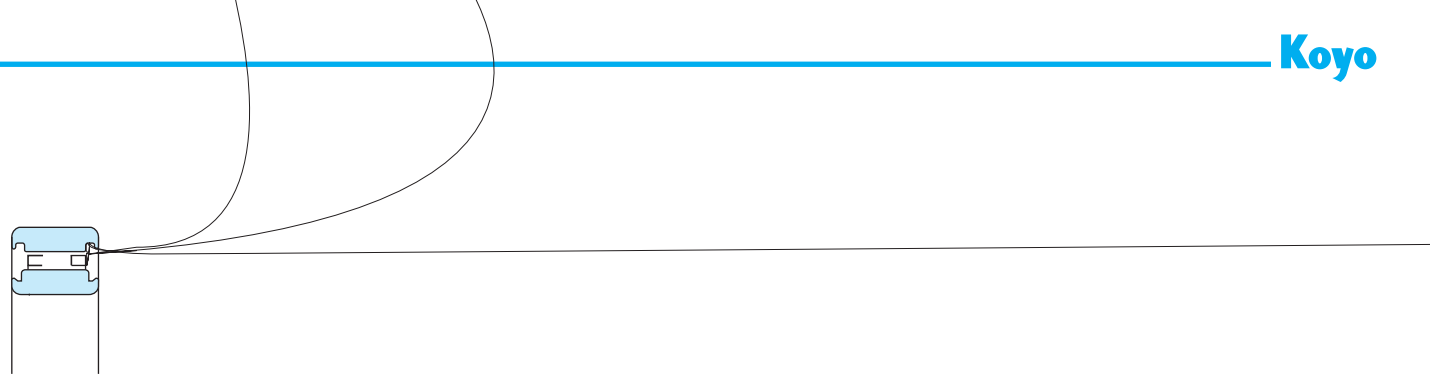


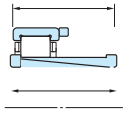
Angular contact type

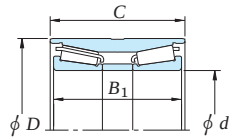


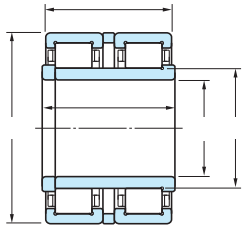
Four-point contact type

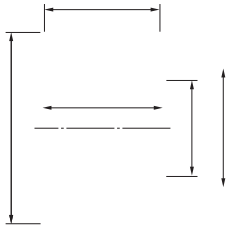
457.2	473.075	7.938	1	KBC180	13.9	42.9	KBA180	14.6	49.9	19.2	151	KBX180	12.0	37.1	18.4	190	0.612	0.572	0.612
	476.25	9.525	1	KCC180	17.5	49.8	KCA180	19.2	61.2	25.3	185	KCX180	15.2	43.0	23.4	220	0.880	0.830	0.880
	482.6	12.7	1.5	KDC180	26.6	67.1	KDA180	27.6	77.3	36.3	234		23.0	58.0	35.8				

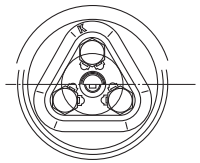





C
B1
ϕ D
ϕ d







Linear ball bearing service life

Linear ball bearing service life refers to the distance that the bearing travels until the outer cylinder, balls or shaft become damaged because of rolling contact fatigue from repeated stress.

The basic dynamic load rating refers to the magnitude of a constant load which makes a bearing's service life end after it travels a distance of 50 km.

The linear ball bearing service life and the basic dynamic load rating bear the relation shown below :

$$L = 50\left(\frac{C}{P}\right)^3$$

where :

L : service life km
P : radial load on the bearing N
C : bearing basic dynamic load rating N
(refer to the specification table.)

Shaft surface hardness is closely related to running performance. In general, it is best for the hardness to be 60 thru 64 HRC.

If the hardness is 60 HRC or lower, the basic dynamic load rating (C) should be corrected by multiplying it by the appropriate hardness coefficient selected from Table 1.

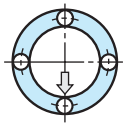
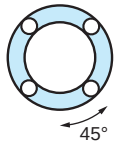
Table 1 Hardness coefficients

Shaft hardness HRC	Hardness coefficient f_H
60	1
59	0.97
57	0.88
55	0.76
53	0.64
51	0.52

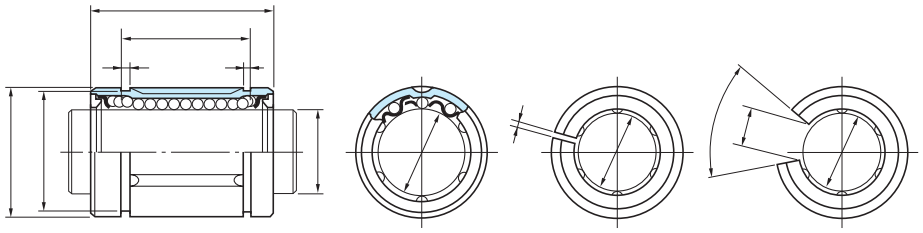
● Ball row arrangement and load rating

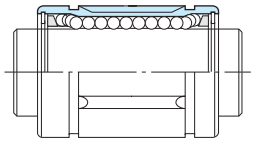
The basic load ratings given in the specification table are those measured when a load is applied directly above a ball row (Q_1). When the load is applied between two ball rows, the load ratings become larger (Q_2). Table 2 lists the ratios of Q_2 ratings to Q_1 ratings.

Table 2 Ball row arrangement and the comparison of load ratings

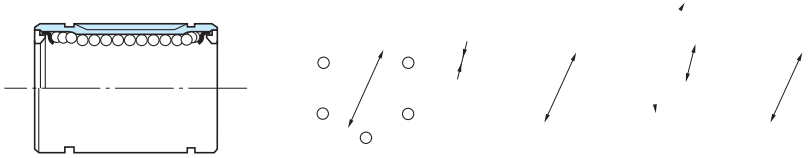
Number of ball rows	When a load is applied directly above a row (Q_1)	When a load is applied between two rows (Q_2)	Ratios of Q_2 to Q_1
4			

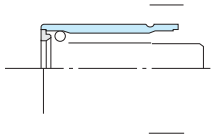




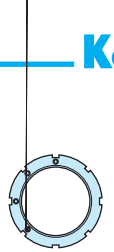




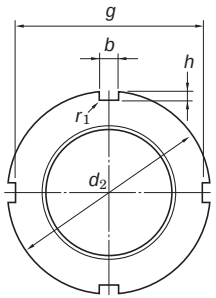


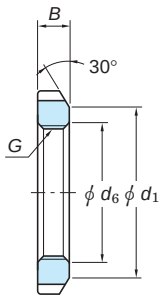


Locknuts, lockwashers & lock plates





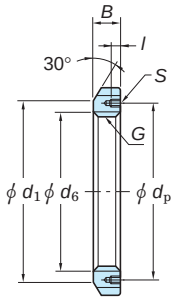


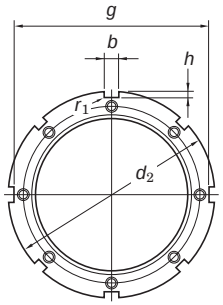


Locknut No.	Thread size[1] G	Standard dimensions (mm) d_2	d_1	g	d_6	b	h	B	r_1 max.	(Refer.) Mass (kg)	Applicable[2] adapter sleeve (bore No.)	Applicable[3] lockwasher No.
AN 02	15×1	25	21	21	15.5	4	2	5	0.4	0.010	—	AW 02
03	17×1	28	24	24	17.5	4	2	5	0.4	0.013	—	03
04	20×1	32	26	28	20.5	4	2	6	0.4	0.019	04	04
AN 05	25×1.5	38	32	34	25.8	5	2	7	0.4	0.025	05	AW 05
06	30×1.5	45	38	41	30.8	5	2	7	0.4	0.043	06	06
07	35×1.5	52	44	48	35.8	5	2	8	0.4	0.053	07	07
AN 08	40×1.5	58	50	53	40.8	6	2.5	9	0.5	0.085	08	AW 08
09	45×1.5	65	56	60	45.8	6	2.5	10	0.5	0.119	09	09
10	50×1.5	70	61	65	50.8	6	2.5	11	0.5	0.148	10	10
AN 11	55×2	75	67	69	56	7	3	11	0.5	0.158	11	AW 11
12	60×2	80	73	74	61	7	3	11	0.5	0.174	12	12
13	65×2	85	79	79	66	7	3	12	0.5	0.203	13	13
AN 14	70×2	92	85	85	71	8	3.5	12	0.5	0.242	14	AW 14
15	75×2	98	90	91	76	8	3.5	13	0.5	0.287	15	15
16	80×2	105	95	98	81	8	3.5	15	0.6	0.397	16	16
AN 17	85×2	110	102	103	86	8	3.5	16	0.6	0.451	17	AW 17
18	90×2	120	108	112	91	10	4	16	0.6	0.556	18	18
19	95×2	125	113	117	96	10	4	17	0.6	0.658	19	19
AN 20	100×2	130	120	122	101	10	4	18	0.6	0.698	20	AW 20
21	105×2	140	126	130	106	12	5	18	0.7	0.845	21	21
22	110×2	145	133	135	111	12	5	19	0.7	0.965	22	22
AN 23	115×2	150	137	140	116	12	5	19	0.7	1.01	—	AW 23
24	120×2	155	138	145	121	12	5	20	0.7	1.08	24	24
25	125×2	160	148	150	126	12	5	21	0.7	1.19	—	25
AN 26	130×2	165	149	155	131	12	5	21	0.7	1.25	26	AW 26
AN 27	135×2	175	160	163	136	14	6	22	0.7	1.55	—	AW 27
28	140×2	180	160	168	141	14	6	22	0.7	1.56	28	28
AN 29	145×2	190	172	178	146	14	6	24	0.7	1.80	—	AW 29
30	150×2	195	171	183	151	14	6	24	0.7	2.03	30	30
31	155×3	200	182	186	156.5	16	7	25	0.7	2.30	—	—
AN 32	160×3	210	182	196	161.5	16	7	25	0.7	2.59	32	AW 32
33	165×3	210	193	196	166.5	16	7	26	0.7	2.70	—	—
34	170×3	220	193	206	171.5	16	7	26	0.7	2.80	34	34
AN 36	180×3	230	203	214	181.5	18	8	27	0.7	3.07	36	AW 36
38	190×3	240	214	224	191.5	18	8	28	0.7	3.39	38	38
40	200×3	250	226	234	201.5	18	8	29	0.7	3.69	40	40
ANL24	120×2	145	133	135	121	12	5	20	0.7	0.78	24	AWL24
26	130×2	155	143	145	131	12	5	21	0.7	0.88	26	26
28	140×2	165	151	153	141	14	6	22	0.7	0.99	28	28
ANL30	150×2	180	164	168	151	14	6	24	0.7	1.33	30	AWL30

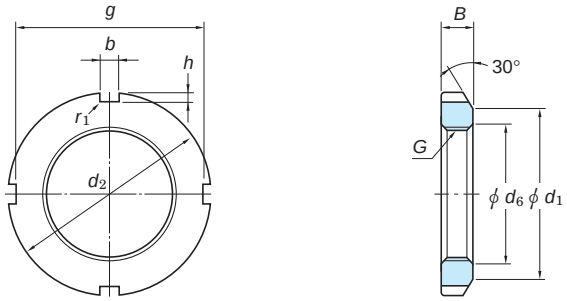
[Notes] 1) Basic profile and dimension of screw thread are in accordance with JIS B 0205.
2) Applicable to adapter sleeve series A31, A2, A3 and A23.
3) Applicable to lockwashers with flat inner tongue.

[Remark] Locknut series AN is used for adapter assembly series H2, H3, H23 and H31, while locknut series ANL is used for adapter assembly series H30.

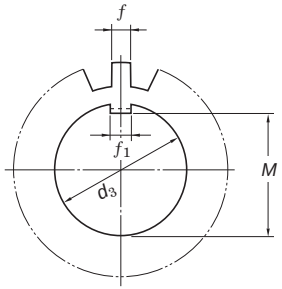


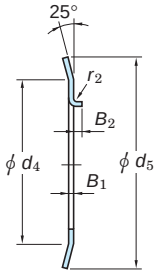


Locknut No.	Thread[1] size	Standard dimensions	Tapped hole[2]	(Refer.) Mass (kg)	Applicable adapter sleeve



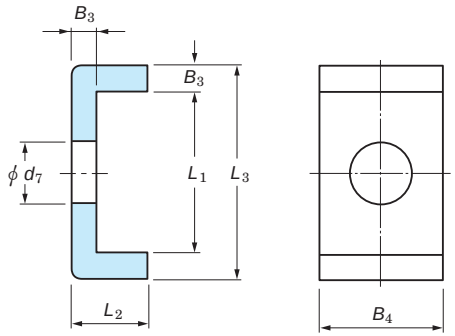
Locknut No.		Thread[1] size	Standard dimensions (mm)								(Refer.) Mass (kg)	Withdrawal sleeve No.			
		G	d_2	d_1	g	d_6	b	h	B	r_1 max.					
HN	42	T 210×4	270	238	250	212	20	10	30	0.8	4.75	A 3138	A 2238	A 3238	A 2338
	44	T 220×4	280	250	260	222	20	10	32	0.8	5.35	3140	2240	3240	2340
	48	T 240×4	300	270	280	242	20	10	34	0.8	6.20	3144	2244	—	2344
HN	52	T 260×4	330	300	306	262	24	12	36	0.8	8.55	A 3148	A 2248	—	A 2348
	584	330	300	306	262	[illegible]									


f
f1
d3
M


25°
r2
B2
φ d4
φ d5
B1



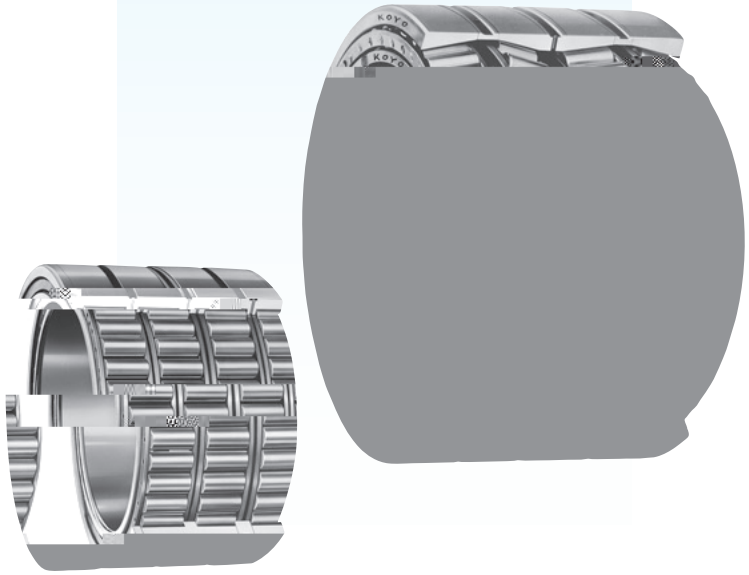
AL 44 ~ 100
ALL44 ~ 96



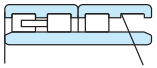
Lock plate No.	Standard dimensions (mm) B_3	B_4	L_2	d_7	L_1	L_3	(Refer.) Mass (kg/100pcs.)	Applicable locknut No.
AL 44	4	20	12	9	22.5	30.5	2.60	AN 44,48
52	4	24	12	12	25.5	33.5	3.39	52,56
60	4	24	12	12	30.5	38.5	3.79	60
AL 64	5	24	15	12	31	41	5.35	AN 64
68	5	28	15	14	38	48	6.65	68,72
76	5	32	15	14	40	50	7.96	76
AL 80	5	32	15	18	45	55	8.20	AN 80,84
88	5	36	15	18	43	53	9.00	88,92
96	5	36	15	18	53	63	10.4	96
100	5	40	15	18	45	55	10.5	100
ALL44	4	20	12	7	13.5	21.5	2.12	ANL44
48	4	20	12	9	17.5	25.5	2.29	48,52
56	4	24	12	9	17.5	25.5	2.92	56
ALL60	4	24	12	9	20.5	28.5	3.16	ANL60
64	5	24	15	9	21	31	4.56	64,68
72	5	28	15	9	20	30	5.03	72
ALL76	5	28	15	12	24	34	5.28	ANL76,80
84	5	32	15	12	24	34	6.11	84
88	5	32	15	14	28	38	6.45	88,92
96	5	36	15	14	28	38	7.29	96,100

[Remark] Lock plate series AL are applicable to adapter assembly series H31, H32 and H23, while lock plate series ALL are applicable to H30.

Rolling mill roll neck bearings



Four-row cylindrical roller bearings



Cylindrical bore

Four-row tapered roller bearings

Open type

Sealed type