



13. ACCESSORIES FOR ROLLING BEARINGS

ADAPTERS FOR ROLLING BEARINGS

Shaft Dia.	Page
17 - 470 mm	B 376

WITHDRAWAL SLEEVES FOR ROLLING BEARINGS

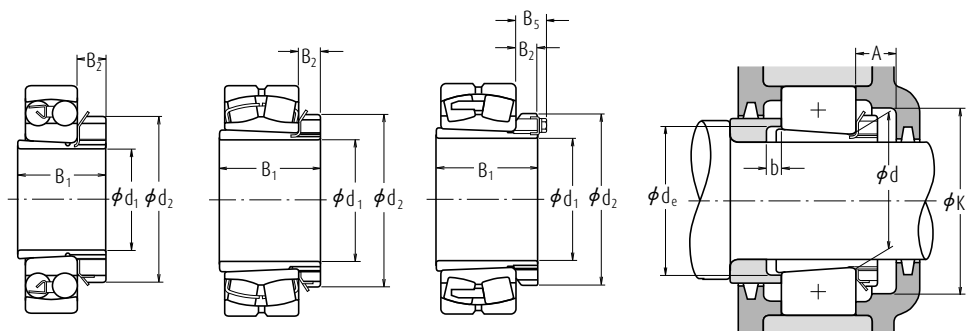
Shaft Dia.	Page
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Adapters for Rolling Bearings

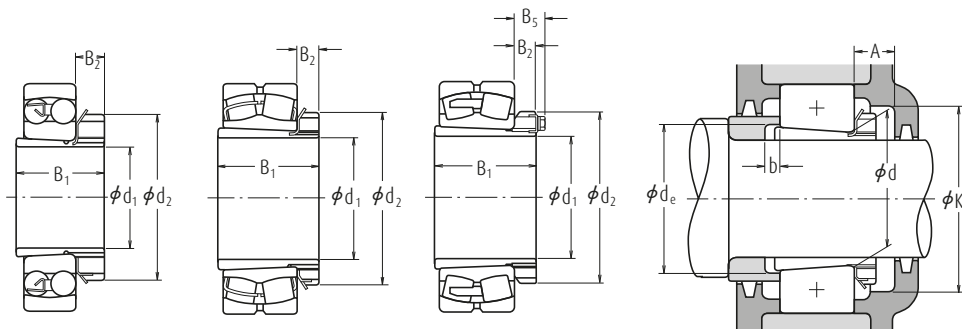
Shaft Diameter 17 – 40 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings	Dimensions (mm)				Adapter Sleeve Numbers	Abutment Dimensions (mm)				Mass (kg) approx.
			B_1	d_2	B_2	B_5		A min.	K min.	d_e min.	b min.	
17	20	1204K + H204X	24	32	7	—	A204X	14	39	23	5	0.045
	20	2204K + H304X	28	32	7	—	A304X	14	39	24	5	0.045
	20	1304K + H304X	28	32	7	—	A304X	14	39	24	8	0.045
	20	2304K + H2304X	31	32	7	—	A2304X	14	39	24	5	0.050
20	25	1205K + H205X	26	38	8	—	A205X	15	45	28	5	0.065
	25	2205K + H305X	29	38	8	—	A305X	15	45	29	5	0.075
	25	1305K + H305X	29	38	8	—	A305X	15	45	29	6	0.075
	25	21305C DKE4 + H305X	29	38	8	—	A305X	15	45	29	6	0.075
	25	2305K + H2305X	35	38	8	—	A2305X	15	45	29	5	0.090
	25	1306K + H306X	31	45	8	—	A306X	15	50	34	5	0.11
25	30	1206K + H206X	27	45	8	—	A206X	15	50	33	5	0.10
	30	2206K + H306X	31	45	8	—	A306X	15	50	34	5	0.11
	30	1306K + H306X	31	45	8	—	A306X	15	50	34	6	0.11
	30	21306C DKE4 + H306X	31	45	8	—	A306X	15	50	34	6	0.11
	30	2306K + H2306X	38	45	8	—	A2306X	15	50	35	5	0.125
	30	1307K + H307X	35	52	9	—	A307X	17	58	38	5	0.125
30	35	2207K + H307X	35	52	9	—	A307X	17	58	39	5	0.145
	35	1307K + H307X	35	52	9	—	A307X	17	58	39	7	0.145
	35	21307C DKE4 + H307X	35	52	9	—	A307X	17	58	39	7	0.145
	35	2307K + H2307X	43	52	9	—	A2307X	17	58	40	5	0.16
	40	1208K + H208X	31	58	10	—	A208X	17	65	44	5	0.175
	40	2208K + H308X	36	58	10	—	A308X	17	65	44	5	0.19
35	40	1308K + H308X	36	58	10	—	A308X	17	65	44	5	0.19
	40	21308E AKE4 + H308X	36	58	10	—	A308X	17	65	44	5	0.19
	40	2308K + H2308X	46	58	10	—	A2308X	17	65	45	5	0.225
	40	22308E AKE4 + H2308X	46	58	10	—	A2308X	17	65	45	5	0.225
	45	1209K + H209X	33	65	11	—	A209X	17	72	49	5	0.225
	45	2209K + H309X	39	65	11	—	A309X	17	72	49	8	0.26
40	45	1309K + H309X	39	65	11	—	A309X	17	72	49	5	0.26
	45	21309E AKE4 + H309X	39	65	11	—	A309X	17	72	49	5	0.26
	45	2309K + H2309X	50	65	11	—	A2309X	17	72	50	5	0.30
	45	22309E AKE4 + H2309X	50	65	11	—	A2309X	17	72	50	5	0.30

Remark The suffix X represents adapter sleeves having narrow slits, for which washers with straight tabs should be used.

Shaft Diameter 45 – 60 mm



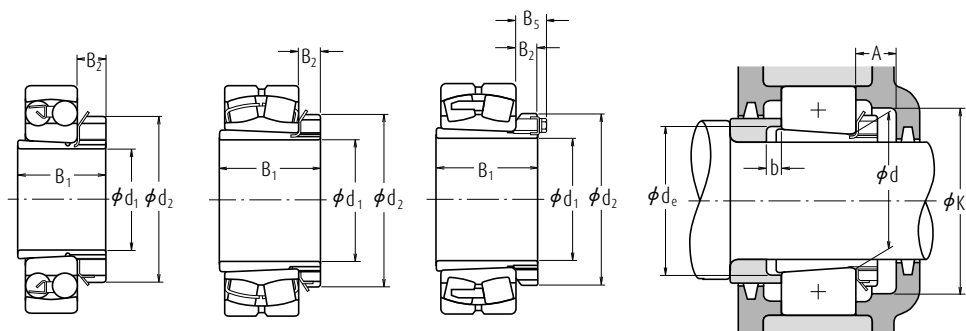
Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers	Dimensions (mm)				Adapter Sleeve Numbers	Abutment Dimensions (mm)				Mass (kg)
			B ₁	d ₂	B ₂	B ₃		A min.	K min.	d _e min.	b min.	
45	50	1210K + H210X	35	70	12	—	A210X	19	76	53	5	0.275
	50	2210K + H310X	42	70	12	—	A310X	19	76	54	10	0.30
	50	1310K + H310X	42	70	12	—	A310X	19	76	54	5	0.30
	50	21310E AKE4 + H310X	42	70	12	—	A310X	19	76	54	5	0.30
	50	2310K + H2310X	55	70	12	—	A2310X	19	76	56	5	0.35
	50	22310E AKE4 + H2310X	55	70	12	—	A2310X	19	76	56	5	0.35
50	55	1211K + H211X	37	75	12	—	A211X	19	85	60	6	0.305
	55	2211K + H311X	45	75	12	—	A311X	19	85	60	11	0.35
	55	22211E AKE4 + H311X	45	75	12	—	A311X	19	85	60	11	0.35
	55	1311K + H311X	45	75	12	—	A311X	19	85	60	6	0.35
	55	21311E AKE4 + H311X	45	75	12	—	A311X	19	85	60	6	0.35
	55	2311K + H2311X	59	75	12	—	A2311X	19	85	61	6	0.40
55	55	22311E AKE4 + H2311X	59	75	12	—	A2311X	19	85	61	6	0.40
	60	1212K + H212X	38	80	13	—	A212X	20	90	64	5	0.365
	60	2212K + H312X	47	80	13	—	A312X	20	90	65	9	0.40
	60	22212E AKE4 + H312X	47	80	13	—	A312X	20	90	65	9	0.40
	60	1312K + H312X	47	80	13	—	A312X	20	90	65	5	0.40
	60	21312E AKE4 + H312X	47	80	13	—	A312X	20	90	65	5	0.40
60	60	2312K + H2312X	62	80	13	—	A2312X	20	90	66	5	0.45
	60	22312E AKE4 + H2312X	62	80	13	—	A2312X	20	90	66	5	0.45
	65	1213K + H213X	40	85	14	—	A213X	21	96	70	5	0.40
	65	2213K + H313X	50	85	14	—	A313X	21	96	70	8	0.45
	65	22213E AKE4 + H313X	50	85	14	—	A313X	21	96	70	8	0.45
	65	1313K + H313X	50	85	14	—	A313X	21	96	70	5	0.45
65	65	21313E AKE4 + H313X	50	85	14	—	A313X	21	96	70	5	0.45
	65	2313K + H2313X	65	85	14	—	A2313X	21	96	72	5	0.55
	65	22313E AKE4 + H2313X	65	85	14	—	A2313X	21	96	72	5	0.55
	70	22214E AKE4 + H314X	52	92	14	—	A314X	21	96	70	8	0.65
	70	21314E AKE4 + H314X	52	92	14	—	A314X	21	96	70	5	0.65
	70	22314E AKE4 + H2314X	68	92	14	—	A2314X	21	96	72	5	0.80

Remark The suffix X represents adapter sleeves having narrow slits, for which washers with straight tabs should be used.



Adapters for Rolling Bearings

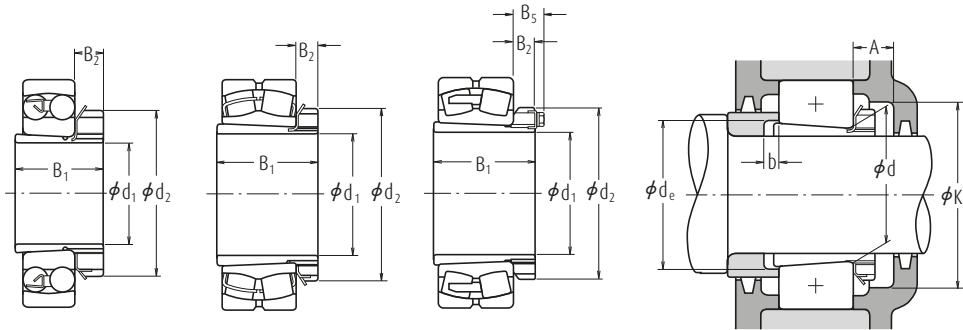
Shaft Diameter 65 – 80 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings	Dimensions (mm)				Adapter Sleeve Numbers	Abutment Dimensions (mm)				Mass (kg) approx.
			B_1	d_2	B_2	B_5		A min.	K min.	d_e min.	b min.	
65	75	1215K + H215X	43	98	15	—	A215X	23	110	80	5	0.70
	75	2215K + H315X	55	98	15	—	A315X	23	110	80	12	0.85
	75	22215E AKE4 + H315X	55	98	15	—	A315X	23	110	80	12	0.85
	75	1315K + H315X	55	98	15	—	A315X	23	110	80	5	0.85
	75	21315E AKE4 + H315X	55	98	15	—	A315X	23	110	80	5	0.85
	75	2315K + H2315X	73	98	15	—	A2315X	23	110	82	5	1.05
70	75	22315E AKE4 + H2315X	73	98	15	—	A2315X	23	110	82	5	1.05
	80	1216K + H216X	46	105	17	—	A216X	25	120	85	5	0.85
	80	2216K + H316X	59	105	17	—	A316X	25	120	86	12	1.05
	80	22216E AKE4 + H316X	59	105	17	—	A316X	25	120	86	12	1.05
	80	1316K + H316X	59	105	17	—	A316X	25	120	86	5	1.05
	80	21316E AKE4 + H316X	59	105	17	—	A316X	25	120	86	5	1.05
75	80	2316K + H2316X	78	105	17	—	A2316X	25	120	87	5	1.3
	80	22316E AKE4 + H2316X	78	105	17	—	A2316X	25	120	87	5	1.3
	85	1217K + H217X	50	110	18	—	A217X	27	128	90	6	1.0
	85	2217K + H317X	63	110	18	—	A317X	27	128	91	12	1.2
	85	22217E AKE4 + H317X	63	110	18	—	A317X	27	128	91	12	1.2
	85	1317K + H317X	63	110	18	—	A317X	27	128	91	6	1.2
80	85	21317E AKE4 + H317X	63	110	18	—	A317X	27	128	91	6	1.2
	85	2317K + H2317X	82	110	18	—	A2317X	27	128	94	6	1.45
	85	22317E AKE4 + H2317X	82	110	18	—	A2317X	27	128	94	6	1.45
	90	1218K + H218X	52	120	18	—	A218X	28	139	95	6	1.15
	90	2218K + H318X	65	120	18	—	A318X	28	139	96	10	1.4
	90	22218E AKE4 + H318X	65	120	18	—	A318X	28	139	96	10	1.4
80	90	1318K + H318X	65	120	18	—	A318X	28	139	96	6	1.4
	90	21318E AKE4 + H318X	65	120	18	—	A318X	28	139	96	6	1.4
	90	2318K + H2318X	86	120	18	—	A2318X	28	139	99	6	1.7
	90	23218C KE4 + H2318X	86	120	18	—	A2318X	28	139	99	6	1.7
	90	22318E AKE4 + H2318X	86	120	18	—	A2318X	28	139	99	6	1.7

Remark The suffix X represents adapter sleeves having narrow slits, for which washers with straight tabs should be used.

Shaft Diameter 85 – 115 mm



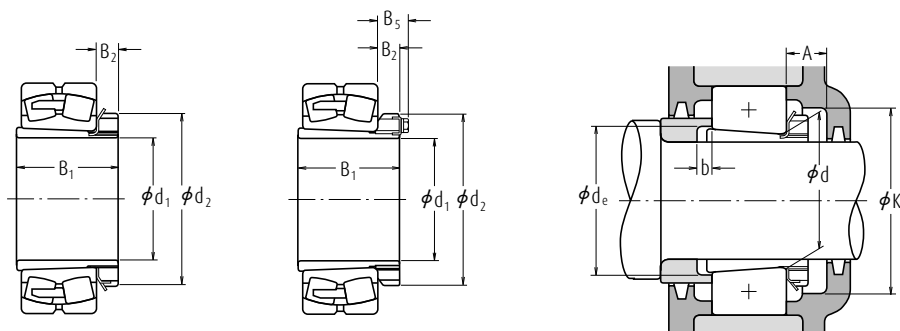
Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers	Dimensions (mm)				Adapter Sleeve Numbers	Abutment Dimensions (mm)				Mass (kg)
			B ₁	d ₂	B ₂	B ₃		A min.	K min.	d _e min.	b min.	
85	95	1219K + H219X	55	125	19	—	A219X	29	145	101	7	1.35
	95	2219K + H319X	68	125	19	—	A319X	29	145	102	9	1.55
	95	22219E AKE4 + H319X	68	125	19	—	A319X	29	145	102	9	1.55
	95	1319K + H319X	68	125	19	—	A319X	29	145	102	7	1.55
	95	21319C KE4 + H319X	68	125	19	—	A319X	29	145	102	7	1.55
	95	2319K + H2319X	90	125	19	—	A2319X	29	145	105	7	1.9
90	95	22319E AKE4 + H2319X	90	125	19	—	A2319X	29	145	105	7	1.9
	100	1220K + H220X	58	130	20	—	A220X	30	150	106	7	1.45
	100	2220K + H320X	71	130	20	—	A320X	30	150	107	8	1.7
	100	22220E AKE4 + H320X	71	130	20	—	A320X	30	150	107	8	1.7
	100	1320K + H320X	71	130	20	—	A320X	30	150	107	7	1.7
	100	21320C KE4 + H320X	71	130	20	—	A320X	30	150	107	7	1.7
	100	2320K + H2320X	97	130	20	—	A2320X	30	150	110	7	2.15
	100	23220C KE4 + H2320X	97	130	20	—	A2320X	30	150	110	7	2.15
	100	2320E AKE4 + H2320X	97	130	20	—	A2320X	30	150	110	7	2.15
	110	23122C KE4 + H3122X	81	145	21	—	A3122X	32	170	117	7	2.25
100	110	1222K + H222X	63	145	21	—	A222X	32	170	116	7	1.95
	110	2222K + H322X	77	145	21	—	A322X	32	170	117	6	2.3
	110	22222E AKE4 + H322X	77	145	21	—	A322X	32	170	117	6	2.3
	110	1322K + H322X	77	145	21	—	A322X	32	170	117	9	2.3
	110	2322K + H2322X	105	145	21	—	A2322X	32	170	121	7	2.75
	110	23222C KE4 + H2322X	105	145	21	—	A2322X	32	170	121	17	2.75
	110	22322E AKE4 + H2322X	105	145	21	—	A2322X	32	170	121	7	2.75
	120	23024C DKE4 + H3024	72	145	22	—	A3024	33	180	127	7	1.95
	120	23124C KE4 + H3124	88	155	22	—	A3124	33	180	128	7	2.65
	120	22224E AKE4 + H3124	88	155	22	—	A3124	33	180	128	11	2.65
115	120	23224C KE4 + H2324	112	155	22	—	A2324	33	180	131	17	3.2
	120	22324E AKE4 + H2324	112	155	22	—	A2324	33	180	131	7	3.2
	130	23026C DKE4 + H3026	80	155	23	—	A3026	34	190	137	8	2.85
	130	23126C KE4 + H3126	92	165	23	—	A3126	34	190	138	8	3.65
	130	22226E AKE4 + H3126	92	165	23	—	A3126	34	190	138	8	3.65
	130	23226C KE4 + H2326	121	165	23	—	A2326	34	190	142	21	4.6
	130	22326C KE4 + H2326	121	165	23	—	A2326	34	190	142	8	4.6

Remark

The suffix X represents adapter sleeves having narrow slits, for which washers with straight tabs should be used.

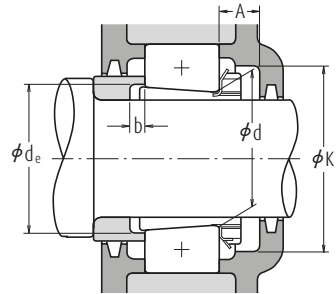
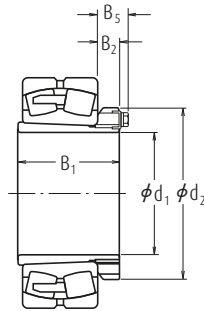
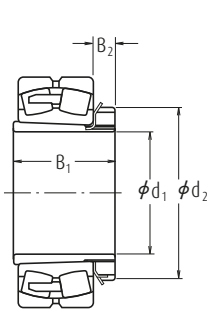
Adapters for Rolling Bearings

Shaft Diameter 125 – 170 mm



Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers	Dimensions (mm)				Adapter Sleeve Numbers	Abutment Dimensions (mm)				Mass (kg)
			B_1	d_2	B_2	B_5		A min.	K min.	d_e min.	b min.	
125	140	23028C DKE4 + H3028	82	165	24	—	A3028	36	205	147	8	3.15
	140	23128C KE4 + H3128	97	180	24	—	A3128	36	205	149	8	4.35
	140	22228C DKE4 + H3128	97	180	24	—	A3128	36	205	149	8	4.35
	140	23228C KE4 + H2328	131	180	24	—	A2328	36	205	152	22	5.55
135	140	22328C KE4 + H2328	131	180	24	—	A2328	36	205	152	8	5.55
	150	23030C DKE4 + H3030	87	180	26	—	A3030	37	220	158	8	3.9
	150	23130C KE4 + H3130	111	195	26	—	A3130	37	220	160	8	5.5
	150	22230C DKE4 + H3130	111	195	26	—	A3130	37	220	160	15	5.5
140	150	23230C KE4 + H2330	139	195	26	—	A2330	37	220	163	20	6.6
	150	22330C KE4 + H2330	139	195	26	—	A2330	37	220	163	8	6.6
	160	23932C AKE4 + H3932	78	190	28	—	A3932	39	205	168	8	4.64
	160	23032C DKE4 + H3032	93	190	28	—	A3032	39	230	168	8	5.2
140	160	23132C KE4 + H3132	119	210	28	—	A3132	39	230	170	8	7.65
	160	22232C DKE4 + H3132	119	210	28	—	A3132	39	230	170	14	7.65
	160	23232C KE4 + H2332	147	210	28	—	A2332	39	230	174	18	9.15
	160	22332C KE4 + H2332	147	210	28	—	A2332	39	230	174	8	9.15
150	170	23934B CAKE4 + H3934	79	200	29	—	A3934	40	215	179	8	5.07
	170	23034C DKE4 + H3034	101	200	29	—	A3034	40	250	179	8	6.0
	170	23134C KE4 + H3134	122	220	29	—	A3134	40	250	180	8	8.4
	170	22234C DKE4 + H3134	122	220	29	—	A3134	40	250	180	10	8.4
150	170	23234C KE4 + H2334	154	220	29	—	A2334	40	250	185	18	10
	170	22334C AKE4 + H2334	154	220	29	—	A2334	40	250	185	8	10
	180	23936C AKE4 + H3936	87	210	30	—	A3936	41	230	189	8	5.87
	180	23036C DKE4 + H3036	109	210	30	—	A3036	41	260	189	8	6.85
160	180	23136C KE4 + H3136	131	230	30	—	A3136	41	260	191	8	9.5
	180	22236C DKE4 + H3136	131	230	30	—	A3136	41	260	191	18	9.5
	180	23236C KE4 + H2336	161	230	30	—	A2336	41	260	195	22	11.5
	180	22336C AKE4 + H2336	161	230	30	—	A2336	41	260	195	8	11.5
170	190	23938C AKE4 + H3938	89	220	31	—	A3938	43	240	199	9	6.35
	190	23038C AKE4 + H3038	112	220	31	—	A3038	43	270	199	9	7.45
	190	23138C KE4 + H3138	141	240	31	—	A3138	43	270	202	9	11
	190	22238C AKE4 + H3138	141	240	31	—	A3138	43	270	202	21	11
170	190	23238C KE4 + H2338	169	240	31	—	A2338	43	270	206	21	12.5
	190	22338C AKE4 + H2338	169	240	31	—	A2338	43	270	206	9	12.5

Shaft Diameter 180 - 260 mm

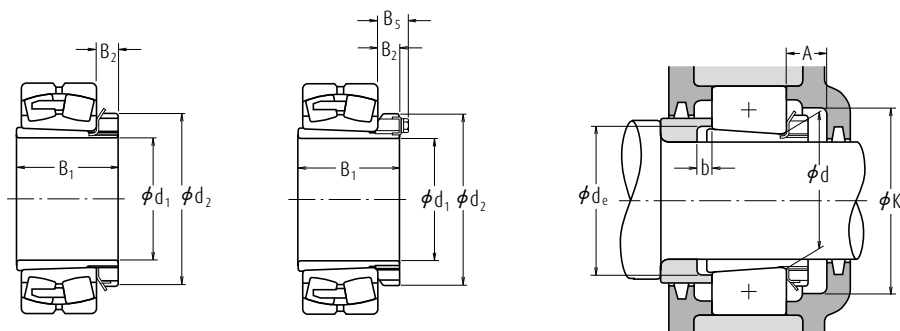


Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers	Dimensions (mm)				Adapter Sleeve Numbers	Abutment Dimensions (mm)				Mass (kg)
			B_1	d_2	B_2	B_5		A min.	K min.	d_e min.	b min.	
180	200	23940C AKE4 + H3940	98	240	32	—	A3940	46	260	210	10	8.0
	200	23040C AKE4 + H3040	120	240	32	—	A3040	46	280	210	10	9.2
	200	23140C KE4 + H3140	150	250	32	—	A3140	46	280	212	10	12
	200	22240C AKE4 + H3140	150	250	32	—	A3140	46	280	212	24	12
	200	23240C KE4 + H2340	176	250	32	—	A2340	46	280	216	20	14
	200	22340C AKE4 + H2340	176	250	32	—	A2340	46	280	216	10	14
200	220	23944C AKE4 + H3944	96	260	30	41	A3944	55	280	231	10	8.32
	220	23044C AKE4 + H3044	128	260	30	41	A3044	55	320	231	12	10.5
	220	23144C KE4 + H3144	158	280	32	44	A3144	55	320	233	10	14.5
	220	22244C AKE4 + H3144	158	280	32	44	A3144	55	320	233	22	14.5
	220	23244C KE4 + H2344	183	280	32	44	A2344	55	320	236	11	16.5
	220	22344C AKE4 + H2344	183	280	32	44	A2344	55	320	236	10	16.5
220	240	23948C AKE4 + H3948	101	290	34	46	A3948	60	300	251	11	11.2
	240	23048C AKE4 + H3048	133	290	34	46	A3048	60	340	251	11	13
	240	23148C KE4 + H3148	169	300	34	46	A3148	60	340	254	11	17.5
	240	22248C AKE4 + H3148	169	300	34	46	A3148	60	340	254	19	17.5
	240	23248C AKE4 + H2348	196	300	34	46	A2348	60	340	257	6	19.5
	240	22348C AKE4 + H2348	196	300	34	46	A2348	60	340	257	11	19.5
240	260	23952C AKE4 + H3952	116	310	34	46	A3952	60	330	272	11	13.4
	260	23052C AKE4 + H3052	147	310	34	46	A3052	60	370	272	13	15.5
	260	23152C AKE4 + H3152	187	330	36	49	A3152	60	370	276	11	22
	260	22252C AKE4 + H3152	187	330	36	49	A3152	60	370	276	25	22
	260	23252C AKE4 + H2352	208	330	36	49	A2352	60	370	278	2	24
	260	22352C AKE4 + H2352	208	330	36	49	A2352	60	370	278	11	24
260	280	23956C AKE4 + H3956	121	330	38	50	A3956	65	350	292	12	15.5
	280	23056C AKE4 + H3056	152	330	38	50	A3056	65	390	292	12	17.5
	280	23156C AKE4 + H3156	192	350	38	51	A3156	65	390	296	12	24.5
	280	22256C AKE4 + H3156	192	350	38	51	A3156	65	390	296	28	24.5
	280	23256C AKE4 + H2356	221	350	38	51	A2356	65	390	299	11	28
	280	22356C AKE4 + H2356	221	350	38	51	A2356	65	390	299	12	28



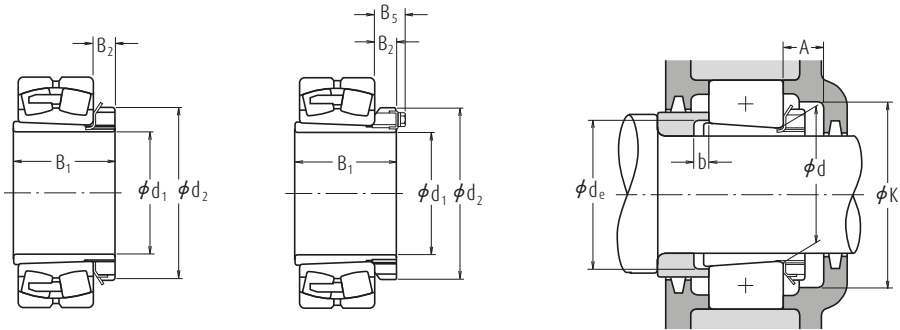
Adapters for Rolling Bearings

Shaft Diameter 280 - 410 mm



Shaft Diameter (mm) d ₁	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings	Dimensions (mm)				Adapter Sleeve Numbers	Abutment Dimensions (mm)				Mass (kg) approx.
			B ₁	d ₂	B ₂	B ₅		A min.	K min.	d _e min.	b min.	
280	300	23960C AKE4 + H3960	140	360	42	54	A3960	69	380	313	12	20.7
	300	23060C AKE4 + H3060	168	360	42	54	A3060	69	430	313	12	23
	300	23160C AKE4 + H3160	208	380	40	53	A3160	69	430	317	12	30
	300	22260C AKE4 + H3160	208	380	40	53	A3160	69	430	317	32	30
	300	23260C AKE4 + H3260	240	380	40	53	A3260	69	430	321	12	34
300	320	23964C AKE4 + H3964	140	380	42	55	A3964	72	400	334	13	21.8
	320	23064C AKE4 + H3064	171	380	42	55	A3064	72	450	334	13	24.5
	320	23164C AKE4 + H3164	226	400	42	56	A3164	72	450	339	13	35
	320	22264C AKE4 + H3164	226	400	42	56	A3164	72	450	339	39	35
	320	23264C AKE4 + H3264	258	400	42	56	A3264	72	450	343	13	39.5
320	340	23968C AKE4 + H3968	144	400	45	58	A3968	75	430	354	14	24.6
	340	23068C AKE4 + H3068	187	400	45	58	A3068	75	490	355	14	28.5
	340	23168C AKE4 + H3168	254	440	55	72	A3168	75	490	360	14	49.5
	340	23268C AKE4 + H3268	288	440	55	72	A3268	75	490	364	14	54.5
	340	23972C AKE4 + H3972	144	420	45	58	A3972	75	450	374	14	25.7
340	360	23072C AKE4 + H3072	188	420	45	58	A3072	75	510	375	14	30.5
	360	23172C AKE4 + H3172	259	460	58	75	A3172	75	510	380	14	54
	360	23272C AKE4 + H3272	299	460	58	75	A3272	75	510	385	14	60.5
	360	23976C AKE4 + H3976	164	450	48	62	A3976	82	480	396	15	31.9
	380	23076C AKE4 + H3076	193	450	48	62	A3076	82	540	396	15	36
360	380	23176C AKE4 + H3176	264	490	60	77	A3176	82	540	401	15	61.5
	380	23276C AKE4 + H3276	310	490	60	77	A3276	82	540	405	15	69.5
	400	23980C AKE4 + H3980	168	470	52	66	A3980	86	500	417	15	35.2
	400	23080C AKE4 + H3080	210	470	52	66	A3080	86	580	417	15	41.5
	400	23180C AKE4 + H3180	272	520	62	82	A3180	86	580	421	15	70.5
380	400	23280C AKE4 + H3280	328	520	62	82	A3280	86	580	427	15	81
	420	23984C AKE4 + H3984	168	490	52	66	A3984	86	520	437	16	36.6
	420	23084C AKE4 + H3084	212	490	52	66	A3084	86	600	437	16	43.5
	420	23184C AKE4 + H3184	304	540	70	90	A3184	86	600	443	16	84
	420	23284C AKE4 + H3284	352	540	70	90	A3284	86	600	448	16	94
400	440	23988C AKE4 + H3988	189	520	60	77	A3988	99	550	458	17	58.6
	440	23088C AKE4 + H3088	228	520	60	77	A3088	99	620	458	17	65
	440	23188C AKE4 + H3188	307	560	70	90	A3188	99	620	464	17	104
	440	23288C AKE4 + H3288	361	560	70	90	A3288	99	620	469	17	118

Shaft Diameter 430 – 470 mm



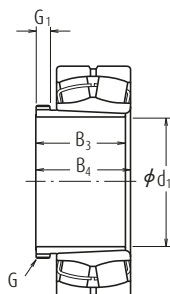
Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers	Dimensions (mm)				Adapter Sleeve Numbers	Abutment Dimensions (mm)				Mass (kg)
			B_1	d_2	B_2	B_5		A min.	K min.	d_e min.	b min.	
430	460	23992C AKE4 + H3992	189	540	60	77	A3992	99	570	478	17	62
	460	23092C AKE4 + H3092	234	540	60	77	A3092	99	650	478	17	69.5
	460	23192C AKE4 + H3192	326	580	75	95	A3192	99	650	485	17	116
	460	23292C AKE4 + H3292	382	580	75	95	A3292	99	650	491	17	132
450	480	23996C AKE4 + H3996	200	560	60	77	A3996	99	600	499	18	67.5
	480	23096C AKE4 + H3096	237	560	60	77	A3096	99	690	499	18	73.5
	480	23196C AKE4 + H3196	335	620	75	95	A3196	99	690	505	18	133
	480	23296C AKE4 + H3296	397	620	75	95	A3296	99	690	512	18	152
470	500	239/500C AKE4 + H39/500	208	580	68	85	A39/500	109	620	519	18	74.6
	500	230/500C AKE4 + H30/500	247	580	68	85	A30/500	109	700	519	18	82
	500	231/500C AKE4 + H31/500	356	630	80	100	A31/500	109	700	527	18	143
	500	232/500C AKE4 + H32/500	428	630	80	100	A32/500	109	700	534	18	166

Sleeves



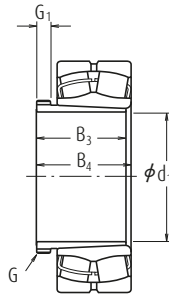
Withdrawal Sleeves for Rolling Bearings

Shaft Diameter 35 – 85 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings	Screw Thread G	Dimensions (mm)			Mass (kg) approx.
				B_3	G_1	B_4	
35	40	21308EAKE4 + AH308	M 45 × 1.5	29	6	32	0.09
	40	22308EAKE4 + AH2308	M 45 × 1.5	40	7	43	0.13
40	45	21309EAKE4 + AH309	M 50 × 1.5	31	6	34	0.11
	45	22309EAKE4 + AH2309	M 50 × 1.5	44	7	47	0.165
45	50	21310EAKE4 + AHX310	M 55 × 2	35	7	38	0.16
	50	22310EAKE4 + AHX2310	M 55 × 2	50	9	53	0.235
50	55	22211EAKE4 + AHX311	M 60 × 2	37	7	40	0.19
	55	21311EAKE4 + AHX311	M 60 × 2	37	7	40	0.19
	55	22311EAKE4 + AHX2311	M 60 × 2	54	10	57	0.285
55	60	22212EAKE4 + AHX312	M 65 × 2	40	8	43	0.215
	60	21312EAKE4 + AHX312	M 65 × 2	40	8	43	0.215
60	60	22312EAKE4 + AHX2312	M 65 × 2	58	11	61	0.34
	65	22213EAKE4 + AH313	M 75 × 2	42	8	45	0.255
	65	21313EAKE4 + AH313	M 75 × 2	42	8	45	0.255
65	65	22313EAKE4 + AH2313	M 75 × 2	61	12	64	0.395
	70	22214EAKE4 + AH314	M 80 × 2	43	8	47	0.28
	70	21314EAKE4 + AH314	M 80 × 2	43	8	47	0.28
70	70	22314EAKE4 + AHX2314	M 80 × 2	64	12	68	0.53
	75	22215EAKE4 + AH315	M 85 × 2	45	8	49	0.315
	75	21315EAKE4 + AH315	M 85 × 2	45	8	49	0.315
75	75	22315EAKE4 + AHX2315	M 85 × 2	68	12	72	0.605
	80	22216EAKE4 + AH316	M 90 × 2	48	8	52	0.365
	80	21316EAKE4 + AH316	M 90 × 2	48	8	52	0.365
80	80	22316EAKE4 + AHX2316	M 90 × 2	71	12	75	0.665
	85	22217EAKE4 + AHX317	M 95 × 2	52	9	56	0.48
	85	21317EAKE4 + AHX317	M 95 × 2	52	9	56	0.48
85	85	22317EAKE4 + AHX2317	M 95 × 2	74	13	78	0.745
	90	22218EAKE4 + AHX318	M 100 × 2	53	9	57	0.52
	90	21318EAKE4 + AHX318	M 100 × 2	53	9	57	0.52
	90	23218CKE4 + AHX3218	M 100 × 2	63	10	67	0.58
	90	22318EAKE4 + AHX2318	M 100 × 2	79	14	83	0.845

Shaft Diameter 90 – 135 mm

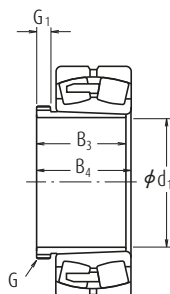


Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers	Screw Thread	Dimensions (mm)			Mass (kg)
d_1	d	Applicable Bearings	G	B_3	G_1	B_4	approx.
90	95	22219EAKE4 + AHX319	M 105 × 2	57	10	61	0.595
	95	21319CKE4 + AHX319	M 105 × 2	57	10	61	0.595
	95	22319EAKE4 + AHX2319	M 105 × 2	85	16	89	0.89
95	100	21320CKE4 + AHX3120	M 110 × 2	64	11	68	0.70
	100	22220EAKE4 + AHX320	M 110 × 2	59	10	63	0.66
	100	21320CKE4 + AHX320	M 110 × 2	59	10	63	0.66
	100	23220CKE4 + AHX3220	M 110 × 2	73	11	77	0.77
	100	22320EAKE4 + AHX3220	M 110 × 2	90	16	94	1.0
105	110	23122CKE4 + AHX3122	M 120 × 2	68	11	72	0.76
	110	22222EAKE4 + AHX3122	M 120 × 2	68	11	72	0.76
	110	24122CK30E4 + AH24122	M 115 × 2	82	13	91	0.73
	110	23222CKE4 + AHX3222	M 125 × 2	82	11	86	1.04
	110	22322EAKE4 + AHX2322	M 125 × 2	98	16	102	1.35
115	120	23024CDKE4 + AHX3024	M 130 × 2	60	13	64	0.75
	120	24024CK30E4 + AH24024	M 125 × 2	73	13	82	0.70
	120	23124CKE4 + AHX3124	M 130 × 2	75	12	79	0.95
	120	22224EAKE4 + AHX3124	M 130 × 2	75	12	79	0.95
	120	24124CK30E4 + AH24124	M 130 × 2	93	13	102	1.02
	120	23224CKE4 + AHX3224	M 135 × 2	90	13	94	1.3
	120	22324EAKE4 + AHX2324	M 135 × 2	105	17	109	1.6
125	130	23026CDKE4 + AHX3026	M 140 × 2	67	14	71	0.95
	130	24026CK30E4 + AH24026	M 135 × 2	83	14	93	0.89
	130	23126CKE4 + AHX3126	M 140 × 2	78	12	82	1.08
	130	22226EAKE4 + AHX3126	M 140 × 2	78	12	82	1.08
	130	24126CK30E4 + AH24126	M 140 × 2	94	14	104	1.14
	130	23226CKE4 + AHX3226	M 145 × 2	98	15	102	1.58
135	130	22326CKE4 + AHX2326	M 145 × 2	115	19	119	1.97
	140	23028CDKE4 + AHX3028	M 150 × 2	68	14	73	1.01
	140	24028CK30E4 + AH24028	M 145 × 2	83	14	93	0.96
	140	23128CKE4 + AHX3128	M 150 × 2	83	14	88	1.28
	140	22228CDKE4 + AHX3128	M 150 × 2	83	14	88	1.28
	140	24128CK30E4 + AH24128	M 150 × 2	99	14	109	1.3
	140	23228CKE4 + AHX3228	M 155 × 3	104	15	109	1.84
	140	22328CKE4 + AHX2328	M 155 × 3	125	20	130	2.33



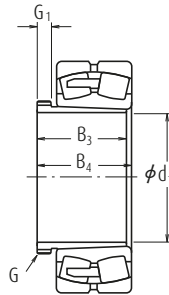
Withdrawal Sleeves for Rolling Bearings

Shaft Diameter 145 – 180 mm



Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers		Screw Thread	Dimensions (mm)			Mass (kg)
		Applicable Bearings			G	B ₃	G ₁	
145	150	23030CDKE4	+ AHX3030	M 160 × 3	72	15	77	1.15
	150	24030CK30E4	+ AH24030	M 155 × 3	90	15	101	1.11
	150	23130CKE4	+ AHX3130	M 165 × 3	96	15	101	1.79
	150	22230CDKE4	+ AHX3130	M 165 × 3	96	15	101	1.79
	150	24130CK30E4	+ AH24130	M 160 × 3	115	15	126	1.63
	150	23230CKE4	+ AHX3230	M 165 × 3	114	17	119	2.22
150	150	22330CAKE4	+ AHX2330	M 165 × 3	135	24	140	2.82
	160	23032CDKE4	+ AH3032	M 170 × 3	77	16	82	2.05
	160	24032CK30E4	+ AH24032	M 170 × 3	95	15	106	2.28
	160	23132CKE4	+ AH3132	M 180 × 3	103	16	108	3.2
	160	22232CDKE4	+ AH3132	M 180 × 3	103	16	108	3.2
	160	24132CK30E4	+ AH24132	M 170 × 3	124	15	135	3.03
160	160	23232CKE4	+ AH3232	M 180 × 3	124	20	130	4.1
	160	22332CAKE4	+ AH2332	M 180 × 3	140	24	146	4.7
	170	23034CDKE4	+ AH3034	M 180 × 3	85	17	90	2.45
	170	24034CK30E4	+ AH24034	M 180 × 3	106	16	117	2.74
	170	23134CKE4	+ AH3134	M 190 × 3	104	16	109	3.4
	170	22234CDKE4	+ AH3134	M 190 × 3	104	16	109	3.4
170	170	24134CK30E4	+ AH24134	M 180 × 3	125	16	136	3.26
	170	23234CKE4	+ AH3234	M 190 × 3	134	24	140	4.8
	170	22334CAKE4	+ AH2334	M 190 × 3	146	24	152	5.25
	180	23036CDKE4	+ AH3036	M 190 × 3	92	17	98	2.8
	180	24036CK30E4	+ AH24036	M 190 × 3	116	16	127	3.19
	180	23136CKE4	+ AH3136	M 200 × 3	116	19	122	4.2
180	180	24136CK30E4	+ AH24136	M 190 × 3	134	16	145	3.74
	180	22236CDKE4	+ AH2236	M 200 × 3	105	17	110	3.75
	180	23236CKE4	+ AH3236	M 200 × 3	140	24	146	5.3
	180	22336CAKE4	+ AH2336	M 200 × 3	154	26	160	5.85
	190	23038CAKE4	+ AH3038	Tr 205 × 4	96	18	102	3.35
	190	24038CK30E4	+ AH24038	M 200 × 3	118	18	131	3.47
180	190	23138CKE4	+ AH3138	Tr 210 × 4	125	20	131	4.9
	190	24138CK30E4	+ AH24138	M 200 × 3	146	18	159	4.38
	190	22238CAKE4	+ AH2238	Tr 210 × 4	112	18	117	4.25
	190	23238CKE4	+ AH3238	Tr 210 × 4	145	25	152	5.9
	190	22338CAKE4	+ AH2338	Tr 210 × 4	160	26	167	6.65

Shaft Diameter 190 – 260 mm

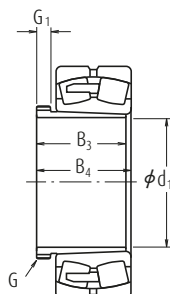


Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers	Screw Thread	Dimensions (mm)			Mass (kg)
d_1	d	Applicable Bearings	G	B_3	G_1	B_4	approx.
190	200	23040CAKE4 + AH3040	Tr 215 × 4	102	19	108	3.8
	200	24040CK30E4 + AH24040	Tr 210 × 4	127	18	140	3.92
	200	23140CKE4 + AH3140	Tr 220 × 4	134	21	140	5.5
	200	24140CK30E4 + AH24140	Tr 210 × 4	158	18	171	5.0
	200	22240CAKE4 + AH2240	Tr 220 × 4	118	19	123	4.7
	200	23240CKE4 + AH3240	Tr 220 × 4	153	25	160	6.7
200	200	22340CAKE4 + AH2340	Tr 220 × 4	170	30	177	7.55
	220	23044CAKE4 + AH3044	Tr 235 × 4	111	20	117	7.4
	220	24044CK30E4 + AH24044	Tr 230 × 4	138	20	152	8.23
	220	23144CKE4 + AH3144	Tr 240 × 4	145	23	151	10.5
	220	24144CK30E4 + AH24144	Tr 230 × 4	170	20	184	10.3
	220	22244CAKE4 + AH2244	Tr 240 × 4	130	20	136	9.1
220	220	23244CKE4 + AH2344	Tr 240 × 4	181	30	189	13.5
	220	22344CAKE4 + AH2344	Tr 240 × 4	181	30	189	13.5
	240	23048CAKE4 + AH3048	Tr 260 × 4	116	21	123	8.75
	240	24048CK30E4 + AH24048	Tr 250 × 4	138	20	153	9.0
	240	23148CKE4 + AH3148	Tr 260 × 4	154	25	161	12
	240	24148CK30E4 + AH24148	Tr 260 × 4	180	20	195	12.6
240	240	22248CAKE4 + AH2248	Tr 260 × 4	144	21	150	11
	240	23248CKE4 + AH2348	Tr 260 × 4	189	30	197	15.5
	240	22348CAKE4 + AH2348	Tr 260 × 4	189	30	197	15.5
	260	23052CAKE4 + AH3052	Tr 280 × 4	128	23	135	10.5
	260	24052CAK30E4 + AH24052	Tr 270 × 4	162	22	178	11.7
	260	23152CAKE4 + AH3152	Tr 290 × 4	172	26	179	16
260	260	24152CAK30E4 + AH24152	Tr 280 × 4	202	22	218	15.5
	260	22252CAKE4 + AH2252	Tr 290 × 4	155	23	161	14
	260	23252CAKE4 + AH2352	Tr 290 × 4	205	30	213	19.5
	260	22352CAKE4 + AH2352	Tr 290 × 4	205	30	213	19.5
	280	23056CAKE4 + AH3056	Tr 300 × 4	131	24	139	12
	280	24056CAK30E4 + AH24056	Tr 290 × 4	162	22	179	12.6
260	280	23156CAKE4 + AH3156	Tr 310 × 5	175	28	183	17.5
	280	24156CAK30E4 + AH24156	Tr 300 × 4	202	22	219	16.8
	280	22256CAKE4 + AH2256	Tr 310 × 5	155	24	163	15
	280	23256CAKE4 + AH2356	Tr 310 × 5	212	30	220	21.5
	280	22356CAKE4 + AH2356	Tr 310 × 5	212	30	220	21.5



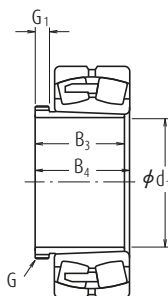
Withdrawal Sleeves for Rolling Bearings

Shaft Diameter 280 – 380 mm



Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers		Screw Thread	Dimensions (mm)			Mass (kg)
		Applicable Bearings			G	B ₃	G ₁	
280	300	23060CAKE4	+ AH3060	Tr 320 × 5	145	26	153	14.5
	300	24060CAK30E4	+ AH24060	Tr 310 × 5	184	24	202	15.5
	300	23160CAKE4	+ AH3160	Tr 330 × 5	192	30	200	21
	300	24160CAK30E4	+ AH24160	Tr 320 × 5	224	24	242	20.3
	300	22260CAKE4	+ AH2260	Tr 330 × 5	170	26	178	18
300	300	23260CAKE4	+ AH3260	Tr 330 × 5	228	34	236	20
	320	23064CAKE4	+ AH3064	Tr 345 × 5	149	27	157	16
	320	24064CAK30E4	+ AH24064	Tr 330 × 5	184	24	202	16.4
	320	23164CAKE4	+ AH3164	Tr 350 × 5	209	31	217	24.5
	320	24164CAK30E4	+ AH24164	Tr 340 × 5	242	24	260	23.5
320	320	23264CAKE4	+ AH3264	Tr 350 × 5	246	36	254	25
	340	23068CAKE4	+ AH3068	Tr 365 × 5	162	28	171	19.5
	340	24068CAK30E4	+ AH24068	Tr 360 × 5	206	26	225	21.2
	340	23168CAKE4	+ AH3168	Tr 370 × 5	225	33	234	29
	340	24168CAK30E4	+ AH24168	Tr 360 × 5	269	26	288	28.3
340	340	23268CAKE4	+ AH3268	Tr 370 × 5	264	38	273	35.5
	360	23072CAKE4	+ AH3072	Tr 385 × 5	167	30	176	21
	360	24072CAK30E4	+ AH24072	Tr 380 × 5	206	26	226	22.5
	360	23172CAKE4	+ AH3172	Tr 400 × 5	229	35	238	33
	360	24172CAK30E4	+ AH24172	Tr 380 × 5	269	26	289	30
360	360	23272CAKE4	+ AH3272	Tr 400 × 5	274	40	283	41.5
	380	23076CAKE4	+ AH3076	Tr 410 × 5	170	31	180	23.5
	380	24076CAK30E4	+ AH24076	Tr 400 × 5	208	28	228	24.1
	380	23176CAKE4	+ AH3176	Tr 420 × 5	232	36	242	35.5
	380	24176CAK30E4	+ AH24176	Tr 400 × 5	271	28	291	32.1
380	380	23276CAKE4	+ AH3276	Tr 420 × 5	284	42	294	45.5
	400	23080CAKE4	+ AH3080	Tr 430 × 5	183	33	193	27.5
	400	24080CAK30E4	+ AH24080	Tr 420 × 5	228	28	248	28
	400	23180CAKE4	+ AH3180	Tr 440 × 5	240	38	250	39.5
	400	24180CAK30E4	+ AH24180	Tr 420 × 5	278	28	298	34.8
	400	23280CAKE4	+ AH3280	Tr 440 × 5	302	44	312	51.5

Shaft Diameter 400 – 480 mm

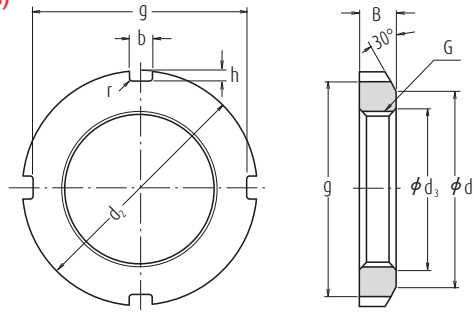


Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers		Screw Thread	Dimensions (mm)			Mass (kg)
d_1	d	Applicable Bearings		G	B_3	G_1	B_4	approx.
400	420	23084CAKE4	+ AH3084	Tr 450 × 5	186	34	196	29
	420	24084CAK30E4	+ AH24084	Tr 440 × 5	230	30	252	29.8
	420	23184CAKE4	+ AH3184	Tr 460 × 5	266	40	276	46.5
	420	24184CAK30E4	+ AH24184	Tr 440 × 5	310	30	332	41.4
	420	23284CAKE4	+ AH3284	Tr 460 × 5	321	46	331	59
420	440	23088CAKE4	+ AHX3088	Tr 470 × 5	194	35	205	42
	440	24088CAK30E4	+ AH24088	Tr 460 × 5	242	30	264	33
	440	23188CAKE4	+ AHX3188	Tr 480 × 5	270	42	281	50
	440	24188CAK30E4	+ AH24188	Tr 460 × 5	310	30	332	43.5
	440	23288CAKE4	+ AHX3288	Tr 480 × 5	330	48	341	64
440	460	23092CAKE4	+ AHX3092	Tr 490 × 5	202	37	213	46
	460	24092CAK30E4	+ AH24092	Tr 480 × 5	250	32	273	35.9
	460	23192CAKE4	+ AHX3192	Tr 510 × 6	285	43	296	58
	460	24192CAK30E4	+ AH24192	Tr 480 × 5	332	32	355	49.7
	460	23292CAKE4	+ AHX3292	Tr 510 × 6	349	50	360	74.5
460	480	23096CAKE4	+ AHX3096	Tr 520 × 6	205	38	217	51
	480	24096CAK30E4	+ AH24096	Tr 500 × 5	250	32	273	37.5
	480	23196CAKE4	+ AHX3196	Tr 530 × 6	295	45	307	63
	480	24196CAK30E4	+ AH24196	Tr 500 × 5	340	32	363	53
	480	23296CAKE4	+ AHX3296	Tr 530 × 6	364	52	376	82
480	500	230/500CAKE4	+ AHX30/500	Tr 540 × 6	209	40	221	54.5
	500	240/500CAK30E4	+ AH240/500	Tr 530 × 6	253	35	276	41.9
	500	231/500CAKE4	+ AHX31/500	Tr 550 × 6	313	47	325	71
	500	241/500CAK30E4	+ AH241/500	Tr 530 × 6	360	35	383	61.2
	500	232/500CAKE4	+ AHX32/500	Tr 550 × 6	393	54	405	94.5



Nuts for Rolling Bearings

(For Adapters and Shafts)



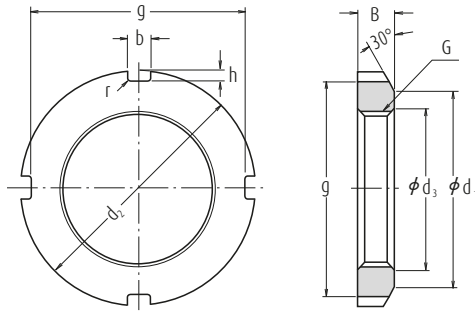
Nut with Washer

Units : mm

Nominal Numbers	Screw Threads	Nut Series AN									Reference		
		Basic Dimensions								Mass (kg)	Adapter (1) Sleeve Bore Dia. Numbers	Washer Numbers	Shaft Dia.
	G	d ₂	d ₁	g	b	h	d ₃	B	r max.	approx.			
AN 02	M 15x1	25	21	21	4	2	15.5	5	0.4	0.010	—	AW 02 X	15
AN 03	M 17x1	28	24	24	4	2	17.5	5	0.4	0.013	—	AW 03 X	17
AN 04	M 20x1	32	26	28	4	2	20.5	6	0.4	0.019	04	AW 04 X	20
AN 05	M 25x1.5	38	32	34	5	2	25.8	7	0.4	0.025	05	AW 05 X	25
AN 06	M 30x1.5	45	38	41	5	2	30.8	7	0.4	0.043	06	AW 06 X	30
AN 07	M 35x1.5	52	44	48	5	2	35.8	8	0.4	0.053	07	AW 07 X	35
AN 08	M 40x1.5	58	50	53	6	2.5	40.8	9	0.5	0.085	08	AW 08 X	40
AN 09	M 45x1.5	65	56	60	6	2.5	45.8	10	0.5	0.119	09	AW 09 X	45
AN 10	M 50x1.5	70	61	65	6	2.5	50.8	11	0.5	0.148	10	AW 10 X	50
AN 11	M 55x2	75	67	69	7	3	56	11	0.5	0.158	11	AW 11 X	55
AN 12	M 60x2	80	73	74	7	3	61	11	0.5	0.174	12	AW 12 X	60
AN 13	M 65x2	85	79	79	7	3	66	12	0.5	0.203	13	AW 13 X	65
AN 14	M 70x2	92	85	85	8	3.5	71	12	0.5	0.242	14	AW 14 X	70
AN 15	M 75x2	98	90	91	8	3.5	76	13	0.5	0.287	15	AW 15 X	75
AN 16	M 80x2	105	95	98	8	3.5	81	15	0.6	0.395	16	AW 16 X	80
AN 17	M 85x2	110	102	103	8	3.5	86	16	0.6	0.45	17	AW 17 X	85
AN 18	M 90x2	120	108	112	10	4	91	16	0.6	0.555	18	AW 18 X	90
AN 19	M 95x2	125	113	117	10	4	96	17	0.6	0.66	19	AW 19 X	95
AN 20	M 100x2	130	120	122	10	4	101	18	0.6	0.70	20	AW 20 X	100
AN 21	M 105x2	140	126	130	12	5	106	18	0.7	0.845	21	AW 21 X	105
AN 22	M 110x2	145	133	135	12	5	111	19	0.7	0.965	22	AW 22 X	110
AN 23	M 115x2	150	137	140	12	5	116	19	0.7	1.01	—	AW 23	115
AN 24	M 120x2	155	138	145	12	5	121	20	0.7	1.08	24	AW 24	120
AN 25	M 125x2	160	148	150	12	5	126	21	0.7	1.19	—	AW 25	125

Note ⁽¹⁾ Applicable to adapter sleeve Series A31, A2, A3, and A23.

Remark The basic design and dimensions of screw threads are in accordance with JIS B 0205.



Nut with Washer

Units : mm

Nominal Numbers	Nut Series AN										Reference		
	Screw Threads	Basic Dimensions								Mass (kg)	Adapter (1) Sleeve Bore Dia. Numbers	Washer Numbers	Shaft Dia.
		G	d ₂	d ₁	g	b	h	d ₃	B	r max.			
AN 26	M 130x2	165	149	155	12	5	131	21	0.7	1.25	26	AW 26	130
AN 27	M 135x2	175	160	163	14	6	136	22	0.7	1.55	—	AW 27	135
AN 28	M 140x2	180	160	168	14	6	141	22	0.7	1.56	28	AW 28	140
AN 29	M 145x2	190	172	178	14	6	146	24	0.7	2.0	—	AW 29	145
AN 30	M 150x2	195	171	183	14	6	151	24	0.7	2.03	30	AW 30	150
AN 31	M 155x3	200	182	186	16	7	156.5	25	0.7	2.21	—	—	—
AN 32	M 160x3	210	182	196	16	7	161.5	25	0.7	2.59	32	AW 32	160
AN 33	M 165x3	210	193	196	16	7	166.5	26	0.7	2.43	—	—	—
AN 34	M 170x3	220	193	206	16	7	171.5	26	0.7	2.8	34	AW 34	170
AN 36	M 180x3	230	203	214	18	8	181.5	27	0.7	3.05	36	AW 36	180
AN 38	M 190x3	240	214	224	18	8	191.5	28	0.7	3.4	38	AW 38	190
AN 40	M 200x3	250	226	234	18	8	201.5	29	0.7	3.7	40	AW 40	200
Nut Series ANL													
ANL 24	M 120x2	145	133	135	12	5	121	20	0.7	0.78	24	AWL 24	120
ANL 26	M 130x2	155	143	145	12	5	131	21	0.7	0.88	26	AWL 26	130
ANL 28	M 140x2	165	151	153	14	6	141	22	0.7	0.99	28	AWL 28	140
ANL 30	M 150x2	180	164	168	14	6	151	24	0.7	1.38	30	AWL 30	150
ANL 32	M 160x3	190	174	176	16	7	161.5	25	0.7	1.56	32	AWL 32	160
ANL 34	M 170x3	200	184	186	16	7	171.5	26	0.7	1.72	34	AWL 34	170
ANL 36	M 180x3	210	192	194	18	8	181.5	27	0.7	1.95	36	AWL 36	180
ANL 38	M 190x3	220	202	204	18	8	191.5	28	0.7	2.08	38	AWL 38	190
ANL 40	M 200x3	240	218	224	18	8	201.5	29	0.7	2.98	40	AWL 40	200

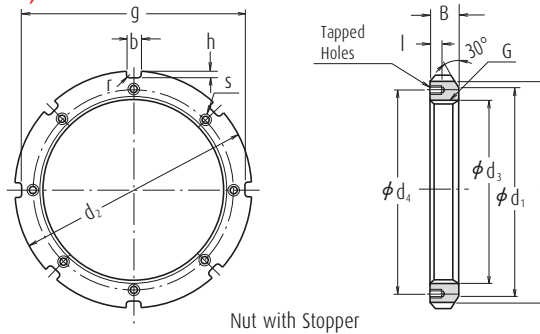
Note (1) Series AN is applicable to adapter sleeve Series A31 and A23.
Series ANL is applicable to adapter sleeve Series A30.

Remark The basic design and dimensions of screw threads are in accordance with JIS B 0205.



Nuts for Rolling Bearings

(For Adapters and Shafts)



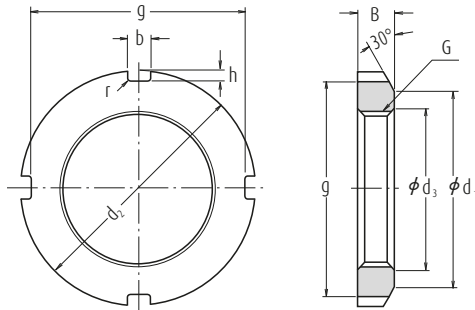
Nut with Stopper

Units : mm

Nominal Numbers	Nut Series AN												Reference			
	Screw Threads	Basic Dimensions								Tapped Holes			Mass (kg)	Adapter (1) Sleeve Bore Dia. Numbers	Stopper Numbers	Shaft Dia.
		G	d ₂	d ₁	g	b	h	d ₃	B	r max.	I	Screw Threads (S)	d ₄			
AN 44	Tr 220×4	280	250	260	20	10	222	32	0.8	15	M 8×1.25	238	5.2	44	AL 44	220
AN 48	Tr 240×4	300	270	280	20	10	242	34	0.8	15	M 8×1.25	258	5.95	48	AL 44	240
AN 52	Tr 260×4	330	300	306	24	12	262	36	0.8	18	M 10×1.5	281	8.05	52	AL 52	260
AN 56	Tr 280×4	350	320	326	24	12	282	38	0.8	18	M 10×1.5	301	9.05	56	AL 52	280
AN 60	Tr 300×4	380	340	356	24	12	302	40	0.8	18	M 10×1.5	326	11.8	60	AL 60	300
AN 64	Tr 320×5	400	360	376	24	12	322.5	42	0.8	18	M 10×1.5	345	13.1	64	AL 64	320
AN 68	Tr 340×5	440	400	410	28	15	342.5	55	1	21	M 12×1.75	372	23.1	68	AL 68	340
AN 72	Tr 360×5	460	420	430	28	15	362.5	58	1	21	M 12× 1.75	392	25.1	72	AL 68	360
AN 76	Tr 380×5	490	450	454	32	18	382.5	60	1	21	M 12×1.75	414	31	76	AL 76	380
AN 80	Tr 400×5	520	470	484	32	18	402.5	62	1	27	M 16×2	439	37	80	AL 80	400
AN 84	Tr 420×5	540	490	504	32	18	422.5	70	1	27	M 16×2	459	43.5	84	AL 80	420
AN 88	Tr 440×5	560	510	520	36	20	442.5	70	1	27	M 16×2	477	45	88	AL 88	440
AN 92	Tr 460×5	580	540	540	36	20	462.5	75	1	27	M 16×2	497	50.5	92	AL 88	460
AN 96	Tr 480×5	620	560	580	36	20	482.5	75	1	27	M 16×2	527	62	96	AL 96	480
AN 100	Tr 500×5	630	580	584	40	23	502.5	80	1	27	M 16×2	539	63.5	/500	AL 100	500
Nut Series ANL																
ANL 44	Tr 220×4	260	242	242	20	9	222	30	0.8	12	M 6×1	229	3.1	44	ALL 44	220
ANL 48	Tr 240×4	290	270	270	20	10	242	34	0.8	15	M 8×1.25	253	5.15	48	ALL 48	240
ANL 52	Tr 260×4	310	290	290	20	10	262	34	0.8	15	M 8×1.25	273	5.65	52	ALL 48	260
ANL 56	Tr 280×4	330	310	310	24	10	282	38	0.8	15	M 8×1.25	293	6.8	56	ALL 56	280
ANL 60	Tr 300×4	360	336	336	24	12	302	42	0.8	15	M 8×1.25	316	9.6	60	ALL 60	300
ANL 64	Tr 320×5	380	356	356	24	12	322.5	42	0.8	15	M 8×1.25	335	9.95	64	ALL 64	320
ANL 68	Tr 340×5	400	376	376	24	12	342.5	45	1	15	M 8×1.25	355	11.7	68	ALL 64	340
ANL 72	Tr 360×5	420	394	394	28	13	362.5	45	1	15	M 8×1.25	374	12	72	ALL 72	360
ANL 76	Tr 380×5	450	422	422	28	14	382.5	48	1	18	M 10×1.5	398	14.9	76	ALL 76	380
ANL 80	Tr 400×5	470	442	442	28	14	402.5	52	1	18	M 10×1.5	418	16.9	80	ALL 76	400
ANL 84	Tr 420×5	490	462	462	32	14	422.5	52	1	18	M 10×1.5	438	17.4	84	ALL 84	420
ANL 88	Tr 440×5	520	490	490	32	15	442.5	60	1	21	M 12×1.75	462	26.2	88	ALL 88	440
ANL 92	Tr 460×5	540	510	510	32	15	462.5	60	1	21	M 12×1.75	482	28	92	ALL 88	460
ANL 96	Tr 480×5	560	530	530	36	15	482.5	60	1	21	M 12×1.75	502	29.5	96	ALL 96	480
ANL 100	Tr 500×5	580	550	550	36	15	502.5	68	1	21	M 12×1.75	522	33.5	/500	ALL 96	500

Note (1) Series AN is applicable to adapter sleeve Series A31, A32 and A23. Series ANL is applicable to adapter sleeve Series A30.

Remarks 1. The basic design and dimensions of screw threads are in accordance with JIS B 0216.
2. The basic design and dimensions of threads in tapped holes are in accordance with JIS B 0205.



(For Withdrawal Sleeves)

Units : mm

Nominal Numbers	Nut Series HN										Reference			
	Screw Threads	Basic Dimensions								Mass (kg)	Withdrawal Sleeve Numbers			
		G	d ₂	d ₁	g	b	h	d ₃	B	r max.	approx.	AH 31	AH 22	AH 32
HN 42	Tr 210×4	270	238	250	20	10	212	30	0.8	4.75	AH 3138	AH 2238	AH 3238	AH 2338
HN 44	Tr 220×4	280	250	260	20	10	222	32	0.8	5.35	AH 3140	AH 2240	AH 3240	AH 2340
HN 48	Tr 240×4	300	270	280	20	10	242	34	0.8	6.2	AH 3144	AH 2244	—	AH 2344
HN 52	Tr 260×4	330	300	306	24	12	262	36	0.8	8.55	AH 3148	AH 2248	—	AH 2348
HN 58	Tr 290×4	370	330	346	24	12	292	40	0.8	11.8	AH 3152	AH 2252	—	AH 2352
HN 62	Tr 310×5	390	350	366	24	12	312.5	42	0.8	13.4	AH 3156	AH 2256	—	AH 2356
HN 66	Tr 330×5	420	380	390	28	15	332.5	52	1	20.4	AH 3160	AH 2260	AH 3260	—
HN 70	Tr 350×5	450	410	420	28	15	352.5	55	1	25.2	AH 3164	AH 2264	AH 3264	—
HN 74	Tr 370×5	470	430	440	28	15	372.5	58	1	28.2	AH 3168	—	AH 3268	—
HN 80	Tr 400×5	520	470	484	32	18	402.5	62	1	40	AH 3172	—	AH 3272	—
HN 84	Tr 420×5	540	490	504	32	18	422.5	70	1	46.9	AH 3176	—	AH 3276	—
HN 88	Tr 440×5	560	510	520	36	20	442.5	70	1	48.5	AH 3180	—	AH 3280	—
HN 92	Tr 460×5	580	540	540	36	20	462.5	75	1	55	AH 3184	—	AH 3284	—
HN 96	Tr 480×5	620	560	580	36	20	482.5	75	1	67	AHX 3188	—	AHX 3288	—
HN 102	Tr 510×6	650	590	604	40	23	513	80	1	75	AHX 3192	—	AHX 3292	—
HN 106	Tr 530×6	670	610	624	40	23	533	80	1	78	AHX 3196	—	AHX 3296	—
HN 110	Tr 550×6	700	640	654	40	23	553	80	1	92.5	AHX 31/500	—	AHX 32/500	—
Nut Series HNL											AH 30	AH 2		
HNL 41	Tr 205×4	250	232	234	18	8	207	30	0.8	3.45	AH 3038	AH 238		
HNL 43	Tr 215×4	260	242	242	20	9	217	30	0.8	3.7	AH 3040	AH 240		
HNL 47	Tr 235×4	280	262	262	20	9	237	34	0.8	4.6	AH 3044	AH 244		
HNL 52	Tr 260×4	310	290	290	20	10	262	34	0.8	5.8	AH 3048	AH 248		
HNL 56	Tr 280×4	330	310	310	24	10	282	38	0.8	6.7	AH 3052	AH 252		
HNL 60	Tr 300×4	360	336	336	24	12	302	42	0.8	9.6	AH 3056	AH 256		
HNL 64	Tr 320×5	380	356	356	24	12	322.5	42	1	10.3	AH 3060	—		
HNL 69	Tr 345×5	410	384	384	28	13	347.5	45	1	11.5	AH 3064	—		
HNL 73	Tr 365×5	430	404	404	28	13	367.5	48	1	14.2	AH 3068	—		
HNL 77	Tr 385×5	450	422	422	28	14	387.5	48	1	15	AH 3072	—		
HNL 82	Tr 410×5	480	452	452	32	14	412.5	52	1	19	AH 3076	—		
HNL 86	Tr 430×5	500	472	472	32	14	432.5	52	1	19.8	AH 3080	—		
HNL 90	Tr 450×5	520	490	490	32	15	452.5	60	1	23.8	AH 3084	—		
HNL 94	Tr 470×5	540	510	510	32	15	472.5	60	1	25	AHX 3088	—		
HNL 98	Tr 490×5	580	550	550	36	15	492.5	60	1	34	AHX 3092	—		
HNL 104	Tr 520×6	600	570	570	36	15	523	68	1	37	AHX 3096	—		
HNL 108	Tr 540×6	630	590	590	40	20	543	68	1	43.5	AHX 30/500	—		

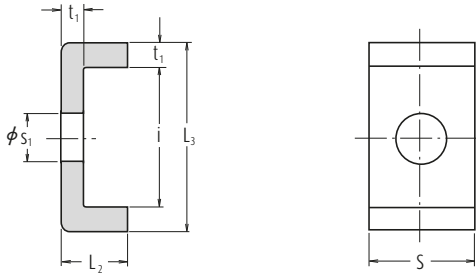
- Remarks**
1. The basic design and dimensions of screw threads are in accordance with JIS B 0216.
 2. The number of notches in the nut may be bigger than that shown in the above figure.

Nuts for Rolling Bearings

(Combination of Withdrawal Sleeves and Nuts)

Nominal Numbers	Reference						
	Withdrawal Sleeve Numbers						
	AH 30	AH 31	AH 2	AH 22	AH 32	AH 3	AH 23
AN 09	—	—	AH 208	—	—	AH 308	AH 2308
AN 10	—	—	AH 209	—	—	AH 309	AH 2309
AN 11	—	—	AH 210	—	—	AHX 310	AHX 2310
AN 12	—	—	AH 211	—	—	AHX 311	AHX 2311
AN 13	—	—	AH 212	—	—	AHX 312	AHX 2312
AN 14	—	—	—	—	—	—	—
AN 15	—	—	AH 213	—	—	AH 313	AH 2313
AN 16	—	—	AH 214	—	—	AH 314	AHX 2314
AN 17	—	—	AH 215	—	—	AH 315	AHX 2315
AN 18	—	—	AH 216	—	—	AH 316	AHX 2316
AN 19	—	—	AH 217	—	—	AHX 317	AHX 2317
AN 20	—	—	AH 218	—	AHX 3218	AHX 318	AHX 2318
AN 21	—	—	AH 219	—	—	AHX 319	AHX 2319
AN 22	—	—	AH 220	—	AHX 3220	AHX 320	AHX 2320
AN 23	—	—	AH 221	—	—	AHX 321	—
AN 24	—	AHX 3122	AH 222	—	—	AHX 322	—
AN 25	—	—	—	—	AHX 3222	—	AHX 2322
AN 26	AHX 3024	AHX 3124	AH 224	—	—	AHX 324	—
AN 27	—	—	—	—	AHX 3224	—	AHX 2324
AN 28	AHX 3026	AHX 3126	AH 226	—	—	AHX 326	—
AN 29	—	—	—	—	AHX 3226	—	AHX 2326
AN 30	AHX 3028	AHX 3128	AH 228	—	—	AHX 328	—
AN 31	—	—	—	—	AHX 3228	—	AHX 2328
AN 32	AHX 3030	—	AH 230	—	—	—	—
AN 33	—	AHX 3130	—	—	AHX 3230	AHX 330	AHX 2330
AN 34	AH 3032	—	AH 232	—	—	—	—
AN 36	AH 3034	AH 3132	AH 234	—	AH 3232	AH 332	AH 2332
AN 38	AH 3036	AH 3134	AH 236	—	AH 3234	AH 334	AH 2334
AN 40	—	AH 3136	—	AH 2236	AH 3236	—	AH 2336

Stoppers for Nuts

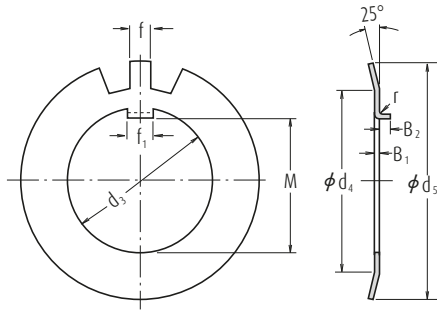


Units : mm

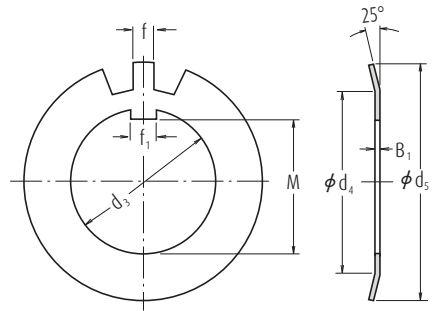
Nominal Numbers	Stopper Series AL							Reference
	Basic Dimensions						Mass (kg) per 100 pcs	Nut Numbers
	t ₁	S	L ₂	s ₁	i	L ₃	approx.	
AL 44	4	20	12	9	22.5	30.5	2.6	AN 44, AN 48
AL 52	4	24	12	12	25.5	33.5	3.4	AN 52, AN 56
AL 60	4	24	12	12	30.5	38.5	3.8	AN 60
AL 64	5	24	15	12	31	41	5.35	AN 64
AL 68	5	28	15	14	38	48	6.65	AN 68, AN 72
AL 76	5	32	15	14	40	50	7.95	AN 76
AL 80	5	32	15	18	45	55	8.2	AN 80, AN 84
AL 88	5	36	15	18	43	53	9.0	AN 88, AN 92
AL 96	5	36	15	18	53	63	10.4	AN 96
AL 100	5	40	15	18	45	55	10.5	AN 100
Stopper Series ALL								
ALL 44	4	20	12	7	13.5	21.5	2.12	ANL 44
ALL 48	4	20	12	9	17.5	25.5	2.29	ANL 48, ANL 52
ALL 56	4	24	12	9	17.5	25.5	2.92	ANL 56
ALL 60	4	24	12	9	20.5	28.5	3.15	ANL 60
ALL 64	5	24	15	9	21	31	4.55	ANL 64, ANL 68
ALL 72	5	28	15	9	20	30	5.05	ANL 72
ALL 76	5	28	15	12	24	34	5.3	ANL 76, ANL 80
ALL 84	5	32	15	12	24	34	6.1	ANL 84
ALL 88	5	32	15	14	28	38	6.45	ANL 88, ANL 92
ALL 96	5	36	15	14	28	38	7.3	ANL 96, ANL 100



Lock-Washers for Rolling Bearings



Bent-Tab



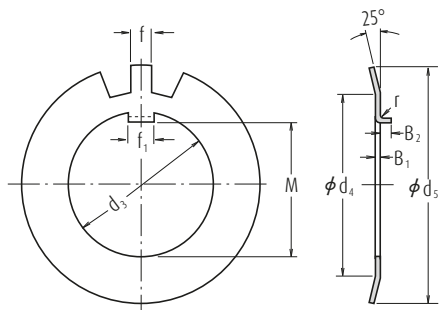
Straight-Tab

Units : mm

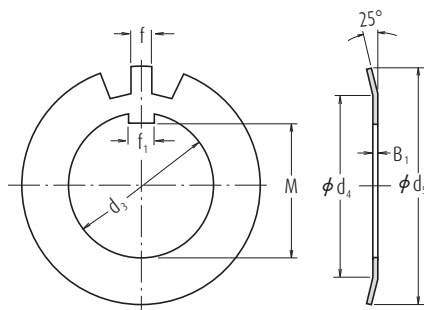
Nominal Numbers		Lock-washer Series AW										Reference		
		Basic Dimensions								No. of Teeth	Mass (kg) per 100 pcs approx.	Adapter (1) Sleeve Bore Dia. Numbers	Nut Numbers	Shaft Dia.
Bent-Tab	Straight-Tab	d ₃	M	f ₁	B ₁	f	d ₄	d ₅	Bent-Tab r B ₂					
AW 02	AW 02 X	15	13.5	4	1	4	21	28	1 2.5	13	0.253	—	AN 02	15
AW 03	AW 03 X	17	15.5	4	1	4	24	32	1 2.5	13	0.315	—	AN 03	17
AW 04	AW 04 X	20	18.5	4	1	4	26	36	1 2.5	13	0.35	04	AN 04	20
AW 05	AW 05 X	25	23	5	1.2	5	32	42	1 2.5	13	0.64	05	AN 05	25
AW 06	AW 06 X	30	27.5	5	1.2	5	38	49	1 2.5	13	0.78	06	AN 06	30
AW 07	AW 07 X	35	32.5	6	1.2	5	44	57	1 2.5	15	1.04	07	AN 07	35
AW 08	AW 08 X	40	37.5	6	1.2	6	50	62	1 2.5	15	1.23	08	AN 08	40
AW 09	AW 09 X	45	42.5	6	1.2	6	56	69	1 2.5	17	1.52	09	AN 09	45
AW 10	AW 10 X	50	47.5	6	1.2	6	61	74	1 2.5	17	1.6	10	AN 10	50
AW 11	AW 11 X	55	52.5	8	1.2	7	67	81	1 4	17	1.96	11	AN 11	55
AW 12	AW 12 X	60	57.5	8	1.5	7	73	86	1.2 4	17	2.53	12	AN 12	60
AW 13	AW 13 X	65	62.5	8	1.5	7	79	92	1.2 4	19	2.9	13	AN 13	65
AW 14	AW 14 X	70	66.5	8	1.5	8	85	98	1.2 4	19	3.35	14	AN 14	70
AW 15	AW 15 X	75	71.5	8	1.5	8	90	104	1.2 4	19	3.55	15	AN 15	75
AW 16	AW 16 X	80	76.5	10	1.8	8	95	112	1.2 4	19	4.65	16	AN 16	80
AW 17	AW 17 X	85	81.5	10	1.8	8	102	119	1.2 4	19	5.25	17	AN 17	85
AW 18	AW 18 X	90	86.5	10	1.8	10	108	126	1.2 4	19	6.25	18	AN 18	90
AW 19	AW 19 X	95	91.5	10	1.8	10	113	133	1.2 4	19	6.7	19	AN 19	95
AW 20	AW 20 X	100	96.5	12	1.8	10	120	142	1.2 6	19	7.65	20	AN 20	100
AW 21	AW 21 X	105	100.5	12	1.8	12	126	145	1.2 6	19	8.25	21	AN 21	105
AW 22	AW 22 X	110	105.5	12	1.8	12	133	154	1.2 6	19	9.4	22	AN 22	110
AW 23	AW 23 X	115	110.5	12	2	12	137	159	1.5 6	19	10.8	—	AN 23	115
AW 24	AW 24 X	120	115	14	2	12	138	164	1.5 6	19	10.5	24	AN 24	120
AW 25	AW 25 X	125	120	14	2	12	148	170	1.5 6	19	11.8	—	AN 25	125

Note (1) Applicable to adapter sleeve Series A31, A2, A3, and A23.

Remark Lock-washers with straight tabs shall be used with adapter sleeves having narrow slits. For adapter sleeves having wide slits, either type of lock-washer may be used.



Bent-Tab



Straight-Tab

Units : mm

Nominal Numbers		Lock-washer Series AW										Reference			
		Basic Dimensions										No. of Teeth	Mass (kg) per 100 pcs approx.	Adapter (1) Sleeve Bore Dia. Numbers	Nut Numbers
Bent-Tab	Straight-Tab	d ₃	M	f ₁	B ₁	f	d ₄	d ₅	Bent-Tab r	B ₂					
AW 26	AW 26 X	130	125	14	2	12	149	175	1.5	6	19	11.3	26	AN 26	130
AW 27	AW 27 X	135	130	14	2	14	160	185	1.5	6	19	14.4	—	AN 27	135
AW 28	AW 28 X	140	135	16	2	14	160	192	1.5	8	19	14.2	28	AN 28	140
AW 29	AW 29 X	145	140	16	2	14	172	202	1.5	8	19	16.8	—	AN 29	145
AW 30	AW 30 X	150	145	16	2	14	171	205	1.5	8	19	15.9	30	AN 30	150
AW 31	AW 31 X	155	147.5	16	2.5	16	182	212	1.5	8	19	20.9	—	AN 31	155
AW 32	AW 32 X	160	154	18	2.5	16	182	217	1.5	8	19	22.2	32	AN 32	160
AW 33	AW 33 X	165	157.5	18	2.5	16	193	222	1.5	8	19	24.1	—	AN 33	165
AW 34	AW 34 X	170	164	18	2.5	16	193	232	1.5	8	19	24.7	34	AN 34	170
AW 36	AW 36 X	180	174	20	2.5	18	203	242	1.5	8	19	26.8	36	AN 36	180
AW 38	AW 38 X	190	184	20	2.5	18	214	252	1.5	8	19	27.8	38	AN 38	190
AW 40	AW 40 X	200	194	20	2.5	18	226	262	1.5	8	19	29.3	40	AN 40	200
Washer Series AWL															
AWL 24	AWL 24 X	120	115	14	2	12	133	155	1.5	6	19	7.7	24	ANL 24	120
AWL 26	AWL 26 X	130	125	14	2	12	143	165	1.5	6	19	8.7	26	ANL 26	130
AWL 28	AWL 28 X	140	135	16	2	14	151	175	1.5	8	19	10.9	28	ANL 28	140
AWL 30	AWL 30 X	150	145	16	2	14	164	190	1.5	8	19	11.3	30	ANL 30	150
AWL 32	AWL 32 X	160	154	18	2.5	16	174	200	1.5	8	19	16.2	32	ANL 32	160
AWL 34	AWL 34 X	170	164	18	2.5	16	184	210	1.5	8	19	19	34	ANL 34	170
AWL 36	AWL 36 X	180	174	20	2.5	18	192	220	1.5	8	19	18	36	ANL 36	180
AWL 38	AWL 38 X	190	184	20	2.5	18	202	230	1.5	8	19	20.5	38	ANL 38	190
AWL 40	AWL 40 X	200	194	20	2.5	18	218	250	1.5	8	19	21.4	40	ANL 40	200

Note (1) Series AW is applicable to adapter sleeve Series A31 and A23.
Series AWL is applicable to adapter sleeve Series A30.

Remark Lock-washers with straight tabs shall be used with adapter sleeves having narrow slits. For adapter sleeves having wide slits, either type of lock-washer may be used.

