

Ultra-Slim Thin Section Bearings

Ideal for applications in robotics, inspection equipment, satellites, cameras... anywhere precise positioning and lightweight designs are critical.

At just 2.5 mm wide, Ultra-Slim bearings are available in bore sizes ranging from 35 mm to 170 mm for an array of applications. Their compact profile allows you to use Ultra-Slim bearings in many highly confined spaces.

Precision-engineered Ultra-Slim bearings are made of stainless steel for corrosion resistance. They are available in angular contact (Type A), radial contact (Type C), and four-point contact

(Type X) styles. Torque figures shown are for single bearings with standard internal fit-up, standard lubricant at room temperature, and under 5 pounds thrust load. (See selection charts on the next page.)

Note that Ultra-Slim bearings are not designed to be preloaded and are not recommended for continuous rotation applications, as the cross-section cannot accommodate a separator.

Hybrid bearings with ceramic balls are available upon request. These are used often when lubrication is marginal or when lower wear generation and/or lower torque levels are required.

Figure 2-9

How to identify Ultra-Slim Bearings using our part number code

Position	1	2	3	4	5	6	7	8	9	10
Nomenclature	Material	Bore (mm)		Width(mm)		Type	Separator	Precision	Internal Fit	
Example	S	1	1	0	0	3	C	S	0	K

Explanation of position numbers:

Position 1 – Material

S = AISI 440C races and balls
(Standard for Series)

Positions 2, 3 and 4 – Bore

Nominal bearing bore in mm.

Positions 5 and 6 – Width

Nominal radial race width in mm.

Position 7 – Bearing Type

A = Angular Contact
C = Radial Contact
X = Four-Point Contact

Position 8 – Separator

S = Spacer balls
F = Full complement of load balls

Position 9 – Precision

0 = Kaydon standard Precision Class 1 (higher precision not available in this series)

Position 10 – Internal Fit

A = 0.000 - 0.013 mm clearance
C = 0.013 - 0.025 mm clearance
E = 0.025 - 0.051 mm clearance
K = 0.000 - 0.013 mm preload
M = 0.013 - 0.025 mm preload
empty = standard internal fitup if not specified

Performance and Application Considerations

Ultra-Slim bearings are unique in that their extremely thin cross section enables them to provide great size and weight reductions for light to medium duty applications with slow or intermittent rotation.

Given the fact that these bearings will most likely be used in lightly loaded applications where saving weight and space are the main objective, the loading values shown assume that the shaft and housing will also be of light construction. This will allow for greater bearing ring movement under load than traditional heavy section bearings. Thus the loading limits for capacity are not based on ABMA standards.

Depending on the support provided by the shaft and housing, this movement can create increased stress levels within the bearing. Distortion of the shaft and housing under load will transfer to the bearing, causing increased stress levels which could lead to premature failure and/or erratic torque conditions.

The impact of non-uniform shaft and housing distortions is best found by testing. If problems are experienced, increased rigidity of the shaft and housing may be necessary. If the shaft and housing are of sufficient rigidity, it may be possible for the bearings to support greater loads than the loading limits provided.

Ultra-Slim Bearing Selection Data

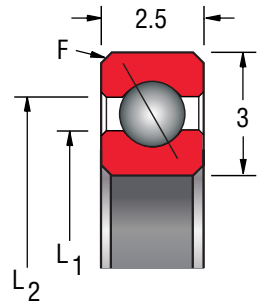
Selection Tables

Section 2

Angular Contact Type A

KAYDON Bearing Number	Dimensions in Millimeters				Capacities in Newtons		Loading Limit (N)	Mass in Grams
	Size		Land Diameters		Dynamic ^①	Static ^②		
	Bore	Outside Dia.	L ₁	L ₂	Radial	Radial	Thrust ^③	
S03503ASO	35	41	37.2	38.8	383	382	1334	5
S06003ASO	60	66	62.2	63.8	552	649	1112	9
S07003ASO	70	76	72.2	73.8	609	756	1068	11
S07403ASO	74	80	76.2	77.8	632	799	1045	11
S08003ASO	80	86	82.2	83.8	663	863	1001	12
S09003ASO	90	96	92.2	93.8	716	970	956	13
S10003ASO	100	106	102.2	103.8	765	1077	890	15
S11003ASO	110	116	112.2	113.8	814	1183	867	16
S12003ASO	120	126	122.2	123.8	863	1290	823	18
S13003ASO	130	136	132.2	133.8	912	1407	778	19
S14003ASO	140	146	142.2	143.8	956	1514	734	21
S15003ASO	150	156	152.2	153.8	1001	1621	712	22
S16003ASO	160	166	162.2	163.8	1045	1727	689	24
S17003ASO	170	176	172.2	173.8	1085	1834	667	25

Full complement or spacer ball 1/16" (inch)

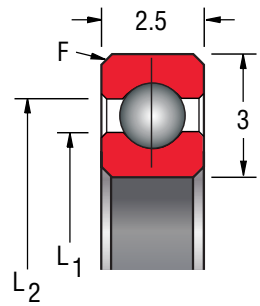


④ F = 0.25
Bearing corners are normally chamfered

Radial Contact Type C

KAYDON Bearing Number	Dimensions in Millimeters				Capacities in Newtons		Mass in Grams
	Size		Land Diameters		Dynamic ^①	Static ^②	
	Bore	Outside Dia.	L ₁	L ₂	Radial	Radial	
S03503CSO	35	41	37.2	38.8	418	418	5
S06003CSO	60	66	62.2	63.8	605	711	9
S07003CSO	70	76	72.2	73.8	667	827	11
S07403CSO	74	80	76.2	77.8	689	875	11
S08003CSO	80	86	82.2	83.8	725	944	12
S09003CSO	90	96	92.2	93.8	783	1062	13
S10003CSO	100	106	102.2	103.8	841	1178	15
S11003CSO	110	116	112.2	113.8	894	1295	16
S12003CSO	120	126	122.2	123.8	943	1412	18
S13003CSO	130	136	132.2	133.8	1001	1540	19
S14003CSO	140	146	142.2	143.8	1050	1658	21
S15003CSO	150	156	152.2	153.8	1099	1774	22
S16003CSO	160	166	162.2	163.8	1143	1891	24
S17003CSO	170	176	172.2	173.8	1192	2006	25

Full complement or spacer ball 1/16" (inch)

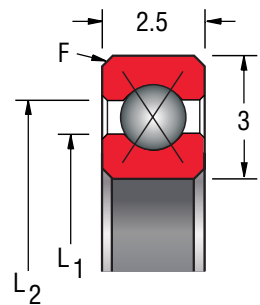


④ F = 0.25
Bearing corners are normally chamfered

4-Point Contact Type X

KAYDON Bearing Number	Dimensions in Millimeters				Capacities in Newtons		Loading Limit		Mass in Grams
	Size		Land Diameters		Dynamic ^①	Static ^②	Thrust ^③ (N)	Moment ^③ (N-m)	
	Bore	Outside Dia.	L ₁	L ₂	Radial	Radial			
S03503XS0	35	41	37.2	38.8	585	711	1045	7.9	5
S06003XS0	60	66	62.2	63.8	847	1208	934	11.8	9
S07003XS0	70	76	72.2	73.8	934	1407	890	13.0	11
S07403XS0	74	80	76.2	77.8	965	1487	867	13.4	11
S08003XS0	80	86	82.2	83.8	1015	1606	845	14.0	12
S09003XS0	90	96	92.2	93.8	1096	1805	801	14.9	13
S10003XS0	100	106	102.2	103.8	1177	2003	756	15.6	15
S11003XS0	110	116	112.2	113.8	1252	2201	734	16.6	16
S12003XS0	120	126	122.2	123.8	1320	2400	689	17.0	18
S13003XS0	130	136	132.2	133.8	1401	2618	645	17.2	19
S14003XS0	140	146	142.2	143.8	1470	2818	623	17.8	21
S15003XS0	150	156	152.2	153.8	1538	3016	601	18.4	22
S16003XS0	160	166	162.2	163.8	1600	3215	578	18.9	24
S17003XS0	170	176	172.2	173.8	1669	3413	556	19.2	25

Full complement or spacer ball 1/16" (inch)



④ F = 0.25
Bearing corners are normally chamfered

① Dynamic radial capacities are included for life calculation purposes. These are based on the assumption that the shaft and housing have adequate strength to support the loads without causing excessive distortion of the bearing rings.

② Static radial capacities are based on maximum allowable contact stresses. Adequate support of the races is assumed to help assure uniform ball support.

③ Higher loading limits may be achieved with sufficiently rigid supports that will better restrict the movement of the bearing races under load.

④ Corner size is the maximum shaft or housing fillet radius that the bearing corners will clear.