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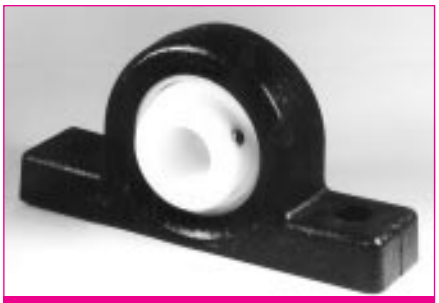
Plastic Ball Bearings 20



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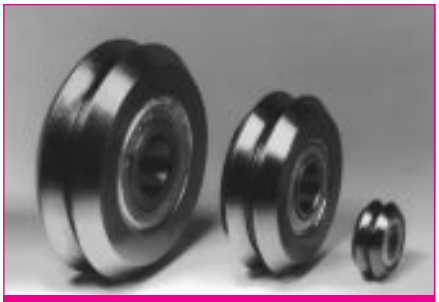

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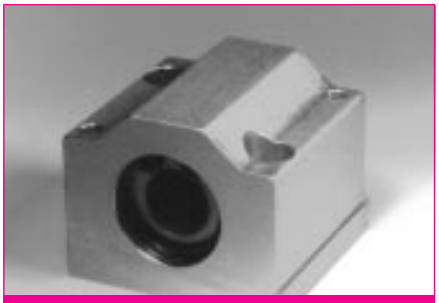

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- ***Quality Bearings & Components*** (QBC) is the newest addition to the Designatronics family.

- Established to serve the ever-increasing list of miniature bearing users, we have committed ourselves to increased levels of product knowledge and inventory.

  Together with our extensive lubrication capabilities, housed in a clean room environment, we believe our responsiveness to be second to none.

- Established in 1961, Designatronics has throughout the years grown to be the largest manufacturer and distributor of small drive components in the industry.

  This is due, in no small way, to a firm corporate commitment to customer service and quality – a heritage passed on to ***Quality Bearings & Components***.

QBC CORPORATE QUALITY POLICY

IT IS OUR POLICY TO PRODUCE AND DELIVER QUALITY PRODUCTS, ON TIME, AT COMPETITIVE PRICES.

Barry P. Stormes
General Manager

Martin Hoffman
President

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NOTE: We reserve the right to make changes and corrections to both price and technical data without notice. Every effort has been made to provide accurate technical and product information. ***Quality Bearings & Components*** disclaims responsibility for any error or omission regarding technical and product information published.

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Quality Bearings & Components

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ABEC Tolerances

The listing below expresses bearing tolerances as established by the: "Annular Bearing Engineers Committee" (ABEC) of the: "Antifriction Bearing Manufacturers Association Inc." (AFBMA)
These standards are also recognized by the "American National Standards Institute Inc." (ANSI) and, by international agreement, they are accepted by the "International Organization of Standardization" (ISO)

INNER RING TOLERANCES

ABEC 1 - ABEC 3

Bore Diameter				Bore Diameter +.0000		Radial Runout		Width Tolerances +.0000	
m m		Inch							
Over	Incl.	Over	Incl.	ABEC 1	ABEC 3	ABEC 1	ABEC 3	ABEC 1	ABEC 3
0	10	0	.3937	-.0003	-.0002	±.0003	±.0002	-.0050	-.0050
10	18	.3937	.7087	-.0003	-.0002	±.0004	±.0003	-.0050	-.0050
18	30	.7087	1.1811	-.0004	-.0002	±.0005	±.0003	-.0050	-.0050
30	50	1.1811	1.9685	-.0005	-.0003	±.0006	±.0004	-.0050	-.0050
50	80	1.9685	3.1496	-.0006	-.0004	±.0008	±.0004	-.0060	-.0060
80	120	3.1496	4.7244	-.0008	-.0005	±.0010	±.0005	-.0080	-.0080

ABEC 5P - ABEC 7P - ABEC 9P

Bore Diameter				Bore Dia. +.0000			Radial Runout (max.)			Width Variation (max.)			Ref. Runout With Bore (max.)		
m m		Inch		ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC
Over	Incl.	Over	Incl.	5P	7P	9P	5P	7P	9P	5P	7P	9P	5P	7P	9P
0	10	0	.3937	-.0002	-.0002	-.0001	± .00015	± .0001	± .00005	±.0002	±.0001	± .00005	±.0003	±.0001	± .00005
10	18	.3937	.7087	-.0002	-.0002	-.0001	± .00015	± .0001	± .00005	±.0002	±.0001	± .00005	±.0003	±.0001	± .00005
18	30	.7087	1.1811	-.0002	-.0002	-.0001	± .00015	± .00015	± .0001	±.0002	±.0001	+ .00005	±.0003	±.00015	± .00005
30	50	1.1811	1.9685	-.0002	-.0002	-.0001	± .0002	± .00015	—	±.0002	±.0001	—	±.0003	±.00015	—
50	80	1.9685	3.1496	-.0003	-.0002	-.0001	± .0002	± .0002	—	±.0002	±.00015	—	±.0003	±.0002	—
80	120	3.1496	4.7244	-.0003	-.0025	-.0001	± .0025	± .0002	—	±.0003	±.00015	—	±.0004	±.0002	—

ABEC 5P - ABEC 7P

Bore Diameter				Groove Runout with Referance Side (max.)		Width Tolerance +.0000		Bore 2 point out-of-round (max.)		Bore taper (max.)	
m m		Inch		ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC
Over	Incl.	Over	Incl.	5P	7P	5P	7P	5P	7P	5P	7P
0	10	0	.3937	±.0003	±.0001	-.0010	-.0010	± .0001	± .0001	± .0001	± .0001
10	18	.3937	.7087	±.0003	±.0001	-.0010	-.0010	± .0001	± .0001	± .0001	± .0001
18	30	.7087	1.1811	±.0003	±.00015	-.0010	-.0010	± .0001	± .0001	± .0001	± .0001
30	50	1.1811	1.9685	±.0003	±.00015	-.0010	-.0010				
50	80	1.9685	3.1496	±.0003	±.00015	-.0010	-.0015				
80	120	3.1496	4.7244	±.0004	±.0002	-.0015	-.0015				

ABEC Tolerances

OUTER RING TOLERANCES

ABEC 1 - ABEC 3

Bore Diameter				Outer Diameter Tolerance Limit +.0000		Radial Runout		Width Tolerance +.0000		Flange Width Tolerance Limits +.0000		Flange Dia. Tolerance Limits +.0050	
m m		Inch		ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC
Over	Incl.	Over	Incl.	1	3	1	3	1	3	1	3	1	3
0	18	0	.7087	-.0003	-.0003	± .0006	± .0004	-.0050	-.0050	-.0020	-.0020	-.0020	-.0020
18	30	.7087	1.1811	-.0004	-.0003	± .0006	± .0004	-.0050	-.0050	-.0020	-.0020	-.0020	-.0020
30	50	1.1811	1.9685	-.0005	-.0003	± .0008	± .0004	-.0050	-.0050	-.0020	-.0020	-.0020	-.0020
50	80	1.9685	3.1496	-.0005	-.0004	± .0010	± .0005	-.0050	-.0050	—	—	—	—
80	120	3.1496	4.7244	-.0006	-.0004	± .0014	± .0007	-.0050	-.0050	—	—	—	—
120	150	4.7244	5.9055	-.0008	-.0005	± .0016	± .0008	-.0050	-.0050	—	—	—	—

ABEC 5P - ABEC 7P - ABEC 9P

Bore Diameter				Outer Diameter Tolerance +.0000			Radial Runout (max.)			Width Variation (max.)			Outside Cylindrical Surface Runout With Referance Side (max.)		
m m		Inch		ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC
Over	Incl.	Over	Incl.	5P	7P	9P	5P	7P	9P	5P	7P	9P	5P	7P	9P
0	18	0	.7087	-.0002	-.0002	-.0001	± .0002	± .00015	± .00005	±.0002	±.0001	±.00005	±.0003	±.00015	±.00005
18	30	.7087	1.1811	-.0002	-.0002	-.00015	± .0002	± .00015	± .0001	±.0002	±.0001	±.00005	±.0003	±.00015	±.00005
30	50	1.1811	1.9685	-.0002	-.0002	-.00015	± .0002	± .00015	± .0001	±.0002	±.0001	±.00005	±.0003	±.00015	±.00005
50	80	1.9685	3.1496	-.0003	-.0002	-.00015	± .0003	± .0002	± .0001	±.0002	±.00015	—	±.0003	±.00015	—
80	120	3.1496	4.7244	-.0003	-.0003	-.00015	± .0004	± .0002	± .0001	±.0003	±.0002	—	±.0003	±.0002	—
120	150	4.7244	5.9055	-.0004	-.0004	-.00015	± .0005	± .0003	± .0001	±.0003	±.0003	—	±.0004	±.0002	—

ABEC 5P - ABEC 7P

Bore Diameter				Flange Width Tolerance Limits (max.) +.0000		Flange Diameter Tolerance Limits (max.) +.0000		Outer Diameter 2 Point Out-of-Round (max.)		Groove runout with referance side (max.)	
m m		Inch		ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	ABEC	**ABEC**
Over	Incl.	Over	Incl.	5P	7P	5P	7P	5P	7P	5P	**7P**
0	18	0	.7087	- .0020	- .0020	- .0010	- .0010	± .0001	± .0001	± .0003	± .0002
18	30	.7087	1.1811	- .0020	- .0020	- .0010	- .0010	± .0001	± .0001	± .0003	± .0002
30	50	1.1811	1.9685	- .0020	- .0020	- .0010	- .0010	± .0001	± .0001	± .0003	± .0002
50	80	1.9685	3.1496							± .0004	± .0002
80	120	3.1496	4.7244							± .0005	± .0002
120	150	4.7244	5.9055							± .0005	± .0003

ABEC 5P - ABEC 7P

Bore Diameter				Width tolerances +.0000		Outer diameter taper (max.)	
m m		Inch		ABEC	ABEC	ABEC	**ABEC**
Over	Incl.	Over	Incl.	5P	7P	5P	**7P**
0	18	0	.7087	- .0010	- .0010	± .0001	± .0001
18	30	.7087	1.1811	- .0010	- .0010	± .0001	± .0001
30	50	1.1811	1.9685	- .0010	- .0010	± .0001	± .0001
50	80	1.9685	3.1496	- .0010	- .0010		
80	120	3.1496	4.7244	- .0015	- .0015		
120	150	4.7244	5.9055	- .0015	- .0015		

Quality Bearings & Components

Extra Light
PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • 6000 Series

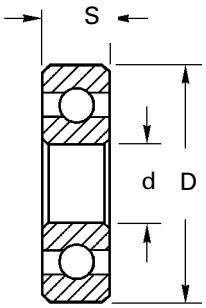


FIGURE 1
NO SHIELD

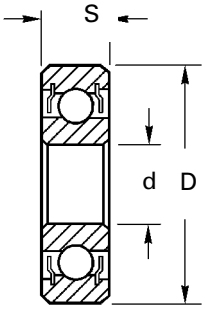
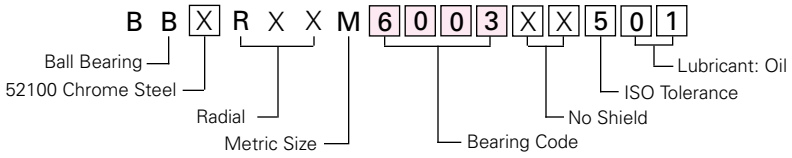


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S Width	Load Rating N (lbs.)*	
				Dynamic	Static
6000	10	26	8	3514 (790)	1935 (435)
6001	12	28	8	3937 (885)	2224 (500)
6002	15	32	9	4292 (965)	2491 (560)
6003	17	35	10	5249 (1180)	3025 (680)
6004	20	42	12	7206 (1620)	4448 (1000)
6005	25	47	12	7740 (1740)	4938 (1110)
6006	30	55	13	10186 (2290)	6895 (1550)
6007	35	62	14	12277 (2760)	8496 (1910)
6008	40	68	15	12900 (2900)	9252 (2080)
6009	45	75	16	16014 (3600)	12144 (2730)
6010	50	80	16	16681 (3750)	13078 (2940)
6011	55	90	18	21752 (4890)	18149 (4080)
6012	60	95	18	22641 (5090)	19617 (4410)
6013	65	100	18	23531 (5290)	21085 (4740)
6014	70	110	20	29224 (6570)	26067 (5860)
6015	75	115	20	30381 (6830)	28157 (6330)
6016	80	125	22	36698 (8250)	31493 (7080)

NOTE: 1. Sizes 6000 thru 6006 available in Chrome Steel and Stainless Steel. Sizes 6007 thru 6016 available in Chrome Steel only.

2. X = Filler character.

* Load Ratings are for Chrome Steel.

Light
PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • 6200 Series

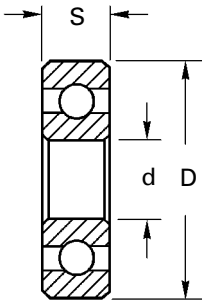


FIGURE 1
NO SHIELD

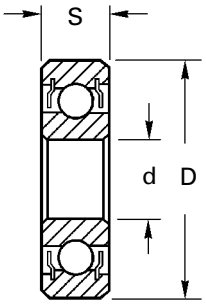
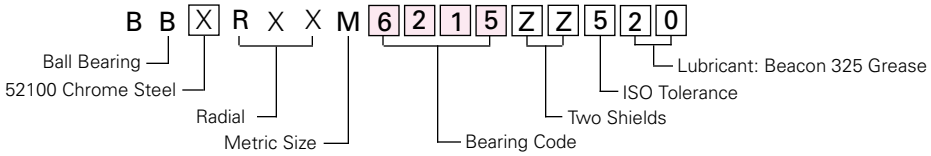


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S Width	Load Rating N (lbs.)*	
				Dynamic	Static
6200	10	30	9	4159 (935)	2269 (510)
6201	12	32	10	4671 (1050)	2647 (595)
6202	15	35	11	5961 (1340)	3447 (775)
6203	17	40	12	7384 (1660)	4381 (985)
6204	20	47	14	9875 (2220)	6183 (1390)
6205	25	52	15	10809 (2430)	6939 (1560)
6206	30	62	16	14902 (3350)	10008 (2250)
6207	35	72	17	19795 (4450)	13568 (3050)
6208	40	80	18	22464 (5050)	15569 (3500)
6209	45	85	19	25132 (5650)	17793 (4000)
6210	50	90	20	26911 (6050)	19795 (4450)
6211	55	100	21	33362 (7500)	26067 (5860)
6212	60	110	22	40212 (9040)	32383 (7280)
6213	65	120	23	44126 (9920)	35808 (8050)
6214	70	125	24	48041 (10800)	36831 (8280)
6215	75	130	25	50710 (11400)	41497 (9329)
6216	80	140	26	56048 (12600)	43997 (9891)

NOTE: 1. Sizes 6200 thru 6206 available in Chrome Steel and Stainless Steel.
Sizes 6207 thru 6216 available in Chrome Steel only.
2. X = Filler character.

* Load Ratings are for Chrome Steel.

Medium
PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • 6300 Series

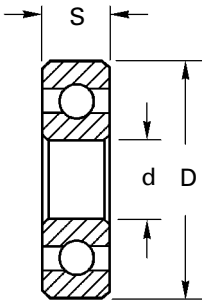


FIGURE 1
NO SHIELD

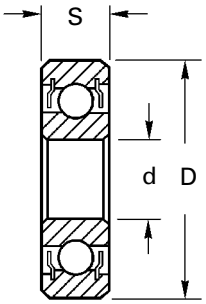
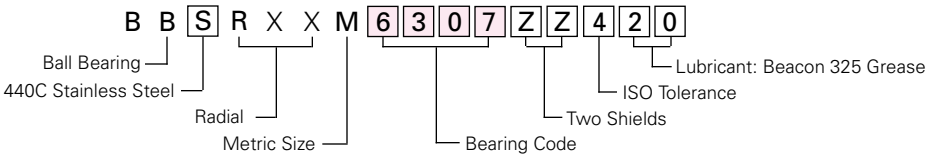


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S Width	Load Rating N (lbs.)*	
				Dynamic	Static
6300	10	35	11	6316 (1420)	3759 (845)
6301	12	37	12	7473 (1680)	4626 (1040)
6302	15	42	13	8807 (1980)	5427 (1220)
6303	17	47	14	10409 (2340)	6539 (1470)
6304	20	52	15	12277 (2760)	7784 (1750)
6305	25	62	17	16236 (3650)	10587 (2380)
6306	30	72	19	20462 (4600)	13789 (3100)
6307	35	80	21	25577 (5750)	17793 (4000)
6308	40	90	23	31360 (7050)	22241 (5000)
6309	45	100	25	40701 (9150)	29803 (6700)
6310	50	110	27	47596 (10700)	35586 (8000)
6311	55	120	29	55202 (12410)	41813 (9400)
6312	60	130	31	63076 (14180)	48486 (10900)
6313	65	140	33	71394 (16050)	56114 (12615)
6314	70	150	35	80179 (18025)	63343 (14240)
6315	75	160	37	86740 (19500)	71883 (16160)
6316	80	170	39	94614 (21270)	80513 (18100)

NOTE: 1. Sizes 6300 thru 6305 available in Chrome Steel and Stainless Steel.
Sizes 6306 thru 6316 available in Chrome Steel only.
2. X = Filler character.

* Load Ratings are for Chrome Steel.

Extremely Light
PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • 6900 Series

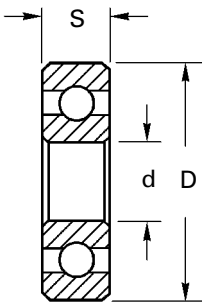


FIGURE 1
NO SHIELD

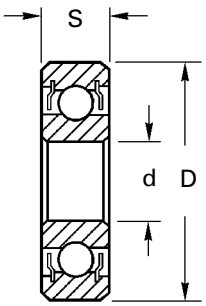
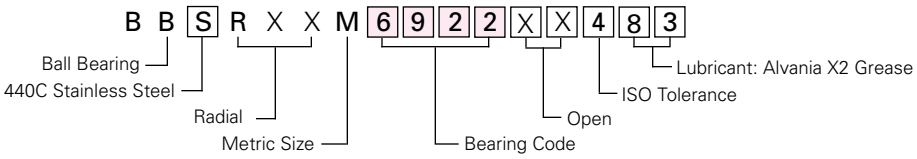


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S Width	Load Rating N (lbs.) 1000 rpm
6900	10	22	6	667 (150)
6901	12	24	6	823 (185)
6902	15	28	7	1068 (240)
6903	17	30	7	1134 (255)
6904	20	37	9	1824 (410)
6905	25	42	9	2091 (470)
6906	30	47	9	2313 (520)
6907	35	55	10	2914 (655)
6908	40	62	12	3603 (810)
6909	45	68	12	3870 (870)
6910	50	72	12	4026 (905)
6911	55	80	13	4893 (1100)
6912	60	85	13	5026 (1130)
6913	65	90	13	5160 (1160)
6914	70	100	16	5872 (1320)
6915	75	105	16	6939 (1560)
6920	100	140	20	11610 (2610)
6921	105	145	20	11966 (2690)
6922	110	150	20	12277 (2760)
6924	120	165	22	14724 (3310)

NOTE: 1. Sizes 6900 thru 6910 available in Chrome Steel and Stainless Steel. Sizes 6911 thru 6924 available in Chrome Steel only.
2. Not all sizes available with shields or seals; check availability before ordering.
3. X = Filler character.

* Load Ratings are for Chrome Steel.

Miniature Instrument
PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel

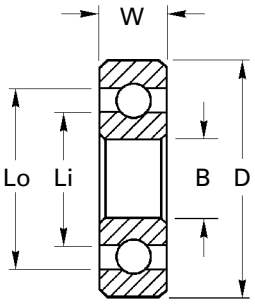


FIGURE 1
NO SHIELD

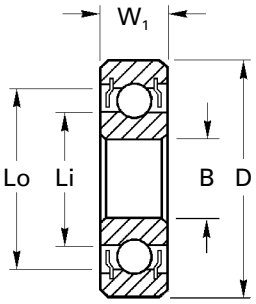
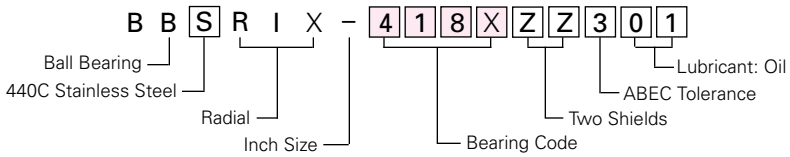


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	B Bore +.0000 -.0002	D Outside Dia. +.0000 -.0003	Width +.000 -.005		Land Dia. (Ref.)			Load Rating lbs. (N)*	
					Li Inner	Lo Outer			
			W	W_1	All	Fig. 1	Fig. 2	Dynamic	Static
21/2	.0469	.1562	.0625	.0937	.081	.124	.134	16 (71)	5.3 (24)
3XXX	.0550	.1875	.0781	.1094	.093	.159	.167	28 (125)	9.6 (43)
4XXX	.0781	.2500	.0937	.1406	.122	.193	.205	35 (156)	12.1 (54)
3332	.0937	.1875	.0625	.0937	.118	.161	.167	19 (85)	6.5 (29)
5XXX	.0937	.3125	.1094	.1406	.173	.270	.282	60 (267)	22 (98)
418X	.1250	.2500	.0937	.1094	.161	.216	.228	33 (147)	12.2 (54)
518X	.1250	.3125	.1094	.1406	.173	.270	.282	60 (267)	22 (98)
618X	.1250	.3750	.1094	.1406	.173	.270	.282	60 (267)	22 (98)
5532	.1562	.3125	.1094	.1250	.221	.279	.285	45 (200)	17 (76)
5632	.1875	.3125	.1094	.1250	.221	.279	.285	45 (200)	17 (76)
6632	.1875	.3750	.1250	.1250	.235	.325	.341	76 (338)	31 (138)
614X	.2500	.3750	.1250	.1250	.285	.341	.348	43 (191)	21 (93)
814X	.2500	.5000	.1250	.1875	.330	.431	.452	88 (391)	40 (178)
8516	.3125	.5000	.1562	.1562	.362	.450	.460	93 (414)	43 (191)
1038	.3750	.6250	.1562	.1562	.457	.556	.556	95 (423)	49 (218)
1212	.5000	.7500	.1562	.1562	.587	.687	.687	111 (494)	66 (294)
1458	.6250	.8750	.1562	.1562	.713	.813	.813	114 (507)	75 (334)
1634	.7500	1.0000	.1562	.1562	.837	.937	.937	126 (560)	92 (409)

NOTE: X = FIller character.

* Load Ratings are for Chrome Steel.

Precision
PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel

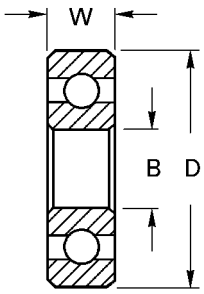


FIGURE 1
NO SHIELD

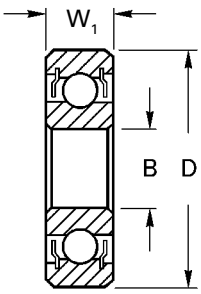
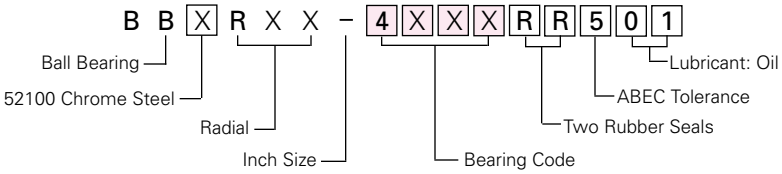


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	B Bore	D Outside Dia.	Width		Load Rating lbs. (N)*	
			W	W_1	Dynamic	Static
2XXX	.1250	.3750	.1562	.1562	73 (325)	29 (129)
2AXX	.1250	.5000	.1719	.1719	73 (325)	29 (129)
3XXX	.1875	.5000	.1562	.1960	148 (658)	64 (285)
4XXX	.2500	.6250	.1960	.1960	168 (747)	77 (343)
4AXX	.2500	.7500	.2188	.2812	405 (1801)	198 (881)
6XXX	.3750	.8750	.2188	.2812	575 (2558)	305 (1357)
8XXX	.5000	1.1250	.2500	.3125	885 (3937)	505 (2246)
10XX	.6250	1.3750	.2812	.3438	1040 (4626)	650 (2891)
12XX	.7500	1.6250	.3125	.4375	1620 (7206)	1030 (4582)
14XX	.8750	1.8750	.3750	.5000	1740 (7740)	1160 (5160)
16XX	1.0000	2.0000	.3750	.5000	1740 (7740)	1160 (5160)
18XX	1.1250	2.1250	.3750	.5000	2290 (10186)	1630 (7251)
20XX	1.2500	2.2500	.3750	.5000	2290 (10186)	1650 (7340)
22XX	1.3750	2.5000	.4375	.5625	2760 (12277)	2020 (8985)
24XX	1.5000	2.6250	.4375	.5625	2900 (12900)	2200 (9786)

NOTE: X = Filler character.

* Load Ratings are for Chrome Steel.

Commercial
PLAIN BALL BEARINGS

• 1600 Series • Chrome Steel

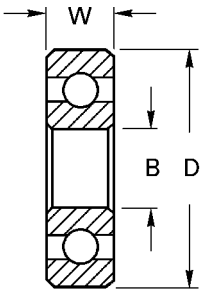


FIGURE 1
NO SHIELD

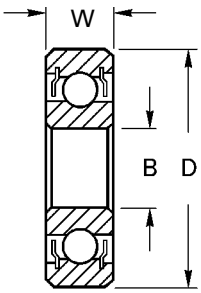
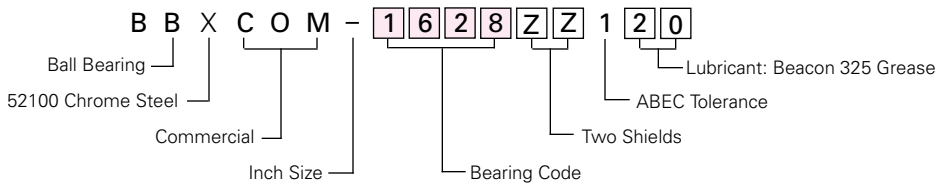


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	B Bore	D Outside Dia.	W Width	Radius in.	Load Rating lbs. (N)	
					Dynamic	Static
*1601	.1875	.6875	.2500	.012	294 (1308)	146 (649)
*1602	.2500	.6875	.2500	.012	294 (1308)	146 (649)
**1603	.3125	.8750	.2812	.012	464 (2064)	228 (1014)
**1604	.3750	.8750	.2812	.015	464 (2064)	228 (1014)
1605	.3125	.9062	.3125	.012	464 (2064)	228 (1014)
1606	.3750	.9062	.3125	.015	464 (2064)	228 (1014)
1607	.4375	.9062	.3125	.015	464 (2064)	229 (1019)
1614	.3750	1.1250	.3750	.025	400 (1779)	229 (1019)
1615	.4375	1.1250	.3750	.025	400 (1779)	229 (1019)
1616	.5000	1.1250	.3750	.025	400 (1779)	229 (1019)
1620	.4375	1.3750	.4375	.025	600 (2669)	354 (1575)
1621	.5000	1.3750	.4375	.025	600 (2669)	354 (1575)
1622	.5625	1.3750	.4375	.025	600 (2669)	354 (1575)
1623	.6250	1.3750	.4375	.025	600 (2669)	354 (1575)
1628	.6250	1.6250	.5000	.025	738 (3283)	454 (2020)
1630	.7500	1.6250	.5000	.025	738 (3283)	454 (2020)
1633	.6250	1.7500	.5000	.025	738 (3283)	454 (2020)
1635	.7500	1.7500	.5000	.025	738 (3283)	454 (2020)
1638	.7500	2.0000	.5625	.035	1100 (4893)	709 (3154)
1640	.8750	2.0000	.5625	.035	1100 (4893)	709 (3154)
1641	1.0000	2.0000	.5625	.035	1100 (4893)	709 (3154)
1652	1.1250	2.5000	.6250	.035	1306 (5809)	857 (3812)
1654	1.2500	2.5000	.6250	.035	1306 (5809)	857 (3812)
1657	1.2500	2.5625	.6875	.035	1528 (6797)	1021 (4542)
1658	1.3125	2.5625	.6875	.035	1528 (6797)	1021 (4542)

* Width of RS & RR = 5/16 ** Width of RS & RR = 11/32

NOTE: 1. Radius is the maximum shaft radius or housing fillet that the bearing corner will clear.
2. X = Filler character.

Extended Inner Race
PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel

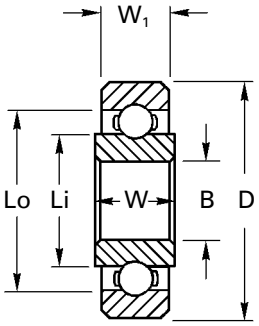


FIGURE 1
NO SHIELD

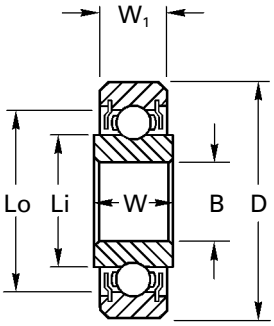
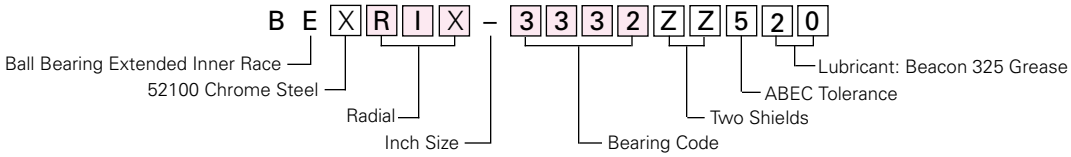


FIGURE 2
DOUBLE SHIELD

Part Number Example



Subgroup and Bearing Code	B Bore	D Outside Dia.	Width Inner		Width		Land Dia. (Ref.) Fig. 1 & 2		Load Rating lbs. (N)*	
			W Fig.1	W Fig. 2	W_1 Fig.1	W_1 Fig. 2	Li Inner	Lo Outer	Dynamic	Static
RIX–21/2	.0469	.1562	.0937	.1250	.0625	.0937	.077	.123	16 (71)	5.3 (24)
RIX–3XXX	.0550	.1875	.1094	.1406	.0781	.1094	.091	.150	28 (125)	9.6 (43)
RIX–4XXX	.0781	.2500	.1250	.1719	.0937	.1406	.122	.193	35 (156)	12.1 (54)
RIX–3332	.0937	.1875	.0937	.1250	.0625	.0937	.117	.163	19 (85)	6.5 (29)
RIX–5XXX	.0937	.3125	.1406	.1719	.1094	.1406	.176	.269	60 (267)	22 (98)
RIX–418X	.1250	.2500	.1250	.1406	.0937	.1094	.157	.217	33 (147)	12.2 (54)
RIX–518X	.1250	.3125	.1406	.1719	.1094	.1406	.176	.269	60 (267)	22 (98)
RIX–618X	.1250	.3750	.1406	.1719	.1094	.1406	.204	.297	60 (267)	22 (98)
RXX–**2**XXX	.1250	.3750	.1875	.1875	.1562	.1562	.200	.321	73 (325)	29 (129)
RIX–5532	.1562	.3125	.1406	.1562	.1094	.1250	.220	.279	45 (200)	17 (76)
RIX–5632	.1875	.3125	.1406	.1562	.1094	.1250	.220	.279	45 (200)	17 (76)
RIX–6632	.1875	.3750	.1562	.1562	.1250	.1250	.232	.329	76 (338)	31 (138)
RXX–**3**XXX	.1875	.5000	.1875	.2272	.1562	.1960	.276	.433	148 (658)	64 (285)
RIX–614X	.2500	.3750	.1562	.1562	.1250	.1250	.283	.342	43 (191)	21 (93)
RIX–814X	.2500	.5000	.1562	.2188	.1250	.1875	.330	.429	88 (391)	40 (178)
RXX–**4**XXX	.2500	.6250	.2272	.2272	.1960	.1960	.364	.544	168 (747)	77 (343)
RIX–8516	.3125	.5000	.2272	.1875	.1562	.1562	.362	.449	43 (191)	43 (191)

NOTE: X = Filler character.

*Load Ratings are for Chrome Steel.

Miniature Instrument
FLANGED BALL BEARINGS

• Stainless Steel • Chrome Steel

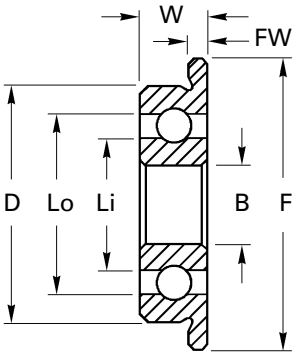


FIGURE 1
NO SHIELD

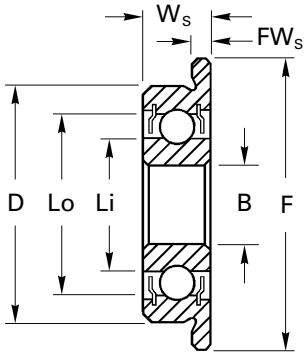
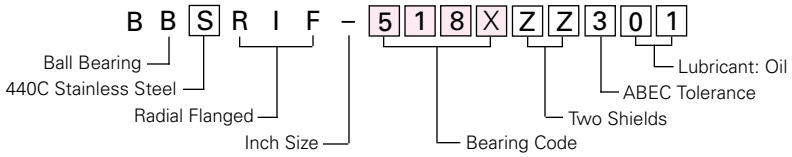


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	B Bore	D Outside Dia.	Width		Flange Width		F Flange Dia.	Land Dia. (Ref.)			Load Rating lbs. (N)*	
								Li Inner	Lo Outer			
			W	W_s	FW	FW_s		All	Fig. 1	Fig. 2	Dynamic	Static
21/2	.0469	.1562	.0625	.0937	.013	.031	.203	.081	.124	.134	16 (71)	5.3 (24)
3XXX	.0550	.1875	.0781	.1094	.023	.031	.234	.093	.159	.167	28 (125)	9.6 (43)
4XXX	.0781	.2500	.0937	.1406	.023	.031	.296	.122	.193	.205	35 (156)	12.1 (54)
3332	.0937	.1875	.0625	.0937	.018	.031	.234	.118	.161	.167	19 (85)	6.5 (29)
5XXX	.0937	.3125	.1094	.1406	.023	.031	.359	.173	.270	.282	60 (267)	22 (98)
418X	.1250	.2500	.0937	.1094	.023	.031	.296	.161	.216	.228	33 (147)	12.2 (54)
518X	.1250	.3125	.1094	.1406	.023	.031	.359	.173	.270	.282	60 (267)	22 (98)
618X	.1250	.3750	.1094	.1406	.023	.031	.422	.173	.270	.282	60 (267)	22 (98)
5532	.1562	.3125	.1094	.1250	.023	.036	.359	.221	.279	.285	45 (200)	17 (76)
5632	.1875	.3125	.1094	.1250	.023	.036	.359	.221	.279	.285	45 (200)	17 (76)
6632	.1875	.3750	.1250	.1250	.023	.031	.422	.235	.325	.341	76 (338)	31 (138)
614X	.2500	.3750	.1250	.1250	.023	.036	.422	.285	.341	.348	43 (191)	20 (89)
814X	.2500	.5000	.1250	.1875	.023	.045	.547	.330	.431	.452	88 (391)	40 (178)
8516	.3125	.5000	.1562	.1562	.031	.031	.547	.362	.450	.460	93 (414)	43 (191)

NOTE: X = Filler character.

*Load Ratings are for Chrome Steel.

Precision
FLANGED BALL BEARINGS

• Stainless Steel • Chrome Steel

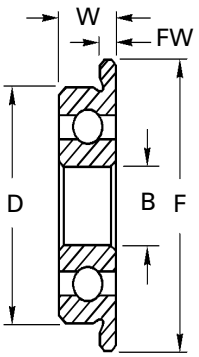


FIGURE 1
NO SHIELD

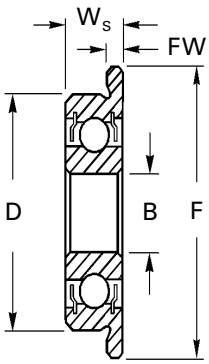
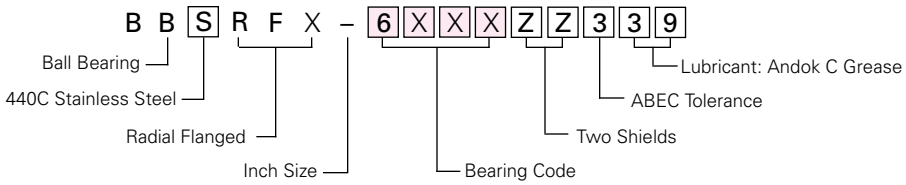


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	B Bore	D Outside Dia.	Width		Flange Width	F Flange Dia.	Load Rating lbs. (N)*	
			W	W_s	FW		Dynamic	Static
2XXX	.1250	.3750	.1562	.1562	.030	.440	73 (325)	29 (129)
3XXX	.1875	.5000	.1562	.1960	.042	.565	148 (688)	64 (285)
4XXX	.2500	.6250	.1960	.1960	.042	.690	168 (747)	77 (343)
6XXX	.3750	.8750	.2188	.2812	.062	.969	575 (2558)	305 (1357)
8XXX	.5000	1.1250	.2500	.3125	.062	1.225	885 (3937)	505 (2246)

NOTE: X = Filler character.

*Load Ratings are for Chrome Steel.

Miniature Instrument/ Precision FLANGED BALL BEARINGS

• Stainless Steel • Chrome Steel • Extended Inner Ring

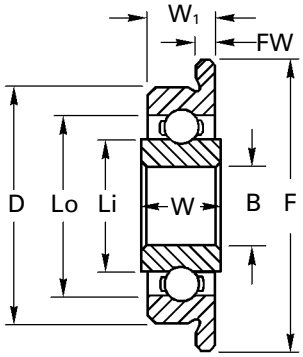


FIGURE 1
NO SHIELD

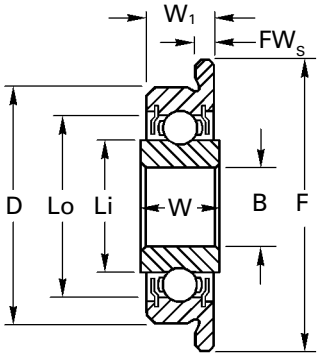
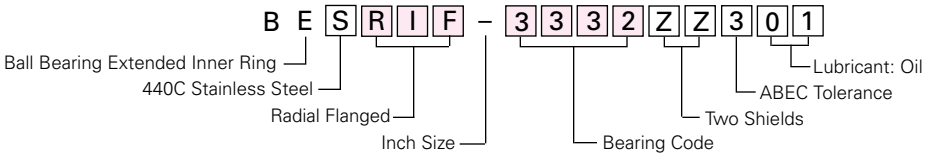


FIGURE 2
DOUBLE SHIELD

Part Number Example



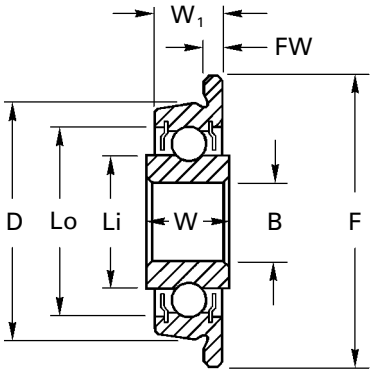
Subgroup and Bearing Code	B Bore	D Outside Dia.	Width +.000 -.005				Flange Width		F Flange Dia.	Land Dia. (Ref.) Fig. 1 & 2		Load Rating lbs. (N)*	
			Inner		Outer								
			W Fig.1	W Fig. 2	W1 Fig.1	W1 Fig. 2	FW	FW_s		Li Inner	Lo Outer	Dynamic	Static
RIF–21/2	.0469	.1562	.0937	.1250	.0625	.0937	.013	.031	.203	.081	.134	16 (71)	5.3 (24)
RIF–3XXX	.0550	.1875	.1094	.1406	.0781	.1094	.023	.031	.234	.093	.167	28 (125)	9.6 (43)
RIF–4XXX	.0781	.2500	.1250	.1719	.0937	.1406	.023	.031	.296	.122	.205	35 (156)	12.1 (54)
RIF–3332	.0937	.1875	.0937	.1250	.0625	.0937	.018	.031	.234	.118	.167	19 (85)	6.5 (29)
RIF–5XXX	.0937	.3125	.1406	.1719	.1094	.1406	.023	.031	.359	.173	.282	60 (267)	22 (98)
RIF–418X	.1250	.2500	.1250	.1406	.0937	.1094	.023	.031	.296	.161	.228	33 (147)	12.2 (54)
RIF–518X	.1250	.3125	.1406	.1719	.1094	.1406	.023	.031	.359	.173	.282	60 (267)	22 (98)
RIF–618X	.1250	.3750	.1406	.1719	.1094	.1406	.023	.031	.422	.173	.282	60 (267)	22 (98)
RFX**–2**XXX	.1250	.3750	.1875	.1875	.1562	.1562	.030	.030	.440	.200	.321	66 (294)	26 (116)
RIF–5532	.1562	.3125	.1406	.1562	.1094	.1250	.023	.036	.359	.221	.285	45 (200)	17 (76)
RIF–5632	.1875	.3125	.1406	.1562	.1094	.1250	.023	.036	.359	.221	.285	45 (200)	17 (76)
RIF–6632	.1875	.3750	.1562	.1562	.1250	.1250	.023	.031	.422	.235	.341	76 (338)	31 (138)
RFX**–3**XXX	.1875	.5000	.1562	.2272	.1250	.1960	—	.042	.565	.276	.433	140 (623)	59 (262)
RIF–614X	.2500	.3750	.1562	.1562	.1250	.1250	.023	.036	.422	.285	.348	43 (191)	21 (93)
RIF–814X	.2500	.5000	.1562	.2188	.1250	.1250	.023	.045	.547	.330	.452	88 (391)	40 (178)
RFX**–4**XXX	.2500	.6250	.2500	.2260	.1250	.1875	—	.042	.690	.364	.544	159 (707)	70 (311)
RIF–8516	.3125	.5000	.1875	.1875	.1562	.1562	.031	.031	.547	.362	.460	93 (414)	43 (191)

NOTE: X = Filler character.

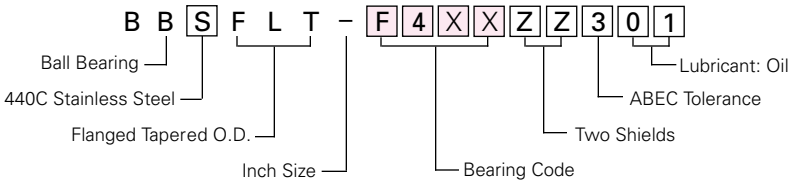
* Load Ratings are for Chrome Steel.

Tapered O.D.
FLANGED BALL BEARINGS

- Shielded Extended Inner Ring
- Stainless Steel • Chrome Steel



Part Number Example



Bearing Code	B Bore	D Outside* Dia.	Width		F Flange Dia.	FW Flange Width	Land Diameter		Load Rating lbs. (N)**	
			Inner W	Outer W_1			Li Inner	Lo Outer	Dynamic	Static
F2XX	.1250	.3757	.188	.163	.438	.037	.204	.299	68 (303)	28 (125)
F3XX	.1875	.5632	.251	.226	.625	.042	.276	.413	141 (627)	67 (298)
F4XX	.2500	.6257	.250	.226	.687	.042	.365	.510	158 (703)	78 (347)
F5XX	.3125	.6882	.250	.226	.750	.042	.418	.608	377 (1677)	139 (618)

* Outer Ring Tapered .075 per foot – **F2**XX only
Outer Ring Tapered .068 per foot – **F3**XX - **F5**XX

** Load Ratings are for Chrome Steel.

NOTE: X = Filler character.

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Quality Bearings & Components

Extra Thin
PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • E Series

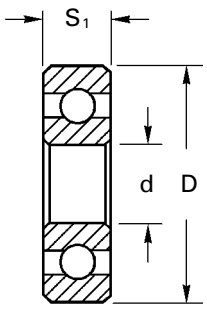


FIGURE 1
NO SHIELD

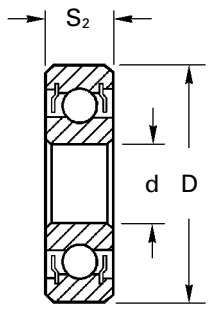
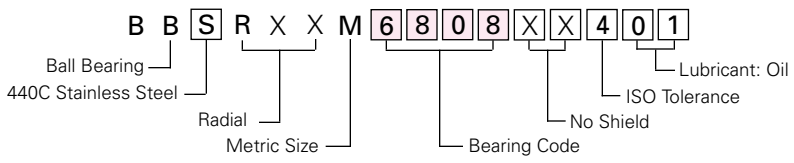


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S_1 Width	S_2 Width	Load Rating N (lbs.)*	
					Dynamic	Static
6700	10	15	3	4	294 (66)	151 (34)
6800	10	19	5	5	592 (133)	249 (56)
6380	10	19	7	7	592 (133)	249 (56)
6701	12	18	4	4	320 (72)	182 (41)
6801	12	21	5	5	663 (149)	303 (68)
6381	12	21	7	7	663 (149)	303 (68)
6702	15	21	4	4	360 (81)	196 (44)
6802	15	24	5	5	721 (162)	351 (79)
6382	15	24	7	7	721 (162)	351 (79)
6703	17	23	4	4	356 (80)	222 (50)
6803	17	26	5	5	778 (175)	400 (90)
6383	17	26	7	7	778 (175)	400 (90)
6704	20	27	4	4	374 (84)	254 (57)
6804	20	32	7	7	1579 (355)	965 (217)
6705	25	32	4	N.A.	400 (90)	294 (66)
6805	25	37	7	7	1735 (390)	1143 (257)
6706	30	37	4	N.A.	423 (95)	338 (76)
6806	30	42	7	7	1601 (360)	1161 (261)
6707	35	44	5	N.A.	689 (155)	578 (130)
6807	35	47	7	7	1686 (379)	1299 (292)
6708	40	50	6	N.A.	921 (207)	787 (177)
6808	40	52	7	7	1766 (397)	1432 (322)
6709	45	55	6	N.A.	947 (213)	854 (192)
6809	45	58	7	7	1895 (426)	1641 (369)

NOTE: X = Filler character.
N.A. = Not Available.
* Load Ratings are for Chrome Steel.

Quality Bearings & Components

Miniature Instrument PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • (L) 600 Series

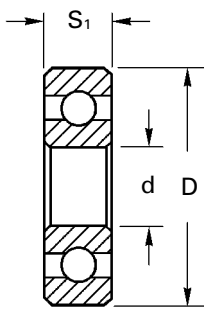


FIGURE 1
NO SHIELD

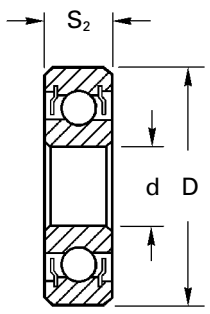
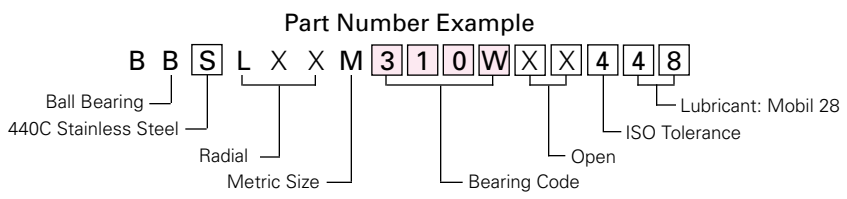


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S_1 Width	S_2 Width	Load Rating N (lbs.)*	
					Dynamic	Static
L310	1	3	1	—	62 (14)	18 (4)
310W	1	3	1.5	—	62 (14)	18 (4)
691X	1	4	1.6	—	107 (24)	40 (9)
L415	1.5	4	1.2	2	89 (20)	31 (7)
R515	1.5	5	2	2.6	187 (42)	67 (15)
R615	1.5	6	2.5	3	254 (57)	98 (22)
L520	2	5	1.5	2.3	129 (29)	49 (11)
520W	2	5	2	2.5	129 (29)	49 (11)
R620	2	6	2.3	3	254 (57)	98 (22)
620W	2	6	2.5	—	254 (57)	98 (22)
720Y	2	7	2.5	3	196 (44)	80 (18)
R720	2	7	2.8	3.5	294 (66)	129 (29)
L625	2.5	6	1.8	2.6	156 (35)	62 (14)
R725	2.5	7	2.5	3.5	294 (66)	129 (29)

NOTE: X = Filler character. * Load Ratings are for Chrome Steel.

Quality Bearings & Components

Miniature Instrument PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • (L) 600 Series

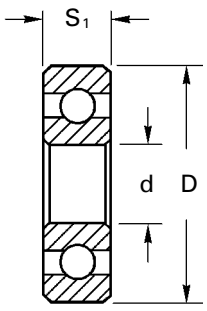


FIGURE 1
NO SHIELD

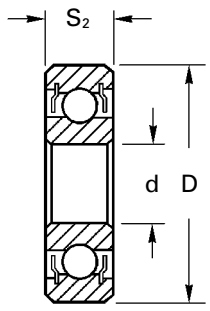
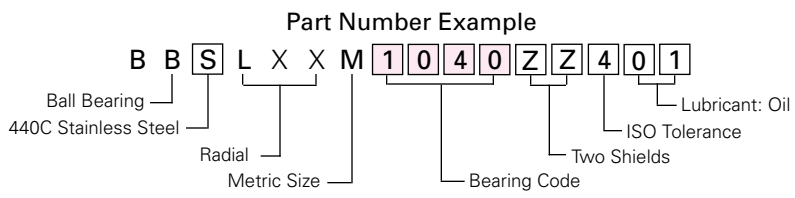


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S_1 Width	S_2 Width	Load Rating N (lbs.)* Dynamic	Load Rating N (lbs.)* Static
825Y	2.5	8	2.5	—	294 (66)	107 (24)
R825	2.5	8	2.8	4	431 (97)	178 (40)
L630	3	6	2	2.5	156 (35)	62 (14)
L730	3	7	2	3	156 (35)	62 (14)
830Y	3	8	2.5	—	294 (66)	107 (24)
R830	3	8	3	4	294 (66)	107 (24)
930Y	3	9	2.5	4	294 (66)	107 (24)
R930	3	9	3	—	294 (66)	107 (24)
1030	3	10	4	4	489 (110)	218 (49)
R633	3	13	5	5	1001 (225)	480 (108)
L740	4	7	2	2.5	156 (35)	58 (13)
L840	4	8	2	3	196 (44)	80 (18)
L940	4	9	2.5	4	365 (82)	169 (38)
1040	4	10	3	4	294 (66)	116 (26)

NOTE: X = Filler character. * Load Ratings are for Chrome Steel.

Quality Bearings & Components

Miniature Instrument PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • (L) 600 Series

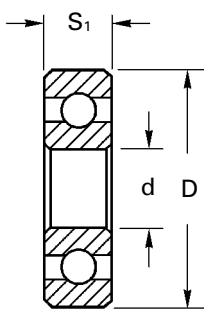


FIGURE 1
NO SHIELD

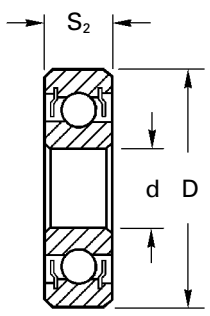
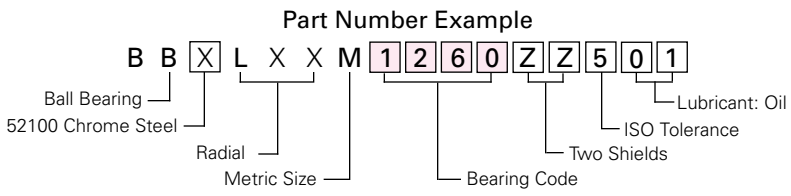


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S_1 Width	S_2 Width	Load Rating N (lbs.)*	
					Dynamic	Static
1140	4	11	4	4	552 (124)	374 (84)
1240	4	12	4	4	1068 (240)	343 (77)
1340	4	13	5	5	1001 (225)	480 (108)
1640	4	16	5	5	1357 (305)	672 (151)
L850	5	8	2	2.5	165 (37)	67 (15)
L950	5	9	2.5	3	218 (49)	89 (20)
1050	5	10	3	4	218 (49)	89 (20)
1150	5	11	3	5	552 (124)	258 (58)
1350	5	13	4	4	832 (187)	400 (90)
1450	5	14	5	5	1032 (232)	489 (110)
1650	5	16	5	5	1334 (300)	885 (199)
1950	5	19	6	6	1802 (405)	903 (203)
1060	6	10	2.5	3	254 (57)	116 (26)
1260	6	12	3	4	365 (82)	156 (35)
1360	6	13	3.5	5	836 (188)	400 (90)

NOTE: X = Filler character. * Load Ratings are for Chrome Steel.

Quality Bearings & Components

Miniature Instrument PLAIN BALL BEARINGS

• Stainless Steel • Chrome Steel • (L) 600 Series

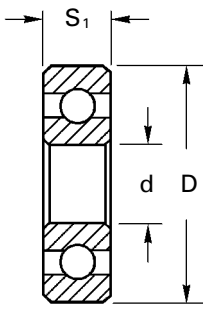


FIGURE 1
NO SHIELD

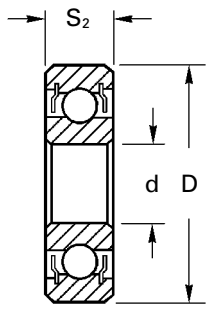
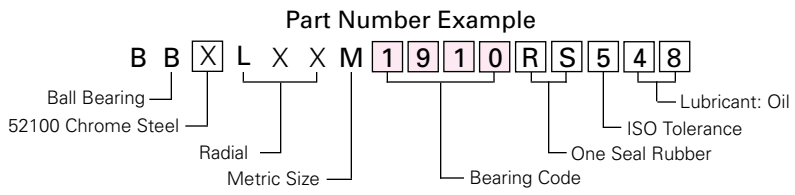


FIGURE 2
DOUBLE SHIELD

Part Number Example



Bearing Code	d Bore	D Outside Dia.	S_1 Width	S_2 Width	Load Rating N (lbs.)*	
					Dynamic	Static
1560	6	15	5	5	1032 (232)	489 (110)
1760	6	17	6	6	1512 (340)	725 (163)
1960	6	19	6	6	1802 (405)	903 (203)
1170	7	11	2.5	3	236 (53)	98 (22)
1370	7	13	3	4	276 (62)	138 (31)
1470	7	14	3.5	5	903 (203)	463 (104)
697X	7	17	5	5	1357 (305)	694 (156)
1970	7	19	6	6	1735 (390)	867 (195)
2270	7	22	7	7	2535 (570)	1357 (305)
1280	8	12	2.5	3.5	276 (62)	138 (31)
1480	8	14	3.5	4	414 (93)	196 (44)
1680	8	16	4	5	961 (216)	520 (117)
608X	8	19	6	6	1446 (325)	694 (156)
2280	8	22	7	7	2535 (570)	1357 (305)
628X	8	24	8	8	1922 (432)	974 (219)
1790	9	17	4	5	1019 (229)	569 (128)
2090	9	20	6	6	1459 (328)	770 (173)
609X	9	24	7	7	2589 (582)	1357 (305)
2690	9	26	8	8	3514 (790)	2180 (490)
1910	10	19	5	7	1459 (328)	770 (173)
1020	10	22	6	6	1922 (432)	992 (223)

NOTE: X = Filler character. * Load Ratings are for Chrome Steel.

Miniature Instrument
FLANGED BALL BEARINGS

• Stainless Steel • Chrome Steel • (L) 600 Series

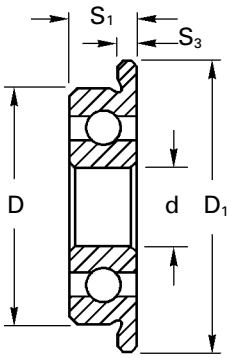


FIGURE 1
NO SHIELD

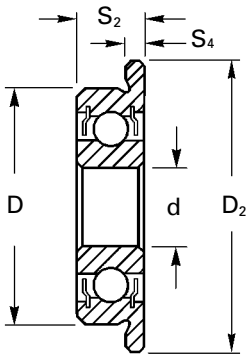


FIGURE 2
DOUBLE SHIELD

Part Number Example

B B X L F X M L 5 2 0 Z Z 4 4 8

- Ball Bearing, 52100 Chrome Steel
- Radial Flanged
- Metric Size
- Bearing Code
- Two Shields
- ISO Tolerance
- Lubricant: Mil-G-81322 grease

Bearing Code	d Bore	D Outside Dia.	S_1 Width	S_2 Width	Flange Dia.		Flange Width		Load Rating N (lbs.)*	
					D_1	D_2	S_3	S_4	Dynamic	Static
L310	1	3	1	—	3.8	—	0.3	—	62 (14)	18 (4)
L415	1.5	4	1.2	—	5	—	0.4	—	89 (20)	31 (7)
L520	2	5	1.5	2.3	6.1	6.1	0.5	0.6	129 (29)	49 (11)
L625	2.5	6	1.8	2.6	7.1	7.1	0.5	0.8	156 (35)	62 (14)
L630	3	6	2	2.5	7.2	7.2	0.6	0.6	156 (35)	62 (14)
L730	3	7	2	3	8.1	8.1	0.5	0.8	156 (35)	62 (14)
L740	4	7	2	2.5	8.2	8.2	0.6	0.6	156 (35)	58 (13)
L840	4	8	2	3	9.2	9.2	0.6	0.6	196 (44)	80 (18)
L940	4	9	2.5	4	10.3	10.3	0.6	1	365 (82)	169 (38)
1040	4	10	3	4	11.2	11.6	0.6	0.8	294 (66)	116 (26)
L850	5	8	2	2.5	9.2	9.2	0.6	0.6	165 (37)	67 (15)
L950	5	9	2.5	3	10.2	10.2	0.6	0.6	218 (49)	89 (20)

NOTE: X = Filler character.

* Load Ratings are for Chrome Steel.

Miniature Instrument
FLANGED BALL BEARINGS

• Stainless Steel • Chrome Steel • (L) 600 Series

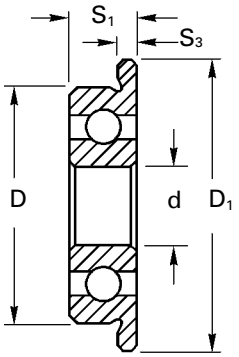


FIGURE 1
NO SHIELD

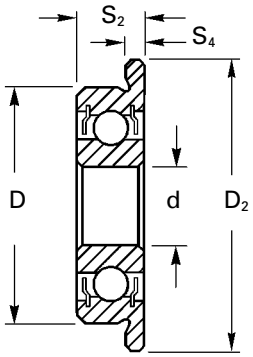
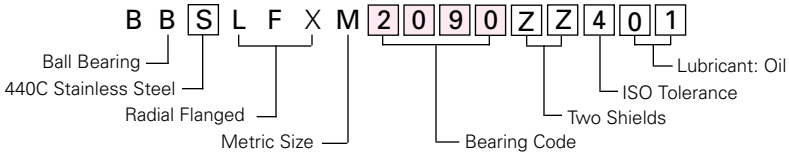


FIGURE 2
DOUBLE SHIELD

Part Number Example

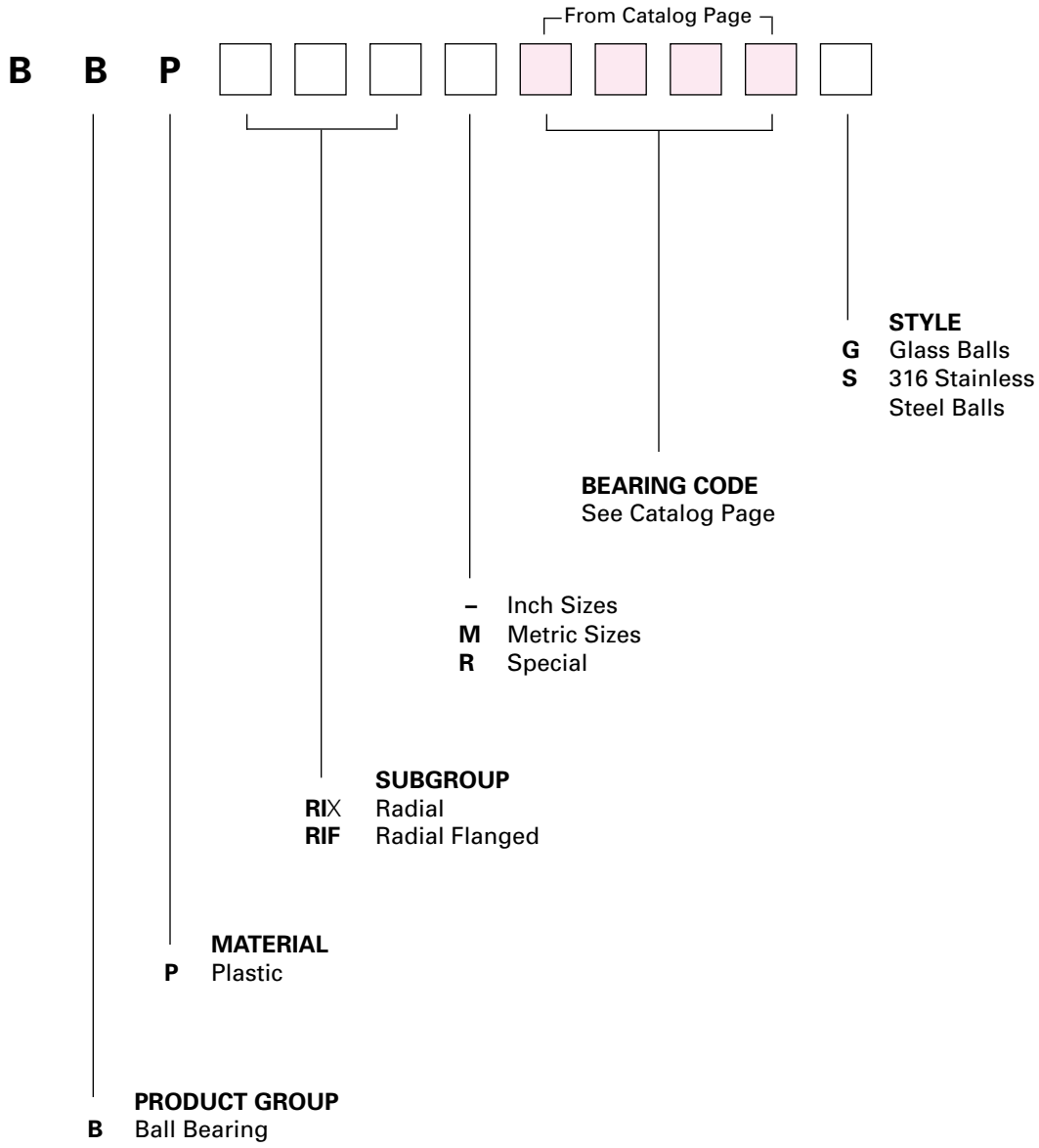


Bearing Code	d Bore	D Outside Dia.	S_1 Width	S_2 Width	Flange Dia.		Flange Width		Load Rating N (lbs.)*	
					D_1	D_2	S_3	S_4	Dynamic	Static
1050	5	10	3	4	11.2	11.6	0.6	0.8	218 (49)	89 (20)
1150	5	11	3	5	12.5	12.5	0.8	1	552 (124)	258 (58)
1060	6	10	2.5	3	11.2	11.2	0.6	0.6	254 (57)	116 (26)
1260	6	12	3	4	13.2	13.6	0.6	0.8	365 (82)	156 (35)
1360	6	13	3.5	5	15	15	1	1.1	836 (188)	400 (90)
1170	7	11	2.5	3	12.2	12.2	0.6	0.6	236 (53)	98 (22)
1370	7	13	3	4	14.2	14.6	0.6	0.8	276 (62)	138 (31)
1470	7	14	3.5	5	16	16	1	1.1	903 (203)	463 (104)
1280	8	12	2.5	3.5	13.2	13.6	0.6	0.8	276 (62)	138 (31)
1480	8	14	3.5	4	15.6	15.6	0.8	0.8	414 (93)	196 (44)
1680	8	16	4	5	18	18	1	1.1	961 (216)	520 (117)
1790	9	17	4	5	19	19	1	1.1	1019 (229)	569 (128)
2090	9	20	6	6	23	23	1.5	1.5	1459 (328)	770 (173)

NOTE: X = Filler character.* Load Ratings are for Chrome Steel.

Part Numbering System

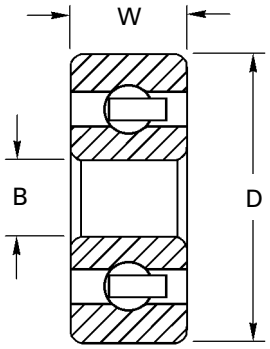
PLASTIC BALL BEARINGS

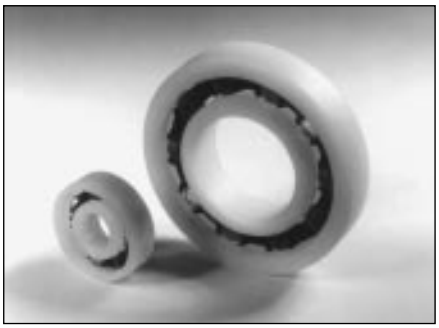


NOTE: X = Filler character.

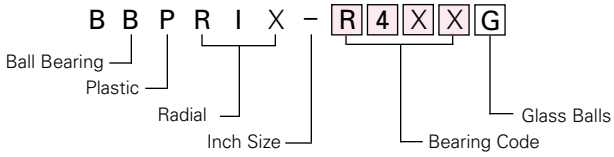
Plastic Raceways - Single Row
RADIAL BALL BEARINGS

• Acetal • 316 Stainless Steel Balls • Glass Balls





Part Number Example

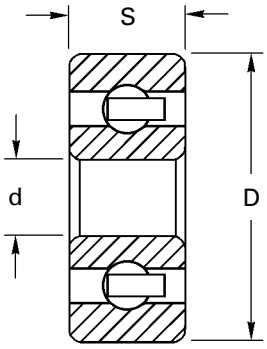


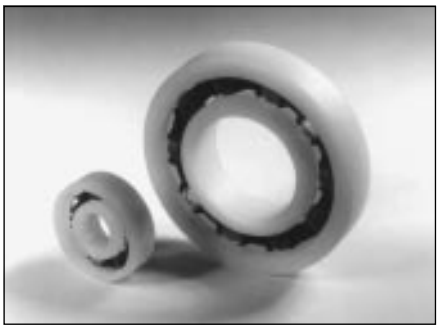
Bearing Code	B Bore	D Outside Dia.	W Width	Maximum rpm with no load	Load Rating lbs. (N)	
					Dynamic	Static
R3XX	3/16	1/2	5/32	3167	17 (76)	11 (49)
R3AX	3/16	5/8	.196	2352	26 (116)	17 (76)
R4XX	1/4	5/8	.196	2352	26 (116)	17 (76)
R4AX	1/4	3/4	7/32	2352	26 (116)	17 (76)
R4AW	1/4	3/4	9/32	2352	26 (116)	17 (76)
R6XX	3/8	7/8	7/32	1600	42 (187)	33 (147)
R6AX	3/8	7/8	9/32	1600	42 (187)	33 (147)
R8XX	1/2	1-1/8	1/4	1142	55 (245)	43 (191)
R8AX	3/8	1-1/8	3/8	1142	55 (245)	43 (191)
R10A	5/8	1-3/8	.375	1069	69 (307)	46 (205)
R10B	5/8	1-3/8	7/16	1069	69 (307)	46 (205)
R12X	3/4	1-5/8	5/16	840	78 (347)	52 (231)
R16X	1	2	1/2	729	92 (409)	61 (271)

NOTE: 1. Size R3XX available with stainless steel balls only.
2. X = Filler character.

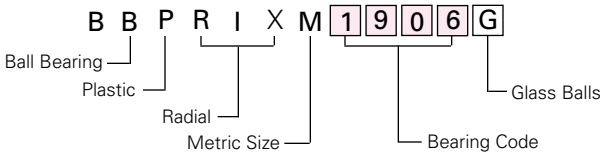
Plastic Raceways - Single Row
RADIAL BALL BEARINGS

- Raceways – Acetal
- Balls – Glass or 316 Stainless Steel





Part Number Example

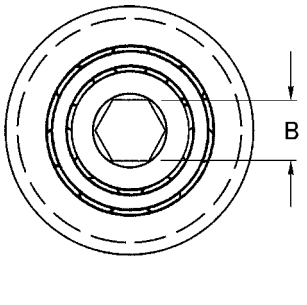


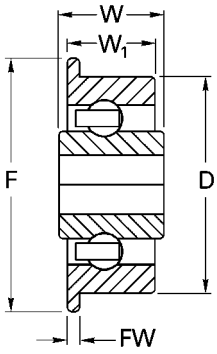
Bearing Code	d Bore	D Outside Dia.	S Width	Max. rpm with no load	Load Rating N (lbs.)	
					Dynamic	Static
625X	5	16	5	2352	116 (26)	76 (17)
606X	6	17	6	2352	116 (26)	76 (17)
1906	6	19	6	3017	67 (15)	44 (10)
1907	7	19	6	3017	58 (13)	40 (9)
2207	7	22	7	2606	85 (19)	58 (13)
608X	8	22	7	1600	187 (42)	147 (33)
2409	9	24	7	2384	85 (19)	58 (13)
2609	9	26	8	2205	102 (23)	67 (15)
6000	10	26	8	1600	187 (42)	147 (33)
6200	10	30	9	1142	245 (55)	191 (43)
3510	10	35	11	1638	280 (63)	187 (42)
6001	12	27	8	1142	245 (55)	191 (43)
2812	12	28	8	2047	160 (36)	107 (24)
3212	12	32	10	1142	245 (55)	191 (43)
3712	12	37	12	1550	307 (69)	205 (46)
3215	15	32	8	1800	191 (43)	129 (29)
6002	15	32	9	1142	245 (55)	191 (43)
6202	15	35	11	1069	307 (69)	205 (46)
4215	15	42	13	1360	369 (83)	245 (55)
3517	17	35	8	1630	262 (59)	178 (40)
6003	17	35	10	1069	307 (69)	205 (46)
6203	17	40	12	1069	307 (69)	205 (46)
4717	17	47	14	1220	440 (99)	294 (66)
4220	20	42	8	1365	307 (69)	205 (46)
6004	20	42	12	840	347 (78)	231 (52)
6204	20	47	14	840	347 (78)	231 (52)
5220	20	52	15	1103	529 (119)	351 (79)
6005	25	47	12	729	409 (92)	271 (61)
6205	25	52	15	729	409 (92)	271 (61)

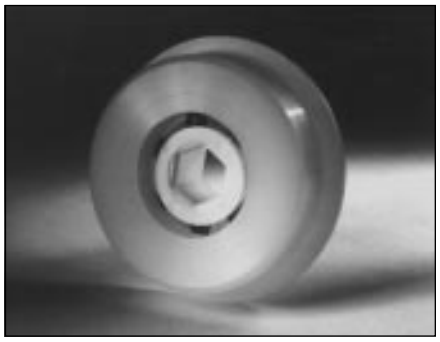
NOTE: X = Filler character.

Plastic Raceways - Single Row
CONVEYOR BALL BEARINGS, FLANGED

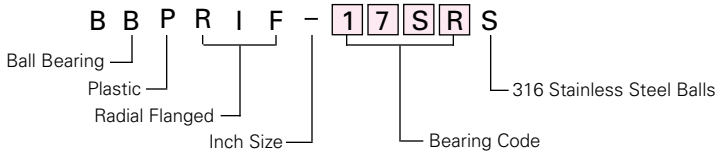
• Polypropylene • Hex Bore • 316 Stainless Steel Balls







Part Number Example

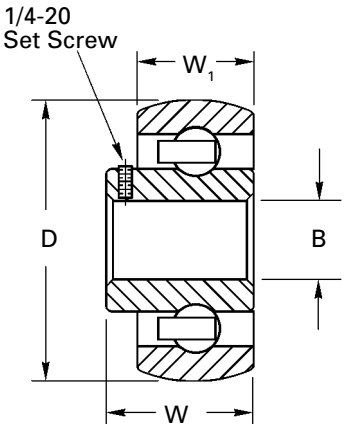


Bearing Code	B Hex Bore	D Outside Dia.	Width		F Flange Dia.	FW Flange Width	Maximum rpm with no load	Load Rating lbs. (N)	
			Inner W	Outer W_1				Dynamic	Static
15SR	7/16	1.50	.93	.70	1.56	.10	1069	69 (307)	46 (205)
16SR	7/16	1.60	.93	.70	1.80	.10	1069	69 (307)	46 (205)
17SR	7/16	1.78	.93	.70	1.86	.10	1069	69 (307)	46 (205)
20SR	7/16	2.056	.93	.70	2.32	.10	729	92 (409)	61 (271)
21SR	11/16	2.056	.93	.70	2.32	.10	840	78 (347)	52 (231)

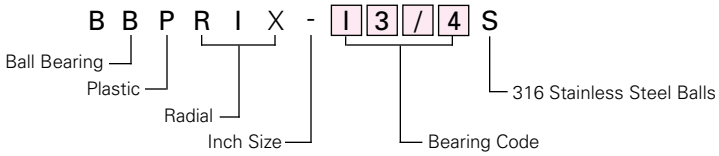
NOTE: X = Filler character.

Plastic Raceways - Single Row
INSERT BALL BEARINGS

• Acetal • 316 Stainless Steel Balls



Part Number Example

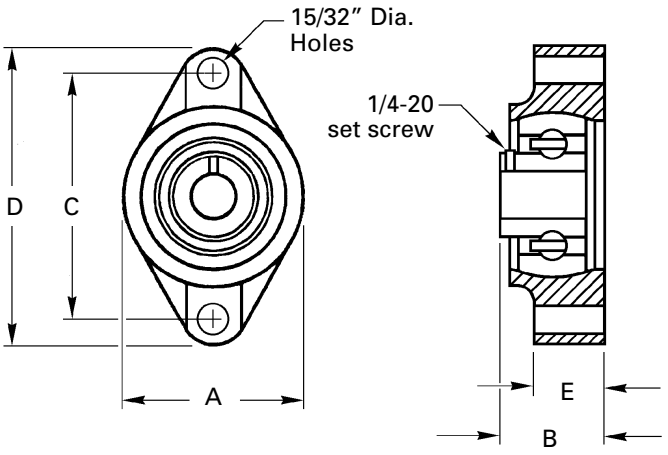


Bearing Code	B Bore	D Outside Dia.	Width		Maximum rpm with no load	Load Rating lbs. (N)	
			Inner W	Outer W_1		Dynamic	Static
I500	1/2	1.575	.886	.512	840	78 (347)	52 (231)
I625	5/8	1.575	.886	.512	840	78 (347)	52 (231)
I3/4	3/4	1.850	.950	.591	840	78 (347)	52 (231)
I750	3/4	2.047	1.060	.709	729	92 (409)	61 (271)
I875	7/8	2.047	1.060	.709	729	92 (409)	61 (271)
I100	1	2.047	1.060	.709	729	92 (409)	61 (271)
L125	1-1/4	2.441	1.220	.709	525	151 (672)	114 (507)

NOTE: X = Filler character.

"F" Series Flange Mounting Blocks With INSERT BALL BEARINGS

- Black Nylon Block
- 316 Stainless Steel Balls
- Acetal Ball Bearings



Part Number Example

B B P R I X – F 6 2 5 S

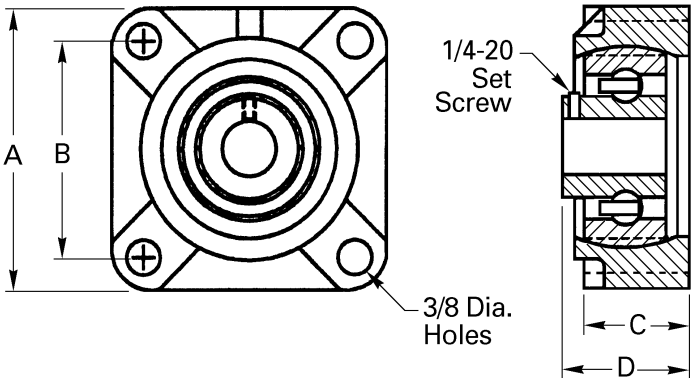
- B B: Ball Bearing
- P: Plastic
- R: Radial
- I: Inch Size
- X: Filler character
- F 6 2 5: Bearing Code
- S: 316 Stainless Steel Balls

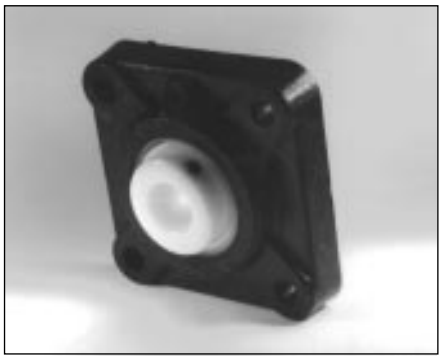
Bearing Code	Shaft Size Reference	A	B	C	D	E
F625	5/8	2-3/4	1-21/64	3-59/64	4-7/8	3/4
F750	3/4	2-3/4	1-21/64	3-59/64	4-7/8	3/4
F875	7/8	2-3/4	1-21/64	3-59/64	4-7/8	3/4
F100	1	2-3/4	1-21/64	3-59/64	4-7/8	3/4

NOTE: X = Filler character.

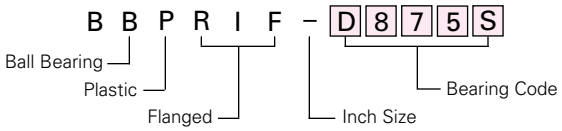
"D" Series Flange Mounting Blocks With INSERT BALL BEARINGS

- Black Nylon Block
- 316 Stainless Steel Balls
- Acetal Ball Bearings





Part Number Example

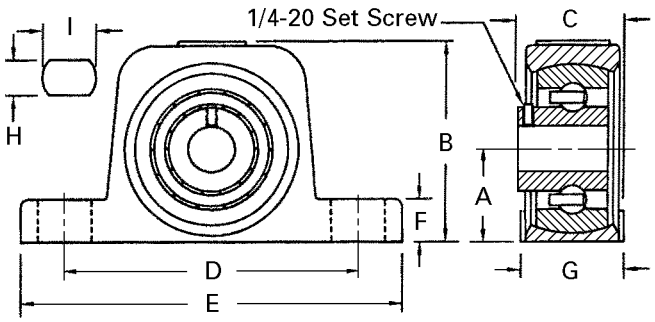


Bearing Code	Shaft Size Reference	A	B	C	D
D625S	5/8	3-3/4	2-3/4	11/16	1-3/8
D750S	3/4	3-3/4	2-3/4	11/16	1-3/8
D875S	7/8	3-3/4	2-3/4	11/16	1-3/8
D100S	1	3-3/4	2-3/4	11/16	1-3/8

NOTE: X = Filler character.

"S" Series Pillow Block With INSERT BALL BEARINGS

- Black Nylon Pillow Block
- Acetal Ball Bearings
- 316 Stainless Steel Balls



Part Number Example

B B P R I X – S 6 2 5 S

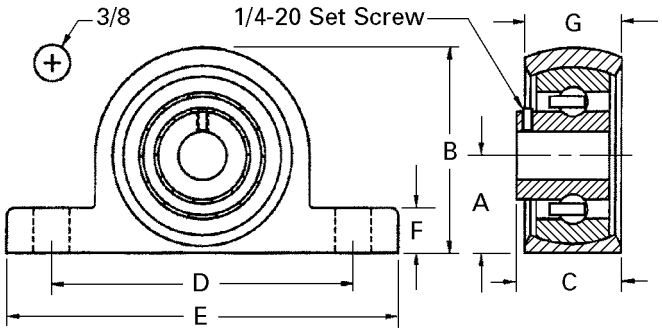
- Ball Bearing
- Plastic
- Radial
- Inch Size
- Bearing Code
- 316 Stainless Steel Balls

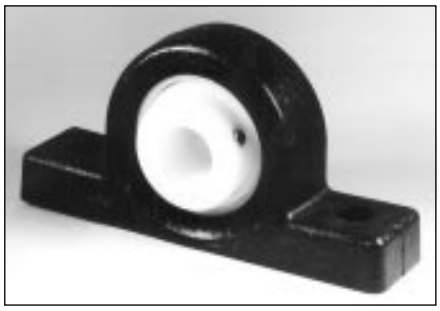
Bearing Code	Shaft Size Reference	A	B	C	D	E	F	G	H	I
S500	1/2	1-1/8	2-3/8	1-1/4	3-3/8	4-1/2	9/16	1-1/8	3/8	17/32
S625	5/8	1-1/8	2-3/8	1-1/4	3-3/8	4-1/2	9/16	1-1/8	3/8	17/32
S3/4	3/4	1-1/8	2-3/8	1-1/4	3-3/8	4-1/2	9/16	1-1/8	3/8	17/32
S750	3/4	1-1/4	2-9/16	1-1/4	3-1/2	4-5/8	11/16	1-3/16	3/8	17/32
S875	7/8	1-1/4	2-9/16	1-1/4	3-1/2	4-5/8	11/16	1-3/16	3/8	17/32
S100	1	1-1/4	2-9/16	1-1/4	3-1/2	4-5/8	11/16	1-3/16	3/8	17/32

NOTE: X = Filler character.

"K" Series Pillow Block With INSERT BALL BEARINGS

- Black Nylon Pillow Block
- Acetal Ball Bearings
- 316 Stainless Steel Balls





Part Number Example

B B P R I X – K 7 5 0 S

- B B: Ball Bearing
- P: Plastic
- R: Radial
- I: Inch Size
- X: Filler character
- K 7 5 0: Bearing Code
- S: 316 Stainless Steel Balls

Bearing Code	Shaft Size Reference	A	B	C	D	E	F	G	H	I
K625	5/8	1-1/4	2-9/16	1-1/2	3-17/32	4-5/8	11/16	1-3/16	3/8	17/32
K3/4	3/4	1-1/4	2-9/16	1-1/2	3-17/32	4-5/8	11/16	1-3/16	3/8	17/32
K750	3/4	1-5/16	2-11/16	1-3/8	4-1/8	5-1/2	13/16	1-5/16	3/8	17/32
K100	1	1-5/16	2-11/16	1-3/8	4-1/8	5-1/2	13/16	1-5/16	3/8	17/32

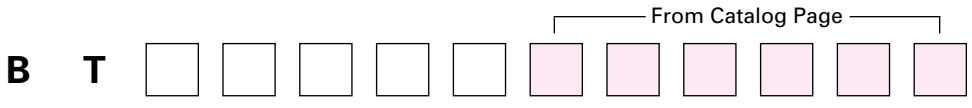
NOTE: X = Filler character.

NOTES

Part Numbering System

THRUST BEARINGS & WASHERS

• Steel • Stainless Steel • Sintered Bronze



BEARING CODE
See Catalog Page

– Inch Sizes
M Metric Sizes
R Special

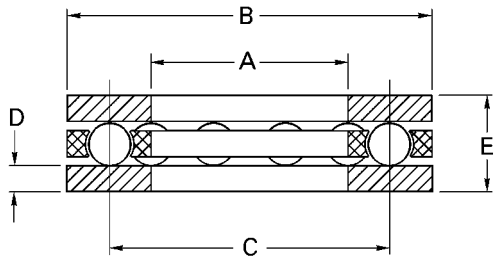
SUBGROUP
WAS Washer
BNG Bearing (Nylon Retainer)
ASY Complete Thrust Bearing Assembly

MATERIAL
H Heat Treated 1625 Steel
Y Heat Treated 410 Stainless Steel
N Sintered Bronze Self-Lubricating

PRODUCT GROUP
T Thrust Bearing

THRUST BEARINGS & WASHERS

• Heat Treated • Carbon Steel • Stainless Steel
• Nylon Retainer



Part Number Example

B T Y A S Y – 0 8 7

- Thrust Bearing
- Stainless Steel
- Assembly
- Inch Size
- Bearing Code

Bearing Code	A	B	C	D	E	Load Rating lbs. (N)			
						15 rpm		3600 rpm	
	Bore	O.D.	Ball Circle	Thickness	Hgt.	Carbon	Stainless	Carbon	Stainless
012	.128	.437	.281	.052	.196	89 (396)	63 (280)	14 (62)	10 (45)
018	.191	.499	.344	.052	.196	104 (463)	73 (325)	16 (71)	11 (49)
025	.253	.562	.406	.052	.196	119 (529)	83 (369)	19 (85)	13 (58)
031	.316	.624	.469	.052	.196	134 (596)	94 (418)	21 (93)	15 (67)
037	.378	.812	.594	.064	.253	149 (663)	104 (463)	24 (107)	17 (76)
043	.441	.874	.656	.064	.253	174 (774)	122 (543)	28 (125)	19 (85)
050	.503	.937	.719	.064	.253	198 (881)	139 (618)	31 (138)	22 (98)
056	.566	.999	.781	.064	.253	223 (992)	156 (694)	35 (156)	25 (111)
062	.628	1.124	.875	.096	.348	243 (1081)	170 (756)	38 (169)	27 (120)
068	.691	1.187	.938	.096	.348	283 (1259)	196 (872)	45 (200)	32 (142)
075	.753	1.249	1.000	.096	.348	322 (1432)	225 (1001)	51 (227)	39 (173)
081	.816	1.312	1.063	.096	.348	382 (1699)	253 (1125)	57 (254)	40 (178)
087	.878	1.374	1.125	.096	.348	402 (1788)	281 (1250)	64 (285)	45 (200)
093	.941	1.562	1.250	.130	.447	446 (1984)	312 (1388)	71 (316)	50 (222)
100	1.003	1.624	1.313	.130	.447	496 (2206)	347 (1544)	79 (351)	55 (245)
112	1.128	1.749	1.438	.130	.447	595 (2647)	417 (1855)	94 (418)	66 (294)
125	1.253	1.874	1.563	.130	.447	694 (3087)	486 (2162)	110 (489)	77 (343)
150	1.503	2.124	1.813	.130	.447	684 (3042)	479 (2131)	108 (480)	76 (338)

BEARING TOLERANCES

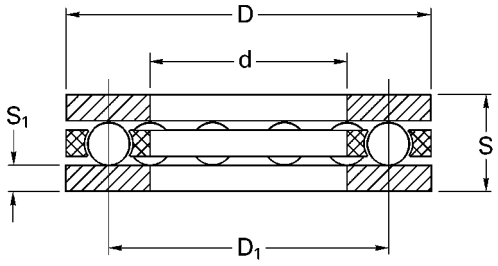
A Tolerance:	.128 – .566	+.005/ -.000
	.628 – .878	+.007/ -.000
	.941 – 1.503	+.009/ -.000
B Tolerance:	.437 – .999	+.007/ -.000
	1.124 – 1.374	+.009/ -.000
	1.562 – 1.624	+.011/ -.000

D Tolerance:	.052 – .064	+.000/-.004
	.096	+.000/-.009
	.130	+.000/-.010
E Tolerance:	.196	+.000/-.006
	.253	+.000/-.008
	.348	+.000/-.012
	.447	+.000/-.020

NOTE: X = Filler character.

THRUST BEARINGS & WASHERS

- Heat Treated
- Carbon Steel
- Stainless Steel
- Nylon Retainer



Part Number Example

B T H A S Y M 1 0 2 1

- Thrust Bearing
- Carbon Steel
- Assembly
- Metric Size
- Bearing Code

Bearing Code	d	D	D_1	S_1	S	Load Rating N (lbs.)			
	Bore	O.D.	Ball Circle	Thickness	Hgt.	15 rpm		3600 rpm	
						Carbon	Stainless	Carbon	Stainless
512X	5.08	11.78	8.7	1.32	5.02	463 (104)	325 (73)	71 (16)	49 (11)
614X	6.07	13.79	10.3	1.32	5.02	529 (119)	369 (83)	85 (19)	58 (13)
717X	7.06	16.79	11.9	1.32	5.02	596 (134)	418 (94)	93 (21)	67 (15)
816X	8.08	15.8	11.9	1.32	5.02	596 (134)	418 (94)	93 (21)	67 (15)
1021	10.06	20.78	15.1	1.63	6.44	663 (149)	463 (104)	107 (24)	76 (17)
1224	12.06	23.8	18.3	1.63	6.44	881 (198)	618 (139)	138 (31)	98 (22)
1628	16.07	27.74	22.2	2.44	8.88	1081 (243)	756 (170)	169 (38)	120 (27)
1932	19.08	31.75	25.4	2.44	8.88	1432 (322)	1001 (225)	249 (56)	173 (39)
2541	25.07	40.69	33.3	3.3	11.36	2206 (496)	1594 (347)	351 (79)	245 (55)
2844	28.07	43.69	36.5	3.3	11.36	2647 (595)	1855 (417)	489 (110)	294 (66)

BEARING TOLERANCES

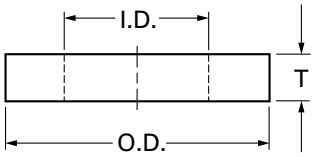
d Tolerance:	5.08 – 12.06	+0.13
	16.07 – 19.08	+0.19
	2.507 – 24.07	+0.23
D Tolerance:	11.78 – 23.80	+0.18
	27.74 – 31.75	+0.23
	40.69 – 43.69	+0.28

S_1 Tolerance:	1.32 – 1.63	-0.11
	2.44	-0.16
	3.30	-0.25
S Tolerance:	5.02	-0.20
	6.44	-0.22
	8.88	-0.32
	11.36	-0.5

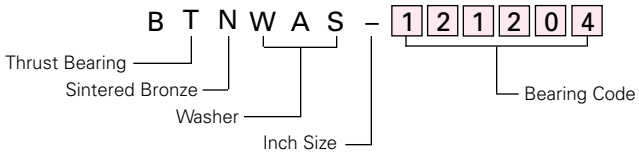
NOTE: X = Filler character.

THRUST WASHERS

• Sintered Bronze • Oil Impregnated • Self-Lubricating



Part Number Example



Bearing Code	I.D.*	O.D.Δ	T ± .0025
040602	.130	.370	1/16
060802	.192	.495	1/16
080702	.255	.4375	1/16
080802	.255	.500	1/16
081002	.255	.625	1/16
101002	.315	.625	1/16
101202	.315	.750	1/16
121002	.385	.625	1/16
121001	.380	.750	1/32
121202	.380	.750	1/16
121204	.380	.750	1/8
141202	.440	.750	1/16
141204	.440	.750	1/8
161202	.505	.750	1/16
161406	.505	.875	3/16
161602	.510	1.000	1/16
161603	.510	1.000	3/32
161604	.510	1.000	1/8
182002	.565	1.250	1/16
182004	.565	1.250	1/8
201602	.628	1.000	1/16
201604	.628	1.000	1/8
201902	.628	1.1875	1/16
201903	.628	1.1875	3/32
201904	.628	1.1875	1/8
202002	.628	1.250	1/16
202004	.628	1.250	1/8
212402	.656	1.500	1/16
212404	.656	1.500	1/8
242002	.753	1.250	1/16
242004	.753	1.250	1/8
242202	.753	1.375	1/16
242204	.753	1.375	1/8
242208	.753	1.375	1/4
242503	.765	1.5625	3/32
282402	.8905	1.500	1/16
282404	.8905	1.500	1/8
283204	.880	2.000	1/8

Bearing Code	I.D.*	O.D.Δ	T ± .0025
283404	.8905	2.125	1/8
322402	1.003	1.500	1/16
322404	1.003	1.500	1/8
322406	1.003	1.500	3/16
322602	1.0155	1.625	1/16
322604	1.0155	1.625	1/8
322608	1.0155	1.625	1/4
322802	1.012	1.750	1/16
322804	1.012	1.750	1/8
323204	1.016	2.000	1/8
323206	1.016	2.000	3/16
324604	1.0155	2.875	1/8
343802	1.0625	2.375	1/16
343804	1.0625	2.375	1/8
363004	1.140	1.875	1/8
402704	1.253	1.690	1/8
403202	1.265	2.000	1/16
403204	1.265	2.000	1/8
403802	1.265	2.375	1/16
403804	1.265	2.375	1/8
405302	1.255	3.312	1/16
405304	1.255	3.312	1/8
443104	1.379	1.940	1/8
483204	1.503	2.000	1/8
484004	1.505	2.505	1/8
485606	1.510	3.500	3/16
503904	1.578	2.4375	1/8
563904	1.755	2.440	1/8
564204	1.765	2.625	1/8
624204	1.953	2.625	1/8
644804	2.011	3.000	1/8
644806	2.011	3.000	3/16
644808	2.011	3.000	1/4
655806	2.031	3.625	3/16
805204	2.502	3.250	1/8
886208	2.766	3.875	1/4

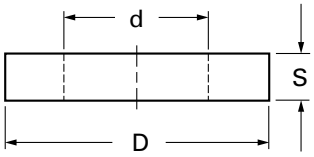
NOTE: X = Filler character.

* I.D. tolerances: up to & including 1.253 is ± .005
over 1.253 & including 2.502 is ± .010
over 2.502 is ± .015

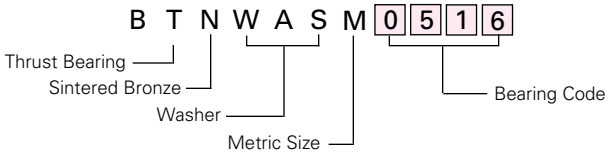
Δ O.D. tolerances: up to & including 1.500 is ± .010
over 1.500 & including 3.000 is ± .015
over 3.000 is ± .020

THRUST WASHERS

• Sintered Bronze • Oil Impregnated • Self-Lubricating



Part Number Example



Bearing Code	d ±0.13	D ±0.25	S ±0.07
0316	3.2	9.5	1.6
0416	4.3	9.5	1.6
0516	5.3	12.5	1.6
0616	6.4	12.5	1.6
0816	8.4	19	1.6
1016	10.5	19	1.6
1032	10.5	19	3.2
1316	13	25	1.6
1332	13	25	3.2

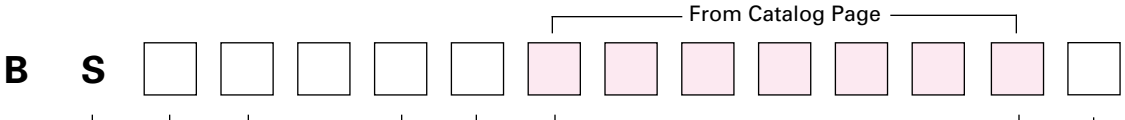
NOTE: X = Filler character.

NOTES

Part Numbering System

SLEEVE BEARINGS

• Sintered Bronze • Nonmetallic



QUALITY
Blank Standard
U Ultra Precision

BEARING CODE
See Catalog Page

– Inch Sizes
M Metric Sizes
R Special

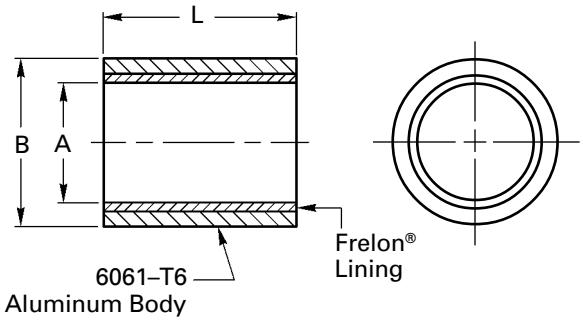
SUBGROUP
PLN Plain
FLN Flanged
COR Cored Sintered Bronze Bar Stock
BAR Solid Sintered Bronze Bar Stock

MATERIAL
N Sintered Bronze
P Nonmetallic
L Lined
T Teflon

PRODUCT GROUP
S Sleeve Bearing

Plain, Lined
SLEEVE BEARINGS

- Self-Lubricating
- Frelon® Liner
- Replaces Sintered and Plastic Bearings



Part Number Example

B S L P L N – P S 0 4 0 6 3

- B S L: Sleeve Bearing, Lined
- P L N: Plain, Inch Size
- P S 0 4 0 6 3: Bearing Code

Bearing Code	Nominal Bearing Size			A Bearing I.D.		B Bearing O.D.		L Length		Max. Static Load	Bearing Weight	Recommended Housing Bore			
												Slip Fit and Epoxy		Press Fit	
	I.D.	O.D.	Length	Min.	Max.	Min.	Max.	Min.	Max.	lbs.	oz.	Min.	Max.	Min.	Max.
PS03052	3/16	5/16	1/4	.189	.190	.3135	.3145	.230	.250	65	.02	.3145	.3155	.3125	.3130
PS03054	3/16	5/16	1/2	.189	.190	.3135	.3145	.480	.500	136	.04	.3145	.3155	.3125	.3130
PS04062	1/4	3/8	1/4	.2515	.2525	.376	.377	.230	.250	87	.03	.377	.378	.3750	.3755
PS04063	1/4	3/8	3/8	.2515	.2525	.376	.377	.355	.375	134	.04	.377	.378	.3750	.3755
PS04064	1/4	3/8	1/2	.2515	.2525	.376	.377	.480	.500	181	.05	.377	.378	.3750	.3755
PS06104	3/8	5/8	1/2	.3765	.3775	.626	.627	.480	.500	271	.14	.627	.628	.6250	.6255
PS06106	3/8	5/8	3/4	.3765	.3775	.626	.627	.730	.750	412	.20	.627	.628	.6250	.6255
PS07106	7/16	5/8	3/4	.439	.440	.626	.627	.730	.750	481	.23	.627	.628	.6250	.6255
PS08124	1/2	3/4	1/2	.5015	.5025	.751	.752	.480	.500	361	.15	.752	.753	.7500	.7505
PS08126	1/2	3/4	3/4	.5015	.5025	.751	.752	.730	.750	549	.25	.752	.753	.7500	.7505
PS08128	1/2	3/4	1	.5015	.5025	.751	.752	.980	1.000	737	.35	.752	.753	.7500	.7505
PS10146	5/8	7/8	3/4	.6265	.6275	.876	.877	.730	.750	686	.30	.877	.878	.8750	.8755
PS10148	5/8	7/8	1	.6265	.6275	.876	.877	.980	1.000	921	.45	.877	.878	.8750	.8755
PS12168	3/4	1	1	.7515	.7525	1.001	1.002	.980	1.000	1105	.50	1.002	1.003	.9995	1.0000
P162012	1	1-1/4	1-1/2	1.0015	1.0025	1.251	1.252	1.480	1.500	2223	.95	1.252	1.253	1.249	1.250
P202416	1-1/4	1-1/2	2	1.2515	1.2525	1.501	1.502	1.980	2.000	3717	1.55	1.502	1.503	1.499	1.500
P242816	1-1/2	1-3/4	2	1.5015	1.5025	1.751	1.752	1.980	2.000	4459	1.80	1.752	1.753	1.749	1.750
P283224	1-3/4	2	3	1.7515	1.7525	2.001	2.002	2.980	3.000	7829	3.15	2.002	2.003	1.999	2.000
P323624	2	2-1/4	3	2.0015	2.0025	2.251	2.252	2.980	3.000	8947	3.55	2.252	2.253	2.249	2.250
P404424	2-1/2	2-3/4	3	2.5015	2.5025	2.751	2.752	2.980	3.000	11182	4.85	2.752	2.753	2.749	2.750
P485228	3	3-1/4	3-1/2	3.0015	3.0025	3.251	3.252	3.480	3.500	15668	6.10	3.252	3.253	3.2485	3.2495

NOTE: X = Filler character.

Installation Instructions:

Option 1 – Slip Fit

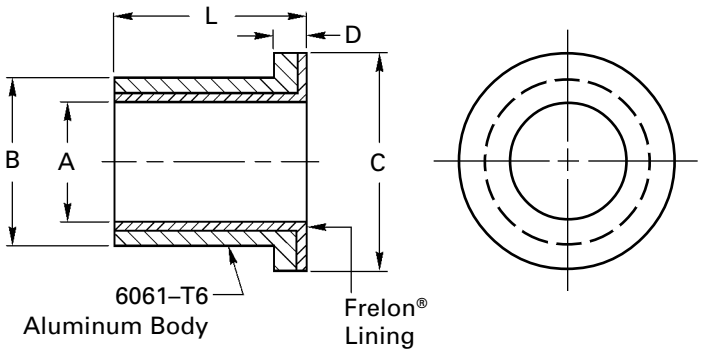
Slip the bearing sleeve into the housing and epoxy into place with Loctite™ or a similar type of bonding agent.
CAUTION: DO NOT let any of the adhesive touch the bearing liner.
It will harden and interfere with the running clearance.

Option 2 – Press Fit

Freeze the bearings at 0˚F (-17.75˚C) for 30–45 minutes. Using gloves, remove from the freezer and slip the bearings into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

Flanged, Lined
SLEEVE BEARINGS

- Self-Lubricating
- Frelon® Liner
- Replaces Sintered and Plastic Bearings



Part Number Example

B S L F L N – P F 0 8 1 2 6

- Sleeve Bearing
- Lined
- Flanged
- Inch Size
- Bearing Code

Bearing Code	Nominal Bearing Size			A Bearing I.D.		B Bearing O.D.		C Flange O.D.	D Flange Width	L Length		Max. Static Load	Bearing Weight	Recommended Housing Bore			
														Slip Fit and Epoxy		Press Fit	
	I.D.	O.D.	Length	Min.	Max.	Min.	Max.	Max.	Max.	Min.	Max.	lbs.	oz.	Min.	Max.	Min.	Max.
PF03052	3/16	5/16	1/4	.189	.190	.3135	.3145	.437	.0625	.230	.250	65	.023	.3145	.3155	.3125	.3130
PF03054	3/16	5/16	1/2	.189	.190	.3135	.3145	.437	.0625	.480	.500	136	.044	.3145	.3155	.3125	.3130
PF04062	1/4	3/8	1/4	.2515	.2525	.376	.377	.500	.0625	.230	.250	87	.031	.377	.378	.3750	.3755
PF04063	1/4	3/8	3/8	.2515	.2525	.376	.377	.500	.0625	.355	.375	134	.044	.377	.378	.3750	.3755
PF04064	1/4	3/8	1/2	.2515	.2525	.376	.377	.500	.0625	.480	.500	181	.055	.377	.378	.3750	.3755
PF06104	3/8	5/8	1/2	.3765	.3775	.626	.627	.875	.125	.480	.500	271	.20	.627	.628	.6250	.6255
PF06106	3/8	5/8	3/4	.3765	.3775	.626	.627	.875	.125	.730	.750	412	.25	.627	.628	.6250	.6255
PF07106	7/16	5/8	3/4	.439	.440	.626	.627	.9375	.125	.730	.750	481	.20	.627	.628	.6250	.6255
PF08124	1/2	3/4	1/2	.5015	.5025	.751	.752	1.000	.125	.480	.500	361	.25	.752	.753	.7500	.7505
PF08126	1/2	3/4	3/4	.5015	.5025	.751	.752	1.000	.125	.730	.750	549	.30	.752	.753	.7500	.7505
PF08128	1/2	3/4	1	.5015	.5025	.751	.752	1.000	.125	.980	1.000	737	.40	.752	.753	.7500	.7505
PF10146	5/8	7/8	3/4	.6265	.6275	.876	.877	1.000	.125	.730	.750	686	.35	.877	.878	.8750	.8755
PF10148	5/8	7/8	1	.6265	.6275	.876	.877	1.000	.125	.980	1.000	921	.45	.877	.878	.8750	.8755
PF12168	3/4	1	1	.7515	.7525	1.001	1.002	1.250	.125	.980	1.000	1105	.55	1.002	1.003	.9995	1.0000
F162012	1	1-1/4	1-1/2	1.0015	1.0025	1.251	1.252	1.500	.125	1.480	1.500	2223	1.05	1.252	1.253	1.249	1.250
F202416	1-1/4	1-1/2	2	1.2515	1.2525	1.501	1.502	1.750	.125	1.980	2.000	3717	1.80	1.502	1.503	1.499	1.500
F242816	1-1/2	1-3/4	2	1.5015	1.5025	1.751	1.752	2.000	.125	1.980	2.000	4459	2.16	1.752	1.753	1.749	1.750
F283224	1-3/4	2	3	1.7515	1.7525	2.001	2.002	2.250	.125	2.980	3.000	7829	3.30	2.002	2.003	1.999	2.000
F323624	2	2-1/4	3	2.0015	2.0025	2.251	2.252	2.500	.125	2.980	3.000	8947	3.75	2.252	2.253	2.249	2.250
F404424	2-1/2	2-3/4	3	2.5015	2.5025	2.751	2.752	3.000	.125	2.980	3.000	11182	4.60	2.752	2.753	2.749	2.750
F485228	3	3-1/4	3-1/2	3.0015	3.0025	3.251	3.252	3.500	.125	3.480	3.500	15668	6.30	3.252	3.253	3.2485	3.2495

NOTE: X = Filler character.

Installation Instructions:

Option 1 – Slip Fit

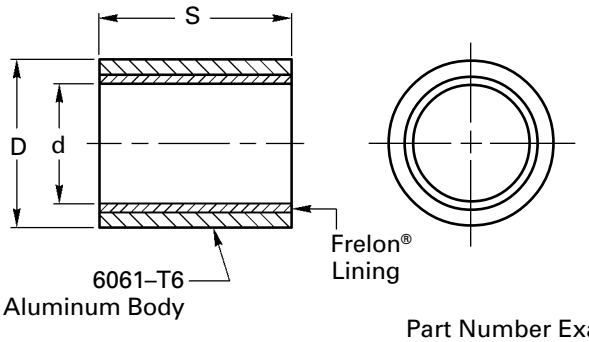
Slip the bearing sleeve into the housing and epoxy into place with Loctite™ or a similar type of bonding agent.
CAUTION: DO NOT let any of the adhesive touch the bearing liner.
It will harden and interfere with the running clearance.

Option 2 – Press Fit

Freeze the bearings at 0˚F (-17.75˚C) for 30–45 minutes. Using gloves, remove from the freezer and slip the bearings into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

Plain, Lined
SLEEVE BEARINGS

- Self-Lubricating
- Frelon® Liner
- Replaces Sintered and Plastic Bearings



Part Number Example

B S L P L N M M 6 0 7 0 6 0

Sleeve Bearing — Lined — Plain — Metric Size — Bearing Code

Bearing Code	Nominal Bearing Size			d Bearing I.D.		D Bearing O.D. (s7)		S Length		Max. Static Load	Bearing Weight	Recommended Housing Bore			
												Slip Fit and Epoxy		Press Fit	
	I.D.	O.D.	Length	Min.	Max.	Min.	Max.	Min.	Max.	kg	kg	Min.	Max.	Min.	Max.
M061006	6	10	6	6.028	6.058	10.023	10.038	5.75	6	38	0.00084	10.038	10.063	10	10.015
M061010	6	10	10	6.028	6.058	10.023	10.038	9.75	10	63	0.0014	10.038	10.063	10	10.015
M081208	8	12	8	8.033	8.066	12.028	12.046	7.75	8	67	0.0014	12.046	12.071	12	12.018
M081212	8	12	12	8.033	8.066	12.028	12.046	11.75	12	101	0.0021	12.046	12.071	12	12.018
M081408	8	14	8	8.033	8.066	14.028	14.046	7.75	8	67	0.00231	14.046	14.071	14	14.018
M081412	8	14	12	8.033	8.066	14.028	14.046	11.75	12	101	0.00347	14.046	14.071	14	14.018
M101410	10	14	10	10.033	10.066	14.028	14.046	9.75	10	105	0.0021	14.046	14.071	14	14.018
M101416	10	14	16	10.033	10.066	14.028	14.046	15.75	16	168	0.00336	14.046	14.071	14	14.018
M121612	12	16	12	12.034	12.07	16.028	16.046	11.75	12	151	0.00294	16.046	16.071	16	16.018
M121616	12	16	16	12.034	12.07	16.028	16.046	15.75	16	202	0.00392	16.046	16.071	16	16.018
M151916	15	19	16	15.034	15.07	19.028	19.046	15.75	16	252	0.00476	19.046	19.071	19	19.018
M162012	16	20	12	16.041	16.08	20.035	20.056	11.5	12	202	0.00378	20.056	20.081	20	20.021
M162016	16	20	16	16.041	16.08	20.035	20.056	15.5	16	269	0.00505	20.056	20.081	20	20.021
M162025	16	20	25	16.041	16.08	20.035	20.056	24.5	25	420	0.00788	20.056	20.081	20	20.021
M202516	20	25	16	20.042	20.084	25.035	25.056	15.5	16	336	0.00787	25.056	25.081	25	25.021
M202520	20	25	20	20.042	20.084	25.035	25.056	19.5	20	420	0.00984	25.056	25.081	25	25.021
M202525	20	25	25	20.042	20.084	25.035	25.056	24.5	25	525	0.0123	25.056	25.081	25	25.021
M202530	20	25	30	20.042	20.084	25.035	25.056	29.5	30	630	0.01476	25.056	25.081	25	25.021
M253020	25	30	20	25.042	25.084	30.035	30.056	19.5	20	525	0.01202	30.056	30.081	30	30.021
M253025	25	30	25	25.042	25.084	30.035	30.056	24.5	25	656	0.01503	30.056	30.081	30	30.021
M253030	25	30	30	25.042	25.084	30.035	30.056	29.5	30	788	0.01803	30.056	30.081	30	30.021
M253525	25	35	25	25.05	25.096	35.035	35.068	24.5	25	656	0.03276	35.068	35.093	35	35.021
M253535	25	35	35	25.05	25.096	35.043	35.068	34.5	35	919	0.04586	35.068	35.093	35	35.021
M303525	30	35	25	30.05	30.096	35.043	35.068	24.5	25	788	0.01777	35.068	35.093	35	35.021
M303530	30	35	30	30.05	30.096	35.043	35.068	29.5	30	945	0.02133	35.068	35.093	35	35.021
M304035	30	40	35	30.05	30.096	40.043	40.068	34.5	35	1103	0.05349	40.068	40.093	40	40.025
M304050	30	40	50	30.05	30.096	40.043	40.068	49.5	50	1575	0.07641	40.068	40.093	40	40.025
M354525	35	45	25	35.052	35.102	45.043	45.068	24.5	25	919	0.04365	45.068	45.093	45	45.025
M354540	35	45	40	35.052	35.102	45.043	45.068	39.5	40	1470	0.06983	45.068	45.093	45	45.025
M354550	35	45	50	35.052	35.102	45.043	45.068	49.5	50	1838	0.08729	45.068	45.093	45	45.025
M405030	40	50	30	40.052	40.102	50.043	50.068	29.5	30	1260	0.05891	50.068	50.093	50	50.025
M405040	40	50	40	40.052	40.102	50.043	50.068	39.5	40	1680	0.07855	50.068	50.093	50	50.025
M506035	50	60	35	50.062	50.133	60.053	60.099	34.5	35	1838	0.08419	60.099	60.124	60	60.03
M506050	50	60	50	50.062	50.133	60.053	60.099	49.5	50	2625	0.12027	60.099	60.124	60	60.03
M607060	60	70	60	60.063	60.139	70.053	70.099	59.5	60	3780	0.17052	70.099	70.124	70	70.03

Installation Instructions:

Option 1 – Slip Fit

Slip the bearing sleeve into the housing and epoxy into place with Loctite™ or a similar type of bonding agent.

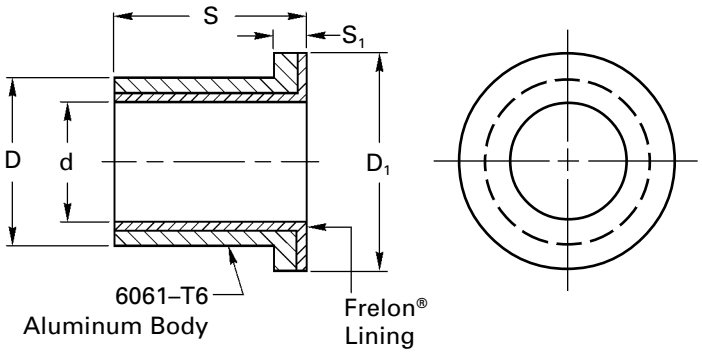
CAUTION: DO NOT let any of the adhesive touch the bearing liner.
It will harden and interfere with the running clearance.

Option 2 – Press Fit

Freeze the bearings at 0˚F (-17.75˚C) for 30–45 minutes. Using gloves, remove from the freezer and slip the bearings into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

Flanged, Lined
SLEEVE BEARINGS

- Self-Lubricating
- Frelon® Liner
- Replaces Sintered and Plastic Bearings



Part Number Example

B S L F L N M S 0 8 1 2 0 8

- Sleeve Bearing
- 6061 Aluminum Lined
- Flanged
- Metric Size
- Bearing Code

Bearing Code	Nominal Bearing Size			d Bearing I.D.		D Bearing O.D.		D_1 Flange O.D.	S_1 Flange Width	S Length		Max. Static Load	Bearing Weight	Recommended Housing Bore			
														Slip Fit and Epoxy		Press Fit	
	I.D.	O.D.	Length	Min.	Max.	Min.	Max.	Max.	Max.	Min.	Max.	kg.	kg.	Min.	Max.	Min.	Max.
S061006	6	10	6	6.028	6.058	10.023	10.038	14	2	5.75	6	38	0.00126	10.038	10.063	10	10.015
S061010	6	10	10	6.028	6.058	10.023	10.038	14	2	9.75	10	63	0.00182	10.038	10.063	10	10.015
S081206	8	12	6	8.033	8.066	12.028	12.046	16	2	5.75	6	50	0.00153	12.046	12.071	12	12.018
S081208	8	12	8	8.033	8.066	12.028	12.046	16	2	7.75	8	67	0.00189	12.046	12.071	12	12.018
S081212	8	12	12	8.033	8.066	12.028	12.046	16	2	11.75	12	101	0.00259	12.046	12.071	12	12.018
S101608	10	16	8	10.033	10.066	16.028	16.046	22	3	7.75	8	84	0.00421	16.046	16.071	16	16.018
S101610	10	16	10	10.033	10.066	16.028	16.046	22	3	9.75	10	105	0.00498	16.046	16.071	16	16.018
S101616	10	16	16	10.033	10.066	16.028	16.046	22	3	15.75	16	168	0.00694	16.046	16.071	16	16.018
S121808	12	18	8	12.034	12.07	18.028	18.046	24	3	7.75	8	101	0.00478	18.046	18.071	18	18.018
S121812	12	18	12	12.034	12.07	18.028	18.046	24	3	11.75	12	151	0.00636	18.046	18.071	18	18.018
S151916	15	19	16	15.034	15.07	19.028	19.046	25	3	15.5	16	252	0.00647	19.046	19.071	19	19.018
S162016	16	20	16	16.041	16.08	20.035	20.056	27	3	15.5	16	269	0.00718	20.056	20.081	20	20.021
S162020	16	20	20	16.041	16.08	20.035	20.056	27	3	19.5	20	336	0.00844	20.056	20.081	20	20.021
S162025	16	20	25	16.041	16.08	20.035	20.056	27	3	24.5	25	420	0.01002	20.056	20.081	20	20.021
S202620	20	26	20	20.042	20.084	26.035	26.056	32	3	19.5	20	420	0.01432	26.056	26.081	26	26.021
S202630	20	26	30	20.042	20.084	26.035	26.056	32	3	29.5	30	630	0.02035	26.056	26.081	26	26.021
S253020	25	30	20	25.042	25.084	30.035	30.056	39	3.5	19.5	20	525	0.01672	30.056	30.081	30	30.021
S253025	25	30	25	25.042	25.084	30.035	30.056	39	3.5	24.5	25	656	0.01973	30.056	30.081	30	30.021
S253032	25	30	32	25.042	25.084	30.035	30.056	39	3.5	31.5	32	840	0.02394	30.056	30.081	30	30.021
S303830	30	38	30	30.05	30.096	38.043	38.068	46	4	29.5	30	945	0.04145	38.068	38.093	38	38.021
S354535	35	45	35	35.052	35.102	45.043	45.068	55	5	34.5	35	1286	0.07192	45.068	45.093	45	45.025
S405040	40	50	40	40.052	40.102	50.043	50.068	60	5	39.5	40	1680	0.09044	50.068	50.093	50	50.025
S506050	50	60	50	50.062	50.133	60.053	60.099	70	5	49.5	50	2625	0.13429	60.099	60.124	60	60.03

NOTE: X = Filler character.

Installation Instructions:

Option 1 – Slip Fit

Slip the bearing sleeve into the housing and epoxy into place with Loctite™ or a similar type of bonding agent.
CAUTION: DO NOT let any of the adhesive touch the bearing liner.
It will harden and interfere with the running clearance.

Option 2 – Press Fit

Freeze the bearings at 0˚F (-17.75˚C) for 30–45 minutes. Using gloves, remove from the freezer and slip the bearings into the housing. As they heat to room temperature, full contact between the bearing and housing will be achieved. The greatest advantage to this technique over traditional pressing is greater accuracy in alignment.

SLEEVE BEARINGS

• Machined Acetron • Nonmetallic • Self-Lubricating

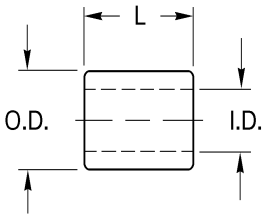


FIGURE 1

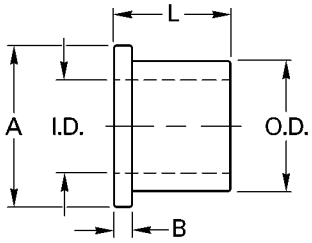
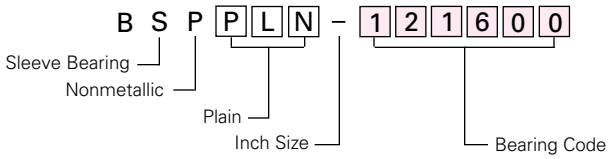


FIGURE 2

Part Number Example



Temperature Range: -40°F to +250°F

Bearing Code	I.D. +.0015 -.0000	O.D. +.002 -.000	L ±.005 Length	A ±.005 Flange Diameter	B ±.003 Flange Width
• FIG. 1		**Plain Bearings**			
040800	.128	.252	1/4	—	—
041200	.128	.252	3/8	—	—
060800	.190	.315	1/4	—	—
061200	.190	.315	3/8	—	—
080800	.253	.377	1/4	—	—
081200	.253	.377	3/8	—	—
081600	.253	.377	1/2	—	—
101200	.316	.503	3/8	—	—
101600	.316	.503	1/2	—	—
121200	.379	.503	3/8	—	—
121600	.379	.503	1/2	—	—
161600	.504	.753	1/2	—	—
162400	.504	.753	3/4	—	—
• FIG. 2		**Flanged Bearings**			
060802	.190	.315	1/4	7/16	1/16
061202	.190	.315	3/8	7/16	1/16
081202	.253	.377	3/8	1/2	1/16
081602	.253	.377	1/2	1/2	1/16
101202	.316	.440	3/8	9/16	1/16
101602	.316	.440	1/2	9/16	1/16
121202	.379	.503	3/8	5/8	1/16
121602	.379	.503	1/2	5/8	1/16
161603	.504	.753	1/2	1	3/32
162403	.504	.753	3/4	1	3/32

NOTE: 1. Recommended hole sizes for press fitting these bearings are nominal O.D. size +.001, -.000.
2. X = Filler character.

SLEEVE BEARINGS

• Machined Acetron • Nonmetallic • Self-Lubricating

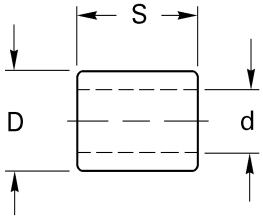


FIGURE 1

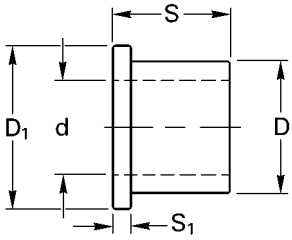
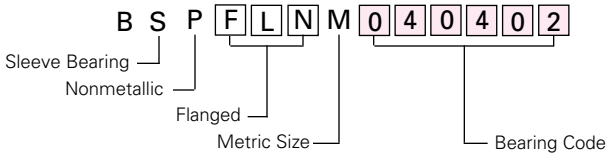


FIGURE 2

Part Number Example



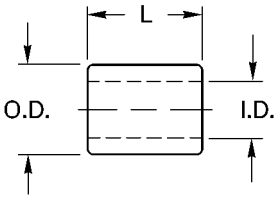
Temperature Range: -40°C to +121°C

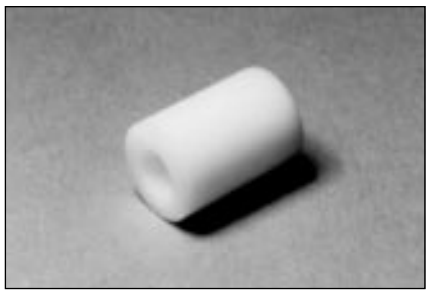
Bearing Code	d Bore +0.04	D +0.05	S Length ±0.13	D_1 Flange Diameter ±.013	S_1 Flange Width ±0.08
• FIG. 1		Plain Bearings			
030400	3.06	6.05	4	—	—
030600	3.06	6.05	6	—	—
040400	4.06	8.06	4	—	—
040600	4.06	8.06	6	—	—
050600	5.06	10.05	6	—	—
050800	5.06	10.05	8	—	—
051000	5.06	10.05	10	—	—
060800	6.07	10.05	8	—	—
061200	6.07	10.05	12	—	—
080800	8.08	12.07	8	—	—
081200	8.08	12.07	12	—	—
101200	10.1	16.07	12	—	—
101600	10.1	16.07	16	—	—
• FIG. 2		Flanged Bearings			
040402	4.06	8.06	4	10	2
040602	4.06	8.06	6	10	2
050802	5.06	10.05	8	12	2
051002	5.06	10.05	10	12	2
060802	6.07	10.05	8	14	2
061202	6.07	10.05	12	14	2
080802	8.08	12.07	8	15.8	2
081202	8.08	12.07	12	15.8	2
101203	10.10	16.07	12	20	3
101603	10.10	16.07	16	20	3

NOTE: 1. Recommended hole sizes for press fitting these bearings are nominal O.D. size +0.025.
2. X = Filler character.

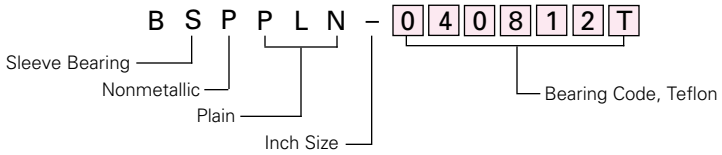
PLAIN SLEEVE BEARINGS

• Nonmetallic • Teflon





Part Number Example

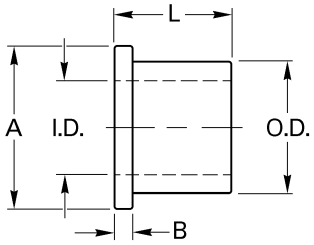


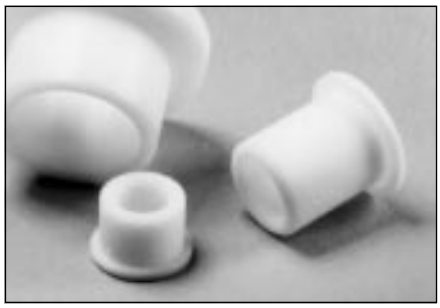
Bearing Code	Shaft Size (Ref.)	I.D. +.005 -.000	O.D. +.005 -.000	L ±.010
040804T	1/8	.126	.252	.125
040806T	1/8	.126	.252	.187
040808T	1/8	.126	.252	.250
040812T	1/8	.126	.252	.375
061004T	3/16	.188	.315	.125
061008T	3/16	.188	.315	.250
061012T	3/16	.188	.315	.375
061016T	3/16	.188	.315	.500
081208T	1/4	.251	.377	.250
081212T	1/4	.251	.377	.375
081216T	1/4	.251	.377	.500
081220T	1/4	.251	.377	.625
101408T	5/16	.313	.439	.250
101412T	5/16	.313	.439	.375
101416T	5/16	.313	.439	.500
101420T	5/16	.313	.439	.625
101424T	5/16	.313	.439	.750
121612T	3/8	.376	.502	.375
121616T	3/8	.376	.502	.500
121620T	3/8	.376	.502	.625
121624T	3/8	.376	.502	.750
162016T	1/2	.501	.628	.500
162020T	1/2	.501	.628	.625
162024T	1/2	.501	.628	.750
162032T	1/2	.501	.628	1.000

NOTE: X = Filler character.

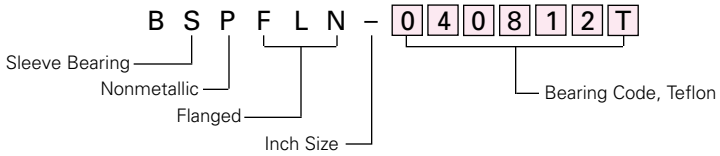
FLANGED SLEEVE BEARINGS

• Nonmetallic • Teflon





Part Number Example

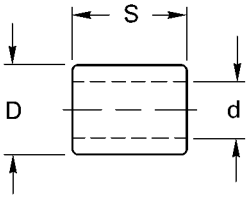


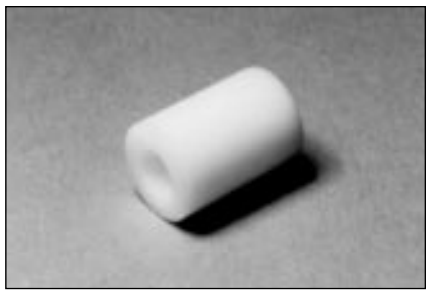
Bearing Code	Shaft Size (Ref.)	I.D. +.005 -.000	O.D. +.005 -.000	L ±.010	A ±.010	B ±.005
040804T	1/8	.126	.252	.125	.312	.047
040806T	1/8	.126	.252	.187	.312	.047
040808T	1/8	.126	.252	.250	.312	.047
040812T	1/8	.126	.252	.375	.312	.047
061004T	3/16	.188	.315	.125	.375	.047
061008T	3/16	.188	.315	.250	.375	.047
061012T	3/16	.188	.315	.375	.375	.047
061016T	3/16	.188	.315	.500	.375	.047
081208T	1/4	.251	.377	.250	.500	.047
081212T	1/4	.251	.377	.375	.500	.047
081216T	1/4	.251	.377	.500	.500	.047
081220T	1/4	.251	.377	.625	.500	.047
101408T	5/16	.313	.439	.250	.562	.093
101412T	5/16	.313	.439	.375	.562	.093
101416T	5/16	.313	.439	.500	.562	.093
101420T	5/16	.313	.439	.625	.562	.093
101424T	5/16	.313	.439	.750	.562	.093
121612T	3/8	.376	.502	.375	.687	.093
121616T	3/8	.376	.502	.500	.687	.093
121620T	3/8	.376	.502	.625	.687	.093
121624T	3/8	.376	.502	.750	.687	.093
162016T	1/2	.501	.628	.500	.875	.125
162020T	1/2	.501	.628	.625	.875	.125
162024T	1/2	.501	.628	.750	.875	.125
162032T	1/2	.501	.628	1.000	.875	.125

NOTE: X = Filler character.

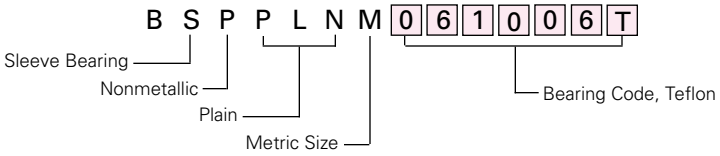
PLAIN SLEEVE BEARINGS

• Nonmetallic • Teflon





Part Number Example

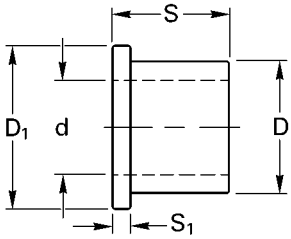


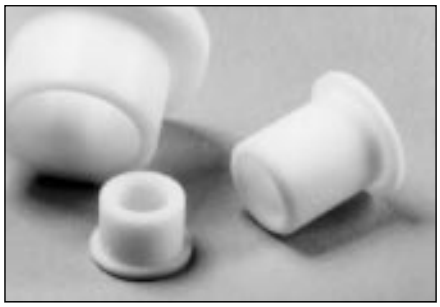
Bearing Code	Shaft Size (Ref.)	d +0.13	D ±0.13	S ±0.12
030604T	3	3.018	6.04	4
030606T	3	3.018	6.04	6
030610T	3	3.018	6.04	10
050804T	5	5.018	8.04	4
050808T	5	5.018	8.04	8
050812T	5	5.018	8.04	12
061006T	6	6.018	10.04	6
061010T	6	6.018	10.04	10
061012T	6	6.018	10.04	12
061016T	6	6.018	10.04	16
081208T	8	8.018	12.05	8
081212T	8	8.018	12.05	12
081216T	8	8.018	12.05	16
101308T	10	10.018	13.05	8
101310T	10	10.018	13.05	10
101316T	10	10.018	13.05	16
101320T	10	10.018	13.05	20
121610T	12	12.018	16.05	10
121612T	12	12.018	16.05	12
121620T	12	12.018	16.05	20
121625T	12	12.018	16.05	25

NOTE: X = Filler character.

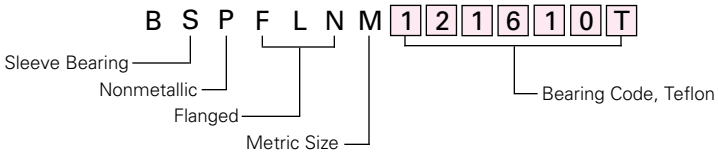
FLANGED SLEEVE BEARINGS

• Nonmetallic • Teflon





Part Number Example



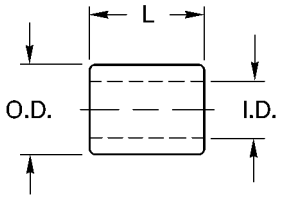
Bearing Code	Shaft Size (Ref.)	d +0.13	D ±0.13	S ±0.12	D_1 ±0.25	S_1 ±0.13
030604T	3	3.018	6.04	4	8	1.2
030606T	3	3.018	6.04	6	8	1.2
030610T	3	3.018	6.04	10	8	1.2
050804T	5	5.018	8.04	4	10	1.2
050808T	5	5.018	8.04	8	10	1.2
050812T	5	5.018	8.04	12	10	1.2
061006T	6	6.018	10.04	6	12	1.2
061010T	6	6.018	10.04	10	12	1.2
061012T	6	6.018	10.04	12	12	1.2
061016T	6	6.018	10.04	16	12	1.2
081208T	8	8.018	12.05	8	16	1.5
081212T	8	8.018	12.05	12	16	1.5
081216T	8	8.018	12.05	16	16	1.5
101308T	10	10.018	13.05	8	16	1.5
101310T	10	10.018	13.05	10	16	1.5
101316T	10	10.018	13.05	16	16	1.5
101320T	10	10.018	13.05	20	16	1.5
121610T	12	12.018	16.05	10	19	1.5
121612T	12	12.018	16.05	12	19	1.5
121620T	12	12.018	16.05	20	19	1.5
121625T	12	12.018	16.05	25	19	1.5

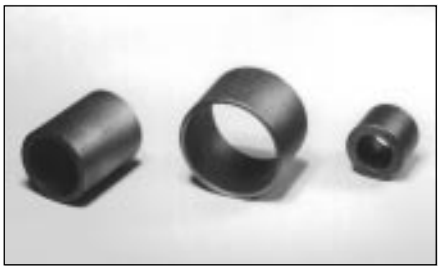
NOTE: X = Filler character.

Quality Bearings & Components

PLAIN SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating





Part Number Example

B S N P L N – Q 1 5 6

- Sleeve Bearing
- Sintered Bronze
- Plain
- Inch Size
- Bearing Code

Bearing Code	I.D. +.001 -.000	O.D. +.000 -.001	L ±.005* Length
Q100	.1265	.1905	.125
Q102	.1265	.1905	.250
Q104	.1265	.253	.250 – .244
Q106	.1265	.253	.414 – .410
Q108	.157	.253	.125
Q110	.157	.253	.187
Q112	.157	.253	.265
Q114	.188	.253	.187
Q116	.188	.253	.210
Q118	.188	.253	.243
Q120	.188	.253	.305
Q122	.188	.253	.330
Q124	.188	.253	.343 – .337
Q126	.188	.253	.406
Q128	.188	.253	.468
Q130	.188	.284	.186 – .182
Q132	.188	.3155	.249 – .245
Q134	.188	.3155	.500
Q136	.188	.4405	.500
Q138	.237	.378	.250
Q140	.237	.378	.296
Q142	.251	.3155	.115
Q144	.251	.3155	.169 – .163
Q146	.251	.3155	.187
Q148	.251	.3155	.234
Q150	.251	.3155	.250
Q152	.251	.3155	.348
Q156	.251	.3155	.390
Q158	.251	.3155	.437
Q160	.251	.3155	.500
Q162	.251	.378	.218
Q164	.251	.378	.312
Q166	.251	.378	.406
Q168	.251	.378	.500
Q170	.251	.378	.570 – .566
Q172	.251	.378	.719
Q174	.251	.4405	.407
Q176	.251	.4405	.437
Q178	.250	.503	.218
Q180	.299	.378	.225
Q182	.313	.378	.125
Q184	.313	.378	.208

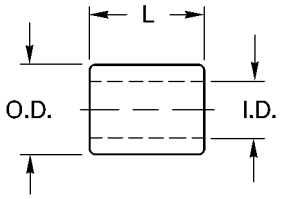
Bearing Code	I.D. +.001 -.000	O.D. +.000 -.001	L ±.005* Length
Q186	.3135	.378	.250
Q188	.313	.378	.281
Q190	.313	.378	.370
Q192	.313	.378	.421
Q194	.313	.378	.487
Q196	.313	.4405	.187
Q198	.313	.4405	.250
Q200	.313	.4405	.500
Q202	.313	.503	.312
Q204	.313	.503	.437
Q206	.313	.503	.703
Q208	.313	.503	1.000
Q210	.328	.472	.500
Q212	.328	.472	.750
Q214	.328	.503	.437
Q216	.376	.503	.187 – .183
Q218	.376	.503	.500
Q220	.376	.503	.625
Q222	.376	.503	.813
Q224	.376	.5655	.328
Q226	.376	.5655	.500
Q228	.376	.5655	.755
Q230	.376	.5655	.995
Q232	.376	.628	.312
Q234	.376	.628	.432
Q236	.376	.628	.627 – .623
Q238	.439	.5655	.713
Q240	.502	.628	.375
Q242	.502	.628	.418 – .414
Q244	.502	.628	.437
Q246	.502	.628	.500
Q248	.502	.628	.593
Q250	.502	.628	1.030
Q252	.502	.7535	.250
Q254	.502	.7535	.437 – .429
Q256	.502	.7535	.750
Q258	.627	.7535	.373
Q260	.627	.7535	.435
Q262	.627	.7535	.761 – .756
Q264	.627	.753	.343
Q266	.627	.8785	.323
Q268	.627	.8785	.500
Q270	.627	.8785	.625

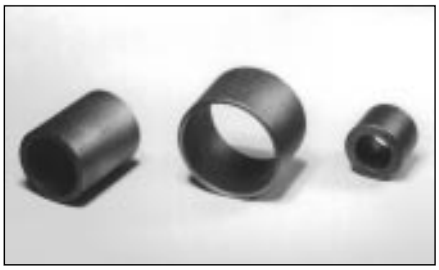
* Unless otherwise specified.

NOTE: 1. X = Filler Character.
2. Use Table 2-2 installation data.

PLAIN SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating





Part Number Example

B S N P L N – P 1 4 2 0 0 8

- Sleeve Bearing
- Sintered Bronze
- Plain
- Inch Size
- Bearing Code

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L* Length
P121803	.378	.565	3/8
P121804	.378	.565	1/2
P121805	.378	.565	5/8
P121806	.378	.565	3/4
P121807	.378	.565	7/8
P121808	.378	.565	1
P121810	.378	.565	1-1/4
P122003	.378	.628	3/8
P122004	.378	.628	1/2
P122005	.378	.628	5/8
P122006	.378	.628	3/4
P122007	.378	.628	7/8
P122008	.378	.628	1
P122010	.378	.628	1-1/4
P122012	.378	.628	1-1/2
P122403	.378	.753	3/8
P122404	.378	.753	1/2
P122406	.378	.753	3/4
P122408	.378	.753	1
P122410	.378	.753	1-1/4
P141803	.440	.565	3/8
P141804	.440	.565	1/2
P141805	.440	.565	5/8
P141806	.440	.565	3/4
P141807	.440	.565	7/8
P141808	.440	.565	1
P141810	.440	.565	1-1/4
P142003	.440	.628	3/8
P142004	.440	.628	1/2
P142005	.440	.628	5/8
P142006	.440	.628	3/4
P142007	.440	.628	7/8
P142008	.440	.628	1
P142010	.440	.628	1-1/4
P142012	.440	.628	1-1/2
P142204	.4395	.6905	1/2
P142208	.4395	.6905	1
P142212	.4395	.6905	1-1/2
P162003	.502	.628	3/8
P162004	.502	.628	1/2

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L* Length
P162005	.502	.628	5/8
P162006	.502	.628	3/4
P162007	.502	.628	7/8
P162008	.502	.628	1
P162009	.502	.628	1-1/8
P162010	.502	.628	1-1/4
P162012	.502	.628	1-1/2
P162204	.503	.690	1/2
P162205	.503	.690	5/8
P162206	.503	.690	3/4
P162207	.503	.690	7/8
P162208	.503	.690	1
P162209	.503	.690	1-1/8
P162210	.503	.690	1-1/4
P162212	.503	.690	1-1/2
P162403	.503	.753	3/8
P162404	.503	.753	1/2
P162405	.503	.753	5/8
P162406	.503	.753	3/4
P162407	.503	.753	7/8
P162408	.503	.753	1
P162409	.503	.753	1-1/8
P162410	.503	.753	1-1/4
P162412	.503	.753	1-1/2
P162414	.503	.753	1-3/4
P162416	.503	.753	2
P162604	.503	.815	1/2
P162606	.503	.815	3/4
P162608	.503	.815	1
P162612	.503	.815	1-1/2
P162804	.503	.878	1/2
P162805	.503	.878	5/8
P162806	.503	.878	3/4
P162807	.503	.878	7/8
P162808	.503	.878	1
P162810	.503	.878	1-1/4
P162812	.503	.878	1-1/2
P163206	.503	1.004	3/4
P163208	.503	1.004	1
P163212	.503	1.004	1-1/2
P163216	.503	1.004	2

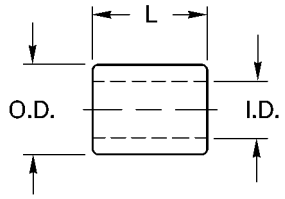
NOTE: 1. X = Filler character.
2. Use Table 2-4 installation data.

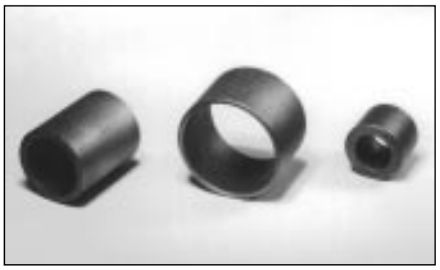
* Length tolerances: up to & including 1-1/2 is ±.005
over 1-1/2 is ±.0075

Quality Bearings & Components

PLAIN SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating





Part Number Example

B S N P L N – P 1 8 2 6 1 2

- B S N: Sleeve Bearing
- P: Sintered Bronze
- L: Plain
- N: Inch Size
- P 1 8 2 6 1 2: Bearing Code

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L* Length
P182204	.565	.690	1/2
P182206	.565	.690	3/4
P182208	.565	.690	1
P182210	.565	.690	1-1/4
P182212	.565	.690	1-1/2
P182404	.565	.753	1/2
P182406	.565	.753	3/4
P182408	.565	.753	1
P182410	.565	.753	1-1/4
P182412	.565	.753	1-1/2
P182604	.565	.815	1/2
P182606	.565	.815	3/4
P182608	.565	.815	1
P182610	.565	.815	1-1/4
P182612	.565	.815	1-1/2
P202404	.628	.753	1/2
P202405	.628	.753	5/8
P202406	.628	.753	3/4
P202407	.628	.753	7/8
P202408	.628	.753	1
P202409	.628	.753	1-1/8
P202410	.628	.753	1-1/4
P202412	.628	.753	1-1/2
P202604	.628	.815	1/2
P202605	.628	.815	5/8
P202606	.628	.815	3/4
P202607	.628	.815	7/8
P202608	.628	.815	1
P202610	.628	.815	1-1/4
P202612	.628	.815	1-1/2
P202614	.628	.815	1-3/4
P202804	.628	.878	1/2
P202805	.628	.878	5/8
P202806	.628	.878	3/4
P202807	.628	.878	7/8
P202808	.628	.878	1
P202809	.628	.878	1-1/8
P202810	.628	.878	1-1/4
P202812	.628	.878	1-1/2
P202814	.628	.878	1-3/4

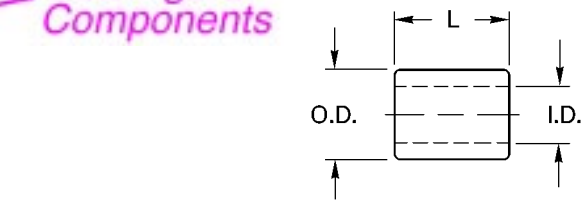
Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L* Length
P202816	.628	.878	2
P203005	.628	.941	5/8
P203006	.628	.941	3/4
P203008	.628	.941	1
P203204	.628	1.003	1/2
P203205	.628	1.003	5/8
P203206	.628	1.003	3/4
P203207	.628	1.003	7/8
P203208	.628	1.003	1
P203210	.628	1.003	1-1/4
P203212	.628	1.003	1-1/2
P203214	.628	1.003	1-3/4
P203216	.628	1.003	2
P222806	.690	.878	3/4
P222808	.690	.878	1
P222810	.690	.878	1-1/4
P222812	.690	.878	1-1/2
P222814	.690	.878	1-3/4
P222816	.690	.878	2
P242804	.753	.878	1/2
P242805	.753	.878	5/8
P242806	.753	.878	3/4
P242807	.753	.878	7/8
P242808	.753	.878	1
P242809	.753	.878	1-1/8
P242810	.753	.878	1-1/4
P242812	.753	.878	1-1/2
P242813	.753	.878	1-5/8
P243004	.753	.941	1/2
P243005	.753	.941	5/8
P243006	.753	.941	3/4
P243007	.753	.941	7/8
P243008	.753	.941	1
P243009	.753	.941	1-1/8
P243010	.753	.941	1-1/4
P243012	.753	.941	1-1/2
P243013	.753	.941	1-5/8
P243014	.753	.941	1-3/4
P243015	.753	.941	1-7/8
P243016	.753	.941	2

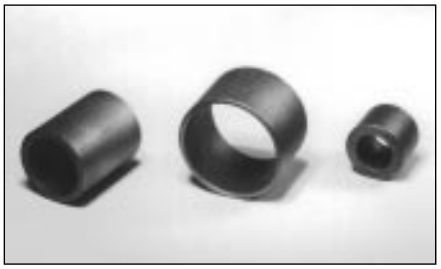
NOTE: 1. X = Filler character.
2. Use Table 2-4 installation data.

* Length tolerances: up to & including 1-1/2 is ±.005
over 1-1/2 is ±.0075

PLAIN SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating





Part Number Example

B S N P L N – P 2 8 3 6 0 9

- Sleeve Bearing
- Sintered Bronze
- Plain
- Inch Size
- Bearing Code

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L* Length
P243204	.753	1.003	1/2
P243205	.753	1.003	5/8
P243206	.753	1.003	3/4
P243207	.753	1.003	7/8
P243208	.753	1.003	1
P243209	.753	1.003	1-1/8
P243210	.753	1.003	1-1/4
P243212	.753	1.003	1-1/2
P243214	.753	1.003	1-3/4
P243216	.753	1.003	2
P243220	.753	1.003	2-1/2
P243604	.753	1.128	1/2
P243606	.753	1.128	3/4
P243608	.753	1.128	1
P243610	.753	1.128	1-1/4
P243612	.753	1.128	1-1/2
P243614	.753	1.128	1-3/4
P243616	.753	1.128	2
P244006	.753	1.253	3/4
P244008	.753	1.253	1
P244010	.753	1.253	1-1/4
P244012	.753	1.253	1-1/2
P263206	.815	1.003	3/4
P263208	.815	1.003	1
P263210	.815	1.003	1-1/4
P263212	.815	1.003	1-1/2
P263214	.815	1.003	1-3/4
P263216	.815	1.003	2
P263408	.815	1.065	1
P263410	.815	1.065	1-1/4
P283206	.878	1.003	3/4
P283207	.878	1.003	7/8
P283208	.878	1.003	1
P283210	.878	1.003	1-1/4
P283212	.878	1.003	1-1/2
P283214	.878	1.003	1-3/4
P283408	.878	1.0655	1
P283410	.878	1.0655	1-1/4
P283606	.878	1.128	3/4
P283607	.878	1.128	7/8
P283608	.878	1.128	1
P283609	.878	1.128	1-1/8
P283610	.878	1.128	1-1/4
P283611	.878	1.128	1-3/8
P283612	.878	1.128	1-1/2

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L* Length
P283613	.878	1.128	1-5/8
P283614	.878	1.128	1-3/4
P283616	.878	1.128	2
P283618	.878	1.128	2-1/4
P283620	.878	1.128	2-1/2
P284006	.878	1.253	3/4
P284008	.878	1.253	1
P284010	.878	1.253	1-1/4
P284012	.878	1.253	1-1/2
P284016	.878	1.253	2
P303806	.940	1.190	3/4
P303808	.940	1.190	1
P303810	.940	1.190	1-1/4
P303812	.940	1.190	1-1/2
P303816	.940	1.190	2
P304006	.940	1.254	3/4
P304008	.940	1.254	1
P304010	.940	1.254	1-1/4
P304012	.940	1.254	1-1/2
P304014	.940	1.254	1-3/4
P304016	.940	1.254	2
P323606	1.004	1.128	3/4
P323608	1.004	1.128	1
P323610	1.004	1.128	1-1/4
P323612	1.004	1.128	1-1/2
P323614	1.004	1.128	1-3/4
P323616	1.004	1.128	2
P323806	1.004	1.190	3/4
P323808	1.004	1.190	1
P323810	1.004	1.190	1-1/4
P323812	1.004	1.190	1-1/2
P323814	1.004	1.190	1-3/4
P323816	1.004	1.190	2
P324004	1.004	1.254	1/2
P324006	1.004	1.254	3/4
P324007	1.004	1.254	7/8
P324008	1.004	1.254	1
P324010	1.004	1.254	1-1/4
P324011	1.004	1.254	1-3/8
P324012	1.004	1.254	1-1/2
P324014	1.004	1.254	1-3/4
P324016	1.004	1.254	2
P324018	1.004	1.254	2-1/4
P324020	1.004	1.254	2-1/2
P324024	1.004	1.254	3

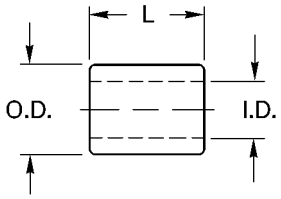
NOTE: 1. X = Filler character.
2. Use Table 2-4 installation data.

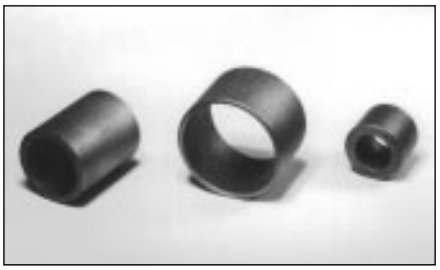
* Length tolerances: up to & including 1-1/2 is ±.005
over 1-1/2 is ±.0075

Quality Bearings & Components

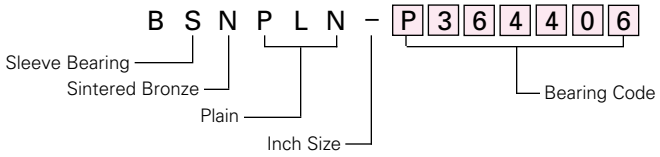
PLAIN SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating





Part Number Example



Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L* Length
P324208	1.004	1.316	1
P324210	1.004	1.316	1-1/4
P324212	1.004	1.316	1-1/2
P324214	1.004	1.316	1-3/4
P324216	1.004	1.316	2
P324220	1.004	1.316	2-1/2
P324224	1.004	1.316	3
P324406	1.004	1.379	3/4
P324408	1.004	1.379	1
P324410	1.004	1.379	1-1/4
P324412	1.004	1.379	1-1/2
P324414	1.004	1.379	1-3/4
P324416	1.004	1.379	2
P324420	1.004	1.379	2-1/2
P324808	1.004	1.504	1
P324810	1.004	1.504	1-1/4
P324812	1.004	1.504	1-1/2
P324814	1.004	1.504	1-3/4
P324816	1.004	1.504	2
P324820	1.004	1.504	2-1/2
P324824	1.004	1.504	3
P344208	1.065	1.316	1
P344212	1.065	1.316	1-1/2
P344216	1.065	1.316	2
P344220	1.065	1.316	2-1/2
P364008	1.129	1.254	1
P364010	1.129	1.254	1-1/4
P364012	1.129	1.254	1-1/2
P364208	1.129	1.316	1
P364210	1.129	1.316	1-1/4
P364212	1.129	1.316	1-1/2
P364214	1.129	1.316	1-3/4
P364216	1.129	1.316	2
P364406	1.129	1.379	3/4
P364408	1.129	1.379	1
P364410	1.129	1.379	1-1/4
P364412	1.129	1.379	1-1/2
P364414	1.129	1.379	1-3/4
P364416	1.129	1.379	2

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L* Length
P364420	1.129	1.379	2-1/2
P364424	1.129	1.379	3
P364808	1.129	1.504	1
P364810	1.129	1.504	1-1/4
P364812	1.129	1.504	1-1/2
P364814	1.129	1.504	1-3/4
P364816	1.129	1.504	2
P364820	1.129	1.504	2-1/2
P384610	1.192	1.441	1-1/4
P384612	1.192	1.441	1-1/2
P384616	1.192	1.441	2
P384620	1.192	1.441	2-1/2
P384624	1.192	1.441	3
P384808	1.192	1.504	1
P384810	1.192	1.504	1-1/4
P384812	1.192	1.504	1-1/2
P384814	1.192	1.504	1-3/4
P384816	1.192	1.504	2
P384820	1.192	1.504	2-1/2
P384824	1.192	1.504	3
P404804	1.254	1.504	1/2
P404805	1.254	1.504	5/8
P404806	1.254	1.504	3/4
P404807	1.254	1.504	7/8
P404808	1.254	1.504	1
P404809	1.254	1.504	1-1/8
P404810	1.254	1.504	1-1/4
P404811	1.254	1.504	1-3/8
P404812	1.254	1.504	1-1/2
P404813	1.254	1.504	1-5/8
P404814	1.254	1.504	1-3/4
P404815	1.254	1.504	1-7/8
P404816	1.254	1.504	2
P404818	1.254	1.504	2-1/4
P404820	1.254	1.504	2-1/2
P404824	1.254	1.504	3
P405008	1.254	Δ1.566	1
P405012	1.254	Δ1.566	1-1/2
P405016	1.254	Δ1.566	2

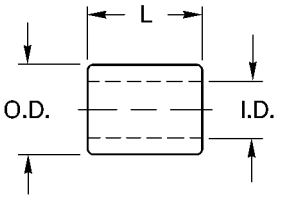
NOTE: 1. X = Filler character.
2. Use Table 2-4 installation data.

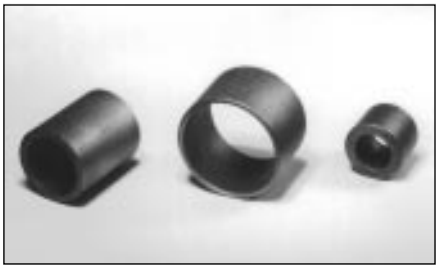
* Length tolerances: up to & including 1-1/2 is ±.005
over 1-1/2 is ±.0075

ΔO.D. Tolerance: +.000, -.0015

PLAIN SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating





Part Number Example

B S N P L N – P 4 6 5 6 1 6

- Sleeve Bearing
- Sintered Bronze
- Plain
- Inch Size
- Bearing Code

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.0015	L* Length
P405208	1.254	1.629	1
P405210	1.254	1.629	1-1/4
P405212	1.254	1.629	1-1/2
P405214	1.254	1.629	1-3/4
P405216	1.254	1.629	2
P405220	1.254	1.629	2-1/2
P405224	1.254	1.629	3
P405612	1.254	1.754	1-1/2
P405614	1.254	1.754	1-3/4
P405616	1.254	1.754	2
P405620	1.254	1.754	2-1/2
P405624	1.254	1.754	3
P424808	1.316	1.566	1
P424812	1.316	1.566	1-1/2
P424816	1.316	1.566	2
P425210	1.316	1.629	1-1/4
P425212	1.316	1.629	1-1/2
P425216	1.316	1.629	2
P425220	1.316	1.629	2-1/2
P425224	1.316	1.629	3
P445208	1.379	1.629	1
P445209	1.379	1.629	1-1/8
P445210	1.379	1.629	1-1/4
P445212	1.379	1.629	1-1/2
P445216	1.379	1.629	2
P445220	1.379	1.629	2-1/2
P445224	1.379	1.629	3
P445608	1.379	1.754	1
P445612	1.379	1.754	1-1/2
P445616	1.379	1.754	2
P445620	1.379	1.754	2-1/2
P445624	1.379	1.754	3
P465208	1.442	1.629	1
P465212	1.442	1.629	1-1/2
P465216	1.442	1.629	2
P465606	1.442	1.754	3/4
P465608	1.442	1.754	1
P465610	1.442	1.754	1-1/4
P465612	1.442	1.754	1-1/2
P465614	1.442	1.754	1-3/4
P465616	1.442	1.754	2

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.0015	L* Length
P465620	1.442	1.754	2-1/2
P465624	1.442	1.754	3
P485604	1.504	1.754	1/2
P485606	1.504	1.754	3/4
P485608	1.504	1.754	1
P485610	1.504	1.754	1-1/4
P485611	1.504	1.754	1-3/8
P485612	1.504	1.754	1-1/2
P485614	1.504	1.754	1-3/4
P485616	1.504	1.754	2
P485618	1.504	1.754	2-1/4
P485620	1.504	1.754	2-1/2
P485624	1.504	1.754	3
P485808	1.504	1.816	1
P485812	1.504	1.816	1-1/2
P485813	1.504	1.816	1-5/8
P485816	1.504	1.816	2
P485824	1.504	1.816	3
P486012	1.504	1.879	1-1/2
P486016	1.504	1.879	2
P486020	1.504	1.879	2-1/2
P486022	1.504	1.879	2-3/4
P486024	1.504	1.879	3
P486408	1.504	2.004	1
P486412	1.504	2.004	1-1/2
P486416	1.504	2.004	2
P486420	1.504	2.004	2-1/2
P486424	1.504	2.004	3
P486428	1.504	2.004	3-1/2
P506010	Δ1.629	1.879	1-1/4
P506012	Δ1.629	1.879	1-1/2
P506014	Δ1.629	1.879	1-3/4
P506016	Δ1.629	1.879	2
P506018	Δ1.629	1.879	2-1/4
P506020	Δ1.629	1.879	2-1/2
P506024	Δ1.629	1.879	3
P506408	Δ1.629	2.004	1
P506412	Δ1.629	2.004	1-1/2
P506414	Δ1.629	2.004	1-3/4
P506416	Δ1.629	2.004	2
P506420	Δ1.629	2.004	2-1/2
P506424	Δ1.629	2.004	3

NOTE: 1. X = Filler character.
2. Use Table 2-4 installation data.

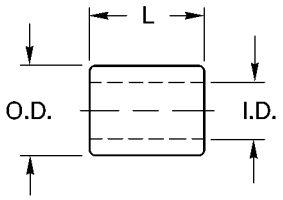
* Length tolerances: up to & including 1-1/2 is ±.005
over 1-1/2 is ±.0075

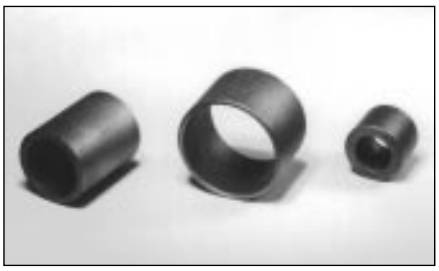
ΔI.D. Tolerance: +.000, -.0015

Quality Bearings & Components

PLAIN SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating





Part Number Example

B S N P L N – P 5 6 7 4 2 4

- B S N: Sleeve Bearing
- P: Sintered Bronze
- L: Plain
- N: Inch Size
- P 5 6 7 4 2 4: Bearing Code

Bearing Code	I.D.Δ	O.D.Δ	L* Length
P526814	1.6915	2.1925	1-3/4
P526816	1.6915	2.1925	2
P526824	1.6915	2.1925	3
P526832	1.6915	2.1925	4
P546408	1.754	2.004	1
P546410	1.754	2.004	1-1/4
P546412	1.754	2.004	1-1/2
P546414	1.754	2.004	1-3/4
P546416	1.754	2.004	2
P546420	1.754	2.004	2-1/2
P546424	1.754	2.004	3
P546811	1.754	2.129	1-3/8
P546812	1.754	2.129	1-1/2
P546816	1.754	2.129	2
P546824	1.754	2.129	3
P566820	1.940	2.1285	2-1/2
P567416	1.9405	2.3165	2
P567420	1.9405	2.3165	2-1/2
P567424	1.9405	2.3165	3
P567432	1.9405	2.3165	4
P587208	2.004	2.254	1
P587212	2.004	2.254	1-1/2
P587216	2.004	2.254	2
P587220	2.004	2.254	2-1/2
P587224	2.004	2.254	3
P587612	2.004	2.380	1-1/2
P587614	2.004	2.380	1-3/4
P587616	2.004	2.380	2
P587620	2.004	2.380	2-1/2
P587622	2.004	2.380	2-3/4
P587624	2.004	2.380	3
P587628	2.004	2.380	3-1/2
P587632	2.004	2.380	4
P587808	2.004	2.505	1
P587812	2.004	2.505	1-1/2
P587816	2.004	2.505	2
P587820	2.004	2.505	2-1/2
P587824	2.004	2.505	3
P587828	2.004	2.505	3-1/2
P587832	2.004	2.505	4
P608016	2.254	2.630	2
P608020	2.254	2.630	2-1/2
P608024	2.254	2.630	3
P608216	2.254	2.755	2
P608224	2.254	2.755	3
P628216	2.379	2.755	2
P628220	2.379	2.755	2-1/2
P628224	2.379	2.755	3
P648216	2.504	2.754	2
P648220	2.504	2.754	2-1/2
P648224	2.504	2.754	3
P648232	2.504	2.754	4
P648418	2.504	2.880	2-1/4
P648420	2.504	2.880	2-1/2
P648424	2.504	2.880	3
P648616	2.504	3.005	2
P648624	2.504	3.005	3
P648632	2.504	3.005	4
P668612	2.754	3.005	1-1/2
P668620	2.754	3.005	2-1/2
P668816	2.754	3.225	2
P668824	2.754	3.225	3
P668832	2.754	3.225	4
P688816	3.005	3.225	2
P688824	3.005	3.225	3
P689016	3.005	3.505	2
P689020	3.005	3.505	2-1/2
P689024	3.005	3.505	3
P689032	3.005	3.505	4
P709224	3.505	4.006	3
P709228	3.505	4.006	3-1/2
P709232	3.505	4.006	4
P729232	4.0035	4.504	4

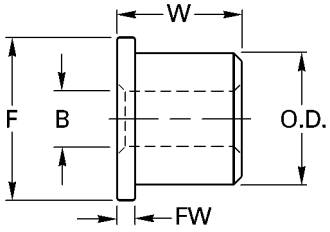
* Length tolerances: up to & including 1-1/2 is ± .005
over 1-1/2" & including 3 is ± .0075
over 3 is ± .010

ΔI.D. & O.D. tolerances: up to & including 2-1/2 is + .000, -.0015
over 2-1/2" & including 3-1/2 is + .000, -.002
over 3-1/2 is + .000, -.0025

NOTE: 1. X = Filler character.
2. Use Table 2-4 installation data.

FLANGED SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Ultra Precision



Part Number Example

B S N F L N – 1 6 2 4 0 8 U

- B S N — Sleeve Bearing / Sintered Bronze
- F L N — Flanged
- 1 6 2 4 0 8 — Inch Size
- U — Bearing Code

Features:
- Economical replacement for ball bearings.
- Dimensioned to be readily interchangeable with comparable ball bearings.

Material: Porous Sintered Bronze Per MIL-B-5687 Type 1

Lubrication: Vacuum Impregnated with oil per MIL-L-6085

Specifications:
O.D. concentric to bore within .0002.
Faces square to bore within .0003.

$$\text{Load} = \frac{\text{Load Speed Rating}}{\text{rpm}} = \text{lb.}$$

Bearing Code	Shaft Size +.0000 -.0003	B +.0002 -.0000 Bore	O.D. +.0000 -.0002	W +.000 -.007 Width	F ±.005 Flange Dia.	FW +.000 -.002 Flange Width	Load Speed Rating lb. x rpm
031004U	3/64	.0469	.1563	.0625	.203	.013	12000
031006U	3/64	.0469	.1563	.0937	.203	.031	18000
031205U	3/64	.0550	.1876	.0781	.234	.023	15000
031207U	3/64	.0550	.1876	.1094	.234	.031	21000
041207U	1/16	.0627	.1876	.1094	.234	.031	21000
041606U	1/16	.0627	.2501	.0937	.296	.031	18000
051606U	5/64	.0783	.2501	.0937	.296	.023	18000
051609U	5/64	.0783	.2501	.1406	.296	.031	27000
061204U	3/32	.0939	.1876	.0625	.234	.018	12000
061206U	3/32	.0939	.1876	.0937	.234	.031	18000
062007U	3/32	.0939	.3126	.1094	.359	.023	21000
0620A7U	3/32	.0939	.3126	.1094	.359	.031	21000
062009U	3/32	.0939	.3126	.1406	.359	.031	27000
081606U	1/8	.1252	.2501	.0937	.296	.023	18000
081607U	1/8	.1252	.2501	.1094	.296	.031	21000
082007U	1/8	.1252	.3126	.1094	.359	.023	21000
082009U	1/8	.1252	.3126	.1406	.359	.031	27000
082407U	1/8	.1252	.3751	.1094	.422	.023	21000
082409U	1/8	.1252	.3751	.1406	.422	.031	27000
102007U	5/32	.1564	.3126	.1094	.359	.023	21000
102008U	5/32	.1564	.3126	.1250	.359	.036	24000
122407U	3/16	.1877	.3751	.1094	.422	.023	21000
122408U	3/16	.1877	.3751	.1250	.422	.023	24000
1224A8U	3/16	.1877	.3751	.1250	.422	.031	24000
123210U	3/16	.1877	.5001	.1562	.565	.042	30000
123212U	3/16	.1877	.5001	.1960	.565	.042	37000
162408U	1/4	.2502	.3751	.1250	.422	.023	24000
1624A8U	1/4	.2502	.3751	.1250	.422	.036	24000
163208U	1/4	.2502	.5001	.1250	.547	.023	24000
163212U	1/4	.2502	.5001	.1875	.547	.045	35000
164012U	1/4	.2502	.6251	.1960	.690	.042	37000
204416U	5/16	.3127	.6876	.2500	.750	.042	47000
245618U	3/8	.3752	.8751	.2810	.969	.062	50000
327220U	1/2	.5002	1.1251	.3125	1.250	.062	50000

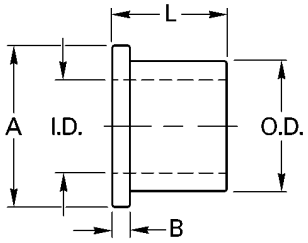
NOTE: 1. X = Filler character.
2. Use Table 2-3 installation data.

Special bores / O.D.'s available on request.
Other lubricants available on request.

Quality Bearings & Components

FLANGED SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating



Part Number Example

B S N F L N – F 1 0 1 6 0 5

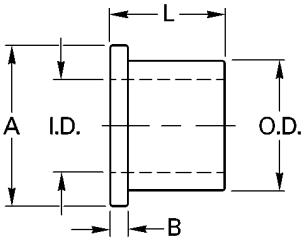
- B S N: Sleeve Bearing, Sintered Bronze
- F L N: Flanged, Inch Size
- F 1 0 1 6 0 5: Bearing Code

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L ±.005 Length	A ±.005 Flange Dia.	B ±.0025 Flange Width
F041002	.127	.315	1/4	3/8	3/64
F041003	.127	.315	3/8	3/8	3/64
F061001	.189	.3145	1/8	3/8	3/64
F061002	.189	.3145	1/4	3/8	3/64
F061003	.189	.3145	3/8	3/8	3/64
F081202	.252	.377	1/4	1/2	3/64
F081203	.252	.377	3/8	1/2	3/64
F081204	.252	.377	1/2	1/2	3/64
F081205	.252	.377	5/8	1/2	3/64
F081206	.252	.377	3/4	1/2	3/64
F101203	.314	.377	3/8	1/2	3/64
F101403	.314	.439	3/8	5/8	3/32
F101406	.314	.439	3/4	5/8	3/32
F101603	.314	.502	3/8	11/16	3/32
F101604	.314	.502	1/2	11/16	3/32
F101605	.314	.502	5/8	11/16	3/32
F121603	.377	.502	3/8	11/16	3/32
F121603A	.377	.502	13/32	11/16	3/32
F121604	.377	.502	1/2	11/16	3/32
F121605	.377	.502	5/8	11/16	3/32
F121606	.377	.502	3/4	11/16	3/32
F121608	.377	.502	1	11/16	3/32
F121610	.377	.502	1-1/4	11/16	3/32
F121806	.377	.5645	3/4	3/4	1/8
F121810	.377	.5645	1-1/4	3/4	1/8
F122004	.377	.627	1/2	7/8	1/8
F122006	.377	.627	3/4	7/8	1/8
F122008	.377	.627	1	7/8	1/8
F122010	.377	.627	1-1/4	7/8	1/8
F122404	.377	.753	1/2	1/2	1/8

NOTE: 1. X = Filler character.
2. Use Table 2-4 installation data.

FLANGED SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating



Part Number Example

B S N F L N – F 1 6 2 2 0 6

- B S N: Sleeve Bearing, Sintered Bronze
- F: Flanged
- L: Inch Size
- N: Inch Size
- F 1 6 2 2 0 6: Bearing Code

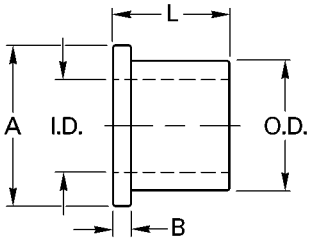
Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L ±.005 Length	A ±.005 Flange Dia.	B ±.0025 Flange Width
F142005	.439	.628	5/8	7/8	1/8
F142010	.439	.628	1-1/4	7/8	1/8
F162003	.502	.628	3/8	7/8	1/8
F162004	.502	.628	1/2	7/8	1/8
F162005	.502	.628	5/8	7/8	1/8
F162006	.502	.628	3/4	7/8	1/8
F162008	.502	.628	1	7/8	1/8
F162010	.502	.628	1-1/4	7/8	1/8
F162012	.502	.628	1-1/2	7/8	1/8
F162014	.502	.628	*1-3/4	7/8	1/8
F162204	.502	.690	1/2	15/16	1/8
F162206	.502	.690	3/4	15/16	1/8
F162404	.502	.753	1/2	1	1/8
F162405	.502	.753	5/8	1	1/8
F162406	.502	.753	3/4	1	1/8
F162407	.502	.753	7/8	1	1/8
F162408	.502	.753	1	1	1/8
F162410	.502	.753	1-1/4	1	1/8
F162412	.502	.753	1-1/2	1	1/8
F172408	.565	.753	1	1	1/8
F202404	.626	.753	1/2	1	1/8
F202405	.626	.753	5/8	1	1/8
F202406	.626	.753	3/4	1	1/8
F202408	.626	.753	1	1	1/8
F202410	.626	.753	1-1/4	1	1/8
F202606	.627	.815	3/4	1-1/16	5/32
F202608	.627	.815	1	1-1/16	5/32
F202610	.627	.815	1-1/4	1-1/16	5/32
F202611	.627	.815	1-7/16	1-1/16	5/32
F202612	.627	.815	1-1/2	1-1/16	5/32
F202616	.627	.815	*2	1-1/16	5/32

*Length tolerance: ±.0075.

NOTE: 1. X = Filler character.
2. Use Table 2-4 in installation data.

FLANGED SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self Lubricating



Part Number Example

B S N F L N – F 2 8 3 6 1 2

- Sleeve Bearing
- Sintered Bronze
- Flanged
- Inch Size
- Bearing Code

Bearing Code	I.D. +.000 -.001	O.D. +.000 -.001	L ±.005 Length	A** Flange Dia.	B ±.0025 Flange Width
F202806	.627	.878	3/4	1-1/8	5/32
F202808	.627	.878	1	1-1/8	5/32
F202814	.627	.878	*1-3/4	1-1/8	5/32
F242806	.752	.878	3/4	1-1/8	5/32
F242808	.752	.878	1	1-1/8	5/32
F243008	.752	.940	1	1-3/16	5/32
F243012	.752	.940	1-1/2	1-3/16	5/32
F243205	.752	1.003	5/8	1-1/4	5/32
F243206	.752	1.003	3/4	1-1/4	5/32
F243208	.752	1.003	1	1-1/4	5/32
F243210	.752	1.003	1-1/4	1-1/4	5/32
F243212	.752	1.003	1-1/2	1-1/4	5/32
F243216	.752	1.003	*2	1-1/4	5/32
F283206	.877	1.003	3/4	1-1/4	5/32
F283208	.877	1.003	1	1-1/4	5/32
F283210	.877	1.003	1-1/4	1-1/4	5/32
F283608	.877	1.128	1	1-3/8	5/32
F283612	.877	1.128	1-1/2	1-3/8	5/32
F324006	1.002	1.253	3/4	1-1/2	3/16
F324008	1.002	1.253	1	1-1/2	3/16
F324010	1.002	1.253	1-1/4	1-1/2	3/16
F324012	1.002	1.253	1-1/2	1-1/2	3/16
F324016	1.002	1.253	2	1-1/2	3/16
F324408	1.002	1.378	1	1-5/8	3/16
F324414	1.002	1.378	* 1-3/4	1-5/8	3/16
F404808	1.252	1.503	1	1-3/4	3/16
F404810	1.252	1.503	1-1/4	1-3/4	3/16
F485612	1.503	△1.754	1-1/2	2-1/16	3/16

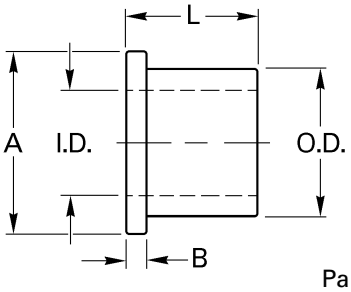
△ **O.D. Tolerance:** +.000, -.0015
*** Length Tolerance:** ±.0075
**** Flange Tolerances:** up to & including 1-1/4 is ±.005
over 1-1/4 is ±.010

NOTE: 1. X = Filler character.
2. Use Table 2-4 installation data.

Quality Bearings & Components

FLANGED SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating



Part Number Example

B S N F L N – G 1 3 5

- Sleeve Bearing
- Sintered Bronze
- Flanged
- Inch Size
- Bearing Code

Bearing Code	I.D. +.001 -.000	O.D. +.000 -.001	L* ±.005 Length	A ±.005 Flange Dia.	B Flange Width
G101	.1245	.2215	.122 – .115	.340	.050 – .048
G103	.125	.190	.228 – .216	.250	.035 – .031
G105	.126	.2215	.148 – .141	.345	.061 – .057
G107	.1875	.284	.218 – .212	.375	.057 – .052
G109	.1875	.3155	.1345 – .1265	.437	.062 – .061
G111	.188	.253	.349 – .344	.310	.034 – .031
G113	.188	.2843	.281	.375	.121 – .117
G115	.188	.3155	.240 – .234	.375	.087 – .081
G117	.188	.316	.375	.437	.064 – .060
G119	.218	.2825	.207 – .202	.310	.084 – .079
G121	.251	.3155	.500	.437	.066 – .058
G123	.251	.316	.156	.437	.065 – .059
G125	.251	.316	.250	.437	.065 – .059
G127	.251	.379	.406	.500	.095 – .093
G129	.251	.379	.578 – .573	.500	.095 – .093
G131	.281	.379	.2188	.500	.095 – .093
G133	.3125	.504	.4848	.562	.065 – .059
G135	.375	.504	.404	.562	.065 – .059
G137	.376	.504	.696 – .690	.562	.065 – .059
G139	.376	.566	.660	.750	.093 – .090
G141	.377	.629	.610 – .611	.875	.063 – .060
G143	.438	.504	.154 – .149	.562	.077 – .072
G145	.438	.5655	.281	.781	.065 – .060
G147	.438	.5655	.546	.781	.065 – .060
G149	.438	.754	.625	.875	.065 – .060
G151	.500	.628	.198 – .192	.870	.042 – .040
G153	.501	.629	.139 – .136	.875	.050 – .044
G155	.501	.629	.250	.812	.095 – .091
G157	.501	.629	.307	.875	.065 – .059
G159	.501	.629	.562	.875	.065 – .059
G161	.501	.754	.515	.875	.145 – .140
G163	.501	.754	.969	.875	.060 – .057
G165	.626	.7535	.230	.875	.145 – .140
G167	.626	.7535	.371	.991	.063 – .059
G169	.626	.7535	.630	.991	.063 – .059

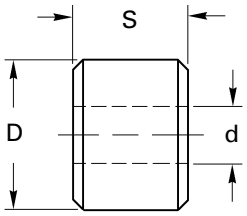
*Unless otherwise specified.

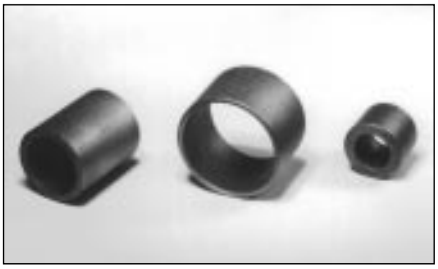
NOTE: 1. X = Filler character.

2. Use Table 2-2 installation data.

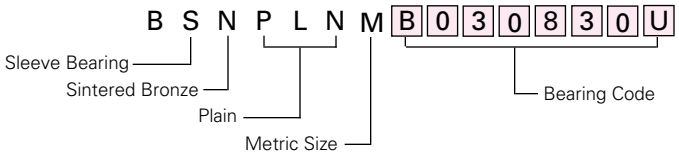
PLAIN SLEEVE BEARINGS

- Sintered Bronze
- Oil Impregnated
- Ultra Precision
- Self-Lubricating





Part Number Example



Specifications:
O.D. concentric to bore within 0.005 mm.
Faces square to bore within 0.008 mm.

$$\text{Load} = \frac{\text{Load Speed Rating}}{\text{rpm}} = \text{Newtons}$$

Bearing Code	Shaft* Size h6	d** Bore H7	D* h6	S Width -.17	Load Speed Rating N • rpm
B030625U	3	3	6	2.5	84000
B030830U	3	3	8	3.0	100000
B031040U	3	3	10	4.0	134000
B040840U	4	4	8	4.0	134000
B051050U	5	5	10	5.0	167000
B051240U	5	5	12	4.0	134000
B051350U	5	5	13	5.0	167000
B061050U	6	6	10	5.0	167000
B061650U	6	6	16	5.0	167000
B081660U	8	8	16	6.0	200000
B101970U	10	10	19	7.0	220000
B122080U	12	12	20	8.0	220000

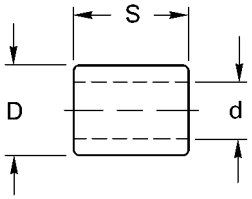
** Bore Tolerance (H7):
3 mm +0.01
4, 5 & 6 mm +0.012
8 & 10 mm +0.015
12 mm +0.018

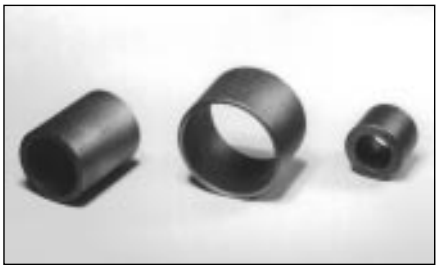
*Shaft & O.D. Tolerance (h6):
3 mm -0.006
4, 5 & 6 mm -0.008
8 & 10 mm -0.009
12, 13 & 16 mm -0.011
19 & 20 mm -0.013

NOTE: 1. X = Filler character.
2. Use Table 2-3 installation data.

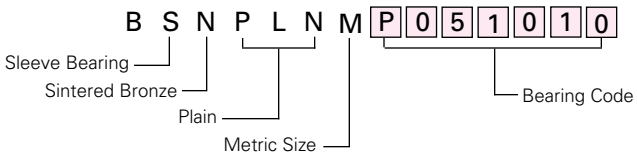
PLAIN SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating





Part Number Example



Bearing Code	d* (E7)	D** (r7)	S Width -0.20
P010302	1	3	2
P020403	2	4	3
P020404	2	4	4
P020503	2	5	3
PH20603	2.5	6	3
P030503	3	5	3
P030504	3	5	4
P030506	3	5	6
P040804	4	8	4
P040806	4	8	6
P040808	4	8	8
P050805	5	8	5
P050808	5	8	8
P051006	5	10	6
P051008	5	10	8
P051010	5	10	10
P061004	6	10	4
P061006	6	10	6
P061010	6	10	10
P061208	6	12	8
P061212	6	12	12
P071008	7	10	8

Bearing Code	d* (E7)	D** (r7)	S Width -0.20
P071010	7	10	10
P071208	7	12	12
P071210	7	12	10
P071212	7	12	12
P081206	8	12	6
P081208	8	12	8
P081212	8	12	12
P081408	8	14	8
P081412	8	14	12
P081416	8	14	16
P091410	9	14	10
P091420	9	14	20
P101410	10	14	10
P101416	10	16	16
P101610	10	16	10
P101616	10	16	16
P101620	10	16	20
P121612	12	16	12
P121620	12	16	20
P121812	12	18	12
P121816	12	18	16
P121825	12	18	25

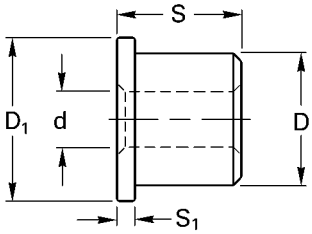
NOTE: 1. X = Filler character.
2. Use Table 2-2 installation data.

* Bore Tolerance (E7): 1, 2, 2.5 & 3 mm +0.024, +0.014
4, 5 & 6 mm +0.032, +0.020
7, 8, 9 & 10 mm +0.040, +0.025
12 mm +0.050, +0.032

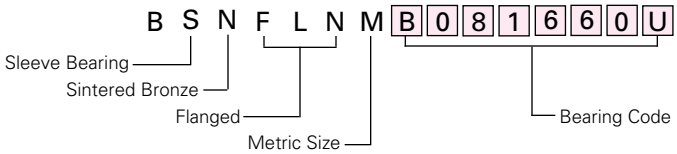
**O.D. Tolerance (r7): 3 mm +0.020, +0.010
4, 5 & 6 mm +0.027, +0.015
8 & 10 mm +0.034, +0.019
12, 14,16 & 18 mm +0.041, +0.023

FLANGED SLEEVE BEARINGS

- Sintered Bronze
- Oil Impregnated
- Ultra Precision
- Self-Lubricating



Part Number Example



Features:
- Economical replacement for ball bearings.
- Dimensioned to be readily interchangeable with comparable ball bearings.

Lubrication:
Vacuum impregnated with oil

Specifications:
O.D. concentric to bore within 0.005 mm.
Faces square to bore within 0.008 mm.

$$\text{Load} = \frac{\text{Load Speed Rating}}{\text{rpm}} = \text{Newtons}$$

Bearing Code	Shaft Size h6	d Bore H7	D h6	S -0.17 Width	D_1 Flange Dia. h14	S_1 -0.05 Flange Width	Load Speed Rating N • rpm
B030625U	3	3	6	2.5	8	0.5	84000
B030830U	3	3	8	3	10	0.5	100000
B031040U	3	3	10	4	12	1	134000
B040840U	4	4	8	4	10	1	134000
B051040U	5	5	10	5	12	1	167000
B051250U	5	5	12	4	14	1	134000
B051350U	5	5	13	5	14	1	167000
B061050U	6	6	10	5	12	1	167000
B061650U	6	6	16	5	18	1	167000
B081660U	8	8	16	6	18	1	200000
B101970U	10	10	19	7	21	1.5	220000
B122080U	12	12	20	8	22	1.5	220000

Bore Tolerance:

3mm	+0.01
4, 5 & 6 mm	+0.012
8 & 10 mm	+0.015
12 mm	+0.018

Shaft & O.D. Tolerance:

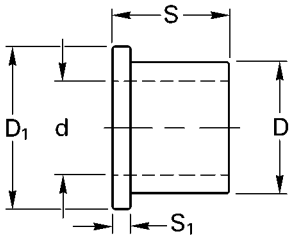
3mm	-0.006
4, 5 & 6 mm	-0.008
8 & 10 mm	-0.009
12, 13 & 16 mm	-0.011
19 & 20 mm	-0.013

NOTE: 1. X = Filler character.
2. Use Table 2-3 in installation data.

Special bores / O.D.'s available on request.

FLANGED SLEEVE BEARINGS

• Sintered Bronze • Oil Impregnated • Self-Lubricating



Part Number Example

B S N F L N M F 0 6 1 0 0 6

- Sleeve Bearing
- Sintered Bronze
- Flanged
- Metric Size
- Bearing Code

Bearing Code	d* (E7)	D** (r7)	S Width -0.2	D_1 Flange Diameter ±0.12	S_1 Flange Width -0.2
F010302	1	3	2	5	1
F020404	2	4	4	6	1.5
FH20603	2.5	6	3	9	1.5
F030504	3	5	4	8	1.5
F040806	4	8	6	10	1.5
F050806	5	8	6	10	2
F051006	5	10	6	12	2
F061004	6	10	4	14	2
F061006	6	10	6	14	2
F061206	6	12	6	14	2
F071208	7	12	8	16	3
F081208	8	12	8	16	3
F091408	9	14	8	18	3
F101608	10	16	8	20	3
F101610	10	16	10	20	3
F121810	12	18	10	22	3
F121812	12	18	12	22	3

***Bore Tolerance (E7):** 1, 2, 2.5 & 3 mm +0.024, +0.014
4, 5 & 6 mm +0.032, +0.020
7, 8, 9 & 10 mm +0.040, +0.025
12 mm +0.050, +0.032

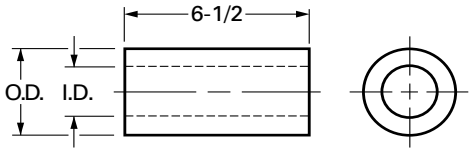
****O.D. Tolerance (r7):** 3 mm +0.020, +0.010
4, 5 & 6 mm +0.027, +0.015
8 & 10 mm +0.034, +0.019
12, 14, 16 & 18 mm +0.041, +0.023

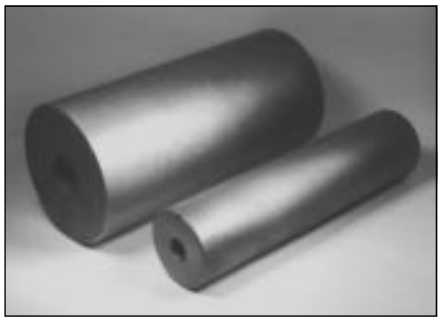
NOTE: 1. X = Filler character.
2. Use Table 2-2 installation data.

Quality Bearings & Components

SINTERED CORED BAR STOCK

• Oil Impregnated Bronze • Self-Lubricating





Part Number Example

B S N C O R – S C B 1 2 2 8

- B S N — Sleeve Bearing, Sintered Bronze
- C O R — Cored Bar Stock
- – — Inch Size
- S C B 1 2 2 8 — Bar Stock Code

Bar Stock Code	I.D.	O.D.
SCB0408	1/2	1
SCB0409		1-1/8
SCB0410		1-1/4
SCB0412		1-1/2
SCB0416		2
SCB0508	5/8	1
SCB0509		1-1/8
SCB0510		1-1/4
SCB0511		1-3/8
SCB0512		1-1/2
SCB0514		1-3/4
SCB0516		2
SCB0610	3/4	1-1/4
SCB0612		1-1/2
SCB0614		1-3/4
SCB0616		2
SCB0618		2-1/4
SCB0620		2-1/2
SCB0622		2-3/4
SCB0711	7/8	1-3/8
SCB0712		1-1/2
SCB0716		2
SCB0718		2-1/4
SCB0812	1	1-1/2
SCB0813		1-5/8
SCB0814		1-3/4
SCB0816		2
SCB0818		2-1/4
SCB0820		2-1/2
SCB0824		3
SCB0828		3-1/2
SCB0832		4
SCB0917	1-1/8	2-1/8
SCB1014	1-1/4	1-3/4
SCB1016		2
SCB1018		2-1/4
SCB1020		2-1/2
SCB1024		3
SCB1028		3-1/2
SCB1032		4
SCB1116	1-3/8	2
SCB1122		2-3/4
SCB1216	1-1/2	2
SCB1218		2-1/4
SCB1220		2-1/2
SCB1222		2-3/4
SCB1224		3
SCB1228		3-1/2
SCB1232		4

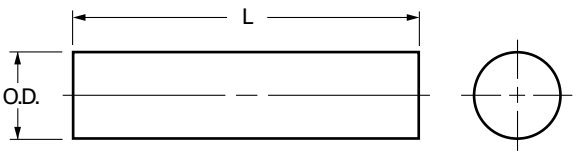
Bar Stock Code	I.D.	O.D.
SCB1418	1-3/4	2-1/4
SCB1420		2-1/2
SCB1421		2-5/8
SCB1422		2-3/4
SCB1424		3
SCB1428		3-1/2
SCB1434		4-1/4
SCB1436		4-1/2
SCB1622	2	2-3/4
SCB1624		3
SCB1626		3-1/4
SCB1632		4
SCB1636		4-1/2
SCB1640		5
SCB1644		5-1/2
SCB1824	2-1/4	3
SCB1826		3-1/4
SCB1828		3-1/2
SCB1830		3-3/4
SCB1832		4
SCB1836		4-1/2
SCB1924	2-3/8	3
SCB1928		3-1/2
SCB1932		4
SCB1936		4-1/2
SCB2028	2-1/2	3-1/2
SCB2030		3-3/4
SCB2032		4
SCB2034		4-1/4
SCB2036		4-1/2
SCB2040		5
SCB2230	2-3/4	3-3/4
SCB2430	3	3-3/4
SCB2432		4
SCB2436		4-1/2
SCB2440		5
SCB2448		6
SCB2634	3-1/4	4-1/4
SCB2838	3-1/2	4-3/4
SCB2840		5
SCB2848		6
SCB3040	3-3/4	5
SCB3244	4	5-1/2
SCB3248		6
SCB3256		7
SCB3648	4-1/2	6
SCB4056	5	7
SCB4864	6	8

NOTE: 1. All bars are supplied with oversized O.D.'s and undersized bores so they can be machine finished to dimensions shown.

2. X = Filler character.

SINTERED SOLID BAR STOCK

• Oil Impregnated Bronze • Self-Lubricating



Part Number Example

B S N B A R – S S B 0 8

- B S — Sleeve Bearing
- N — Sintered Bronze
- B A R — Solid Bar Stock
- – — Inch Size
- S S B 0 8 — Bar Stock Code

Bar Stock Code	O.D. Inch Ref.	L Length
SSB02	1/4	2
SSB03	3/8	3
SSB04	1/2	6-1/2
SSB05	5/8	
SSB06	3/4	
SSB07	7/8	
SSB08	1	
SSB09	1-1/8	
SSB10	1-1/4	
SSB11	1-3/8	
SSB12	1-1/2	
SSB13	1-5/8	
SSB14	1-3/4	
SSB16	2	
SSB18	2-1/4	
SSB20	2-1/2	
SSB22	2-3/4	
SSB24	3	
SSB26	3-1/4	
SSB28	3-1/2	
SSB32	4	
SSB36	4-1/2	
SSB40	5	
SSB44	5-1/2	6
SSB48	6	6

NOTE: 1. All bars are supplied oversized so they can be machine finished to dimensions shown.

2. X = Filler character.

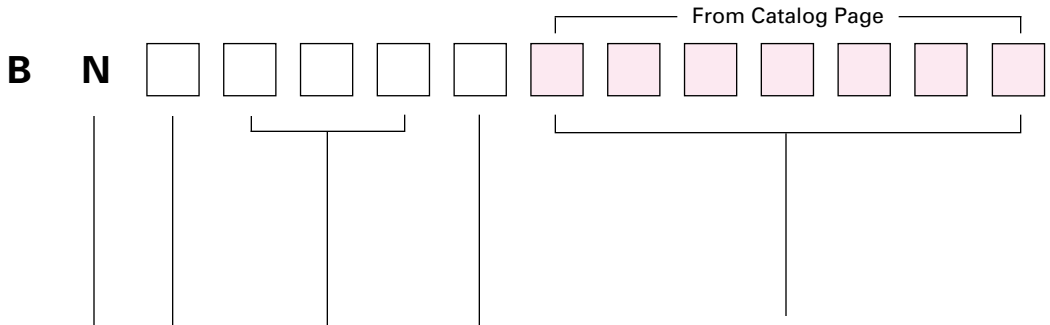
NOTES

Quality Bearings & Components

Part Numbering System

NEEDLE BEARINGS & INNER RACES

• Steel Cage • Plastic Cage



BEARING CODE
See Catalog Page

– Inch Sizes
M Metric Sizes
R Special

SUBGROUP
SCE Shell Bearing Open End
SCH Shell Bearing Open End
BCE Shell Bearing Closed End
BCH Shell Bearing Closed End
HKX Drawn Cup Needle Roller Bearing Open End
BKX Drawn Cup Needle Roller Bearing Closed End
IRX Inner Race
PLX Inner Race

MATERIAL
D Steel Cage
P Plastic Cage

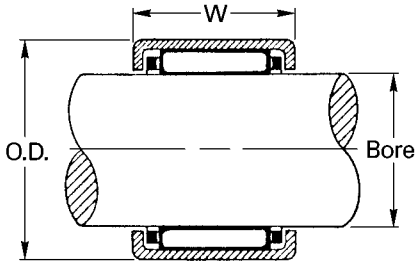
PRODUCT GROUP
N Needle Bearing

NOTE: X = Filler character.

Quality Bearings & Components

NEEDLE ROLLER BEARINGS

- For 1/8 to 1 inch Hardened Shafts
- 52100 Hardened Chrome Steel Needle Bearing
- Low Carbon Steel Bearing Cage
- Case Hardened Steel Roller Cup



Part Number Example

B N D H K X – 3 4 T N

- Needle Bearing
- Steel Cage
- Drawn Cup, Open End
- Inch Size
- Bearing Code

Features:

- Extremely high speed
- High load capacity
- Low profile, lightweight caged
- Caged needle bearings offer up to 3X the speed of uncaged designs
- Extremely low rolling friction
- High lubrication capacity
- Low sensitivity to misalignment
- Needles have high length to diameter ratios

Bearing Code	Bore	O.D.	Shaft Diameter	W +.000 -.010	Limiting Speed*	Load Capacities lbs. (N)		Housing Diameter
						Dynamic	Static	
24TN	.1250	.2500	.1250/.1247	.250	48000	240 (1068)	165 (734)	.2500/.2505
21/24TN	.1562	.2812	.1563/.1560	.250	44000	275 (1223)	204 (907)	.2812/.2817
21/25TN	.1562	.2812	.1563/.1560	.312	44000	300 (1334)	230 (1023)	.2812/.2817
34TN	.1875	.3438	.1875/.1872	.250	40000	400 (1779)	305 (1357)	.3432/.3437
36TN	.1875	.3438	.1875/.1872	.375	40000	620 (2758)	530 (2358)	.3432/.3437
44	.2500	.4375	.2500/.2495	.250	35000	360 (1601)	260 (1157)	.4370/.4380
45	.2500	.4375	.2500/.2495	.312	35000	570 (2535)	470 (2091)	.4370/.4380
47	.2500	.4375	.2500/.2495	.438	35000	920 (4092)	870 (3870)	.4370/.4380
55	.3125	.5000	.3125/.3120	.312	29000	650 (2891)	590 (2624)	.4995/.5005
57	.3125	.5000	.3125/.3120	.438	29000	1060 (4715)	1090 (4849)	.4995/.5005
59	.3125	.5000	.3125/.3120	.562	29000	1340 (5961)	1480 (6583)	.4995/.5005
65	.3750	.5625	.3750/.3745	.312	25000	650 (2891)	610 (2713)	.5620/.5630
66	.3750	.5625	.3750/.3745	.375	25000	870 (3870)	890 (3959)	.5620/.5630
67	.3750	.5625	.3750/.3745	.438	25000	980 (4359)	1030 (4582)	.5620/.5630
68	.3750	.5625	.3750/.3745	.500	25000	1300 (5783)	1490 (6628)	.5620/.5630
69	.3750	.5625	.3750/.3745	.562	25000	1510 (6717)	1800 (8007)	.5620/.5630
610	.3750	.5625	.3750/.3745	.625	25000	1660 (7304)	2040 (9074)	.5620/.5630
78	.4375	.6250	.4375/.4370	.500	22000	1430 (6361)	1760 (7829)	.6245/.6255
710	.4375	.6250	.4375/.4370	.625	22000	1830 (8140)	2410 (10720)	.6245/.6255
85	.5000	.6875	.5000/.4995	.312	19000	820 (3648)	890 (3959)	.6870/.6880
86	.5000	.6875	.5000/.4995	.375	19000	1040 (4626)	1210 (5382)	.6870/.6880
87	.5000	.6875	.5000/.4995	.438	19000	1330 (5916)	1660 (7384)	.6870/.6880
88	.5000	.6875	.5000/.4995	.500	19000	1550 (6895)	2030 (9030)	.6870/.6880
810	.5000	.6875	.5000/.4995	.625	19000	1980 (8807)	2750 (12232)	.6870/.6880
812	.5000	.6875	.5000/.4995	.750	19000	2230 (9920)	3200 (14234)	.6870/.6880

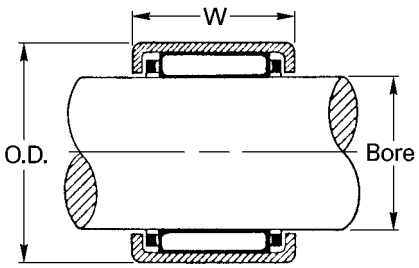
NOTE: X = Filler character.

*Limiting speeds shown apply to oil lubrication. With grease, 60% of the given values are permissible.
See following section for available inner rings.
Closed end bearings available on special order.

Quality Bearings & Components

NEEDLE ROLLER BEARINGS

- For 1/8 to 1 inch Hardened Shafts
- 52100 Hardened Chrome Steel Needle Bearing
- Low Carbon Steel Bearing Cage
- Case Hardened Steel Roller Cup



Features:

- Extremely high speed
- High load capacity
- Low profile, lightweight caged
- Caged needle bearings offer up to 3X the speed of uncaged designs
- Extremely low rolling friction
- High lubrication capacity
- Low sensitivity to misalignment
- Needles have high length to diameter ratios

Bearing Code	Bore	O.D.	Shaft Diameter	W +.000 -.010	Limiting Speed*	Load Capacities lbs. (N)		Housing Diameter
						Dynamic	Static	
95	.5625	.7500	.5625/.5620	.312	18000	910 (4048)	1060 (4715)	.7495/ .7505
96	.5625	.7500	.5625/.5620	.375	18000	1160 (5160)	1440 (6405)	.7495/ .7505
97	.5625	.7500	.5625/.5620	.438	18000	1480 (6583)	1980 (8807)	.7495/ .7505
98	.5625	.7500	.5625/.5620	.500	18000	1730 (7695)	2420 (10764)	.7495/ .7505
910	.5625	.7500	.5625/.5620	.625	18000	2120 (9430)	3150 (14012)	.7495/ .7505
912	.5625	.7500	.5625/.5620	.750	18000	2050 (9119)	2380 (10587)	.7495/ .7505
105	.6250	.8125	.6250/.6245	.312	17000	3250 (14457)	4300 (19127)	.8120/ .8130
107	.6250	.8125	.6250/.6245	.438	16000	970 (4315)	1180 (5249)	.8120/ .8130
1071/2	.6250	.8125	.6250/.6245	.469	16000	1480 (6583)	2100 (9341)	.8120/ .8130
108	.6250	.8125	.6250/.6245	.500	16000	1600 (7117)	2320 (10320)	.8120/ .8130
1010	.6250	.8125	.6250/.6245	.625	16000	1830 (8140)	2700 (12010)	.8120/ .8130
1012	.6250	.8125	.6250/.6245	.750	16000	2330 (10364)	3650 (16236)	.8120/ .8130
116	.6875	.8750	.6875/.6870	.375	15000	1290 (5738)	1770 (7873)	.8745/ .8755
118	.6875	.8750	.6875/.6870	.500	15000	1930 (8585)	2950 (13122)	.8745/ .8755
1110	.6875	.8750	.6875/.6870	.375	15000	1290 (5738)	1770 (7873)	.8745/ .8755
1112	.6875	.8750	.6875/.6870	.500	15000	1930 (8585)	2950 (13122)	.8745/ .8755
126	.7500	1.0000	.7500/.7495	.375	13000	1600 (7117)	1860 (8274)	.9995/1.0005
128	.7500	1.0000	.7500/.7495	.500	13000	2210 (9831)	2800 (12455)	.9995/1.0005
1210	.7500	1.0000	.7500/.7495	.625	13000	2850 (12677)	3950 (17571)	.9995/1.0005
1212	.7500	1.0000	.7500/.7495	.750	13000	3450 (15346)	5000 (22241)	.9995/1.0005
136	.8125	1.0625	.8125/.8120	.375	12000	1590 (7073)	1880 (8363)	1.0620/1.0630
138	.8125	1.0625	.8125/.8120	.500	12000	2420 (10765)	3200 (14234)	1.0620/1.0630
1312	.8125	1.0625	.8125/.8120	.750	12000	3600 (16014)	5300 (23576)	1.0620/1.0630
1314	.8125	1.0625	.8125/.8120	.875	12000	4150 (18460)	6500 (28913)	1.0620/1.0630
146	.8750	1.1250	.8750/.8745	.375	11000	1850 (8229)	2400 (10676)	1.1245/1.1255
148	.8750	1.1250	.8750/.8745	.500	11000	2500 (11121)	3550 (15791)	1.1245/1.1255
1412	.8750	1.1250	.8750/.8745	.750	11000	3800 (16903)	6100 (27134)	1.1245/1.1255
1416	.8750	1.1250	.8750/.8745	1.000	11000	4950 (22019)	8500 (37810)	1.1245/1.1255
1516	.9375	1.1875	.9375/.9370	1.000	11000	5400 (24020)	9700 (43148)	1.1870/1.1880
167	1.0000	1.2500	1.000/.9995	.438	10000	2380 (10587)	3400 (15124)	1.2495/1.2505
168	1.0000	1.2500	1.000/.9995	.500	10000	2850 (12677)	4300 (19127)	1.2495/1.2505
1612	1.0000	1.2500	1.000/.9995	.750	10000	4050 (18015)	6800 (30248)	1.2495/1.2505
1616	1.0000	1.2500	1.000/.9995	1.000	10000	5600 (24910)	10200 (45372)	1.2495/1.2505

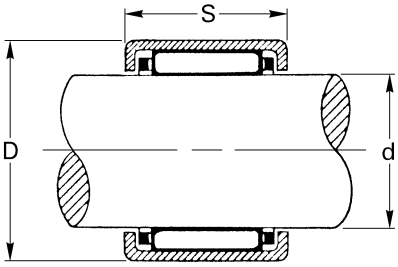
NOTE: X = Filler character.

*Limiting speeds shown apply to oil lubrication. With grease, 60% of the given values are permissible.
See following section for available inner rings.
Closed end bearings available on special order.

Quality Bearings & Components

NEEDLE ROLLER BEARINGS

- For 3 mm to 25 mm Hardened Shafts
- 52100 Hardened Chrome Steel Needle Bearing
- Low Carbon Steel Bearing Cage
- Case Hardened Steel Roller Cup



Part Number Example

B N D H K X M 0 8 0 8

- Needle Bearing
- Steel Cage
- Open End
- Metric Size
- Bearing Code

Features:

- Extremely high speed
- High load capacity
- Low profile, lightweight caged
- Caged needle bearings offer up to 3X the speed of uncaged designs
- Extremely low rolling friction
- High lubrication capacity
- Low sensitivity to misalignment
- Needles have high length to diameter ratios

Bearing Code	Shaft Dia. d (h6)	D	S Face Width (-0.2)	Limiting Speed* rpm	Load Capacities N	
					Dynamic	Static
0306	3	6.5	6	46000	1230	840
0408	4	8	8	41000	1780	1310
0509	5	9	9	38000	2400	1990
0608**	6	10	8	35000	2030	1650
0609	6	10	9	35000	2850	2600
0709	7	11	9	31000	3100	2950
0808	8	12	8	28000	2750	2600
0810	8	12	10	28000	3400	3950
0908**	9	13	8	25000	3850	4150
0910	9	13	10	25000	4250	4650
0912	9	13	12	25000	5300	6300
1010	10	14	10	23000	4400	5100
1012	10	14	12	23000	5500	6800
1015	10	14	15	23000	6800	8800
1210	12	16	10	20000	4950	6200
1212	12	18	12	19000	6500	7300
1312	13	19	12	18000	6800	7900
1412	14	20	12	16000	7100	8500
1512	15	21	12	16000	7900	9400
1516	15	21	16	16000	10500	14400
1522	15	21	22	16000	13400	19500

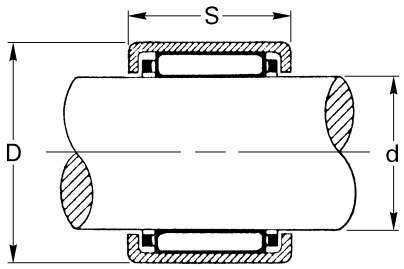
NOTE: X = Filler character.

*Limiting speeds shown apply to oil lubrication. With grease, 60% of the given values are permissible. See following section for available inner rings.
Closed end bearings available on special order.

** Not available in closed end.

NEEDLE ROLLER BEARINGS

- For 3 mm to 25 mm Hardened Shafts
- 52100 Hardened Chrome Steel Needle Bearing
- Low Carbon Steel Bearing Cage
- Case Hardened Steel Roller Cup



Part Number Example

B N D H K X M 2 0 1 6

- Needle Bearing
- Steel Cage
- Open End
- Metric Size
- Bearing Code

Features:

- Extremely high speed
- High load capacity
- Low profile, lightweight caged
- Caged needle bearings offer up to 3X the speed of uncaged designs
- Extremely low rolling friction
- High lubrication capacity
- Low sensitivity to misalignment
- Needles have high length to diameter ratios

Bearing Code	Shaft Dia. d (h6)	D	S Face Width (-0.2)	Limiting Speed* rpm	Load Capacities N	
					Dynamic	Static
1612	16	22	12	15000	7600	9700
1616	16	22	16	15000	10900	15300
1622	16	22	22	15000	13100	19400
1712	17	23	12	14000	7900	10300
1812	18	24	12	13000	8100	10900
1816	18	24	16	13000	11600	17300
2010**	20	26	10	12000	6400	8200
2012	20	26	12	12000	8600	12100
2016	20	26	16	12000	12700	20100
2020	20	26	20	12000	15700	26000
2030	20	26	30	12000	21800	40000
2210**	22	28	10	11000	7500	10500
2212	22	28	12	11000	9100	13400
2216	22	28	16	11000	13400	22100
2220	22	28	20	11000	16500	29000
2512	25	32	12	10000	11000	15200
2516	25	32	16	10000	15600	24000
2520	25	32	20	10000	19900	33000
2526	25	32	26	10000	25500	45000
2538	25	32	38	10000	34000	66000

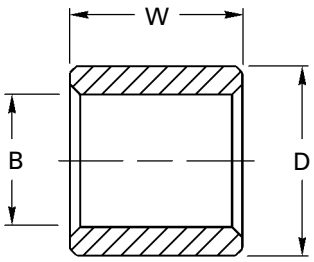
NOTE: X = Filler character.

*Limiting speeds shown apply to oil lubrication. With grease, 60% of the given values are permissible. See following section for available inner rings.
Closed end bearings available on special order.

** Not available in closed end.

Inner Races
For NEEDLE BEARINGS

• Alloy Steel • Hardened to Rc58 Min.



Part Number Example

B N D I R X – 0 8 1 2 0 8

- Needle Bearing
- Steel Cage
- Inner Race
- Inch Size
- Bearing Code

Features:

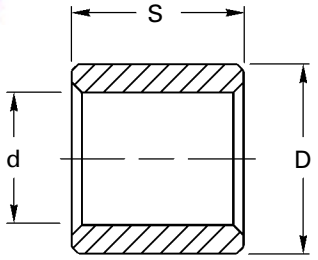
- O.D. ground to 16 µ in. AA surface roughness
- All corners chamfered for easy assembly
- Wider units to accommodate shaft translation
- Used as inner race on soft shafts
- Can be used as hardened bushings

Bearing Code	B +.0000 -.0005 I.D.	D +.0000 -.0005 O.D.	W +.015 -.005 Width	Shaft Diameter Press Fit	Shaft Diameter Slip Fit
050808	.3125	.5000	.500	.3130/.3127	.3123/.3119
060908	.3750	.5625	.500	.3755/.3752	.3748/.3744
060912	.3750	.5625	.750	.3755/.3752	.3748/.3744
061008	.3750	.6250	.500	.3755/.3752	.3748/.3744
061012	.3750	.6250	.750	.3755/.3752	.3748/.3744
081208	.5000	.7500	.500	.5006/.5003	.4998/.4993
081210	.5000	.7500	.625	.5006/.5003	.4998/.4993
081212	.5000	.7500	.750	.5006/.5003	.4998/.4993
081216	.5000	.7500	1.000	.5006/.5003	.4998/.4993
101406	.6250	.8750	.375	.6256/.6253	.6248/.6243
101408	.6250	.8750	.500	.6256/.6253	.6248/.6243
101412	.6250	.8750	.750	.6256/.6253	.6248/.6243
101416	.6250	.8750	1.000	.6256/.6253	.6248/.6243
121608	.7500	1.0000	.500	.7507/.7503	.7497/.7492
121612	.7500	1.0000	.750	.7507/.7503	.7497/.7492
121616	.7500	1.0000	1.000	.7507/.7503	.7497/.7492
121620	.7500	1.0000	1.250	.7507/.7503	.7497/.7492

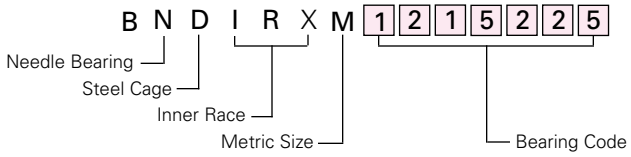
NOTE: X = Filler character.

Inner Races
For NEEDLE BEARINGS

• Alloy Steel • Hardened to Rc58 Min.



Part Number Example



Features:
- O.D. ground to 0.40 µm AA surface roughness
- Press fit onto shaft
- All corners chamfered for easy assembly
- Wider units to accommodate shaft translation
- Used as inner race on soft shafts
- Can be used as hardened bushings

Bearing Code	Bore Nominal	Shaft Size h5	d H6	D h5	S h6
050812	5	5.006	5	7.997	12
060912	6	6.006	6	8.997	12
0710105	7	7.006	7	9.997	10.5
071012	7	7.006	7	9.997	12
071016	7	7.006	7	9.997	16
0812105	8	8.007	8	12.001	10.5
0812125	8	8.007	8	12.001	12.5
1013125	10	10.007	10	13.001	12.5
101413	10	10.007	10	14.001	13
1215125	12	12.009	12	15.001	12.5
1215165	12	12.009	12	15.001	16.5
1215225	12	12.009	12	15.001	22.5
121613	12	12.009	12	16.001	13
121616	12	12.009	12	16.001	16
121622	12	12.009	12	16.001	22
1518165	15	15.009	15	18.001	16.5
152013	15	15.009	15	20.007	13
1720165	17	17.009	17	20.007	16.5
1720205	17	17.009	17	20.007	20.5
1720305	17	17.009	17	20.007	30.5
172213	17	17.009	17	22.007	13
172216	17	17.009	17	22.007	16
172233	17	17.009	17	22.007	23
202517	20	20.011	20	25.007	17
2025205	20	20.011	20	25.007	20.5
2025265	20	20.011	20	25.007	26.5
2025385	20	20.011	20	25.007	38.5

NOTE: X = Filler character.

Tolerance Chart

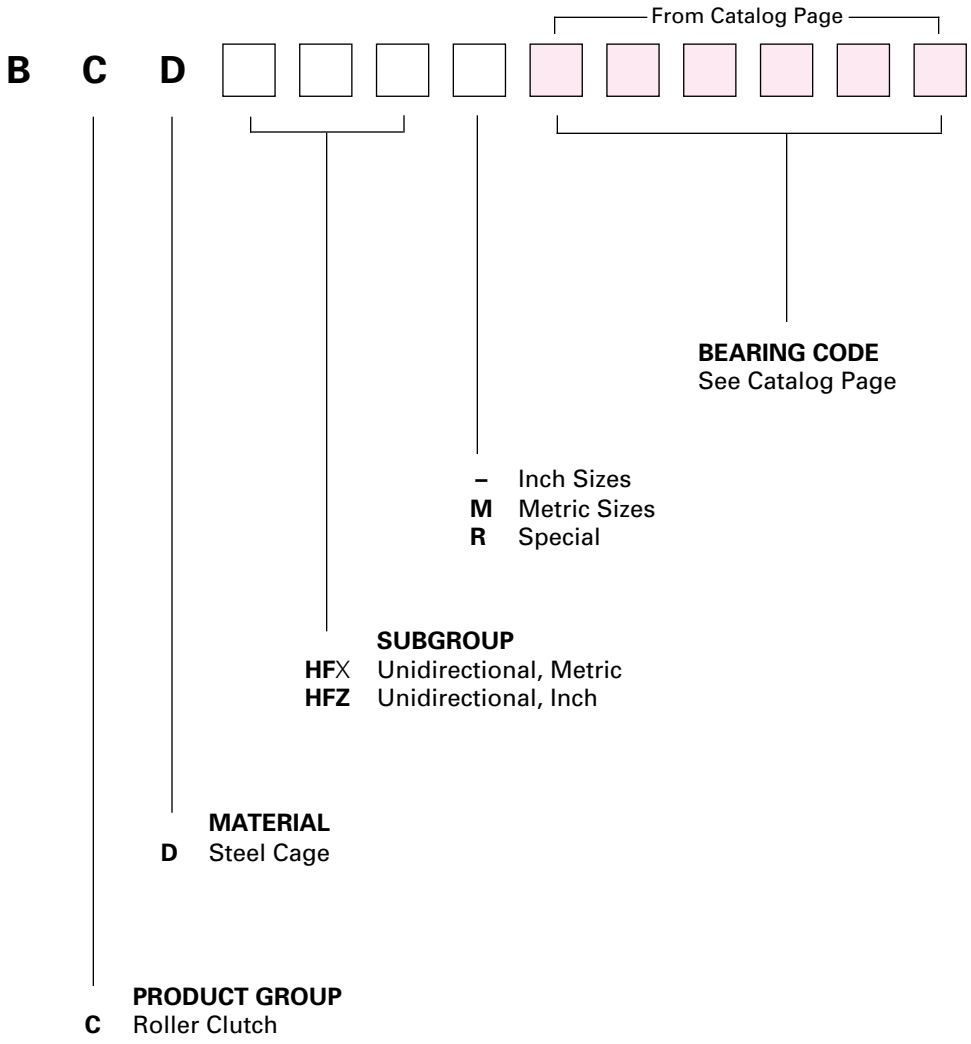
Dimensions		H6	h5	h6
Over	Incl.			
3	6	+0.008	-0.005	-0.008
6	10	+0.009	-0.006	-0.009
10	18	+0.011	-0.008	-0.011
18	30	+0.013	-0.009	-0.013
30	40	+0.016	-0.011	-0.016

NOTES

Part Numbering System

ROLLER CLUTCHES

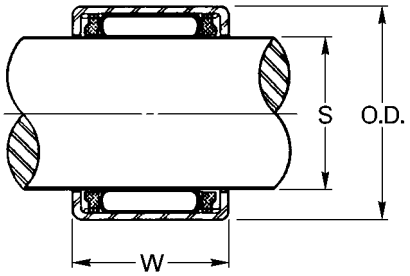
- **Steel Cage**



NOTE: X = Filler character.

Unidirectional Drive, Inch & Metric ROLLER CLUTCHES

- Case Hardened Steel Roller Cup
- 52100 Hardened Chrome Steel Needle Bearing
- Stainless Steel Springs
- Nylon 66 (or equivalent) Cage

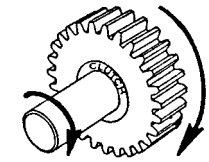


FEATURES:

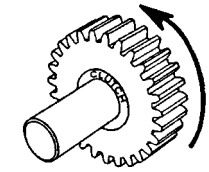
- Ideal for indexing, backstopping or overrunning operations
- Free rolling one way, drives in opposite direction
- Lightweight, low profile
- High indexing frequency, up to 4CPS
- Temperature range, grease +50°F to +160°F (+10°C to +70°C)
- Minimum backlash

What It Does

Transmits torque load in one direction. Overruns freely in opposite direction. Either shaft or housing can be driving member.



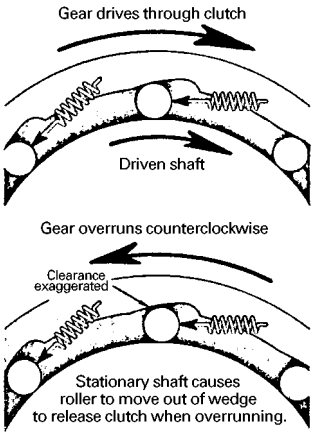
Gear Drives Shaft Clockwise



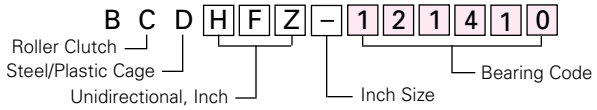
Gear Overruns Shaft Counterclockwise

How It Works

Rollers wedge between shaft and outer race. Positive wedging forces prevent slipping. Springs position rollers for instantaneous lock-up.



Part Number Example



INCH

Bearing Code	Bore	Clutch O.D.	W Clutch Width +.000 -.008	Max. Torque lb. in.	S* Recommended Shaft Dia. +.0000 -.0005	Housing Bore +.0010 -.0000	Shaft Rotating Overrun Speed Max. rpm	Housing Rotating Overrun Speed Max. rpm
020504	1/8	9/32	.250	2.86		.2812	50000	30000
040708	1/4	7/16	.500	18.6		.4370	21000	12000
061008	3/8	5/8	.500	50.4		.6245	14000	12000
081208	1/2	3/4	.500	85.9		.7495	11000	9000
121410	5/8	7/8	.625	175.2		.8745	8500	5000
121610	3/4	1	.625	247.8		.9995	7000	4400

METRIC

Bearing Code	Bore	Clutch O.D.	W Clutch Width -0.2	Max. Torque N • m	S* Recommended Shaft Dia. h6	Housing Bore N7 for Steel R7 for Alum.	Shaft Rotating Overrun Speed Max. rpm	Housing Rotating Overrun Speed Max. rpm
0406	4	8	6	0.34	4	8	34000	8000
0612	6	10	12	1.76	6	10	23000	13000
0812	8	12	12	3.15	8	12	17000	12000
1012	10	14	12	5.3	10	14	14000	11000
1216	12	18	16	12.2	12	18	11000	8000
1416	14	20	16	17.3	14	20	9500	8000
1616	16	22	16	20.5	16	22	8500	7500
1816	18	24	16	24.1	18	24	7500	7500
2016	20	26	16	28.5	20	26	7000	6500
2520	25	32	20	66	25	32	5500	5500
3020	30	37	20	90	30	37	4500	4500
3520	35	42	20	121	35	42	3900	3900

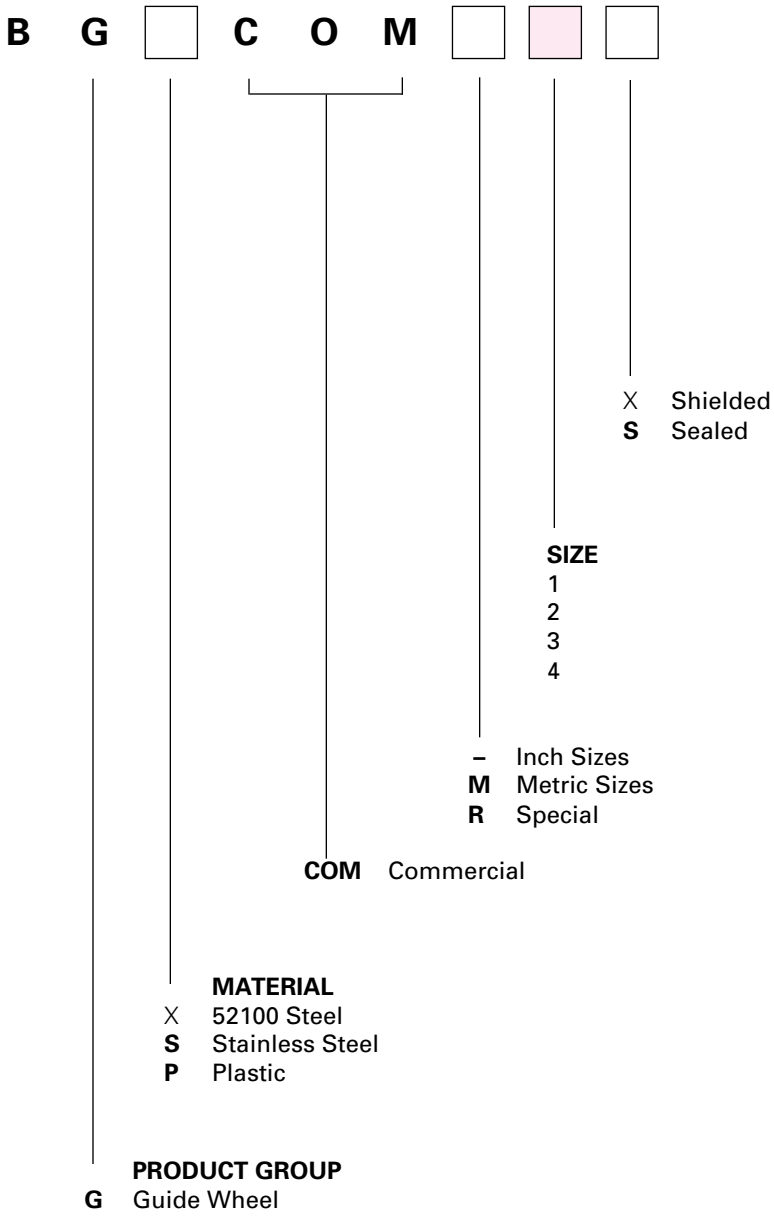
NOTE: X = Filler character.

*Shaft surface hardness must be Rc 58 min.

Part Numbering System

GUIDE WHEELS

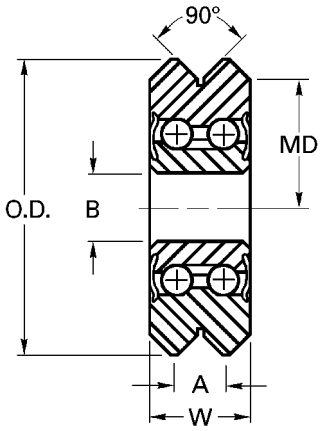
• Stainless Steel • Chrome Steel

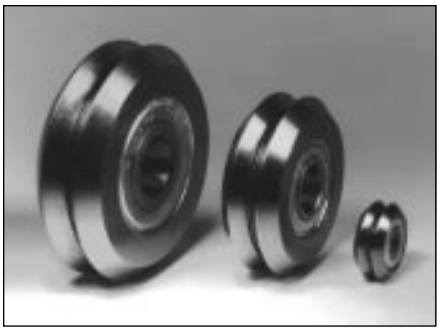


NOTE: X = Filler character.

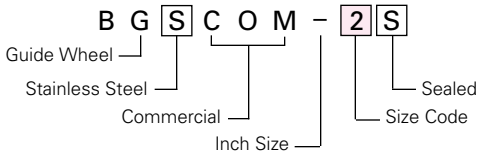
GUIDE WHEELS

• Chrome Steel • Stainless Steel





Part Number Example



Specifications: Ground, double row, angular contact ball bearings, ABEC-1, prelubricated, external surfaces lightly oiled.

Size	A*	B	C	O.D.	MD Inside	W	Dynamic Radial Capacity lbs. (N)*				Static Radial Capacity	Moment †* Capacity lbs.
							33.3 rpm	100 rpm	500 rpm	1000 rpm		33.3 rpm
AISI 52100 Chrome Steel, Rc 60-62												
1	.77	.310	.1875	.77	.312	5/16	345 (1535)	240 (1068)	140 (623)	110 (489)	250 (1112)	38 (169)
2	1.21	.437	.3750	1.21	.500	7/16	700 (3114)	485 (2157)	285 (1268)	225 (1001)	600 (2669)	80 (356)
3	1.80	.625	.4724	1.80	.750	5/8	1330 (5916)	920 (4092)	540 (2402)	430 (1913)	1000 (4448)	120 (534)
4	2.36	.750	.5906	2.36	1.000	3/4	2000 (8896)	1385 (6161)	810 (3603)	645 (2869)	1560 (6939)	180 (801)
AISI 440 C Stainless Steel, Rc 58-60												
1	.77	.310	.1875	.77	.312	5/16	310 (1379)	215 (556)	125 (556)	98 (436)	224 (996)	34 (151)
2	1.21	.437	.3750	1.21	.500	7/16	560 (2491)	388 (1726)	228 (1014)	180 (801)	480 (2135)	64 (285)
3	1.80	.625	.4724	1.80	.750	5/8	1070 (4760)	740 (3292)	434 (1930)	346 (1539)	805 (3581)	97 (431)
4	2.36	.750	.5906	2.36	1.000	3/4	1590 (7073)	1101 (4897)	644 (2865)	513 (2282)	1240 (5516)	143 (636)

* Ratings are for 2500 hours average life. Additional information on request.

† At rolling radius MD Inside.

Service Factor

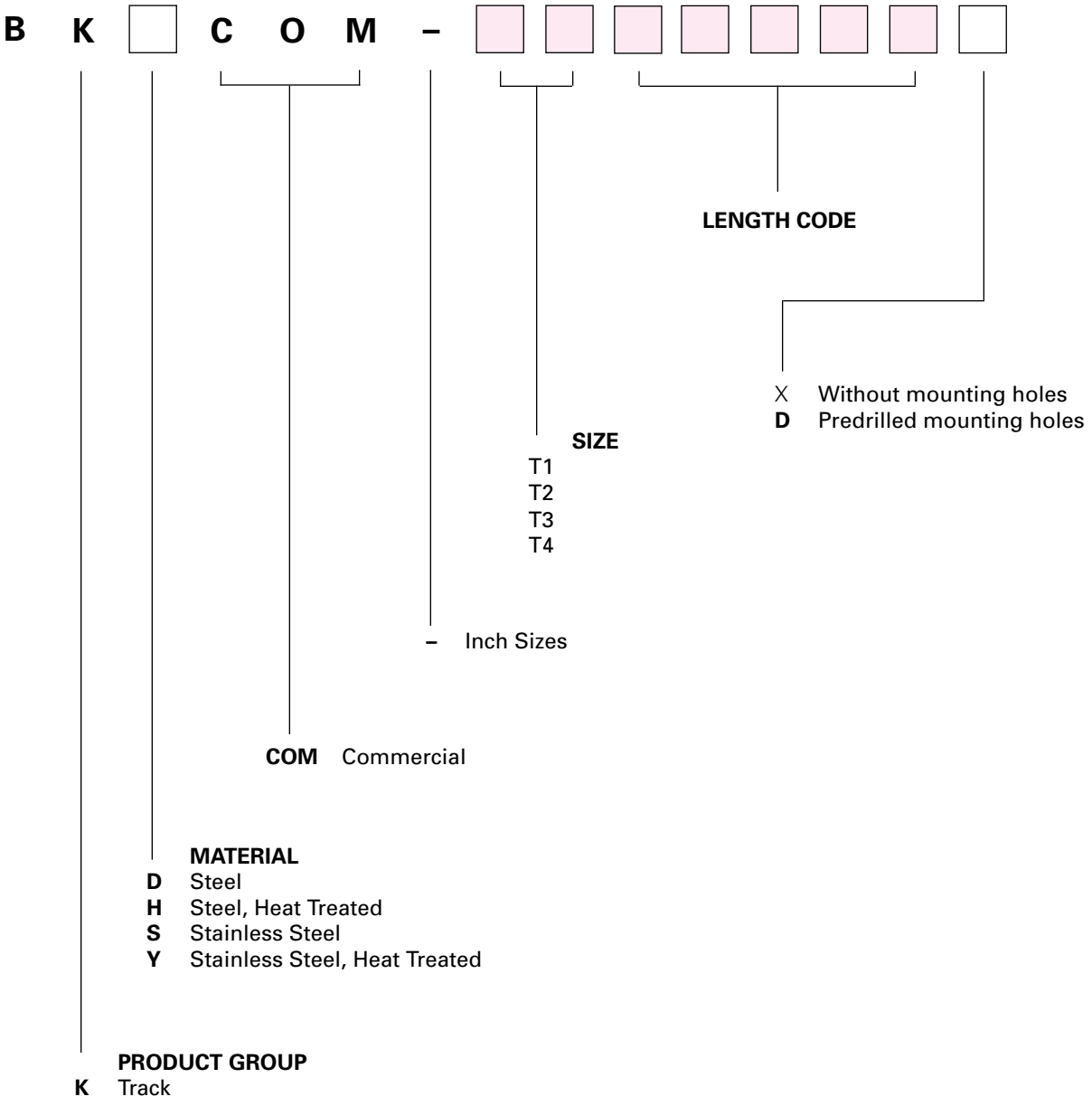
Divide the load capacity by the following:
Fs=0.5 for smooth, shock-free, well-lubricated service.
Fs=1.0 for normal, lightly-lubricated service.
Fs=2.0 for heavy shock, dry or contaminated service.

NOTE: X = Filler character.

Part Numbering System

TRACK

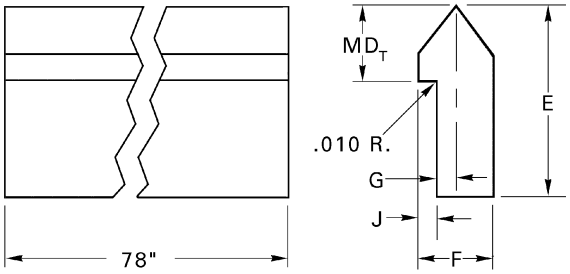
- **Carbon Steel**
- **Stainless Steel**
- **Hardened**
- **Unhardened**

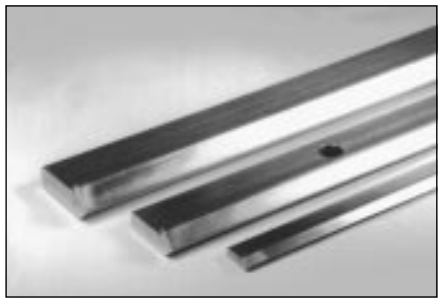


NOTE: X = Filler character.

TRACK

- Carbon Steel • Stainless Steel
- Hardened • Unhardened





Part Number Example

B K D C O M – T 2 0 3 6 6 3 D

- Track: B K
- Material Code: D
- Commercial: C O M
- Inch Size: –
- Size: T 2
- Length Code: 0 3 6 6 3
- Predrilled Mounting Holes: D

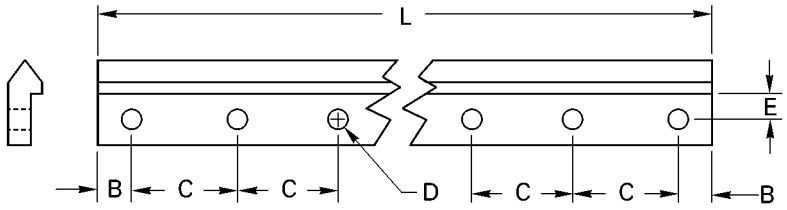
Material Code:

D AISI 1045 Carbon Steel, Unhardened
H AISI 1045 Carbon Steel, Hardened to Rc 53
S AISI 420 Stainless Steel, Unhardened
Y AISI 420 Stainless Steel, Hardened to Rc 40

Size	Length Code	E	F	G	J	MD$_T$	WT. (lbs/ft.)
T1	78000	.437	.187	.031	.062	.125	.183
T2	78000	.625	.250	.031	.093	.187	.343
T3	78000	.875	.343	.062	.109	.250	.690
T4	78000	1.062	.437	.093	.125	.312	1.100

Lengths up to 20 feet available on special order

Standard Drilled Track Hole Spacing and Size



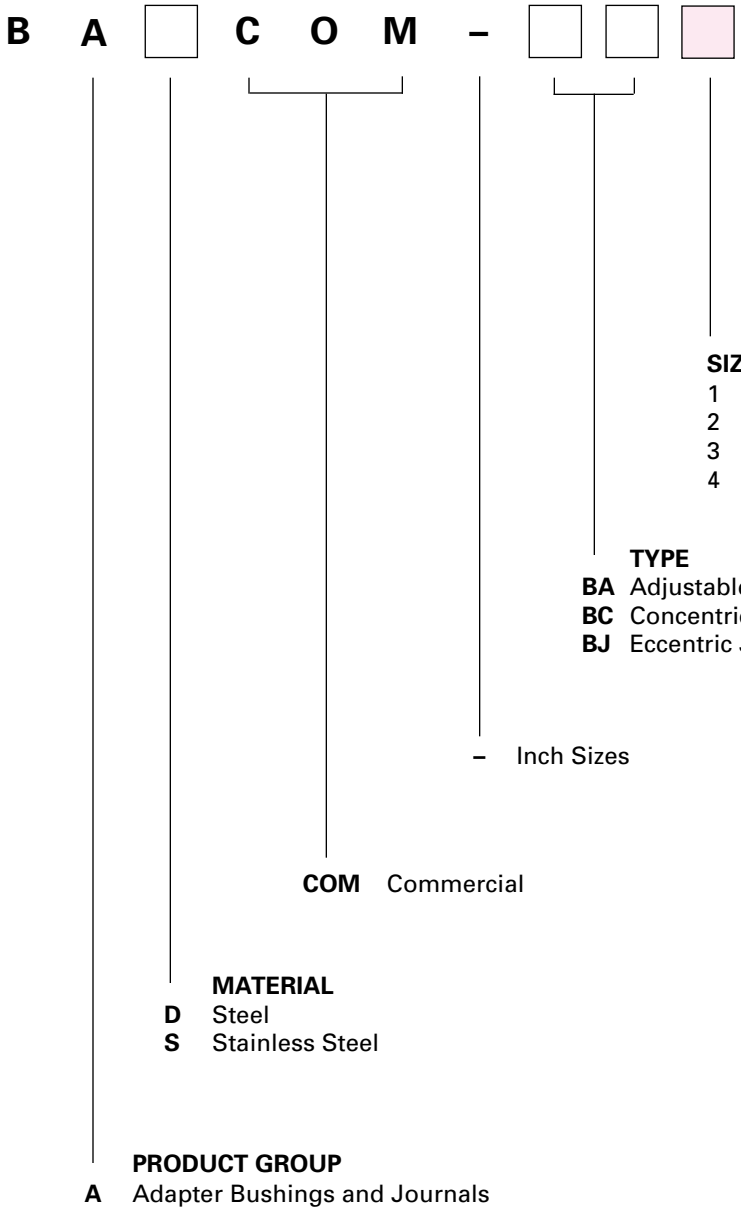
Size	Length Code	Length L	# of holes	B ±.005	C ±.005	D ±.005	E ±.005
T1	01250	12.50	7	.250	2.000	.156	.156
	02450	24.50	13				
	03650	36.50	19				
	04850	48.50	25				
	06050	60.50	31				
	07250	72.50	37				
T2	01263	12.63	5	.310	3.000	.203	.219
	02463	24.63	9				
	03663	36.63	13				
	04863	48.63	17				
	06063	60.63	21				
	07263	72.63	25				

Size	Length Code	Length L	# of holes	B ±.005	C ±.005	D ±.005	E ±.005
T3	01275	12.75	5	.380	3.000	.281	.313
	02475	24.75	9				
	03675	36.75	13				
	04875	48.75	17				
	06075	60.75	21				
	07275	72.75	25				
T4	01300	13.00	4	.500	4.000	.344	.375
	02500	25.00	7				
	03700	37.00	10				
	04900	49.00	13				
	06100	61.00	16				
	07300	73.00	19				

Part Numbering System

ADAPTER BUSHINGS & JOURNALS

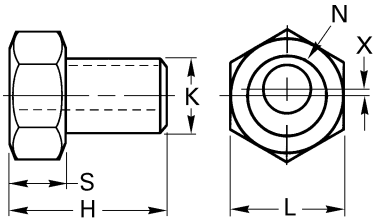
• Steel • Stainless Steel



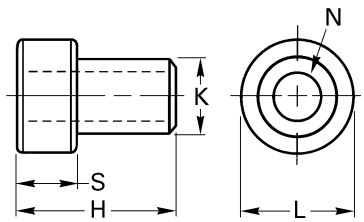
NOTE: X = Filler character.

ADAPTER BUSHINGS & JOURNALS

- Adjustable
- Stationary
- Plated Steel
- 303 Stainless Steel



BA – Adjustable



BC – Concentric

Part Number Example

B A S C O M – B A 3

- B A: Adapter Bushings and Journals
- S: Stainless Steel
- C O M: Commercial
- B A: Adjustable
- 3: Inch Size
- 3: Size Code

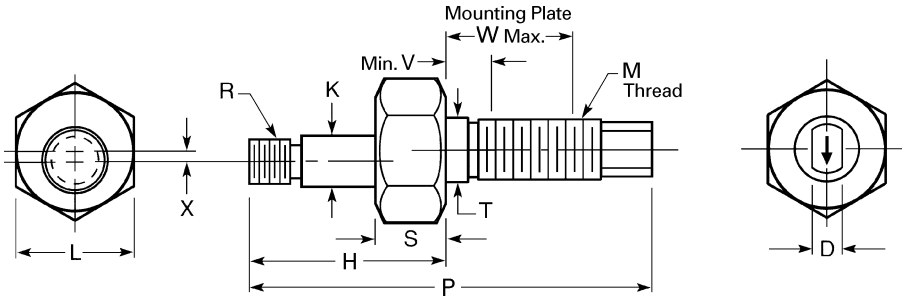
Adustable Bushing: Eccentric mounting hole. By rotating the bushing on its mounting bolt, the clearance between the wheel and track can be adjusted.

Stationary Bushing: Concentric mounting hole.
The major load should be carried on the stationary bushing.

Size Code	H	K*	L	N (Screw Size)		X**	S	Weight lbs.
1	.550	.1873	7/16	.140	#6	.012	.250	.011
2	.706	.3748	9/16	.250	1/4	.024	.281	.025
3	.990	.4722	3/4	.312	5/16	.042	.375	.059
4	1.117	.5904	7/8	.375	3/8	.060	.437	.100

*Fits corresponding wheel bore.

**All mounting information in this catalog assumes a "central" position of the BA bushing, allowing an adjustment from plus "X" to minus "X".



BJ – Eccentric Journal

The **Eccentric Journal** is designed to adjust from the top side of the mounting plate. This journal will replace the Eccentric Bushing above in mounting situations where the wheels are enclosed making adjustment of the bushing difficult or impossible.

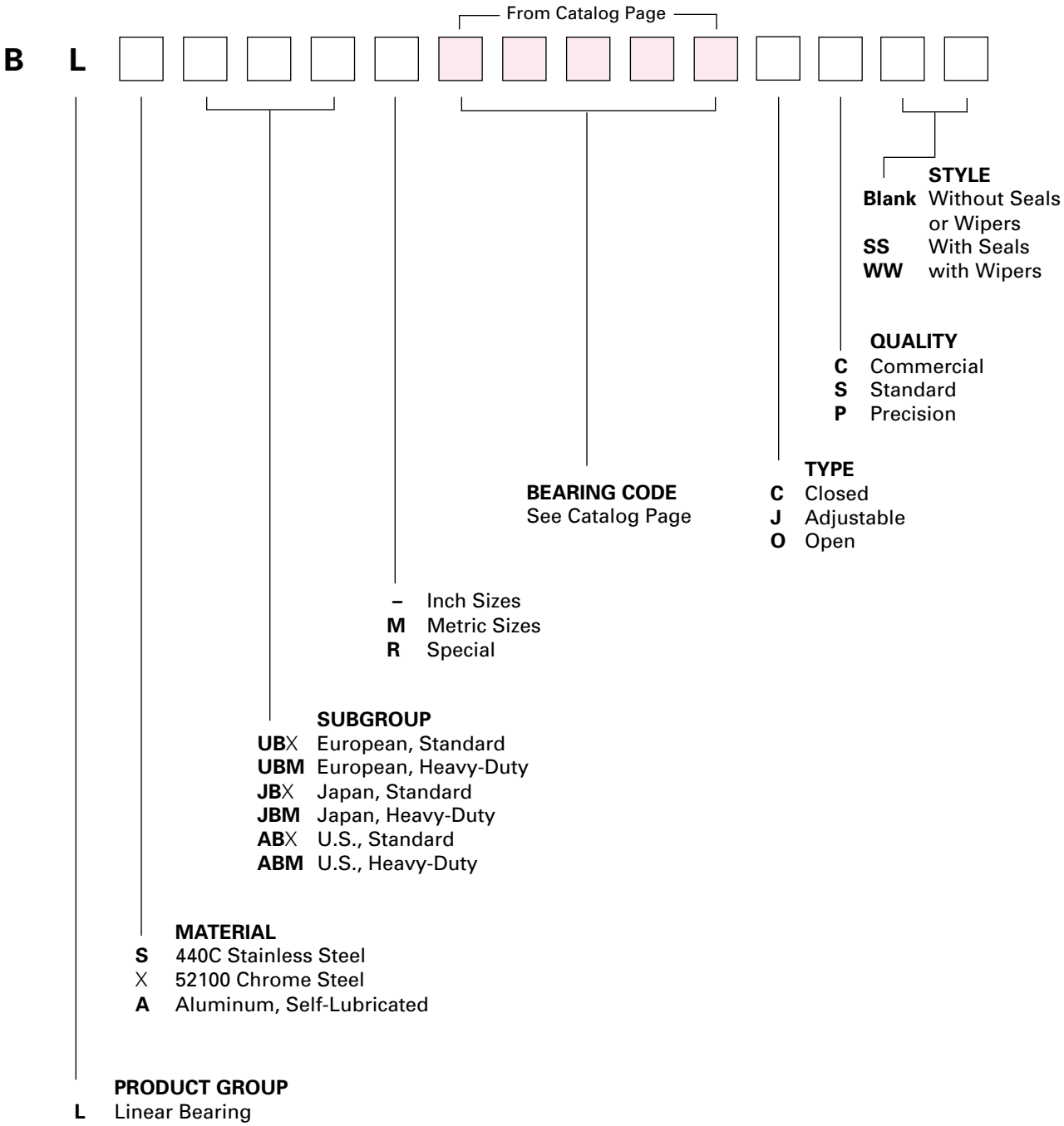
Size Code	H	K	L	X Offset	S	P	T	Mounting Plate Thickness		Thread		Flat
								V	W	M	R	D
1	.690	.1873	7/16	.012	.250	1.440	.250	1/8	3/8	1/4-28	#10-32	1/8
2	.966	.3748	9/16	.024	.281	2.028	.375	3/16	1/2	3/8-24	5/16-24	1/4
3	1.275	.4722	3/4	.042	.375	2.525	.437	1/4	5/8	7/16-20	7/16-20	1/4
4	1.537	.5904	7/8	.060	.437	3.037	.500	3/8	3/4	1/2-20	1/2-20	5/16

NOTE: Journals available in Stainless Steel only.

Part Numbering System

LINEAR BEARINGS

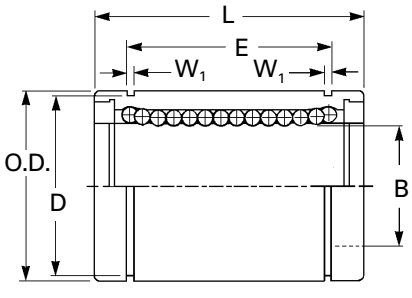
• Stainless Steel • Chrome Steel • Aluminum

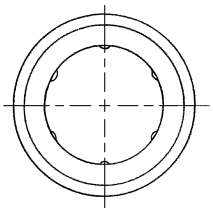


NOTE: X = Filler character.

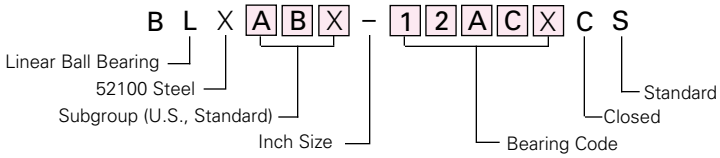
U.S. Standard
LINEAR BALL BEARINGS – CLOSED TYPE

• AISI 52100 Steel • Hardened to HRc 60-64





Part Number Example



Sub-group	Bearing Code	Ball Circuit	B* Bore	O.D.‡	L△ Length	E§ Groove Distance	W_1 Groove Width	D Groove Dia.	Load Capacity	
									Dynamic lbf	Static lbf
STANDARD TYPE										
ABX	**6**X**AC**X	4	.375	.625	.875	.6358	.0390	.5880	52	72
ABX	**8**X**AC**X	4	.500	.875	1.250	.9625	.0459	.8209	117	178
ABX	**10AC**X	4	.625	1.125	1.500	1.1039	.0559	1.0590	178	270
ABX	**12AC**X	5	.750	1.250	1.625	1.1657	.0559	1.1760	198	315
ABX	**16AC**X	6	1.000	1.563	2.250	1.7547	.0679	1.4687	225	360
ABX	**20AC**X	6	1.250	2.000	2.625	2.0047	.0679	1.8859	360	629
ABX	**24AC**X	6	1.500	2.375	3.000	2.4118	.0859	2.2389	499	921
HEAVY-DUTY TYPE										
ABM	**8**X**MC**X	6	.500	.875	1.250	.9625	.0459	.8209	175	236
ABM	**10MC**X	6	.625	1.125	1.500	1.1039	.0559	1.0590	238	387
ABM	**12MC**X	6	.750	1.250	1.625	1.1657	.0559	1.1760	265	405
ABM	**16MC**X	8	1.000	1.563	2.250	1.7547	.0679	1.4687	301	481
ABM	**20MC**X	8	1.250	2.000	2.625	2.0047	.0679	1.8859	481	832
ABM	**24MC**X	8	1.500	2.375	3.000	2.4118	.0859	2.2389	663	1214

BEARING TOLERANCES

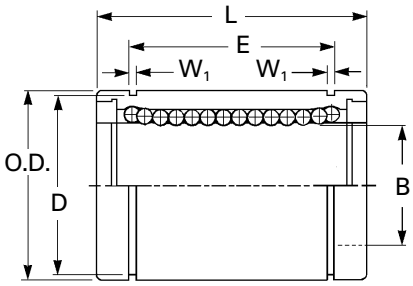
***B Tol.:**	.375, .500, .625, .750 & 1.000 +.0000 / –.0004 1.250 & 1.500 +.0000 / –.0005
‡O.D. Tol.:	.625, .875 & 1.125 +.0000 / –.0005 1.250 & 1.563 +.0000 / –.0007 2.000 & 2.375 +.0000 / –.0008

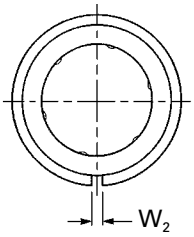
△L Tol.:	.875, 1.250, 1.500 & 1.625 +.000 / –.008 2.250, 2.625 & 3.000 +.000 / –.012
§E Tol.	.6358, .9625, 1.1039 & 1.1657 +.000 / –.008 1.7547, 2.0047 & 2.4118 +.000 / –.012

NOTE: X = Filler character.

U.S. Standard
LINEAR BALL BEARINGS – ADJUSTABLE TYPE

• AISI 52100 Steel • Hardened to HRc 60-64





Part Number Example

B L X A B M – 1 0 M J X J S W W

- Linear Ball Bearing
- 52100 Steel
- Subgroup (U.S., Heavy-Duty)
- Inch Size
- Bearing Code
- Adjustable
- Standard
- Wipers

Sub-group	Bearing Code	Ball Circuit	B* Bore	O.D.‡	L△ Length	E§ Groove Distance	W_1 Groove Width	D Groove Dia.	W_2 Slot Width	Load Capacity	
										Dynamic lbf	Static lbf
STANDARD TYPE											
ABX	**8**X**AJ**X	4	.500	.875	1.250	.9625	.0459	.8209	.06	117	178
ABX	**10AJ**X	4	.625	1.125	1.500	1.1039	.0559	1.0590	.06	178	270
ABX	**12AJ**X	5	.750	1.250	1.625	1.1657	.0559	1.1760	.06	198	315
ABX	**16AJ**X	6	1.000	1.563	2.250	1.7547	.0679	1.4687	.10	225	360
ABX	**20AJ**X	6	1.250	2.000	2.625	2.0047	.0679	1.8859	.10	360	629
ABX	**24AJ**X	6	1.500	2.375	3.000	2.4118	.0859	2.2389	.12	499	921
HEAVY-DUTY TYPE											
ABM	**8**X**MJ**X	6	.500	.875	1.250	.9625	.0459	.8209	.06	175	236
ABM	**10MJ**X	6	.625	1.125	1.500	1.1039	.0559	1.0590	.06	238	387
ABM	**12MJ**X	6	.750	1.250	1.625	1.1657	.0559	1.1760	.06	265	405
ABM	**16MJ**X	8	1.000	1.563	2.250	1.7547	.0679	1.4687	.10	301	481
ABM	**20MJ**X	8	1.250	2.000	2.625	2.0047	.0679	1.8859	.10	481	832
ABM	**24MJ**X	8	1.500	2.375	3.000	2.4118	.0859	2.2389	.12	663	1214

BEARING TOLERANCES

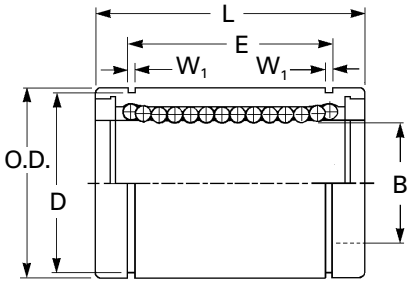
* **B Tolerance:**	.500, .625, .750 & 1.000"	+.0000 /–.0004
	1.250 & 1.500"	+.0000 /–.0005
‡ **O.D. Tolerance:**	.875 & 1.125"	+.0000 /–.0005
	1.250 & 1.563"	+.0000 /–.0007
	2.000 & 2.375"	+.0000 /–.0008

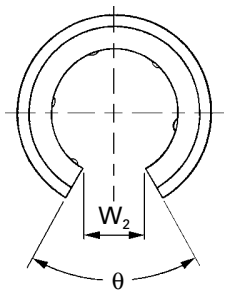
△ **L Tolerance:**	1.250, 1.500 & 1.625"	+.000 / –.008
	2.250, 2.625 & 3.000"	+.000 / –.012
§ **E Tolerance**	.9625, 1.1039 & 1.1657"	+.000 / –.008
	1.7547, 2.0047 & 2.4118"	+.000 / –.012

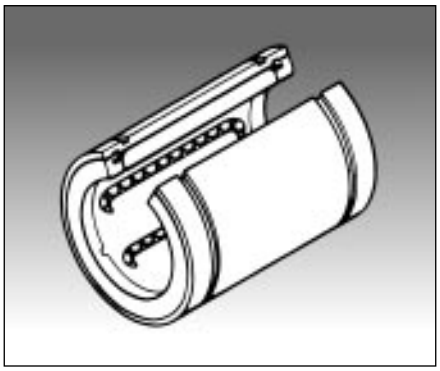
NOTE: X = Filler character.

U.S. Standard
LINEAR BALL BEARINGS – OPEN TYPE

• AISI 52100 Steel • Hardened to HRc 60-64







Part Number Example

B L X A B X – 2 4 A O X O S

- B L: Linear Ball Bearing
- X: 52100 Steel
- A B X: Subgroup (U.S., Standard)
- 2 4: Inch Size
- A O X: Bearing Code
- O: Open
- S: Standard

Sub-group	Bearing Code	Ball Circuit	B* Bore	O.D.‡	L△ Length	E§ Groove Distance	W_1 Groove Width	D Groove Dia.	W_2 Slot Width	θ Slot Angle	Load Capacity Dynamic lbf	Load Capacity Static lbf
STANDARD TYPE												
ABX	8XAOX	3	.500	.875	1.250	.9625	.0459	.8209	.38	80°	117	178
ABX	10AOX	3	.625	1.125	1.500	1.1039	.0559	1.0590	.46	80°	178	270
ABX	12AOX	4	.750	1.250	1.625	1.1657	.0559	1.1760	.44	60°	198	315
ABX	16AOX	5	1.000	1.563	2.250	1.7547	.0679	1.4687	.49	50°	225	360
ABX	20AOX	5	1.250	2.000	2.625	2.0047	.0679	1.8859	.60	50°	360	629
ABX	24AOX	5	1.500	2.375	3.000	2.4118	.0859	2.2389	.83	60°	499	921
HEAVY-DUTY TYPE												
ABM	8XMOX	4	.500	.875	1.250	.9625	.0459	.8209	.43	100°	175	236
ABM	10MOX	4	.625	1.125	1.500	1.1039	.0559	1.0590	.53	100°	238	387
ABM	12MOX	4	.750	1.250	1.625	1.1657	.0559	1.1760	.63	100°	265	405
ABM	16MOX	6	1.000	1.563	2.250	1.7547	.0679	1.4687	.65	72°	301	481
ABM	20MOX	6	1.250	2.000	2.625	2.0047	.0679	1.8859	.87	80°	481	832
ABM	24MOX	6	1.500	2.375	3.000	2.4118	.0859	2.2389	1.04	80°	663	1214

BEARING TOLERANCES

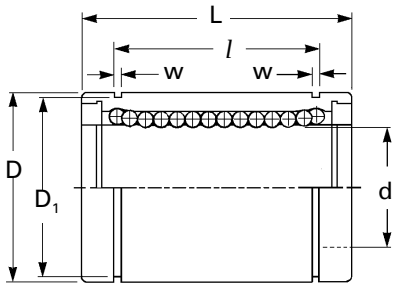
* **B Tolerance:**	.500, .625, .750 & 1.000"	+.0000 / –.0004
	1.250 & 1.500"	+.0000 / –.0005
‡ **O.D. Tolerance:**	.875 & 1.125"	+.0000 / –.0005
	1.250 & 1.563"	+.0000 / –.0007
	2.000 & 2.375"	+.0000 / –.0008

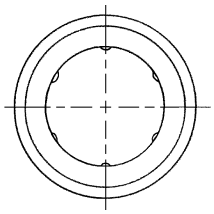
△ **L Tolerance:**	1.250, 1.500 & 1.625"	+.000 / –.008
	2.250, 2.625 & 3.000"	+.000 / –.012
§ **E Tolerance**	.9625, 1.1039 & 1.1657"	+.000 / –.008
	1.7547, 2.0047 & 2.4118"	+.000 / –.012

NOTE: X = Filler character.

European Standard
LINEAR BALL BEARINGS – CLOSED TYPE

• AISI 52100 Steel • Hardened to HRc 60…64





Part Number Example

B L X U B M M 1 2 M C X C S W W

- Linear Ball Bearing
- 52100 Steel
- Subgroup (European, Heavy-Duty)
- Metric Size
- Bearing Code
- Closed
- Standard
- Wipers

Sub-group	Bearing Code	Ball Circuit	d* Bore	D‡ O.D.	L△ Length	l§ Groove Distance	w Groove Width	D_1 Groove Dia.	Load Capacity Dynamic N	Load Capacity Static N
STANDARD TYPE										
UBX	8XACX	4	8	16	25	16.5	1.1	15.2	280	420
UBX	12ACX	5	12	22	32	22.9	1.3	21	640	950
UBX	16ACX	5	16	26	36	24.9	1.3	24.9	720	1120
UBX	20ACX	5	20	32	45	31.5	1.6	30.3	920	1480
UBX	25ACX	6	25	40	58	44.1	1.85	37.5	1070	1670
UBX	30ACX	6	30	47	68	52.1	1.85	44.5	1630	2850
UBX	40ACX	6	40	62	80	60.6	2.15	59	2250	4200
HEAVY-DUTY TYPE										
UBM	12MCX	6	12	22	32	22.9	1.3	21	660	1310
UBM	16MCX	6	16	26	36	24.9	1.3	24.9	800	1480
UBM	20MCX	6	20	32	45	31.5	1.6	30.3	1050	2280
UBM	25MCX	8	25	40	58	44.1	1.85	37.5	1370	3470
UBM	30MCX	8	30	47	68	52.1	1.85	44.5	2100	5920
UBM	40MCX	8	40	62	80	60.6	2.15	59	3820	9250

BEARING TOLERANCES

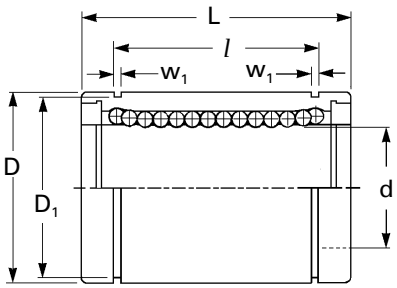
* d Tolerance:	8 & 12 mm	+0.008/	0
	16 & 20 mm	+0.009/	-0.001
	25 & 30 mm	+0.011/	-0.001
	40 mm	+0.013/	-0.002
‡ D Tolerance:	16 mm	0 /	-0.008
	22 & 26 mm	0 /	-0.009
	32, 40 & 47 mm	0 /	-0.011
	62 mm	0 /	-0.013

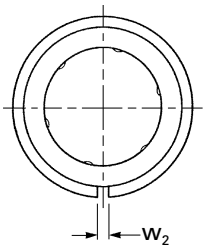
△ L Tolerance:	25, 32, 36 & 45 mm	0 /	-0.200
	58, 68 & 80 mm	0 /	-0.300
§ l Tolerance	16.5, 22.9, 24.9 & 31.5 mm	0 /	-0.200
	44.1, 52.1 & 60.6 mm	0 /	-0.300

NOTE: X = Filler character.

European Standard
LINEAR BALL BEARINGS – ADJUSTABLE TYPE

• AISI 52100 Steel • Hardened to HRc 60…64





Part Number Example

B L X U B X M 4 0 A J X J S

- Linear Ball Bearing
- 52100 Steel
- Subgroup (European, Standard)
- Metric Size
- Bearing Code
- Adjustable
- Standard

Sub-group	Bearing Code	Ball Circuit	d* Bore	D‡ O.D.	L△ Length	l§ Groove Distance	W_1 Groove Width	D_1 Groove Dia.	w_2 Slot Width	Load Capacity Dynamic N	Load Capacity Static N
STANDARD TYPE											
UBX	8XAJX	4	8	16	25	16.5	1.1	15.2	1	280	420
UBX	12AJX	5	12	22	32	22.9	1.3	21	1.5	640	950
UBX	16AJX	5	16	26	36	24.9	1.3	24.9	1.5	720	1120
UBX	20AJX	5	20	32	45	31.5	1.6	30.3	2	920	1480
UBX	25AJX	6	25	40	58	44.1	1.85	37.5	2	1070	1670
UBX	30AJX	6	30	47	68	52.1	1.85	44.5	2	1630	2850
UBX	40AJX	6	40	62	80	60.6	2.15	59	3	2250	4200
HEAVY-DUTY TYPE											
UBM	12MJX	6	12	22	32	22.9	1.3	21	1.5	660	1310
UBM	16MJX	6	16	26	36	24.9	1.3	24.9	1.5	800	1480
UBM	20MJX	6	20	32	45	31.5	1.6	30.3	2	1050	2280
UBM	25MJX	8	25	40	58	44.1	1.85	37.5	2	1370	3470
UBM	30MJX	8	30	47	68	52.1	1.85	44.5	2	2100	5920
UBM	40MJX	8	40	62	80	60.6	2.15	59	3	3820	9250

BEARING TOLERANCES

* d Tolerance:	8 & 12 mm	+0.008/ 0
	16 & 20 mm	+0.009/ -0.001
	25 & 30 mm	+0.011/ -0.001
	40 mm	+0.013/ -0.002

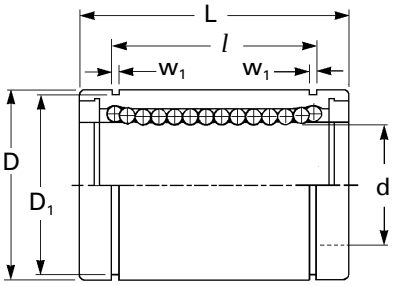
‡ D Tolerance:	16 mm	0	/ -0.008
	22 & 26 mm	0	/ -0.009
	32, 40 & 47 mm	0	/ -0.011
	62 mm	0	/ -0.013

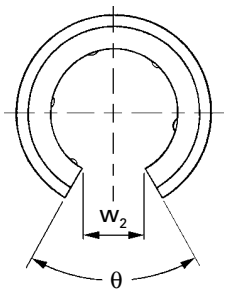
△ L Tolerance:	25, 32, 36 & 45 mm	0	/ -0.200
	58, 68 & 80 mm	0	/ -0.300
§ l Tolerance	16.5, 22.9, 24.9 & 31.5 mm	0	/ -0.200
	44.1, 52.1 & 60.6 mm	0	/ -0.300

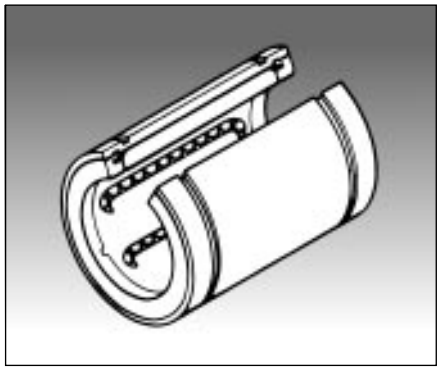
NOTE: X = Filler character.

European Standard
LINEAR BALL BEARINGS – OPEN TYPE

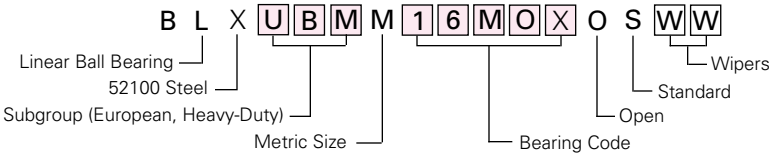
• AISI 52100 Steel • Hardened to HRc 60…64







Part Number Example



Sub-group	Bearing Code	Ball Circuit	d* Bore	D‡ O.D.	L△ Length	l§ Groove Distance	w_1 Groove Width	D_1 Groove Dia.	w_2 Slot Width	θ Slot Angle	Load Capacity	
											Dynamic N	Static N
STANDARD TYPE												
UBX	12AOX	4	12	22	32	22.9	1.3	21	7	54°	640	950
UBX	16AOX	4	16	26	36	24.9	1.3	24.9	9.6	60°	720	1120
UBX	20AOX	4	20	32	45	31.5	1.6	30.3	11.7	60°	920	1480
UBX	25AOX	5	25	40	58	44.1	1.85	37.5	14.4	60°	1070	1670
UBX	30AOX	5	30	47	68	52.1	1.85	44.5	16.9	60°	1630	2850
UBX	40AOX	5	40	62	80	60.6	2.15	59	22	60°	2250	4200
HEAVY-DUTY TYPE												
UBM	12MOX	4	12	22	32	22.9	1.3	21	10	90°	660	1310
UBM	16MOX	4	16	26	36	24.9	1.3	24.9	13.5	100°	800	1480
UBM	20MOX	4	20	32	45	31.5	1.6	30.3	16.8	100°	1050	2280
UBM	25MOX	6	25	40	58	44.1	1.85	37.5	16.9	74°	1370	3470
UBM	30MOX	6	30	47	68	52.1	1.85	44.5	21.1	80°	2100	5920
UBM	40MOX	6	40	62	80	60.6	2.15	59	27.8	80°	3820	9250

BEARING TOLERANCES

* d Tolerance:	12 mm	+0.008/	0
	16 & 20 mm	+0.009/	-0.001
	25 & 30 mm	+0.011/	-0.001
	40 mm	+0.013/	-0.002
‡ D Tolerance:	22 & 26 mm	0	/ -0.009
	32, 40 & 47 mm	0	/ -0.011
	62 mm	0	/ -0.013

△ L Tolerance:	32, 36 & 45 mm	0	/ -0.200
	58, 68 & 80 mm	0	/ -0.300
§ *l* Tolerance	22.9, 24.9 & 31.5 mm	0	/ -0.200
	44.1, 52.1 & 60.6 mm	0	/ -0.300

NOTE: X = Filler character.

Frelon® Lined

LINEAR BEARINGS

BEARING LOAD:
- Frelon lined bearings can tolerate up to 1500 psi over the portion of the bearing that is carrying the load.
- These bearings carry 4 to 8 times the load of ball bearings.
- A 1/2" I.D. Frelon bearing will carry as much load as a 1" I.D. ball bearing.

WEAR RATE:
- Although wear rates are affected by surface finish, shaft hardness, length of travel, contamination and lubrication, these bearings last on average 4 to 8 times longer than ball bearings.

BEARING PV:
- P = Pressure in psi on the projected area.
- V = Velocity of the wear surface in sfm.
- The maximum PV is 10,000 psi x ft./min.

BEARING SPEED:
- The maximum average linear speed without lubrication is:
  140 ft./min. - continuous
  400 ft./min. - intermittent
- When lubricated, the maximum continuous speed exceeds 400 ft./min.

CANTILEVERED LOADS:
- The distance between the bearings and the drive source or load should not exceed a maximum ratio of 2:1.

SHAFT FINISH AND HARDNESS:
- A shaft with a finish of 8-12 μin. R_a and a hardness of Rc 60 is recommended for best results. Acceptable performance can be attained with a finish of 8-16 μin. R_a and a hardness of Rc 35.
- Softer shafting will cause an accelerated wear to both the shaft and the bearings.
- Optional liners are available for both nonhardened shafting and for use in food applications.

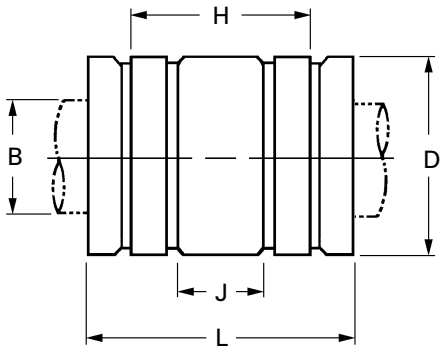
RUNNING CLEARANCES:
- Precision Series - approximately .001". High precision, similar to a preloaded ball bearing.
- Standard Series - approximately .002". Excellent for parallel shaft applications, similar to a typical ball bearing.

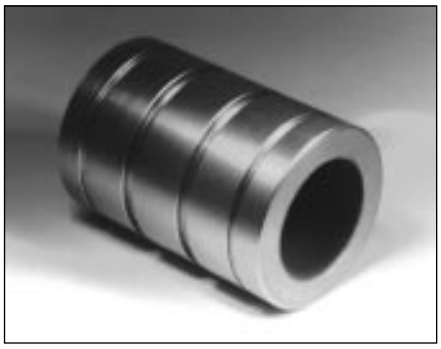
LUBRICATION:
- Frelon lined bearings are self-lubricating.
- Additional lubrication reduces friction 50%, minimizes wear, reduces heat, allows greater speed, and extends wear life.
- Acceptable lubrication includes SAE 10 to 40W, way lube oils, petroleum-based greases and even water.
- DO NOT USE PTFE FLUOROCARBON AND/OR SILICONE OILS, GREASE, SPRAY, OR WD40.

NO CATASTROPHIC FAILURE:
- No shaft scoring or shock load damage. Liner dampens shock loads and vibration. These bearings provide more surface contact area than ball bearings.
- No corrosion or rust.
- No temperature induced bearing seizure. Temperature range of -400°F to +500°F. Operates with consistent friction and load bearing characteristics throughout temperature range.
  Liner allows heat to dissipate through the shell.

Frelon® Lined
LINEAR BEARINGS

- Precision Series – Closed
- Self-Lubricated
- Anodized Aluminum
- Bonded Frelon® Liner





Part Number Example

B L A A B X – F L X 3 2 C P

- B L A — Linear Bearing
- A — Aluminum
- A B — U.S. Standard
- X — Inch Size
- F L X 3 2 — Bearing Code
- C — Closed
- P — Precision

Bearing Code	Nominal I.D.	B* Bore	D§ O.D.	L△ Length	Housing Bore◊	H Retaining Ring Spacing	J O–Ring Spacing	Max. Load lbs.	Effective Surface Area in.²
FLX03	3/16	.188	.375	.562	.375	.375	—	110	.11
FLX04	1/4	.250	.500	.750	.500	.437	.125	300	.20
FLX06	3/8	.375	.625	.875	.625	.562	.187	510	.34
FLX08	1/2	.500	.875	1.250	.875	.875	.250	975	.65
FLX10	5/8	.625	1.125	1.500	1.125	1.000	.312	1470	.98
FLX12	3/4	.750	1.250	1.625	1.250	1.062	.312	1905	1.27
FLX16	1	1.000	1.5625	2.250	1.5625	1.625	.500	3525	2.35
FLX20	1-1/4	1.250	2.000	2.625	2.000	1.875	.625	5145	3.43
FLX24	1-1/2	1.500	2.375	3.000	2.375	2.250	.750	7050	4.70
FLX32	2	2.000	3.000	4.000	3.000	3.000	1.000	12525	8.35
FLX40	2-1/2	2.500	3.750	5.000	3.750	3.750	1.250	19500	13.00
FLX48	3	3.000	4.500	6.000	4.500	4.500	1.500	28200	18.80
FLX64	4	4.000	6.000	8.000	6.000	6.000	2.000	50250	33.50

***B Tolerance:**	.188 to 1.250	+.0010	
	1.500	+.0012	
	2.000	+.0014	
	2.500	+.0016	
	3.000 & 4.000	+.0020	

△L Tolerance:	.562 to 2.250	-.015
	2.625 to 4.000	-.020
	5.000	-.025
	6.000	-.030
	8.000	-.040

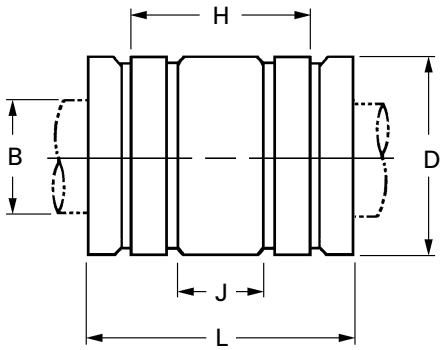
§D Tolerance:	.375 to 1.250	-.0010
	1.5625 to 2.375	-.0012
	3.000	-.0014
	3.750	-.0016
	4.500 & 6.000	-.0020

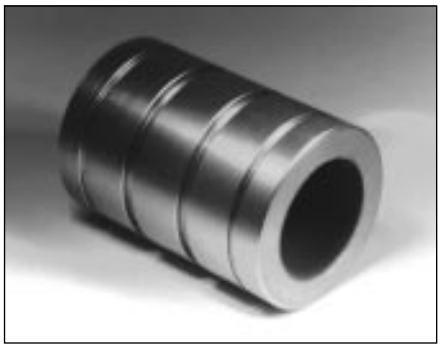
◊Housing Bore Tolerance:	.375 to 2.000	+.0009
	2.375 & 3.000	+.0010
	3.750	+.0014
	4.500	+.0016
	6.000	+.0020

NOTE: X = Filler character.

Frelon® Lined
LINEAR BEARINGS

- Standard Series – Closed
- Self-Lubricated
- Anodized Aluminum
- Bonded Frelon® Liner





Part Number Example

B L A A B X – F L C 1 0 C S

- B L A: Linear Bearing
- A: Aluminum
- B: U.S. Standard
- X: Inch Size
- F L C 1 0: Bearing Code
- C: Closed
- S: Standard

Bearing Code	Nominal I.D.	B* Bore	D§ O.D.	L△ Length	Housing Bore◊	H Retaining Ring Spacing	J O–Ring Spacing	Max. Load lbs.	Effective Surface Area in.²
FLC03	3/16	.189	.375	.562	.375	.375	—	110	.11
FLC04	1/4	.252	.500	.750	.500	.437	.125	300	.20
FLC06	3/8	.377	.625	.875	.625	.562	.187	510	.34
FLC08	1/2	.502	.875	1.250	.875	.875	.250	975	.65
FLC10	5/8	.627	1.125	1.500	1.125	1.000	.312	1470	.98
FLC12	3/4	.753	1.250	1.625	1.250	1.062	.312	1905	1.27
FLC16	1	1.003	1.5625	2.250	1.5625	1.625	.500	3525	2.35
FLC20	1-1/4	1.254	2.000	2.625	2.000	1.875	.625	5145	3.43
FLC24	1-1/2	1.504	2.375	3.000	2.375	2.250	.750	7050	4.70
FLC32	2	2.005	3.000	4.000	3.000	3.000	1.000	12525	8.35
FLC40	2-1/2	2.505	3.750	5.000	3.750	3.750	1.250	19500	13.00
FLC48	3	3.006	4.500	6.000	4.500	4.500	1.500	28200	18.80
FLC64	4	4.006	6.000	8.000	6.000	6.000	2.000	50250	33.50

***B Tolerance:**	.189 to 1.254	+.0010	
	1.504	+.0012	
	2.005	+.0014	
	2.505	+.0016	
	3.006 & 4.006	+.0020	

△L Tolerance:	.562 to 2.250	-.015
	2.625 to 4.000	-.020
	5.000	-.025
	6.000	-.030
	8.000	-.040

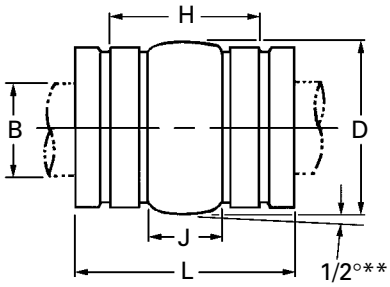
§D Tolerance:	.375 to 1.250	-.0010
	1.5625 to 2.375	-.0012
	3.000	-.0014
	3.750	-.0016
	4.500 & 6.000	-.0020

◊Housing Bore Tolerance:	.375 to 2.000	+.0009
	2.375 & 3.000	+.0010
	3.750	+.0014
	4.500	+.0016
	6.000	+.0020

NOTE: X = Filler character.

Frelon® Lined
LINEAR BEARINGS

• Self-Aligning • Standard Series – Closed • Self-Lubricated
• Anodized Aluminum • Bonded Frelon® Liner



Part Number Example

B L A A B X – F L A 2 0 C S

- B L A — Linear Bearing
- A — Aluminum
- B — U.S. Standard
- X — Inch Size
- F L A 2 0 — Bearing Code
- C — Closed
- S — Standard

Bearing Code	Nominal I.D.	B* Bore	D§ O.D.	L△ Length	Housing Bore◊	H Retaining Ring Spacing	J O–Ring Spacing	Max. Load lbs.	Effective Surface Area in.²
FLA03	3/16	.189	.375	.562	.375	.375	—	110	.11
FLA04	1/4	.252	.500	.750	.500	.437	.125	300	.20
FLA06	3/8	.377	.625	.875	.625	.562	.187	510	.34
FLA08	1/2	.502	.875	1.250	.875	.875	.250	975	.65
FLA10	5/8	.627	1.125	1.500	1.125	1.000	.312	1470	.98
FLA12	3/4	.753	1.250	1.625	1.250	1.062	.312	1905	1.27
FLA16	1	1.003	1.5625	2.250	1.5625	1.625	.500	3525	2.35
FLA20	1-1/4	1.254	2.000	2.625	2.000	1.875	.625	5145	3.43
FLA24	1-1/2	1.504	2.375	3.000	2.375	2.250	.750	7050	4.70
FLA32	2	2.005	3.000	4.000	3.000	3.000	1.000	12525	8.35
FLA40	2-1/2	2.505	3.750	5.000	3.750	3.750	1.250	19500	13.00
FLA48	3	3.006	4.500	6.000	4.500	4.500	1.500	28200	18.80
FLA64	4	4.006	6.000	8.000	6.000	6.000	2.000	50250	33.50

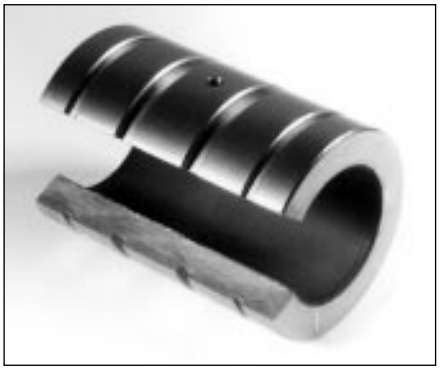
***B Tolerance:**	.189 to 1.254 +.0010 1.504 +.0012 2.005 +.0014 2.505 +.0016 3.006 & 4.006 +.0020
△L Tolerance:	.562 to 2.250 -.015 2.625 to 4.000 -.020 5.000 -.025 6.000 -.030 8.000 -.040
§D Tolerance:	.375 to 1.250 -.0010 1.5625 to 2.375 -.0012 3.000 -.0014 3.750 -.0016 4.500 & 6.000 -.0020
◊Housing Bore Tolerance:	.375 to 2.000 +.0009 2.375 & 3.000 +.0010 3.750 +.0014 4.500 +.0016 6.000 +.0020

NOTE: X = Filler character.

**Allows 1/2° of misalignment capability from centerline (1° overall).

Frelon® Lined LINEAR BEARINGS

- Precision Series – Open
- Self-Lubricated
- Anodized Aluminum
- Bonded Frelon® Liner



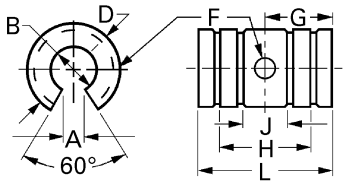


FIGURE 1

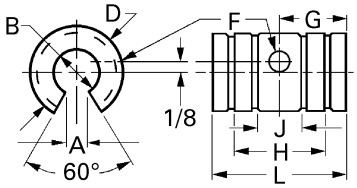


FIGURE 2

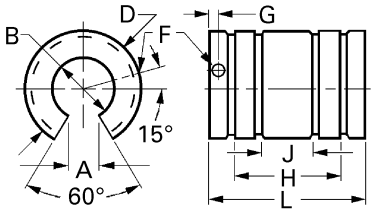


FIGURE 3

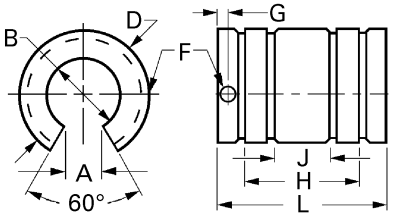
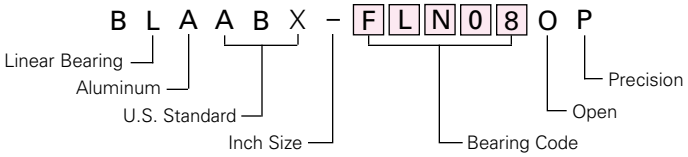


FIGURE 4

Part Number Example



Bearing Code	Fig. No.	Nominal I.D.	B* Bore	D§ O.D.	L△ Length	Housing Bore◊	A Slot Width (min.)	F Retention Hole Dia.	F Retention Hole G	H Retaining Ring Spacing	J O–Ring Spacing	Max. Load lbs.	Effective Surface Area in.²
FLN03	1	3/16	.188	.375	.562	.375	.125	.094	9/32	.375	—	110	.11
FLN04	1	1/4	.250	.500	.750	.500	.188	.094	3/8	.437	.125	300	.20
FLN06	1	3/8	.375	.625	.875	.625	.250	.094	7/16	.562	.187	510	.34
FLN08	2	1/2	.500	.875	1.250	.875	.312	.136	5/8	.875	.250	975	.65
FLN10	3	5/8	.625	1.125	1.500	1.125	.375	.136	1/8	1.000	.312	1470	.98
FLN12	4	3/4	.750	1.250	1.625	1.250	.437	.136	1/8	1.062	.312	1905	1.27
FLN16	4	1	1.000	1.5625	2.250	1.5625	.562	.136	1/8	1.625	.500	3525	2.35
FLN20	4	1-1/4	1.250	2.000	2.625	2.000	.625	.201	3/16	1.875	.625	5145	3.43
FLN24	4	1-1/2	1.500	2.375	3.000	2.375	.750	.201	3/16	2.250	.750	7050	4.70
FLN32	4	2	2.000	3.000	4.000	3.000	1.000	.265	5/16	3.000	1.000	12525	8.35
FLN40	4	2-1/2	2.500	3.750	5.000	3.750	1.250	.265	5/16	3.750	1.250	19500	13.00
FLN48	4	3	3.000	4.500	6.000	4.500	1.500	.265	5/16	4.500	1.500	28200	18.80
FLN64	4	4	4.000	6.000	8.000	6.000	2.000	.265	5/16	6.000	2.000	50250	33.50

***B Tolerance:**	.188 to 1.250	+.0010	
	1.500	+.0012	
	2.000	+.0014	
	2.500	+.0016	
	3.000 & 4.000	+.0020	

△L Tolerance:	.562 to 2.250	-.015
	2.625 to 4.000	-.020
	5.000	-.025
	6.000	-.030
	8.000	-.040

§D Tolerance:	.375 to 1.250	-.0010
	1.5625 to 2.375	-.0012
	3.000	-.0014
	3.750	-.0016
	4.500 & 6.000	-.0020

◊Housing Bore Tolerance:	.375 to 2.000	+.0009
	2.375 & 3.000	+.0010
	3.750	+.0014
	4.500	+.0016
	6.000	+.0020

NOTE: X = Filler character.

Let our experienced staff help you select the correct "O" Rings and Retaining Rings.

Frelon® Lined
LINEAR BEARINGS – OPEN TYPE

- Standard Series – Open
- Self-Lubricated
- Anodized Aluminum
- Bonded Frelon® Liner

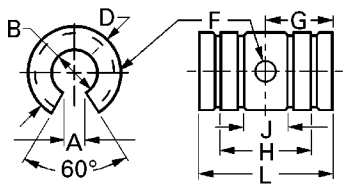


FIGURE 1

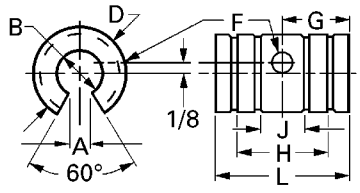


FIGURE 2

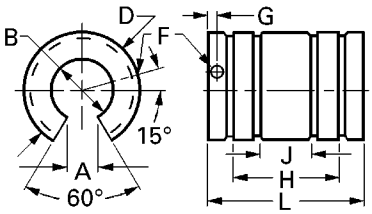


FIGURE 3

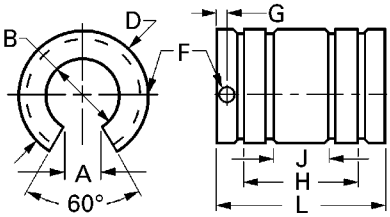
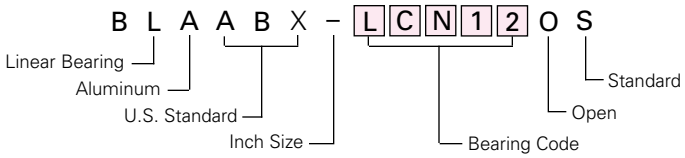


FIGURE 4

Part Number Example



Bearing Code	Fig. No.	Nominal I.D.	B* Bore	D§ O.D.	L△ Length	Housing Bore◊	A Slot Width (min.)	F Retention Hole		H Retaining Ring Spacing	J O–Ring Spacing	Max. Load lbs.	Effective Surface Area in.²
								Dia.	G				
LCN03	1	3/16	.189	.3750	.562	.3750	.125	.094	9/32	.375	—	110	.110
LCN04	1	1/4	.252	.5000	.750	.5000	.188	.094	3/8	.437	.125	300	.200
LCN06	1	3/8	.377	.6250	.875	.6250	.250	.094	7/16	.562	.187	510	.340
LCN08	2	1/2	.502	.8750	1.250	.8750	.312	.136	5/8	.875	.250	975	.650
LCN10	3	5/8	.627	1.1250	1.500	1.1250	.375	.136	1/8	1.000	.312	1470	.980
LCN12	4	3/4	.753	1.2500	1.625	1.2500	.437	.136	1/8	1.062	.312	1905	1.270
LCN16	4	1	1.003	1.5625	2.250	1.5625	.562	.136	1/8	1.625	.500	3525	2.350
LCN20	4	1-1/4	1.254	2.0000	2.625	2.0000	.625	.201	3/16	1.875	.625	5145	3.430
LCN24	4	1-1/2	1.504	2.3750	3.000	2.3750	.750	.201	3/16	2.250	.750	7050	4.700
LCN32	4	2	2.005	3.0000	4.000	3.0000	1.000	.265	5/16	3.000	1.000	12525	8.350
LCN40	4	2-1/2	2.505	3.7500	5.000	3.7500	1.250	.265	5/16	3.750	1.250	19500	13.000
LCN48	4	3	3.006	4.5000	6.000	4.5000	1.500	.265	5/16	4.500	1.500	28200	18.800
LCN64	4	4	4.006	6.0000	8.000	6.0000	2.000	.265	5/16	6.000	2.000	50250	33.500

BEARING TOLERANCES

***B Tolerance:**	.189 to 1.254 +.0010 1.504 +.0012 2.005 +.0014 2.505 +.0016 3.006 & 4.006 +.0020
△L Tolerance:	.562 to 2.250 -.015 2.625 to 4.000 -.020 5.000 -.025 6.000 -.030 8.000 -.040
§D Tolerance:	.3750 to 1.2500 -.0010 1.5625 to 2.3750 -.0012 3.0000 -.0014 3.7500 -.0016 4.5000 & 6.0000 -.0020
◊Housing Bore:	.3750 to 2.0000 +.0009 2.3750 & 3.0000 +.0010 3.7500 +.0014 4.5000 +.0016 6.0000 +.0020

NOTE: X = Filler character.

Let our experienced staff help you select the correct "O" Rings and Retaining Rings.

Frelon® Lined
LINEAR BEARINGS – OPEN TYPE

• Self-Aligning • Standard Series – Open • Self-Lubricated
• Anodized Aluminum • Bonded Frelon® Liner

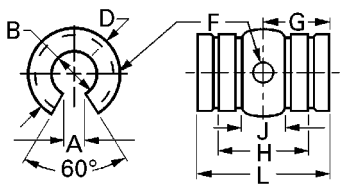


FIGURE 1

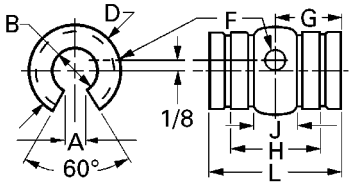
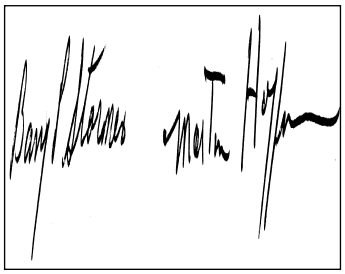


FIGURE 2



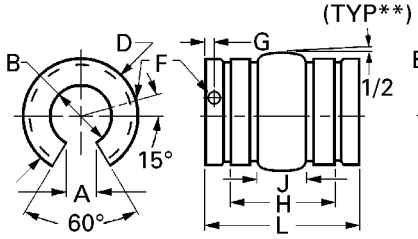


FIGURE 3

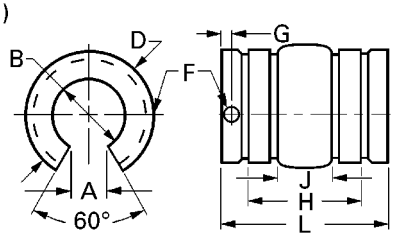
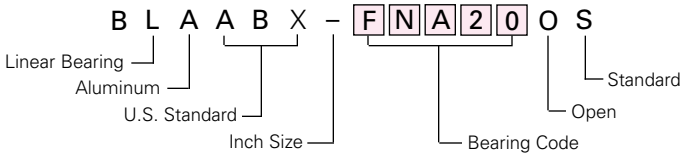


FIGURE 4

Part Number Example



Bearing Code	Fig. No.	Nominal I.D.	B* Bore	D§ O.D.	L△ Length	Housing Bore◊	A Slot Width (min.)	F Retention Hole		H Retaining Ring Spacing	J O–Ring Spacing	Max. Load lbs.	Effective Surface Area in.²
								Dia.	G				
FNA03	1	3/16	.189	.3750	.562	.3750	.125	.094	9/32	.375	—	110	.110
FNA04	1	1/4	.252	.5000	.750	.5000	.188	.094	3/8	.437	.125	300	.200
FNA06	1	3/8	.377	.6250	.875	.6250	.250	.094	7/16	.562	.187	510	.340
FNA08	2	1/2	.502	.8750	1.250	.8750	.312	.136	5/8	.875	.250	975	.650
FNA10	3	5/8	.627	1.1250	1.500	1.1250	.375	.136	1/8	1.000	.312	1470	.980
FNA12	4	3/4	.753	1.2500	1.625	1.2500	.437	.136	1/8	1.062	.312	1905	1.270
FNA16	4	1	1.003	1.5625	2.250	1.5625	.562	.136	1/8	1.625	.500	3525	2.350
FNA20	4	1-1/4	1.254	2.0000	2.625	2.0000	.625	.201	3/16	1.875	.625	5145	3.430
FNA24	4	1-1/2	1.504	2.3750	3.000	2.3750	.750	.201	3/16	2.250	.750	7050	4.700
FNA32	4	2	2.005	3.0000	4.000	3.0000	1.000	.265	5/16	3.000	1.000	12525	8.350
FNA40	4	2-1/2	2.505	3.7500	5.000	3.7500	1.250	.265	5/16	3.750	1.250	19500	13.000
FNA48	4	3	3.006	4.5000	6.000	4.5000	1.500	.265	5/16	4.500	1.500	28200	18.800
FNA64	4	4	4.006	6.0000	8.000	6.0000	2.000	.265	5/16	6.000	2.000	50250	33.500

BEARING TOLERANCES

***B Tolerance:**	.189 to 1.254 +.0010 1.504 +.0012 2.005 +.0014 2.505 +.0016 3.006 & 4.006 +.0020	**△L Tolerance:**	.562 to 2.250 -.015 2.625 to 4.000 -.020 5.000 -.025 6.000 -.030 8.000 -.040
§D Tolerance:	.3750 to 1.2500 -.0010 1.5625 to 2.3750 -.0012 3.0000 -.0014 3.7500 -.0016 4.5000 & 6.0000 -.0020	**◊ Housing Bore:**	.3750 to 2.0000 +.0009 2.3750 & 3.0000 +.0010 3.7500 +.0014 4.5000 +.0016 6.0000 +.0020

**Allows 1/2° of misalignment capability from centerline (1° overall).
NOTE: X = Filler character.

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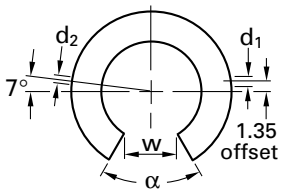
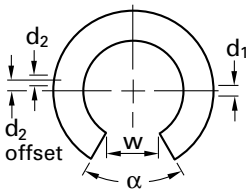
Frelon® Lined
LINEAR BEARINGS

• Precision Series • Self-Lubricating
• Bonded Frelon® • Open – Closed • Anodized Aluminum

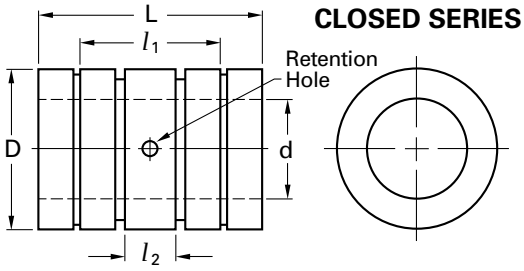
OPEN SERIES



For 12 Bore Only



For All Other Bores



CLOSED SERIES

Part Number Example

B L A U B X M F M N 2 5 O P

- Linear Bearing
- Aluminum
- European Standard
- Metric Size
- Bearing Code
- Open
- Precision

Bearing Code		d* Bore F8	D§ h7	L△	Slot (Open Series)		l_1 Retaining Space	l_2 O-Ring Spacing	Max Load N	Effective Surface Area cm²	Retention Hole		
Closed	Open				w Slot Width	α Slot Angle					d_1	d_2	d_2 Offset
FMC05	FMN05	5	12	22	3.2	60°	12	5	1135	1.1	2.2	—	—
FMC08	FMN08	8	16	25	5.1	60°	14	5.33	2055	2	3	—	—
FMC10	FMN10	10	19	29	6.4	60°	19.4	5.63	2985	2.9	3	—	—
FMC12	FMN12	12	22	32	7.6	78°	20	6	3950	3.8	3	3	7°
FMC16	FMN16	16	26	36	10.4	78°	22	8	5930	5.8	2.2	3	0
FMC20	FMN20	20	32	45	10.8	60°	28	10	9265	9	2.2	3	0
FMC25	FMN25	25	40	58	13.2	60°	40	12.5	14935	14.5	3	3	-1.51
FMC30	FMN30	30	47	68	14.2	72°	48	15	21010	20.4	3	3	2
FMC40	FMN40	40	62	80	19.5	72°	56	20	32955	32	3	3	1.5
FMC50	FMN50	50	75	100	24	72°	72	25	51495	50	3	5	2.5
FMC60	FMN60	60	90	125	29.6	72°	95	30	77250	75	—	6	0
FMC80	FMN80	80	120	165	39	72°	125	40	135960	132	—	8	0

NOTE: X = Filler character.

Need help selecting the proper "O" Rings and Retaining Rings?
Ask for one of our sales engineers.

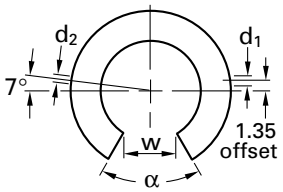
BEARING TOLERANCES

* d Tolerance (F8):	§ D Tolerance (h7):	△ L Tolerance:
5 mm +0.028 / +0.010	12 & 16 mm -0.018	22 to 100 mm -0.254
8 & 10 mm +0.035 / +0.013	19, 22 & 26 mm -0.021	125 & 165 mm -0.508
12 & 16 mm +0.043 / +0.016	32, 40 & 47 mm -0.025	
20, 25 & 30 mm +0.053 / +0.020	62 & 75 mm -0.030	
40 & 50 mm +0.064 / +0.025	90 & 120 mm -0.035	
60 & 80 mm +0.076 / +0.030		

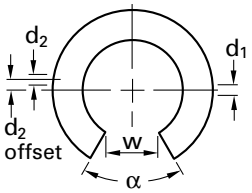
Frelon® Lined LINEAR BEARINGS

- Standard Series • Self-Lubricating
- Bonded Frelon® • Open – Closed • Anodized Aluminum

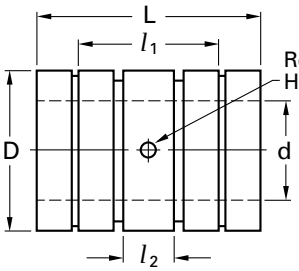
OPEN SERIES



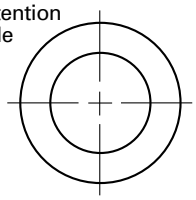
For 12 Bore Only



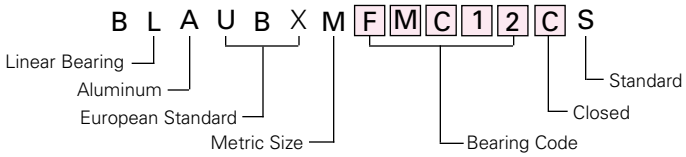
For All Other Bores



CLOSED SERIES



Part Number Example



Bearing Code		d* Bore F8	D§ h7	L△ h13	Slot (Open Series)		l_1 Retaining Space	l_2 O-Ring Spacing	Max Load N	Effective Surface Area cm²	Retention Hole		
Closed	Open				W Slot Width	α Slot Angle					d_1	d_2	d_2 Offset
FMC05	**FMN05**	5	12	22	3.2	60°	12	5	1135	1.1	2.2	—	—
FMC08	**FMN08**	8	16	25	5.1	60°	14	5.33	2055	2	3	—	—
FMC10	**FMN10**	10	19	29	6.4	60°	19.4	5.63	2985	2.9	3	—	—
FMC12	**FMN12**	12	22	32	7.6	78°	20	6	3950	3.8	3	3	7°
FMC16	**FMN16**	16	26	36	10.4	78°	22	8	5930	5.8	2.2	3	0
FMC20	**FMN20**	20	32	45	10.8	60°	28	10	9265	9	2.2	3	0
FMC25	**FMN25**	25	40	58	13.2	60°	40	12.5	14935	14.5	3	3	-1.51
FMC30	**FMN30**	30	47	68	14.2	72°	48	15	21010	20.4	3	3	2
FMC40	**FMN40**	40	62	80	19.5	72°	56	20	32955	32	3	3	1.5
FMC50	**FMN50**	50	75	100	24	72°	72	25	51495	50	3	5	2.5
FMC60	**FMN60**	60	90	125	29.6	72°	95	30	77250	75	—	6	0
FMC80	**FMN80**	80	120	165	39	72°	125	40	135960	132	—	8	0

NOTE: X = Filler character.

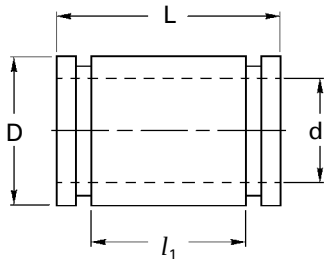
Need help selecting the proper "O" Rings and Retaining Rings?
Ask for one of our sales engineers.

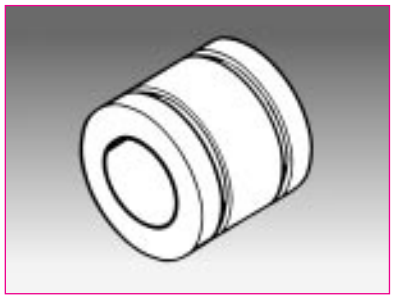
BEARING TOLERANCES

* d Tolerance (F8):	§ D Tolerance (h7):	△ L Tolerance (h13):
5 mm +0.078 / +0.060	12 & 16 mm -0.018	22 to 29 mm -0.33
8 & 10 mm +0.085 / +0.063	19, 22 & 26 mm -0.021	32 to 45 mm -0.39
12 & 16 mm +0.093 / +0.066	32, 40 & 47 mm -0.025	58 to 80 mm -0.46
20, 25 & 30 mm +0.129 / +0.096	62 & 75 mm -0.030	100 mm -0.54
40 & 50 mm +0.166 / +0.127	90 & 120 mm -0.035	125 & 165 mm -0.63
60 & 80 mm +0.228 / +0.182		

Frelon® Lined
LINEAR BEARINGS

• Precision Series • Standard Series • Self-Lubricating
• Bonded Frelon® • Thin Walled • Anodized Aluminum





Part Number Example

B L A U B X M F M T 1 0 C P

- B L — Linear Bearing
- A — Aluminum
- U — European, Standard
- B — Metric Size
- X — Filler character
- F M T 1 0 — Bearing Code
- C — Closed
- P — Precision

Bearing Code		d Bore	Bore Tolerance		D§ h7	L△	l_1 O–Ring Spacing	Max. Load N	Effective Surface Area cm²
Precision	Standard		Precision Series	Standard Series					
FMT06	**MTC06**	6	+0.028/+0.010	+0.078/+0.060	12	22	—	1360	1.3
FMT08	**MTC08**	8	+0.035/+0.013	+0.085/+0.063	15	24	10	1975	1.9
FMT10	**MTC10**	10	+0.035/+0.013	+0.085/+0.063	17	26	12	2675	2.6
FMT12	**MTC12**	12	+0.043/+0.016	+0.093/+0.066	19	28	14	3460	3.4
FMT14	**MTC14**	14	+0.043/+0.016	+0.093/+0.066	21	28	14	4035	3.9
FMT16	**MTC16**	16	+0.043/+0.016	+0.093/+0.066	24	30	14	4940	4.8
FMT20	**MTC20**	20	+0.020/+0.053	+0.129/+0.096	28	30	14	6175	6
FMT25	**MTC25**	25	+0.020/+0.053	+0.129/+0.096	35	40	22	10295	10
FMT30	**MTC30**	30	+0.020/+0.053	+0.129/+0.096	40	50	30	15445	15
FMT40	**MTC40**	40	+0.064/+0.025	+0.166/+0.127	52	60	40	24715	24
FMT50	**MTC50**	50	+0.064/+0.025	+0.166/+0.127	62	70	50	36045	35

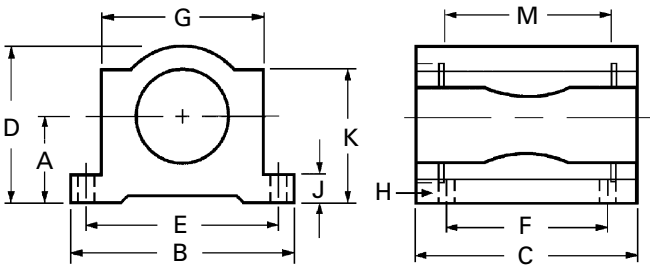
§ D Tolerance (h7):	12 to 17 mm	-0.018
	19 to 28 mm	-0.021
	35 & 40 mm	-0.025
	52 & 62 mm	-0.030
△L Tolerance:	22 to 70 mm	-0.254

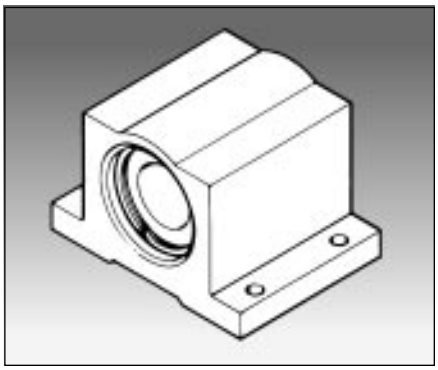
NOTE: X = Filler character.

Let us help you pick the correct "O" Ring for your application.

Frelon® Lined
PILLOW BLOCKS – CLOSED TYPE

- Precision • Standard • Self-Aligning
- Anodized 6061-T6 Aluminum Body
- Frelon® Lined Aluminum Bearing, Self-Lubricating





Part Number Example

B L A A B X – P X 0 4 X C P

- B L A: Linear Bearing, Aluminum, Self Lubricated
- A B: U.S. Standard
- X: Inch Size
- P X 0 4 X: Bearing Code
- C: Closed
- P: Precision

Operating Temperature: -400°F to +500°F

Bearing Code		Bore§ Dia.	A ± 0.001	B Base Width	C Length	D Height	E ± .010	F ± .010	G Body Width	H		J	K	M Groove Spacing	Max.* Load Rating lbs.
Precision	Standard									Bolt	Hole				
PX04X	**PX04C**	.250	.437	1.625	1.188	.813	1.312	.750	1.000	#6	5/32	.188	.750	.750	300
PX06X	**PX06C**	.375	.500	1.750	1.313	.938	1.437	.875	1.125	#6	5/32	.188	.875	.875	510
PX08X	**PX08C**	.500	.687	2.000	1.688	1.250	1.688	1.000	1.375	#6	5/32	.250	1.125	1.250	975
PX10X	**PX10C**	.625	.875	2.500	1.938	1.625	2.125	1.125	1.750	#8	3/16	.281	1.438	1.500	1470
PX12X	**PX12C**	.750	.937	2.750	2.063	1.750	2.375	1.250	1.875	#8	3/16	.313	1.563	1.625	1905
PX16X	**PX16C**	1.000	1.187	3.250	2.813	2.188	2.875	1.750	2.375	#10	7/32	.375	1.938	2.250	3525
PX20X	**PX20C**	1.250	1.500	4.000	3.625	2.813	3.500	2.000	3.000	#10	7/32	.438	2.500	2.625	5145
PX24X	**PX24C**	1.500	1.750	4.750	4.000	3.250	4.125	2.500	3.500	1/4	9/32	.500	2.875	3.000	7050
PX32X	**PX32C**	2.000	2.125	6.000	5.000	4.063	5.250	3.250	4.500	3/8	13/32	.625	3.625	4.000	12525

§ Bore Tolerance for Precision [P]:

.250 to 1.250	+.0010, -.0000
1.500	+.0012, -.0000
2.000	+.0014, -.0000

§ Bore Tolerance for Standard [S]:

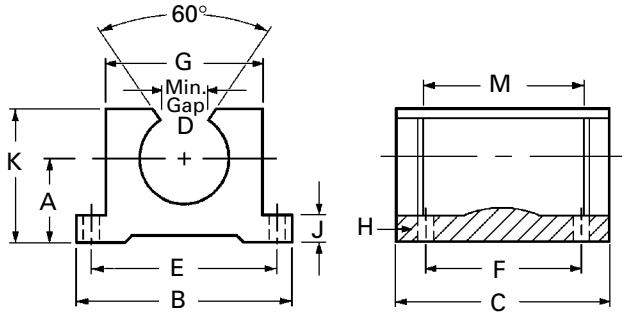
.250 to 1.250	+.0020, +.0030
1.500	+.0040, +.0052
2.000	+.0050, +.0064

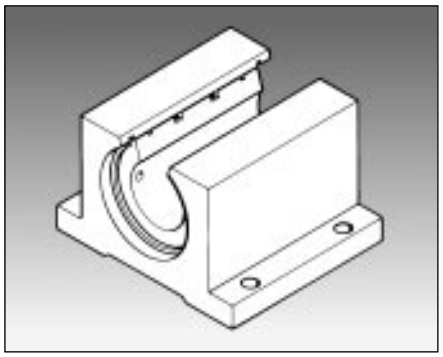
NOTE: 1. X = Filler character.
2. For parallel shaft applications, use Standard (S version) bearings.

*Maximum speed is 400 ft/min.; maximum PV is 10000 dry.

Frelon® Lined
PILLOW BLOCKS – OPEN TYPE

- Precision • Standard • Self-Aligning
- Anodized 6061-T6 Aluminum Body
- Frelon® Lined Aluminum Bearing, Self-Lubricating





Part Number Example

B L A A B X – P N 2 0 C O S

- Linear Bearing
- Aluminum, Self-Lubricated
- U.S. Standard
- Inch Size
- Bearing Code
- Open
- Standard

Operating Temperature: -400°F to +500°F

Bearing Code		Bore§ Dia.	A ± 0.001	B Base Width	C Length	D Min.	E ± .010	F ± .010	G Body Width	H		J	K Height	M Groove Spacing	Max. Load Rating* lbs.
Precision	Standard									Bolt	Hole				
PN08X	PN08C	.500	.687	2.000	1.688	.313	1.688	1.000	1.375	#6	5/32	.250	1.125	1.250	975
PN10X	PN10C	.625	.875	2.500	1.938	.375	2.125	1.125	1.750	#8	3/16	.281	1.438	1.500	1470
PN12X	PN12C	.750	.937	2.750	2.063	.438	2.375	1.250	1.875	#8	3/16	.313	1.563	1.625	1905
PN16X	PN16C	1.000	1.187	3.250	2.813	.563	2.875	1.750	2.375	#10	7/32	.375	1.938	2.250	3525
PN20X	PN20C	1.250	1.500	4.000	3.625	.625	3.500	2.000	3.000	#10	7/32	.438	2.500	2.625	5145
PN24X	PN24C	1.500	1.750	4.750	4.000	.750	4.125	2.500	3.500	1/4	9/32	.500	2.875	3.000	7050
PN32X	PN32C	2.000	2.125	6.000	5.000	1.000	5.250	3.250	4.500	3/8	13/32	.625	3.625	4.000	12525

§ Bore Tolerance for Precision P:
.500 to 1.250 +.0010, -.0000
1.500 +.0012, -.0000
2.000 +.0014, -.0000

§ Bore Tolerance for Standard S:
.500 to 1.250 +.0020, +.0030
1.500 +.0040, +.0052
2.000 +.0050, +.0064

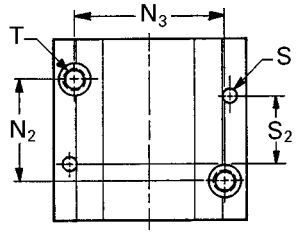
NOTE: 1. X = Filler character.
2. For parallel shaft applications, use Standard (S version) bearings.

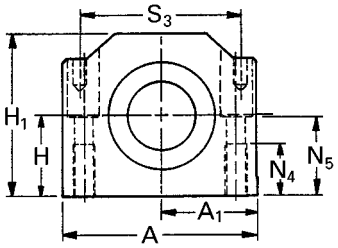
* Maximum speed is 400 ft/min.; maximum PV is 10000 dry.

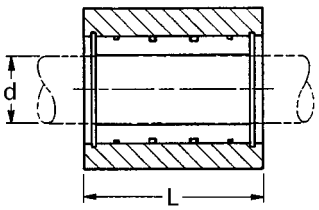
Δ Maximum load must be reduced by 1/2 when load is applied to the open half of the bearing.

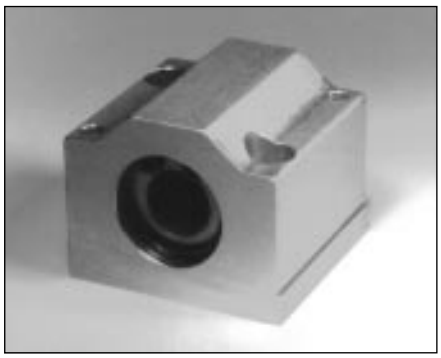
Frelon® Lined
PILLOW BLOCKS – CLOSED TYPE

- Precision • Standard • Self-Aligning
- Anodized Aluminum Body
- Frelon® Lined Aluminum Bearing









Part Number Example

B L A U B X M P M 2 5 C C S

- B L A — Linear Bearing, Aluminum, Self-Lubricated
- U B — European Standard
- X — Filler character
- M — Metric Size
- P M 2 5 C — Bearing Code
- C — Closed
- S — Standard

Bearing Code		d* Nom. Bore Size	H ± 0.015	H_1 Height	A Width	A_1 ± 0.013	L Length	T	N_2 ± 0.15	N_3 ± 0.15	N_4	N_5	S	S_2	S_3
Precision	**Standard**														
PMX08	**PM08C**	8	15	28	35	17.5	32	M4	20	25	9	14.5	—	—	—
PMX10	**PM10C**	10	16	31.5	40	20	36	M5	20	29	11	15	4	29	31
PMX12	**PM12C**	12	18	35	43	21.5	39	M5	23	32	11	16.5	4	32	34
PMX16	**PM16C**	16	22	42	53	26.5	43	M6	26	40	13	21	4	35	42
PMX20	**PM20C**	20	25	50	60	30	54	M8	32	45	18	24	5	45	50
PMX25	**PM25C**	25	30	60	78	39	67	M10	40	60	22	29	6	20	64
PMX30	**PM30C**	30	35	71	87	43.5	79	M10	45	68	22	34	6	30	72
PMX40	**PM40C**	40	45	91	108	54	91	M12	58	86	26	44	8	35	90
PMX50	**PM50C**	50	50	105	132	66	113	M16	50Δ	108Δ	34	49	10	42	108

Δ Tolerance: ± 0.2

*** Bore Tolerance for Precision P :**

8 & 10 mm	+0.035, +0.013
12 & 16 mm	+0.043, +0.016
20, 25 & 30 mm	+0.053, +0.020
40 & 50 mm	+0.064, +0.025

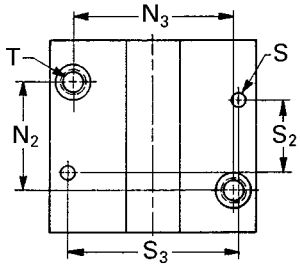
*** Bore Tolerance for Standard S :**

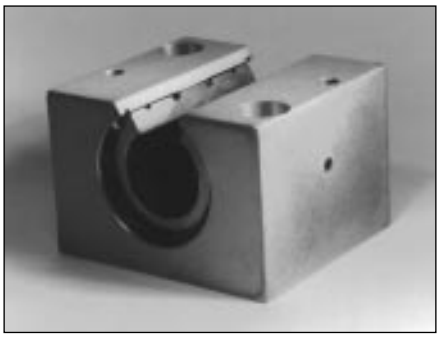
8 & 10 mm	+0.085, +0.063
12 & 16 mm	+0.093, +0.066
20, 25 & 30 mm	+0.129, +0.096
40 & 50 mm	+0.166, +0.127

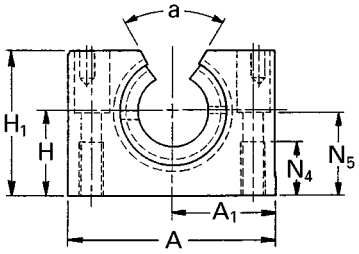
NOTE: X = Filler character.

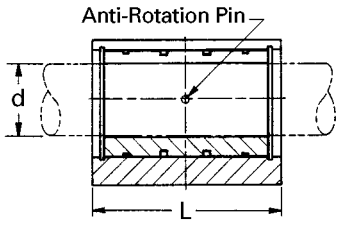
Frelon® Lined
PILLOW BLOCKS – OPEN TYPE

- Precision • Standard • Self-Aligning
- Anodized Aluminum Body
- Frelon® Lined Aluminum Bearing, Self-Lubricating









Part Number Example

B L A U B X M M N 2 5 C O S

- Linear Bearing
- Aluminum, Self-Lubricated
- European Standard
- Metric Size
- Bearing Code
- Open
- Standard

Bearing Code		d* Nom. Bore Size	H ± 0.015	H_1 Height	A Width	A_1 ± 0.013	L Length	T	N_2 ± 0.15	N_3 ± 0.15	N_4	N_5	S	S_2	S_3	a deg.
Precision	Standard															
PMN12	MN12C	12	18	28	43	21.5	39	M5	23	32	11	16.5	4	32	34	66°
PMN16	MN16C	16	22	35	53	26.5	43	M6	26	40	13	21	4	35	42	68°
PMN20	MN20C	20	25	42	60	30	54	M8	32	45	18	24	5	45	50	60°
PMN25	MN25C	25	30	51	78	39	67	M10	40	60	22	29	6	20	64	60°
PMN30	MN30C	30	35	60	87	43.5	79	M10	45	68	22	34	6	30	72	60°
PMN40	MN40C	40	45	77	108	54	91	M12	58	86	26	44	8	35	90	60°
PMN50	MN50C	50	50	88	132	66	113	M16	50Δ	108Δ	34	49	10	42	108	60°

Δ Tolerance: ± 0.2

*** Bore Tolerance for Precision P:**
12 & 16 mm +0.043, +0.016
20, 25 & 30 mm +0.053, +0.020
40 & 50 mm +0.064, +0.025

*** Bore Tolerance for Standard S:**
12 & 16 mm +0.093, +0.066
20, 25 & 30 mm +0.129, +0.096
40 & 50 mm +0.166, +0.127

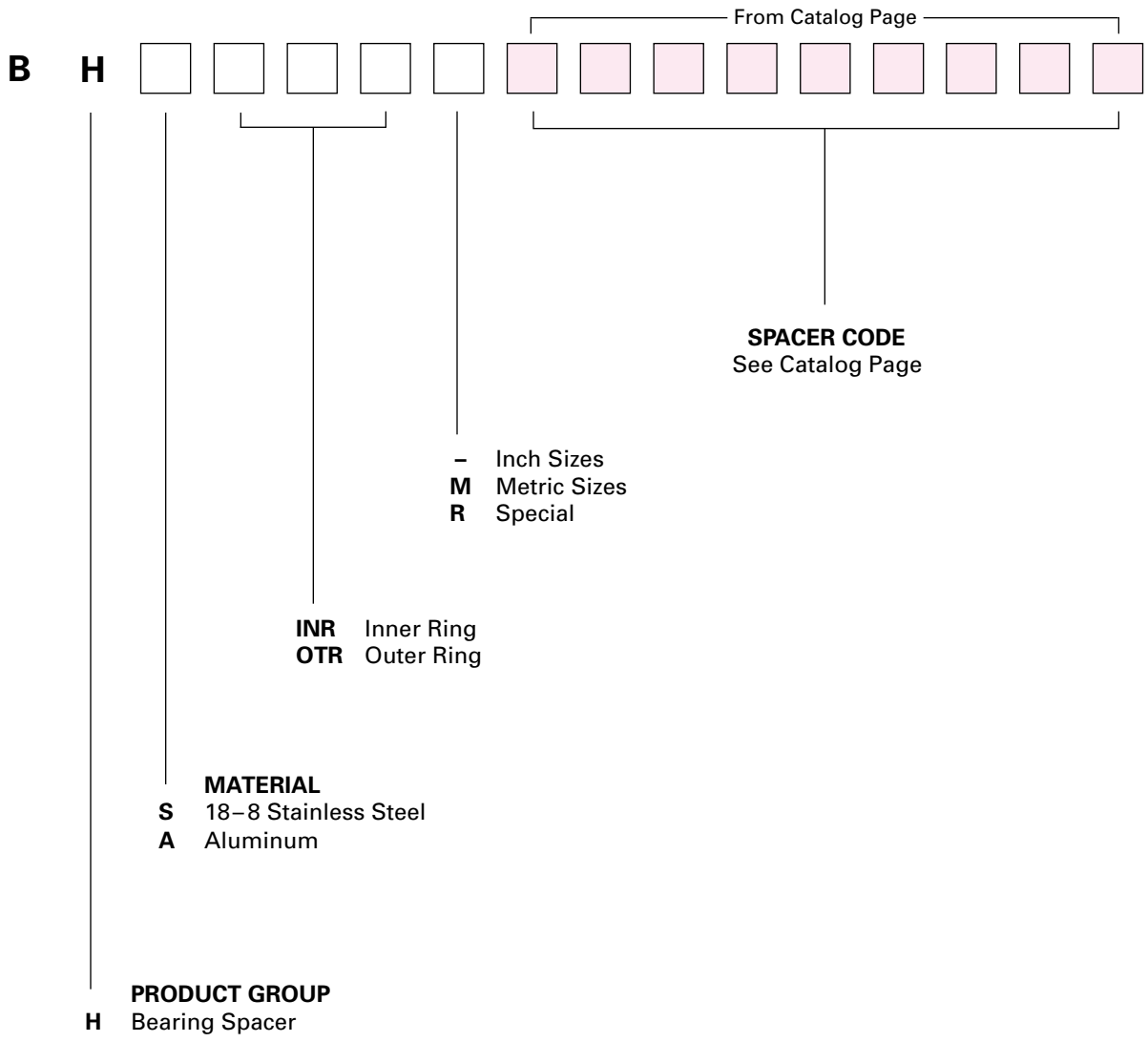
NOTE: X = Filler character.

NOTES

Part Numbering System

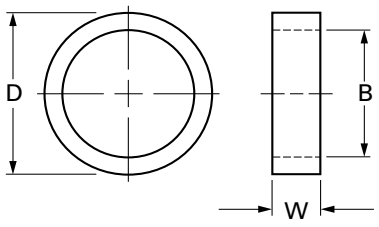
BEARING SPACERS

• 18–8 Stainless Steel • Anodized Aluminum



Inner Ring
BEARING SPACERS

• 18-8 Stainless Steel • Anodized Aluminum



Part Number Example

B H S I N R – 1 2 5 1 8 7 0 0 2

- Bearing Spacer
- 18-8 Stainless Steel
- Inner Ring
- Inch Size
- Spacer Code

Spacer Code	B +.005 -.000	D ±.005	W	
079164002	.079	.164	.002	±.001
079164004	.079	.164	.004	±.001
079164006	.079	.164	.006	±.001
079164008	.079	.164	.008	±.001
079164010	.079	.164	.010	±.002
079164012	.079	.164	.012	±.002
079164014	.079	.164	.014	±.002
079164016	.079	.164	.016	±.002
093203002	.093	.203	.002	±.001
093203004	.093	.203	.004	±.001
093203006	.093	.203	.006	±.001
093203008	.093	.203	.008	±.001
093203010	.093	.203	.010	±.002
093203012	.093	.203	.012	±.002
093203014	.093	.203	.014	±.002
093203016	.093	.203	.016	±.002
125187002	.125	.187	.002	±.001
125187004	.125	.187	.004	±.001
125187006	.125	.187	.006	±.001
125187008	.125	.187	.008	±.001
125187010	.125	.187	.010	±.002
125187012	.125	.187	.012	±.002
125187014	.125	.187	.014	±.002
125187016	.125	.187	.016	±.002

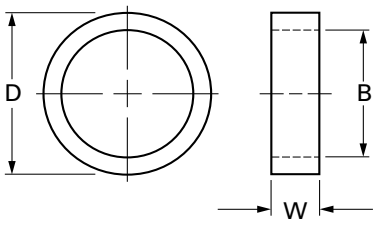
Spacer Code	B +.005 -.000	D ±.005	W	
***125187031**	.125	.187	.013	±.003
***125187063**	.125	.187	.063	±.003
***125187094**	.125	.187	.094	±.003
***125187125**	.125	.187	.125	±.003
***125187188**	.125	.187	.188	±.003
***125187250**	.125	.187	.250	±.003
***125187375**	.125	.187	.375	±.003
***125187500**	.125	.187	.500	±.003
187250002	.187	.250	.002	±.001
187250004	.187	.250	.004	±.001
187250006	.187	.250	.006	±.001
187250008	.187	.250	.008	±.001
187250010	.187	.250	.010	±.002
187250012	.187	.250	.012	±.002
187250014	.187	.250	.014	±.002
187250016	.187	.250	.016	±.002
***187250031**	.187	.250	.031	±.003
***187250063**	.187	.250	.063	±.003
***187250094**	.187	.250	.094	±.003
***187250125**	.187	.250	.125	±.003
***187250188**	.187	.250	.188	±.003
***187250250**	.187	.250	.250	±.003
***187250375**	.187	.250	.375	±.003
***187250500**	.187	.250	.500	±.003

*Available in both Aluminum and 18-8 Stainless Steel.
All other items available in Stainless Steel Only.

NOTE: X = Filler character.

Inner Ring
BEARING SPACERS

• 18-8 Stainless Steel • Anodized Aluminum



Part Number Example

B H A I N R – 2 5 0 3 7 5 2 5 0

- Bearing Spacer
- Aluminum
- Inner Ring
- Inch Size
- Spacer Code

Spacer Code	B +.005 -.000	D ±.005	W	
250375002	.250	.375	.002	±.001
250375004	.250	.375	.004	
250375006	.250	.375	.006	
250375008	.250	.375	.008	
250375010	.250	.375	.010	±.002
250375012	.250	.375	.012	
250375014	.250	.375	.014	
250375016	.250	.375	.016	
***250375031**	.250	.375	.031	±.003
***250375063**	.250	.375	.063	
***250375094**	.250	.375	.094	
***250375125**	.250	.375	.125	
***250375188**	.250	.375	.188	±.003
***250375250**	.250	.375	.250	
***250375375**	.250	.375	.375	
***250375500**	.250	.375	.500	
313500002	.313	.500	.002	±.001
313500004	.313	.500	.004	
313500006	.313	.500	.006	
313500008	.313	.500	.008	
313500010	.313	.500	.010	±.002
313500012	.313	.500	.012	
313500014	.313	.500	.014	
313500016	.313	.500	.016	
313500031	.313	.500	.031	±.003
313500062	.313	.500	.062	
313500125	.313	.500	.125	

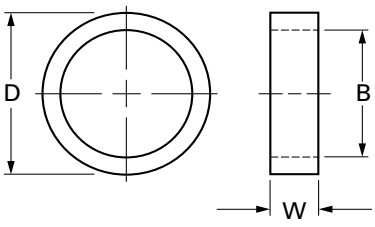
Spacer Code	B +.005 -.000	D ±.005	W	
375562002	.375	.562	.002	±.001
375562004	.375	.562	.004	
375562006	.375	.562	.006	
375562008	.375	.562	.008	
375562010	.375	.562	.010	±.002
375562012	.375	.562	.012	
375562014	.375	.562	.014	
375562016	.375	.562	.016	
***375562031**	.375	.562	.031	±.003
***375562063**	.375	.562	.063	
***375562094**	.375	.562	.094	
***375562125**	.375	.562	.125	
***375562188**	.375	.562	.188	±.003
***375562250**	.375	.562	.250	
***375562375**	.375	.562	.375	
***375562500**	.375	.562	.500	
500750002	.500	.750	.002	±.001
500750004	.500	.750	.004	
500750006	.500	.750	.006	
500750008	.500	.750	.008	
500750010	.500	.750	.010	±.002
500750012	.500	.750	.012	
500750014	.500	.750	.014	
500750016	.500	.750	.016	
500750031	.500	.750	.031	±.003
500750062	.500	.750	.062	
500750125	.500	.750	.125	

*Available in both Aluminum and 18-8 Stainless Steel.
All other items available in Stainless Steel Only.

NOTE: X = Filler character.

Outer Ring
BEARING SPACERS

• 18-8 Stainless Steel • Anodized Aluminum



Part Number Example

B H S O T R – 3 7 8 4 9 8 0 1 0

- Bearing Spacer
- 18-8 Stainless Steel
- Outer Ring
- Inch Size
- Spacer Code

Spacer Code	B +.005 -.000	D ±.005	W	
088153003	.088	.153	.003	±.001
088153005	.088	.153	.005	±.001
088153007	.088	.153	.007	±.001
088153010	.088	.153	.010	±.002
088153020	.088	.153	.020	±.002
123178003	.123	.178	.003	±.001
123178005	.123	.178	.005	±.001
123178007	.123	.178	.007	±.001
123178010	.123	.178	.010	±.002
123178020	.123	.178	.020	±.002
167248003	.167	.248	.003	±.001
167248005	.167	.248	.005	±.001
167248007	.167	.248	.007	±.001
167248010	.167	.248	.010	±.002
167248020	.167	.248	.020	±.002
206310003	.206	.310	.003	±.001
206310005	.206	.310	.005	±.001
206310007	.206	.310	.007	±.001
206310010	.206	.310	.010	±.002
206310020	.206	.310	.020	±.002
253375003	.253	.373	.003	±.001
253375005	.253	.373	.005	±.001
253375007	.253	.373	.007	±.001
253375010	.253	.373	.010	±.002
253375020	.253	.373	.020	±.002
***253375032**	.253	.373	.032	±.003
***253375062**	.253	.373	.062	±.003
***253375125**	.253	.373	.125	±.003
***253375250**	.253	.373	.250	±.003
***253375375**	.253	.373	.375	±.003
***253375500**	.253	.373	.500	±.003
378498003	.378	.498	.003	±.001
378498005	.378	.498	.005	±.001
378498007	.378	.498	.007	±.001

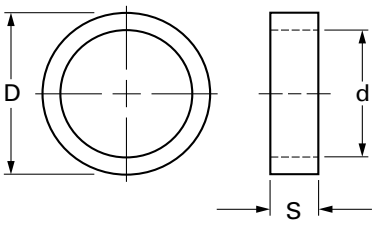
Spacer Code	B +.005 -.000	D ±.005	W	
378498010	.378	.498	.010	±.002
378498020	.378	.498	.020	±.002
***378498032**	.378	.498	.032	±.003
***378498062**	.378	.498	.062	±.003
***378498125**	.378	.498	.125	±.003
***378498250**	.378	.498	.250	±.003
***378498375**	.378	.498	.375	±.003
***378498500**	.378	.498	.500	±.003
503623003	.503	.623	.003	±.001
503623005	.503	.623	.005	±.001
503623007	.503	.623	.007	±.001
503603010	.503	.623	.010	±.002
503623020	.503	.623	.020	±.002
***503623032**	.503	.623	.032	±.003
***503623062**	.503	.623	.062	±.003
***503623125**	.503	.623	.125	±.003
***503623250**	.503	.623	.250	±.003
***503623375**	.503	.623	.375	±.003
***503623500**	.503	.623	.500	±.003
562685016	.562	.685	.016	±.002
562685032	.562	.685	.032	±.003
562685062	.562	.685	.062	±.003
687873003	.687	.873	.003	±.001
687873005	.687	.873	.005	±.001
687873007	.687	.873	.007	±.001
687873010	.687	.873	.010	±.002
687873016	.687	.873	.016	±.002
687873020	.687	.873	.020	±.002
***687873032**	.687	.873	.032	±.003
***687873062**	.687	.873	.062	±.003
***687873125**	.687	.873	.125	±.003
***687873250**	.687	.873	.250	±.003
***687873375**	.687	.873	.375	±.003
***687873500**	.687	.873	.500	±.003

*Available in both Aluminum and 18-8 Stainless Steel.
All other items available in Stainless Steel Only.

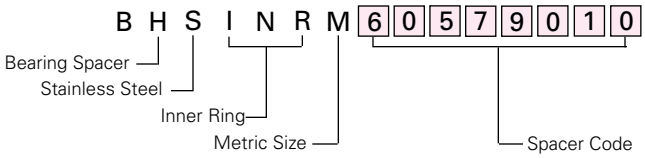
NOTE: X = Filler character.

Inner Ring
BEARING SPACERS

- Stainless Steel DIN 1.4310



Part Number Example

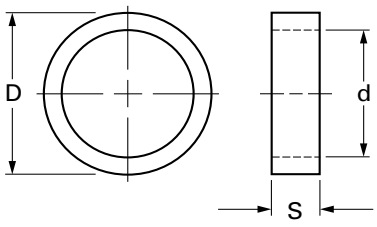


Spacer Code	d +0.13 -0.00	D ±0.13	S ±0.025
30537310	3.05	3.73	0.1
30537315	3.05	3.73	0.15
30537325	3.05	3.73	0.25
30537340	3.05	3.73	0.4
40553010	4.05	5.3	0.1
40553015	4.05	5.3	0.15
40553025	4.05	5.3	0.25
40553040	4.05	5.3	0.4
50559310	5.05	5.93	0.1
50559315	5.05	5.93	0.15
50559325	5.05	5.93	0.25
50559340	5.05	5.93	0.4
60579010	6.05	7.9	0.1
60579015	6.05	7.9	0.15
60579025	6.05	7.9	0.25
60579040	6.05	7.9	0.4
80510210	8.05	10.2	0.1
80510215	8.05	10.2	0.15
80510225	8.05	10.2	0.25
80510240	8.05	10.2	0.4
10012310	10.05	12.3	0.1
10012315	10.05	12.3	0.15
10012325	10.05	12.3	0.25
10012340	10.05	12.3	0.4

NOTE: X = Filler character.

Outer Ring
BEARING SPACERS

• Stainless Steel DIN 1.4310



Part Number Example

B H S O T R M 1 6 6 1 9 0 1 5

- Bearing Spacer
- Stainless Steel
- Outer Ring
- Metric Size
- Spacer Code

Spacer Code	d +0.13 -0.00	D +0.00 -0.13	S ±0.025
62570015	6.25	7	0.15
62570025	6.25	7	0.25
67580015	6.75	8	0.15
67580025	6.75	8	0.25
82510015	8.25	10	0.15
82510025	8.25	10	0.25
78590015	7.85	9	0.15
78590025	7.85	9	0.25
78590040	7.85	9	0.4
10011015	10	11	0.15
10011025	10	11	0.25
11113015	11.15	13	0.15
11113025	11.15	13	0.25
11113040	11.15	13	0.4
13015015	13	15	0.15
13015025	13	15	0.25
13816015	13.8	16	0.15
13816025	13.8	16	0.25
13816040	13.8	16	0.4
16619015	16.65	19	0.15
16619025	16.65	19	0.25
16619040	16.65	19	0.4

NOTE: X = Filler character.

Quality Bearings & Components

Male Rod End

Female Rod End

Male Rod End with Lubricator

Female Rod End with Lubricator

4-pc Spherical Bearing

2-pc Spherical Bearing

Rod ends and spherical plain bearings are intended for linkage applications where a bearing must accommodate significant misalignment. While spherical plain bearings offer flexibility in housing and mounting design, the user bears the responsibility for housing design and the cost of housing manufacture. Rod ends offer greater mounting convenience and provide a compact, lightweight, economical design alternative to the spherical plain bearing. QBC offers a wide selection of rod ends and spherical bearings.

Rod End Construction

There are three basic rod end constructions. The four-piece rod end uses race inserts, typically of brass, to provide lubricity in the bearing area. This design offers reduced internal clearance, and provides smoother operation. It is ideal for dynamic applications. The two-piece rod end uses a rod end body which is formed around a spherical ball. The comparatively heavy cross section of the rod end body in the two-piece design provides high-strength. This makes the two-piece rod end ideal for highly loaded, static applications where high-strength is required. The cartridge type rod end consists of a spherical plain bearing mounted in a rod end body. This design allows the optimum selection of materials for ball, race and rod end body. The cartridge type rod end can also accommodate a PTFE liner for self-lubrication. This design is best suited for aircraft and military applications where material selection is a primary design consideration. While aircraft and military style components are not shown in this catalog, they are available from QBC on special order. The reader is encouraged to call for design assistance.

Self-lubricating Rod Ends

QBC offers metal-to-metal rod ends and self-lubricating rod ends. All metal-to-metal rod ends, including brass insert four-piece types, require regular lubrication. This can be accomplished by splash or immersion oil lubrication, or by greasing through optional lubricators (grease fittings). Self-lubricating types are used where relubrication is not practical, or in applications where relubrication is not desirable, such as on food processing machinery or in clean environments. Self-lubricating rod ends are available with bonded PTFE fabric liners, or with molded, engineered thermoplastic race inserts.

Rod End Grades

Rod ends are offered in four grades: precision, commercial, aircraft and military. Precision rod ends are manufactured to tight tolerances for applications requiring improved linkage accuracy and reduced looseness. Commercial rod ends are produced using standard materials and manufacturing methods, and are an economical choice for industrial applications. Aircraft rod ends use premium materials, and have magnafluxed rod end bodies. Originally intended for aircraft applications, aircraft rod ends are used in many industrial applications where a high degree of reliability is required. Military rod ends are produced in strict accordance with all applicable military specifications and are typically used in military and commercial aviation applications, or when MIL-Spec approval is required.

Precision Rod Ends Styles HMP/HFP four-piece precision rod ends use brass race inserts for lubricity and clearance control. They are produced to tight tolerances for applications requiring a more precise rod end; for example, a linkage where positioning accuracy is essential. These rod end bodies and balls are plated for corrosion-resistance. Styles BHM, BHF, HFX and HMX four-piece precision extra capacity rod ends are the high-strength series intended for more heavily loaded, static and dynamic industrial applications. These rod ends have heat treated bodies for increased strength and aluminum bronze race inserts for high bearing capacity. The rod end bodies are protective coated for corrosion-resistance and the balls are chrome plated for superior wear and corrosion-resistance. Style BHM (male) and style HFX (female) have common thread sizes. Series HMX (male) have oversized shanks for additional shank strength.

Commercial Rod Ends Series HMC and HFC four-piece commercial rod ends use the brass race insert design for lubricity and clearance control. These rod ends are preferred for dynamic applications. Our commercial rod ends have zinc plated bodies and nickel plated balls for corrosion-resistance. Series MCR and FCR two-piece commercial rod ends offer high-strength for heavy static loads. The unique manufacturing process for two-piece rod ends yields the industry's best conformity between ball and body for maximum bearing capacity. Series CMH & CFH self-lubricating commercial rod ends use an engineered thermoplastic race for applications where relubrication is not practical or desirable. The rod end body and ball are plated for corrosion-resistance. This series is also available in stainless steel for superior corrosion-resistance.

Aircraft Rod Ends Series* Four-piece aircraft rod ends have magnafluxed rod end bodies for a high degree of assurance of rod end integrity. The bearing surface is a chrome plated ball on brass race inserts. This series was originally intended for general aviation applications and is also used in many industrial applications where rod end reliability is critical. Special purpose aircraft rod ends use materials and construction identical to aircraft rod ends but have different dimensions. Self-lubricating aircraft rod ends use UNIFLON® PTFE liner and cartridge type construction. The UNIFLON® PTFE liner is approved to MIL-B-81820.

Military Rod Ends* Military rod ends use Type E UNIFLON® PTFE liner and cartridge type construction. Rod end bodies are made from 4340 alloy steel, heat treated to MIL-H-6875, and are cadmium plated. The outer races are made from heat treated 17-4PH stainless steel (AMS 5643). The balls are made from heat treated 440C stainless steel (AMS 5630). The UNIFLON® PTFE liner is approved to MIL-B-81820, while our MIL-Spec aircraft rod ends are approved to MIL-B-81935. These premium rod ends are primarily intended for use in commercial and military aviation applications.

Metric Rod Ends Four-piece, precision, metric rod ends use brass race inserts for lubricity and clearance control. They are produced to tight tolerances for applications where a precision rod end is required in a metric size. Series SME and SFE two-piece, self-lubricating metric rod ends use Type E UNIFLON® PTFE liner. They are ideal for metric applications where relubrication is not practical. The two-piece construction offers the added benefit of high-strength for high loads. QBC also offers a wide variety of other metric rod ends. Contact QBC for availability and specifications.

Optional Rod End Features

Rod ends are available with male and female threaded shanks. Standard rod ends are available in right-hand or left-hand threads. Lubricators are standard on selected series and are available as an option on all other series. Shank keyways are optionally available on most series to engage lock washer tangs. A wide range of other optional features includes plain shanks and special plating.

Military Specifications* Many of the processes used in the manufacture of rod ends are performed to U.S. Military Specifications. A partial list of these specifications follows:

Table 1 Military Specifications

Process	Performed in accordance with:
Anodize	MIL-A-8625 Type 1 or 2
Cadmium Plate	QQ-P-416 Type 1 Class 2
Chrome Plate	QQ-C-320 Class 2 (.0002 min)
Heat Treat	MIL-H-6875 MIL-H-7199
Magnetic Particle Insp.	ASTM-E-1444
Penetrant Inspection	MIL-I-6866

*NOTE: Aircraft and military style components are available on special order.

Quality Bearings & Components

Table 2 Rod End Selection Guide			
Style Code & Size Range	Product Features	Customer Benefits	Common Applications
HMP, HFP 3/16 – 1”	Precision Grade Brass Inserts Four-Piece Construction	Low Friction, Long Dynamic Life Smooth Feel, Good Conformity	Control Linkages, For Reduced Play, Accelerator Linkages
BHF, BHM HFX, HMX 1/4 – 3/4	Precision Grade Aluminum Bronze Inserts, High-Strength Body Four-Piece Construction	High Capacity Version	Heavy-Duty Applications
HFC, HMC 3/16 – 3/4	Commercial Grade Brass Inserts Four-Piece Construction	Low Friction, Long Dynamic Life Smooth Feel, Good Conformity	Packaging Machine Linkages
MCR, FCR 3/16 – 3/4	Commercial Grade Two-Piece Construction	High Loads Reversing Loads Shock Loads Cost Effective	Brake and Clutch Pedals for Heavy Machinery, Satellite Dish Controls
CFH, CMH 3/16 – 3/4	Commercial Grade Self-Lubricating Thermoplastic Race, Max. Temp. 125°F	Maintenance-Free	Food Processing, Paper Machinery, Bus Door Closures

● Best
⊖ Better
○ Good
✓ Yes

Table 3 Commercial and Precision

Style Code	Loading: Static	Loading: Oscillating	Loading: Reversing	Loading: Shock	Precision	Corrosion Resistance	Self-Lubricating	Maximum Temperature	Size Range	Race Material	Design
HMP HFP	⊖	⊖	○	○	✓	⊖		250°F	3/16 to 1	Brass	Four-Piece
BHM HFX HMX BHF	●	●	●	⊖	✓	⊖		250°F	1/4 to 3/4	Aluminum Bronze	Four-Piece
HMC HFC	⊖	⊖	○	○		⊖		250°F	3/16 to 3/4	Brass	Four-Piece
MCR FCR	⊖	○	⊖	●		⊖		250°F	3/16 to 3/4	Steel	Two-Piece
CMH CFH	○	⊖	○	○		⊖	✓	125°F	3/16 to 3/4	Thermo-plastic	Molded Race

Static Radial Load

The maximum static radial load permissible for a rod end depends on three factors: race material compressive strength, rod end head strength, and shank strength. The maximum static radial load is determined by taking the lowest of the three following values:

- Race material compressive strength (R)

$$R = E \times H \times X$$

- Rod end head strength (T)

Insert construction

$$T = [D - (E + .176\ H)] \times H \times X$$

Cartridge type construction

$$T_1 = [(\frac{H}{2}\sqrt{D^2 - H^2}) + (\frac{D^2}{2} \times \text{SIN}^{-1}\frac{H}{D}) - (\text{O.D. of Bearing} \times H)] \times X$$

where angle of $\frac{H}{D}$ is expressed in radians.

- Shank strength (S)

Male threaded rod end

$$S = [(\text{root diameter of thread}^2 \times .78) - (N^2 \times .78)] \times X$$

Female threaded rod end

$$S_1 = [(J^2 \times .78) - (\text{major diameter of thread}^2 \times .78)] \times X$$

where:

E = Ball diameter
H = Housing width
X = Allowable stress (see table)
D = Head diameter
N = Diameter of drilled hole in shank of male rod ends
J = Shank diameter of female rod end

Static Axial Load*

The maximum available axial load for a rod end is determined by the following formula. This formula does not take into consideration bending of the shank due to a moment of force. Also, this formula does not consider the strength of the stake in cartridge type of construction:

- Axial strength (A)

$$A = .78\ [(E + .176\ H)^2 - E^2] \times X$$

where:

X = Allowable stress (see table 4)
E = Ball diameter
H = Housing width

Table 4 Material Stress*

Material	Allowable Stress (PSI)
Brass	30000
Aluminum Bronze	35000
300 Series Stainless Steel	35000
Low Carbon Steel	52000
Alloy Steel	140000

Misalignment

The angle of misalignment in a rod end is controlled by the outside diameter of the head. The maximum degree of misaligment is obtained when the head contacts the side of the fork or clevis in which it is mounted.

Maximum misalignment is calculated by the following formula:

- Rod End Angle (α)

$$\alpha = \text{SIN}^{-1}\frac{W}{D} - \text{SIN}^{-1}\frac{H}{D}$$

where:

D = Head diameter or diameter of outer race
H = Housing width
W = Ball width

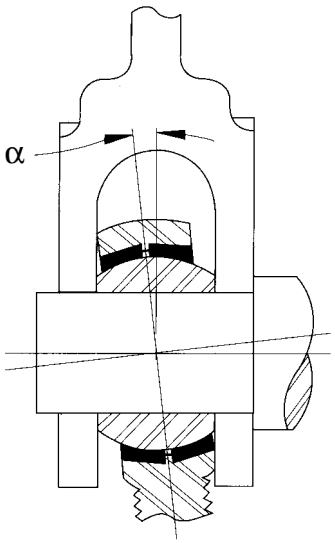


FIGURE 1

*Data also applies to spherical bearings.

Table 5 Angles of Misalignment for Style Codes		
HMP	HFX	MCR
HFP	BHF	FCR
HMX	HMC	CMH
BHM	HFC	CFH

Rod End Size	Misalignment +/- Degrees
2	8.5
2A	7.0
3	6.5
4	8.0
5	7.0
6	6.0
7	7.0
8	6.0
10	8.0
12	7.0
16	8.5

Studs

Studs are used in combination with rod ends to simplify mounting. Studs are compatible with the following:

MCR	FCR
HMC	HFC
HMX	HFX
CMH	CFH

The stud is designed to accommodate up to ±25° misalignment in any direction and has a wrench flat to facilitate tightening. They are available on special order. Call for price and delivery information.

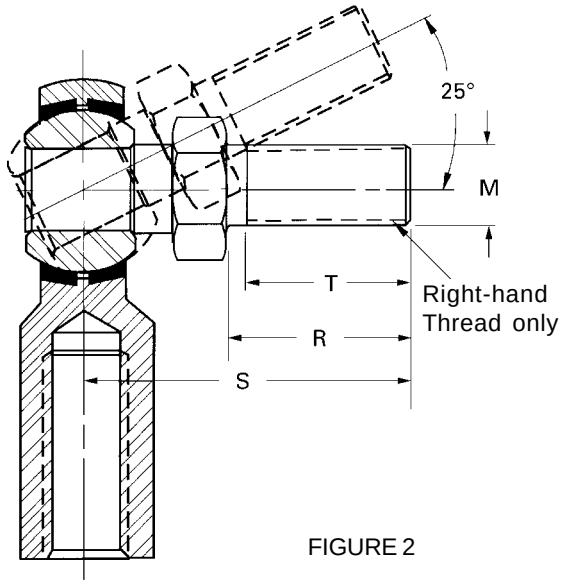


FIGURE 2

Table 6 Stud Dimensions				
To Fit Rod End Size	Dimensions in Inches			
	R	S	T	M
	±.010	±.030	REF	UNF-2A
3	.500	.969	.437	.1900-32
4	.562	1.047	.500	.2500-28
5	.687	1.234	.594	.3125-24
6	.906	1.540	.812	.3750-24
7	1.125	1.930	1.000	.4375-20
8	1.125	2.000	1.000	.5000-20
10	1.500	2.500	1.375	.6250-18
12	1.812	3.000	1.625	.7500-16

Keyways

Keyway slots, where available, are determined as follows. Contact our Sales Department to determine keyway slot availability on a particular size.

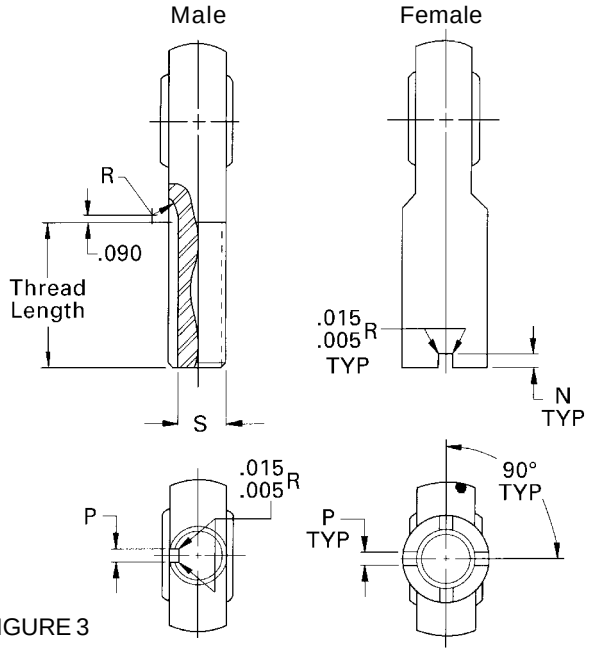


FIGURE 3

Table 7 Rod End Keyway (Ref NAS 559)

Thread O.D. Reference	Dimensions in Inches			
	N	P	S	R
	+.005 -.000	+.005 -.000	+.000 -.005	REF
.2500	.056	.062	.201	.255
.3125	.056	.062	.260	.255
.3750	.056	.093	.311	.255
.4375	.069	.093	.370	.255
.5000	.069	.093	.436	.255
.5625	.077	.125	.478	.255
.6250	.077	.125	.541	.255
.7500	.077	.125	.633	.255
.8750	.086	.156	.777	.318
1.0000	.094	.156	.900	.318
1.1250	.094	.187	1.010	.382
1.2500	.116	.187	1.136	.382
1.3750	.116	.250	1.236	.445
1.5000	.116	.250	1.361	.445
1.6250	.129	.250	1.477	.445
1.7500	.129	.312	1.589	.508
1.8750	.129	.312	1.714	.508
2.0000	.129	.312	1.839	.508
2.1250	.129	.312	1.955	.508
2.2500	.129	.312	2.080	.508

Design Options

Rod Ends and Spherical Bearings can be ordered with the following design options at extra cost.

Table 8

Option	Available on Style
Chrome Plated Balls	LSX
Cross Drilled Oil Hole	LSS COS LHA COM LHB CLH LHS
Keyway / Keyslot	HMP HFP HMC HFC HMX HFX BHM BHF
Zerk Type Lubricators	HMP HFP HMC HFC BHM BHF
Flush Type Lubricators	HMP HFP HMC HFC HMX HFX BHM BHF
300 Series Stainless Steel Inserts	HMP HFP HMC HFC HMX HFX BHM BHF
Stud	HMC HFC CMH CFH HMP HFP

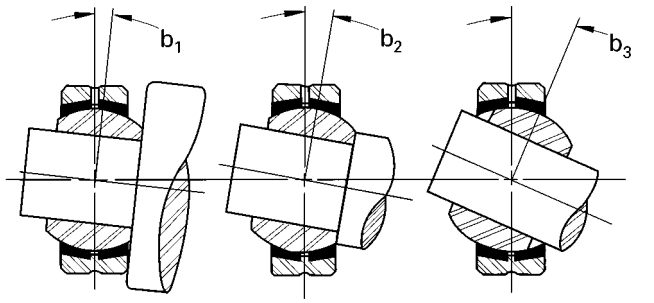
Table 9 Housing Bores

Bearing Code	Bearing O.D. D	Housing Bore			
		Steel		Aluminum	
	+.0000 -.0005	Max.	Min.	Max.	Min.
Style LSX					
030	.6250	.6245	.6241	.6244	.6239
040	.7500	.7495	.7491	.7494	.7489
050	.8750	.8745	.8741	.8744	.8739
060	1.0000	.9995	.9991	.9994	.9989
070	1.1875	1.1870	1.1865	1.1869	1.1863
080	1.3125	1.3120	1.3115	1.3119	1.3113
100	1.5625	1.5620	1.5613	1.5619	1.5611
120	2.2500	2.2495	2.2488	2.2494	2.2486
160	2.3750	2.3745	2.3738	2.3744	2.3736
190	2.6250	2.6245	2.6238	2.6244	2.6236
240	3.2500	3.2495	3.2488	3.2494	3.2486
300	4.0000	3.9995	3.9988	3.9994	3.9986
Styles COM, COS, LHA, LHB, LHS, LSE, LSH, LSS					
020	.4687	.4682	.4678	.4681	.4676
030	.5625	.5620	.5616	.5619	.5614
040	.6562	.6557	.6553	.6556	.6551
050	.7500	.7495	.7491	.7494	.7489
060	.8125	.8120	.8116	.8119	.8114
070	.9062	.9057	.9053	.9056	.9051
080	1.0000	.9995	.9991	.9994	.9989
090	1.0937	1.0932	1.0928	1.0931	1.0926
100	1.1875	1.1870	1.1866	1.1869	1.1864
120	1.4375	1.4370	1.4366	1.4369	1.4364
140	1.5625	1.5620	1.5616	1.5619	1.5614
160	1.7500	1.7495	1.7491	1.7494	1.7489

Misalignment Specifications

The angle of misalignment in a spherical bearing is calculated somewhat differently from that of the rod end because the housing is not spherical. There are three different types of mountings in which these bearings may be used as shown, and the angle of misalignment is governed by the type of mounting adopted.

Shown in Figures 4, 5 and 6 are the common mountings for spherical bearings and the corresponding formula for calculating the angle of misalignment.



$b_1 = \text{SIN}^{-1}\frac{W}{V} - \text{SIN}^{-1}\frac{H}{V}$ $b_2 = \text{SIN}^{-1}\frac{W}{E} - \text{SIN}^{-1}\frac{H}{E}$ $b_3 = \text{COS}^{-1}\frac{B}{E} - \text{SIN}^{-1}\frac{H}{E}$

FIGURE 4 FIGURE 5 FIGURE 6

Reference Letters

B = Bore of ball
E = Ball diameter
H = Housing width

$V = \sqrt{(D - 2C)^2 + H^2}$
W = Ball width

Table 10 Misalignment Specifications

Bearing Code	Maximum Misalignment (+/- Degrees)		
	b_1	b_2	b_3
Style LSX			
030	9.0	16.5	34.5
040	8.0	14.5	29.0
050	9.0	14.0	30.0
060	8.0	12.5	27.0
070	6.5	11.0	25.0
080	7.5	12.5	23.0
100	8.0	12.0	23.0
120	9.0	15.0	27.0
160	6.5	10.0	25.0
190	6.0	8.5	23.5
240	5.0	7.0	23.0
300	5.0	7.0	25.0
Styles COM, COS, LHA, LHB, LHS, LSE, LSH, LSS			
020	8.5	13.5	28.0
030	7.0	11.0	29.5
040	9.0	13.0	30.0
050	8.0	12.0	26.0
060	7.5	10.5	23.5
070	6.5	9.5	20.5
080	7.0	10.0	20.0
090	7.5	10.0	20.0
100	7.0	9.0	19.0
120	7.0	9.0	21.0
140	7.0	9.0	16.0
160	7.5	9.5	16.0
Style CLH			
160	6.5	8.5	26.0
190	6.0	8.0	25.5
200	6.0	8.0	23.0
240	6.0	8.0	21.0
280	6.0	8.0	19.0
320	6.0	8.5	19.0

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metric 18
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Plain
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6200 Series, **metric** 15
6300 Series, **metric** 16
6900 Series, **metric** 17
Commercial, 1600 Series, **inch** 3
E Series, **metric** 9
Extended Inner Race, **inch** 4
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Extra Thin, **metric** 9
Extremely Light, **metric** 17
Light, **metric** 15
Medium,**metric** 16
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metric 10
Precision, **inch** 2

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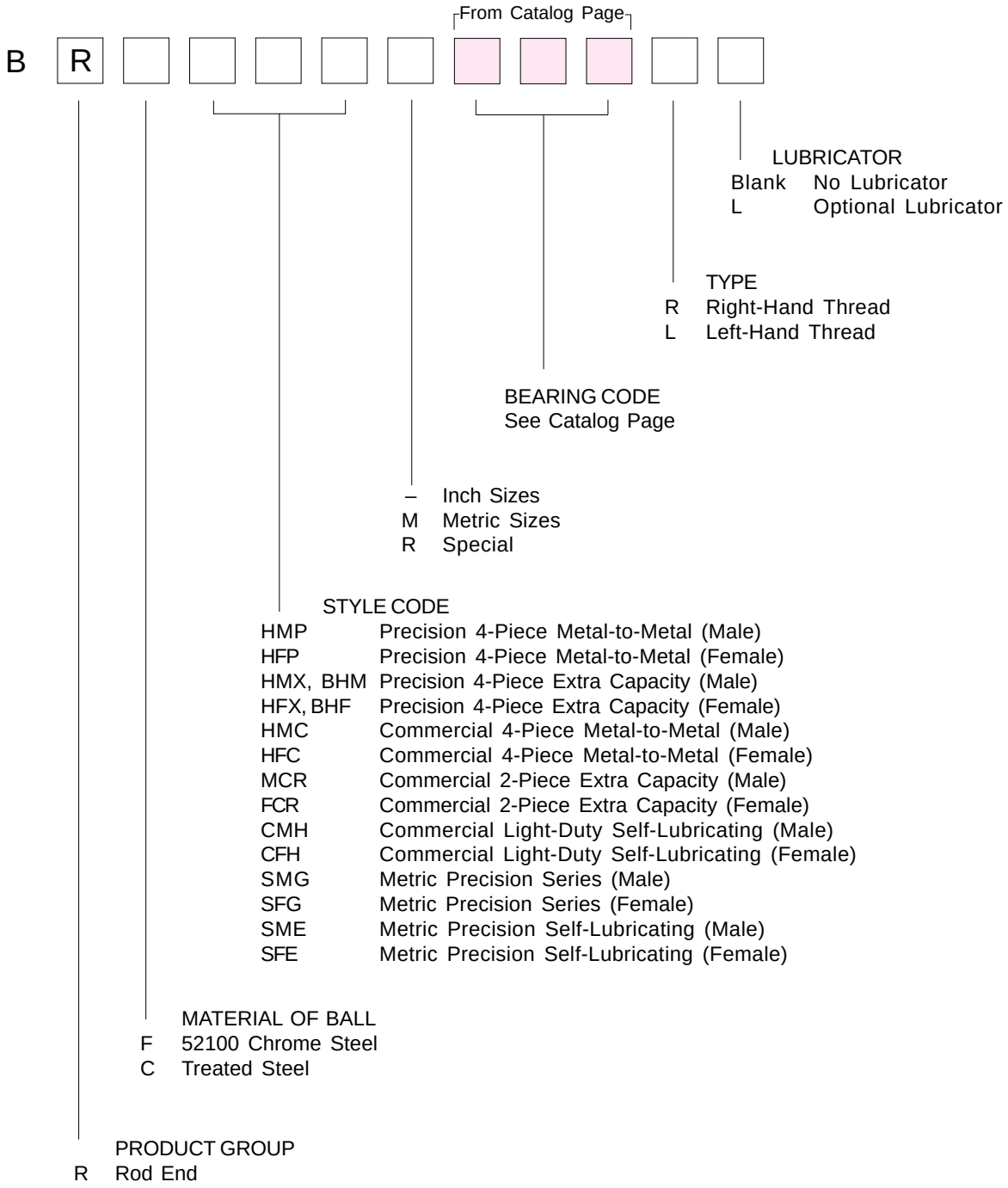
Part Numbering System

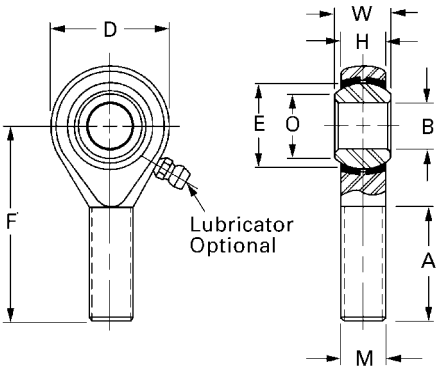
ROD ENDS



NOTE: X = Filler character.

Male Series
PRECISION ROD ENDS

- Four-Piece • Metal-to-Metal • Brass Insert*
- Coated Carbon Steel Outer Member
- 52100 Alloy Steel Chrome Plated Ball



Part Number Example

B R F H M P – 0 7 0 R L

- Rod End: B
- 52100 Chrome Steel: R
- Style Code: F H M P
- Inch Size: 0 7 0
- Bearing Code: 0 7 0
- Right-Hand Thread: R
- Optional Lubricator: L

Bearing Code	B Bore +.0015 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	D Head Diameter ±.010	F Length to Center of Ball ±.031	A Thread Length +.062 -.031	M Thread Size UNF-3A	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.312	.250	.625	1.250	.750	.1900-32	.437	.306	900	.03
040	.2500	.375	.281	.750	1.562	1.000	.2500-28	.515	.353	1700	.05
050	.3125	.437	.344	.875	1.875	1.250	.3125-24	.625	.447	2500	.08
060	.3750	.500	.406	1.000	1.938	1.250	.3750-24	.718	.516	4000	.12
070	.4375	.562	.437	1.125	2.125	1.375	.4375-20	.812	.586	5000	.17
080	.5000	.625	.500	1.312	2.438	1.500	.5000-20	.937	.698	7000	.26
100	.6250	.750	.562	1.500	2.625	1.625	.6250-18	1.125	.839	8050	.41
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	11300	.64
*160	1.0000	1.375	1.000	2.750	4.125	2.125	1.2500-12	1.875	1.269	28400	2.25

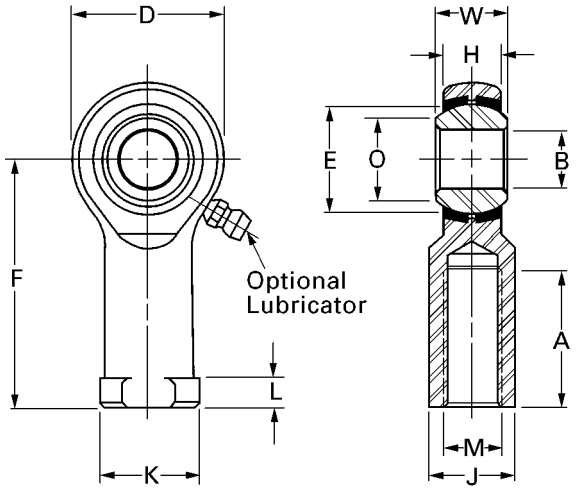
NOTE: X = FIller character.
* Size 160 has a one-piece Carbon Steel Race.
"D", "H" tolerance +.030, -.010

See Technical Section for additional design options.

Quality Bearings & Components

Female Series
PRECISION ROD ENDS

- Four-Piece • Metal-to-Metal • Brass Insert*
- Coated Carbon Steel Outer Member
- 52100 Alloy Steel Chrome Plated Ball



Part Number Example

B R F H F P – 0 8 0 L L

- Rod End: B
- 52100 Chrome Steel: R
- Style Code: F H F
- Inch Size: P
- Bearing Code: 0 8 0
- Left-Hand Thread: L
- Optional Lubricator: L

Bearing Code	B Bore +.0015 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	D Head Diameter ±.010	F Length to Center of Ball ±.031	A Thread Length +.062 -.031	M Thread Size UNF-3B	E Ball Dia. REF	O Ball Flat Dia. REF	J Across Wrench Flats ±.010	K ±.010	L ±.010	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.312	.250	.625	1.062	.562	.1900-32	.437	.306	.312	.406	.187	1850	.03
040	.2500	.375	.281	.750	1.312	.750	.2500-28	.515	.353	.375	.468	.187	2700	.05
050	.3125	.437	.344	.875	1.375	.750	.3125-24	.625	.447	.437	.500	.187	3350	.08
060	.3750	.500	.406	1.000	1.625	.937	.3750-24	.718	.516	.562	.687	.250	4450	.12
070	.4375	.562	.437	1.125	1.812	1.062	.4375-20	.812	.586	.625	.750	.250	5350	.17
080	.5000	.625	.500	1.312	2.125	1.187	.5000-20	.937	.698	.750	.875	.250	7400	.26
100	.6250	.750	.562	1.500	2.500	1.500	.6250-18	1.125	.839	.875	1.000	.312	8050	.41
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	1.000	1.125	.312	11300	.64
*160	1.0000	1.375	1.000	2.750	4.125	2.125	1.2500-12	1.875	1.275	1.500	1.625	.437	28400	2.25

NOTE: X = FIller character.

* Size 160 has a one-piece Carbon Steel Race.

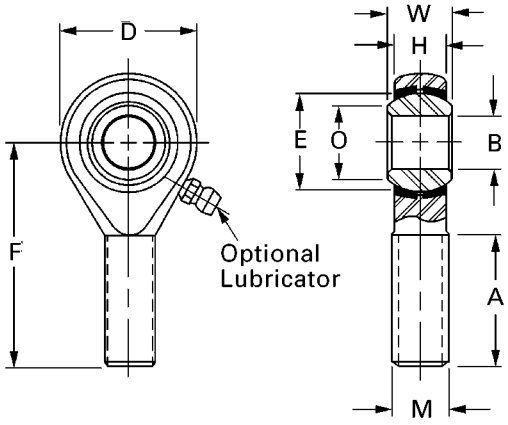
"D", "H" tolerance +.030, -.010

"J", "K", "L" tolerance ±.015

See Technical Section for additional design options.

Extra Capacity Male Series
PRECISION ROD ENDS

- Four-Piece • Metal-to-Metal • Copper Alloy Insert
- Heat Treated* • Magnetic Particle Inspected
- Outer Member 4130 or 4340 Alloy Steel
- 52100 Alloy Steel Chrome Plated Ball



Part Number Example

B R F H M X – 1 0 0 L L

- Rod End: B
- 52100 Chrome Steel: R
- Style Code: F
- Inch Size: H M X
- Bearing Code: 1 0 0
- Left-Hand Thread: L
- Optional Lubricator: L

Bearing Code	B Bore +.0015 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	D Head Diameter ±.010	F Length to Center of Ball ±.010	A Thread Length +.062 -.031	M Thread Size UNF-3A	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs		Approx. Weight lbs
										With Lubricator	Without Lubricator	
040	.2500	.375	.281	.750	1.562	1.000	.3125-24	.515	.353	3260	6680	.06
050	.3125	.437	.344	.875	1.875	1.250	.3750-24	.625	.447	4920	8410	.09
060	.3750	.500	.406	1.000	1.938	1.250	.4375-20	.718	.516	7240	11160	.13
070	.4375	.562	.437	1.125	2.125	1.375	.5000-20	.812	.586	7620	13660	.18
080	.5000	.625	.500	1.312	2.438	1.500	.6250-18	.937	.698	11920	19340	.30
100	.6250	.750	.562	1.500	2.625	1.625	.7500-16	1.125	.839	13940	21080	.46
120	.7500	.875	.687	1.750	2.875	1.750	.8750-14	1.312	.978	21570	29800	.72

B R F B H M – 0 8 0 R L

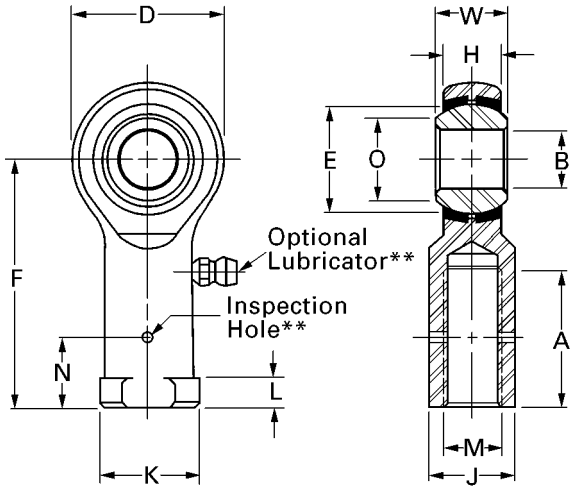
Bearing Code	B Bore +.0015 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	D Head Diameter ±.010	F Length to Center of Ball ±.010	A Thread Length +.062 -.031	M Thread Size UNF-3A	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load Without Lubricator lbs	Approx. Weight lbs
040	.2500	.375	.281	.750	1.562	1.000	.2500-28	.515	.353	4290	.05
050	.3125	.437	.344	.875	1.875	1.250	.3125-24	.625	.447	6880	.08
060	.3750	.500	.406	1.000	1.938	1.250	.3750-24	.718	.516	10500	.12
070	.4375	.562	.437	1.125	2.125	1.375	.4375-20	.812	.586	13660	.17
080	.5000	.625	.500	1.312	2.438	1.500	.5000-20	.937	.698	19340	.26
100	.6250	.750	.562	1.500	2.625	1.625	.6250-18	1.125	.839	21080	.41
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	29800	.64

NOTE: X = Filler character.
* Parts are designed to be mated with heat treated shafts.

See Technical Section for additional design options.

Extra Capacity Female Series
PRECISION ROD ENDS

- Four-Piece
- Metal-to-Metal
- Copper Alloy Insert
- Heat Treated*
- Magnetic Particle Inspected
- Outer Member 4130 or 4340 Alloy Steel
- 52100 Alloy Steel Chrome Plated Ball



Part Number Example

B R F H F X – 1 0 0 L L

- Rod End: 52100 Chrome Steel
- Style Code
- Inch Size
- Bearing Code
- Left-Handed Thread
- Optional Lubricator

Bearing Code	B Bore +.0015 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	D Head Diameter ±.010	F Length to Center of Ball ±.010	A Thread Length +.062 -.031	M Thread Size UNF-3B	E Ball Dia. REF	O Ball Flat Dia. REF	J Across Wrench Flats ±.010	K ±.010	N ±.020	L ±.010	Max. Static Radial Load With Lubr. lbs	Max. Static Radial Load Without Lubr. lbs	Approx. Weight lbs
040	.2500	.375	.281	.750	1.312	.750	.2500-28	.515	.355	.375	.468	.312	.187	3260	6680	.06
050	.3125	.437	.344	.875	1.375	.750	.3125-24	.625	.447	.437	.500	.406	.187	4920	8410	.08
060	.3750	.500	.406	1.000	1.625	.937	.3750-24	.718	.517	.562	.687	.469	.250	7240	11160	.14
070	.4375	.562	.437	1.125	1.812	1.062	.4375-20	.812	.586	.625	.750	.531	.250	7620	13660	.18
080	.5000	.625	.500	1.312	2.125	1.187	.5000-20	.937	.698	.750	.875	.594	.250	11920	19340	.29
100	.6250	.750	.562	1.500	2.500	1.500	.6250-18	1.125	.839	.875	1.000	.750	.312	13940	21080	.43
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	1.000	1.125	.875	.312	21570	29800	.64

B R F B H F – 0 7 0 R L

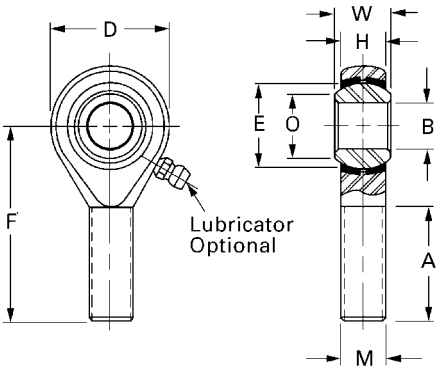
Bearing Code	B Bore +.0015 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	D Head Diameter ±.010	F Length to Center of Ball ±.010	A Thread Length +.062 -.031	M Thread Size UNF-3B	E Ball Dia. REF	O Ball Flat Dia. REF	J Across Wrench Flats ±.010	K ±.010	L ±.010	Max. Static Radial Load Without Lubricator lbs	Approx. Weight lbs
040	.2500	.375	.281	.750	1.312	.750	.2500-28	.515	.355	.375	.468	.187	6680	.06
050	.3125	.437	.344	.875	1.375	.750	.3125-24	.625	.447	.437	.500	.187	8410	.08
060	.3750	.500	.406	1.000	1.625	.937	.3750-24	.718	.517	.562	.687	.250	11160	.14
070	.4375	.562	.437	1.125	1.812	1.062	.4375-20	.812	.586	.625	.750	.250	13660	.18
080	.5000	.625	.500	1.312	2.125	1.187	.5000-20	.937	.698	.750	.875	.250	19340	.29
100	.6250	.750	.562	1.500	2.500	1.500	.6250-18	1.125	.839	.875	1.000	.312	21080	.43
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	1.000	1.125	.312	29800	.64

NOTE: X = Filler character.
* Parts are designed to be mated with heat treated shaft.
** Parts ordered without lubricator do not have inspection hole.

See Technical Section for additional design options.

Male Series
COMMERCIAL ROD ENDS

- Four-Piece • Metal-to-Metal • Brass Insert
- Coated Carbon Steel Outer Member
- Carbon Steel, Case Hardened Ball



Part Number Example

B R C H M C – 0 7 0 R L

- Rod End
- Carbon Steel Ball
- Style Code
- Inch Size
- Bearing Code
- Right-Hand Thread
- Optional Lubricator

Bearing Code	B Bore +.0025 -.0005	W Ball Width ±.005	H Housing Width ±.010	D Head Diameter ±.031	F Length to Center of Ball ±.031	A Thread Length ±.062	M Thread Size UNF-3A	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.312	.250	.625	1.250	.750	.1900-32	.437	.306	900	.03
040	.2500	.375	.281	.750	1.562	1.000	.2500-28	.515	.353	1700	.05
050	.3125	.437	.344	.875	1.875	1.250	.3125-24	.625	.447	2500	.08
060	.3750	.500	.406	1.000	1.938	1.250	.3750-24	.718	.516	4000	.12
070	.4375	.562	.437	1.125	2.125	1.375	.4375-20	.812	.586	5000	.17
080	.5000	.625	.500	1.312	2.438	1.500	.5000-20	.937	.698	7000	.25
100	.6250	.750	.562	1.500	2.625	1.625	.6250-18	1.125	.839	8050	.41
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	11300	.64

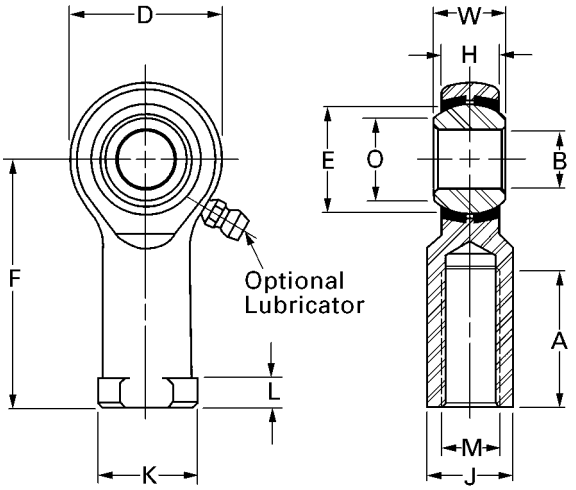
NOTE: X = Filler character.

See Technical Section for additional design options.

Quality Bearings & Components

Female Series
COMMERCIAL ROD ENDS

- Four-Piece
- Metal-to-Metal
- Brass Insert
- Coated Carbon Steel Outer Member
- Carbon Steel, Case Hardened Ball



Part Number Example

B R C H F C – 0 4 0 R L

- Rod End
- Carbon Steel Ball
- Style Code
- Inch Size
- Bearing Code
- Right-Hand Thread
- Optional Lubricator

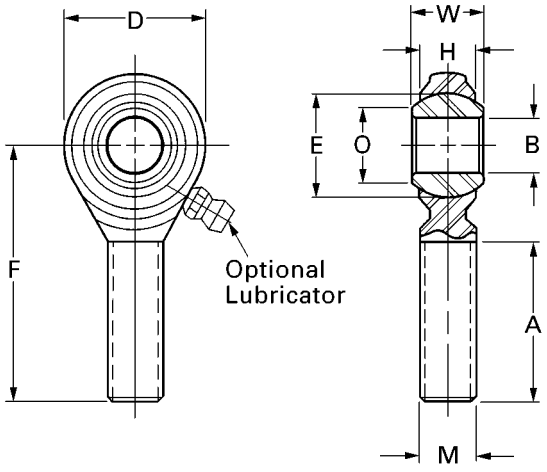
Bearing Code	B Bore +.0025 -.0005	W Ball Width ±.005	H Housing Width ±.010	D Head Diameter ±.031	F Length to Center of Ball ±.031	A Thread Length ±.062	M Thread Size UNF-3B	E Ball Dia. REF	O Ball Flat Dia. REF	J Across Wrench Flats ±.010	K ±.010	L ±.010	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.312	.250	.625	1.062	.562	.1900-32	.437	.306	.312	.406	.187	1850	.03
040	.2500	.375	.281	.750	1.312	.750	.2500-28	.515	.353	.375	.468	.187	2700	.05
050	.3125	.437	.344	.875	1.375	.750	.3125-24	.625	.447	.437	.500	.187	3350	.08
060	.3750	.500	.406	1.000	1.625	.937	.3750-24	.718	.516	.562	.687	.250	4450	.12
070	.4375	.562	.437	1.125	1.812	1.062	.4375-20	.812	.586	.625	.750	.250	5350	.17
080	.5000	.625	.500	1.312	2.125	1.187	.5000-20	.937	.698	.750	.875	.250	7400	.26
100	.6250	.750	.562	1.500	2.500	1.500	.6250-18	1.125	.839	.875	1.000	.312	8050	.41
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	1.000	1.125	.312	11300	.64

NOTE: X = Filler character.

See Technical Section for additional design options.

Extra Capacity Male Series
COMMERCIAL ROD ENDS

- Two-Piece
- Metal-to-Metal
- Coated Carbon Steel Outer Member
- Carbon Steel, Case Hardened Ball



Part Number Example

B R C M C R – 0 5 0 R L

- Rod End
- Carbon Steel Ball
- Style Code
- Inch Size
- Bearing Code
- Right-Hand Thread
- Optional Lubricator

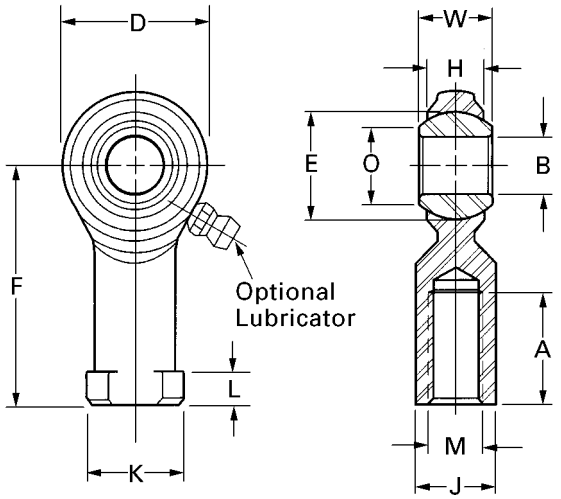
Bearing Code	B Bore +.0025 -.0005	W Ball Width ±.005	H Housing Width ±.010	D Head Diameter ±.031	F Length to Center of Ball ±.031	A Thread Length ±.062	M Thread Size UNF-3A	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.312	.250	.625	1.250	.750	.1900-32	.437	.306	950	.03
040	.2500	.375	.281	.750	1.562	1.000	.2500-28	.515	.353	2000	.05
050	.3125	.437	.344	.875	1.875	1.250	.3125-24	.625	.447	3000	.08
060	.3750	.500	.406	1.000	1.938	1.250	.3750-24	.718	.516	5000	.11
070	.4375	.562	.437	1.125	2.125	1.375	.4375-20	.812	.586	6500	.16
080	.5000	.625	.500	1.312	2.438	1.500	.5000-20	.937	.698	9000	.24
100	.6250	.750	.562	1.500	2.625	1.625	.6250-18	1.125	.839	10000	.40
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	14000	.63

NOTE: X = Filler character.

See Technical Section for additional design options.

Extra Capacity Female Series
COMMERCIAL ROD ENDS

- Two-Piece
- Metal-to-Metal
- Coated Carbon Steel Outer Member
- Carbon Steel, Case Hardened Ball



Part Number Example

B R C F C R – 0 8 0 R L

- Rod End
- Carbon Steel Ball
- Style Code
- Inch Size
- Bearing Code
- Right-Hand Thread
- Optional Lubricator

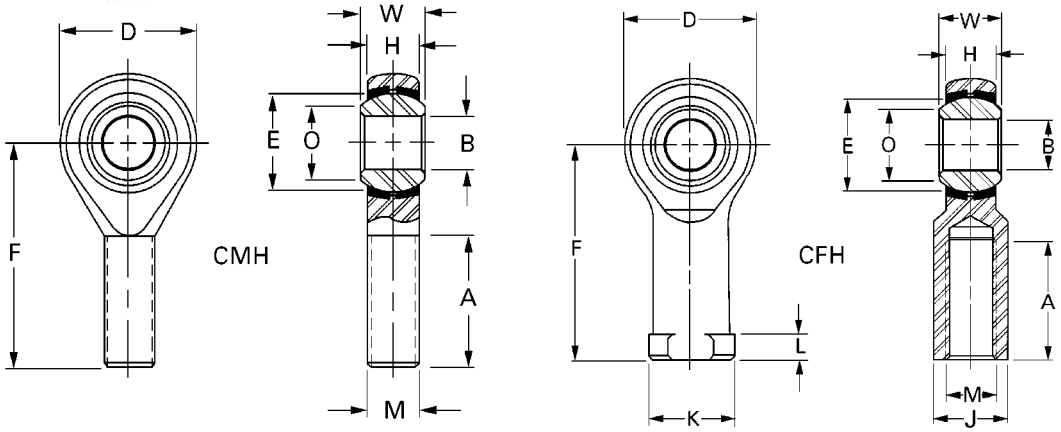
Bearing Code	B Bore +.0025 -.0005	W Ball Width ±.005	H Housing Width ±.010	D Head Dia. REF	F Length to Center of Ball REF	A Thread Length +.062 -.031	M Thread Size UNF-3B	E Ball Dia. REF	O Ball Flat Dia. REF	J Across Wrench Flats REF	K REF	L REF	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.312	.250	.625	1.062	.500	.1900-32	.437	.306	.312	.406	.187	2000	.03
040	.2500	.375	.281	.750	1.312	.625	.2500-28	.515	.355	.375	.468	.187	3200	.05
050	.3125	.437	.344	.875	1.375	.625	.3125-24	.625	.447	.437	.500	.187	3800	.08
060	.3750	.500	.406	1.000	1.625	.687	.3750-24	.718	.517	.562	.687	.250	5000	.12
070	.4375	.562	.437	1.125	1.812	.812	.4375-20	.812	.586	.625	.750	.250	6500	.17
080	.5000	.625	.500	1.312	2.125	.937	.5000-20	.937	.698	.750	.875	.250	9000	.26
100	.6250	.750	.562	1.500	2.500	1.187	.6250-18	1.125	.839	.875	1.000	.312	10000	.41
120	.7500	.875	.687	1.750	2.875	1.375	.7500-16	1.312	.978	1.000	1.125	.312	14000	.64

NOTE: X = Filler character.

See Technical Section for additional design options.

Self-Lubricating
COMMERCIAL ROD ENDS

- Thermoplastic Race
- Male and Female Series
- Coated Carbon Steel Outer Member*
- Carbon Steel, Case Hardened Ball



Part Number Example

B R C C M H – 0 7 0 L

- Rod End
- Carbon Steel Ball
- Style Code
- Inch Size
- Bearing Code
- Left-Hand Thread

Bearing Code	B Bore +.0025 -.0005	W Ball Width ±.005	H Housing Width ±.010	D Head Diameter REF	F Length to Center of Ball REF	A Thread Length ±.062	M Thread Size UNF-3A	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.313	.250	.625	1.250	.750	.1900-32	.437	.306	800	.03
040	.2500	.375	.281	.750	1.562	1.000	.2500-28	.515	.353	1060	.05
050	.3125	.437	.344	.875	1.875	1.250	.3125-24	.625	.447	1575	.08
060	.3750	.500	.406	1.000	1.938	1.250	.3750-24	.718	.516	2150	.12
070	.4375	.562	.437	1.125	2.125	1.375	.4375-20	.812	.586	2600	.17
080	.5000	.625	.500	1.312	2.438	1.500	.5000-20	.937	.698	3425	.26
100	.6250	.750	.562	1.500	2.625	1.625	.6250-18	1.125	.839	4625	.41
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	6600	.64

B R C C F H – 0 6 0 L

Bearing Code	B Bore +.0025 -.0005	W Ball Width ±.005	H Housing Width ±.010	D Head Diameter REF	F Length to Center of Ball REF	A Thread Length ±.062	M Thread Size UNF-3B	E Ball Dia. REF	O Ball Flat Dia. REF	J Across Wrench Flats REF	K REF	L REF	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.313	.250	.625	1.062	.562	.1900-32	.437	.306	.312	.406	.187	800	.03
040	.2500	.375	.281	.750	1.312	.750	.2500-28	.515	.355	.375	.468	.187	1060	.05
050	.3125	.437	.344	.875	1.375	.750	.3125-24	.625	.447	.437	.500	.187	1575	.08
060	.3750	.500	.406	1.000	1.625	.937	.3750-24	.718	.517	.562	.687	.250	2150	.12
070	.4375	.562	.437	1.125	1.812	1.062	.4375-20	.812	.586	.625	.750	.250	2600	.17
080	.5000	.625	.500	1.312	2.125	1.187	.5000-20	.937	.698	.750	.875	.250	3425	.26
100	.6250	.750	.562	1.500	2.500	1.500	.6250-18	1.125	.839	.875	1.000	.312	4625	.41
120	.7500	.875	.687	1.750	2.875	1.750	.7500-16	1.312	.978	1.000	1.125	.312	6600	.64

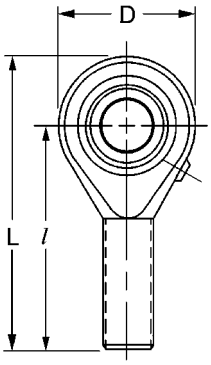
NOTE: X = Filler character.
* Also available with 300 series Stainless Steel outer member.

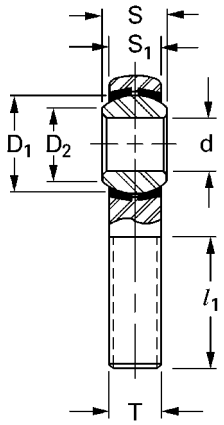
See Technical Section for additional design options.

Quality Bearings & Components

Male Series
PRECISION ROD ENDS**

- Four-Piece • Metal-to-Metal • Brass Insert
- Coated Carbon Steel Outer Member
- Chrome Steel Ball





Part Number Example

B R F S M G M 1 4 0 R L

- Rod End
- 52100 Chrome Steel
- Style Code
- Metric Size
- Bearing Code
- Right-Hand Thread
- Optional Lubricator

Bearing Code	d Bore H7	S Ball Width ±.127	S_1 Housing Width ±.254	D Head Diameter ±.787	*l* Length to Center of Ball ±.787	L Overall Length ±.787	l_1 Thread Length ±1.575	T Thread Size	D_1 Ball Diameter REF	D_2 Ball Flat Diameter REF	Max. Static Radial Load N	Approx. Weight gram
050*	5	8	6	16	33	35	20	M5 x 0.8	11.11	7.71	3400	12
060*	6	9	6.75	18	36	39	22	M6 x 1	12.7	8.96	4900	18
080*	8	12	9	22	42	47	25	M8 x 1.25	15.88	10.4	8300	35
100	10	14	10.5	26	48	56	29	M10 x 1.5	19.05	12.92	12700	57
120	12	16	12	30	54	65	33	M12 x 1.75	25.4	15.43	16700	87
140	14	19	13.5	34	60	74	36	M14 x 2	28.58	16.86	20600	120
160	16	21	15	38	66	83	40	M16 x 2	31.75	19.39	25000	170
180	18	23	16.5	42	72	92	44	M18 x 1.5	34.92	21.89	29400	240
200	20	25	18	46	78	100	47	M20 x 1.5	38.1	24.38	34300	320
220	22	28	20	50	84	109	51	M22 x 1.5	42.85	25.84	41200	420
250	25	31	22	56	94	122	57	M24 x 2	50.8	29.6	50000	580

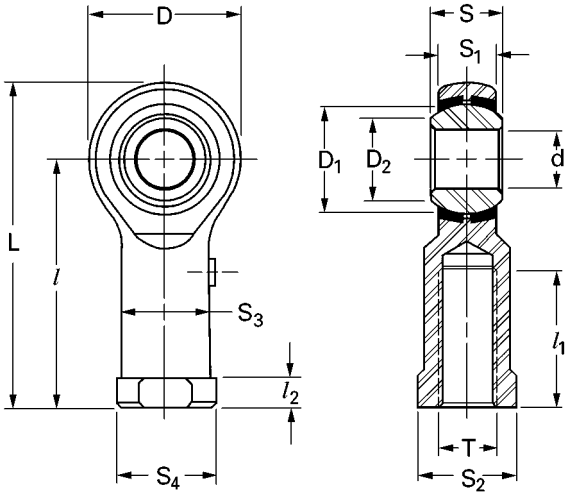
NOTE: X = Filler character.
* Not available with optional lubricator.
** Also available – Extra Capacity, Stainless Steel, Teflon Liner, Chrome Plated Ball, Reduced Play

Call for additional Information

Quality Bearings & Components

Female Series
PRECISION ROD ENDS**

- Four-Piece
- Metal-to-Metal
- Brass Insert
- Coated Carbon Steel Outer Member
- Chrome Steel Ball



Part Number Example

B R F S F G M 1 2 0 L L

- Rod End
- 52100 Chrome Steel
- Style Code
- Metric Size
- Bearing Code
- Left-Hand Thread
- Optional Lubricator

Bearing Code	d Bore H7	S Ball Width ±.127	S_1 Housing Width ±.254	D Head Dia. ±.787	*l* Length to Center of Ball ±.787	L Overall Length ±.787	l_1 Thread Length ±1.575	T Thread Size	D_1 Ball Dia. REF	D_2 Ball Flat Dia. REF	S_2 Across Wrench Flats ±.254	S_3 ±.254	S_4 ±.254	l_2 ±.254	Max. Static Radial Load N	Approx. Weight gram
050*	5	8	6	16	27	35	14	M5 x 0.8	11.11	7.71	8	7.5	9.5	4	5600	14
060*	6	9	6.75	18	30	39	14	M6 x 1	12.7	8.96	10	9.5	12	5	6900	22
080*	8	12	9	22	36	47	17	M8 x 1.25	15.88	10.4	13	12.5	16	5	9800	38
100	10	14	10.5	26	43	56	20	M10 x 1.5	19.05	12.92	16	15	19	6.5	13200	70
120	12	16	12	30	50	65	22	M12 x 1.75	22.23	15.43	18	17.5	22	6.5	16700	110
140	14	19	13.5	34	57	74	27	M14 x 2	25.4	16.86	21	20	25	8	20600	150
160	16	21	15	38	64	83	33	M16 x 2	28.58	19.39	24	22	27	8	25000	200
180	18	23	16.5	42	71	92	36	M18 x 1.5	31.75	21.89	27	25	31	10	29400	280
200	20	25	18	46	77	100	40	M20 x 1.5	34.92	24.38	30	27.5	34	10	34300	370
220	22	28	20	50	84	109	43	M22 x 1.5	38.1	25.84	34	30	37	12	41200	480
250	25	31	22	56	94	122	48	M24 x 2	42.85	29.6	36	33.5	42	12	50000	670

NOTE: X = Filler character.

* Not available with optional lubricator.

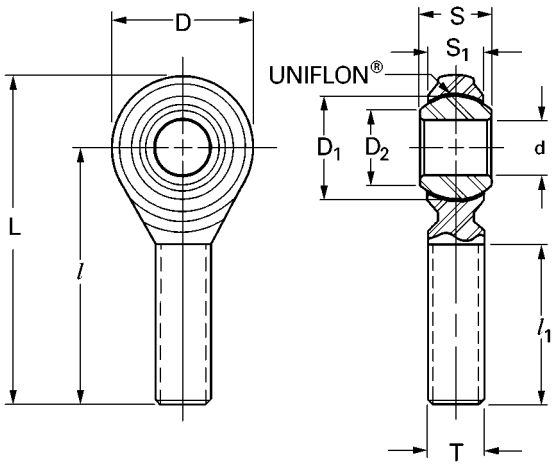
** Also available – Extra Capacity, Stainless Steel, Teflon Liner, Chrome Plated Ball, Reduced Play

Call for additional Information

Quality Bearings & Components

Male Series
PRECISION ROD ENDS

- Coated Carbon Steel Outer Member
- Uniflon Liner®
- Self-Lubricating
- Carbon Steel Ball



Part Number Example

B R C S M E M 1 0 0 R

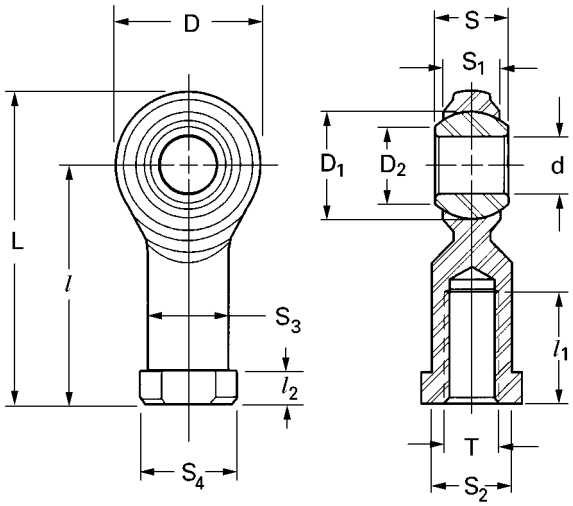
- Rod End
- Carbon Steel Ball
- Style Code
- Metric Size
- Bearing Code
- Right-Hand Thread

Bearing Code	d Bore H7	S Ball Width ±.127	S_1 Housing Width ±.254	D Head Diameter ±.787	*l* Length to Center of Ball ±.787	L Overall Length ±.787	l_1 Thread Length ±1.575	T Thread Size	D_1 Ball Diameter REF	D_2 Ball Flat Diameter REF	Max. Static Radial Load N	Approx. Weight gram
030	3	6	4.5	12	27	33	15	M3 x 0.5	7.93	5.18	1400	4
050	5	8	6	16	33	41	20	M5 x 0.8	11.11	7.71	3300	10
060	6	9	6.75	18	36	45	22	M6 x 1	12.7	8.96	4600	15
080	8	12	8.4	22	42	53	25	M8 x 1.25	15.8	10.4	7700	28
100	10	14	10.5	26	48	61	29	M10 x 1.5	19.05	12.92	11400	46
120	12	16	12	30	54	69	33	M12 x 1.75	22.23	15.43	16100	70

NOTE: X = Filler character.

Female Series
PRECISION ROD ENDS

- Coated Carbon Steel Outer Member
- Uniflon Liner® • Self-Lubricating
- Carbon Steel Ball



Part Number Example

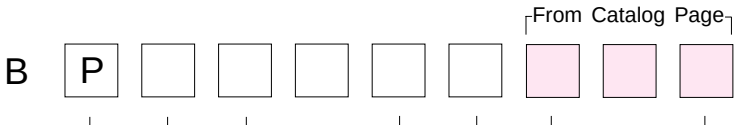
B R C S F E M 0 5 0 L

- Rod End
- Carbon Steel Ball
- Style Code
- Metric Size
- Bearing Code
- Left-Hand Thread

Bearing Code	d Bore H7	S Ball Width ±.127	S_1 Housing Width ±.254	D Head Diameter ±.787	*l* Length to Center of Ball ±.787	L Overall Length ±.787	l_1 Thread Length ±1.575	T Thread Size	D_1 Ball Dia. REF	D_2 Ball Flat Dia. REF	S_2 Across Wrench Flats REF	S_3 REF	S_4 REF	l_2 REF	Max. Static Radial Load N	Approx. Weight gram
030	3	6	4.5	12	21	27	8	M3 x 0.5	7.93	5.18	5.5	5.5	7	3	1600	7
050	5	8	6	16	27	35	11.5	M5 x 0.8	11.11	7.71	8	8	9	4	3800	14
060	6	9	6.75	18	30	39	13.5	M6 x 1	12.7	8.96	9	9	10	5	5200	22
080	8	12	9	22	36	47	17	M8 x 1.25	15.88	10.4	11	11	13	5	8800	32
100	10	14	10.5	26	43	56	21	M10 x 1.5	19.05	12.92	13	16	15	6.5	13100	59
120	12	16	12	30	50	65	24.5	M12 x 1.75	22.23	15.43	16	16	18	6.5	18400	92

NOTE: X = Filler character.

SPHERICAL BEARINGS



BEARING CODE
See Catalog Page

– Inch Sizes
M Metric Sizes
R Special

STYLE CODE

LSS	Precision 4-Piece Metal-to-Metal – Alloy Steel
LSX	Precision 4-Piece Metal-to-Metal – Carbon Steel
LHA	Precision 2-Piece Metal-to-Metal – Alloy Steel
LHB	Precision 2-Piece Metal-to-Metal – Aluminum Bronze
LHS	Precision 2-Piece Metal-to-Metal – 300 Series Stainless Steel
COS	Precision 2-Piece Metal-to-Metal – 17-4 PH Stainless Steel
LSE	Precision Self-Lubricating – E Uniflon® Liner
LSH	Precision Self-Lubricating – VV Uniflon® Liner
COM	Commercial 2-Piece Metal-to-Metal – Below 2” O.D.
CLH	Commercial 2-Piece Metal-to-Metal – Above 2” O.D.
SSX	Precision 4-Piece Metal-to-Metal – Metric Precision

MATERIAL OF BALL

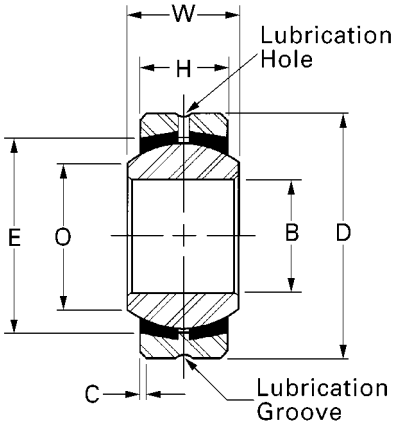
F	52100 Alloy Steel
S	440C Stainless Steel
X	300 Series Stainless Steel

SPHERICAL
BEARING

NOTE: X = Filler character.

Four-Piece
PRECISION SPHERICAL BEARINGS

- Copper Alloy Insert
- Metal-to-Metal
- Coated 4130 or 4340 Alloy Steel Outer Member
- 52100 Alloy Steel Ball



Part Number Example

B P F L S S – 0 7 0

- Spherical Bearing
- 52100 Alloy Steel
- Style Code
- Inch Size
- Bearing Code

Bearing Code	B Bore +.0000 -.0005	D Outside Dia. +.0000 -.0005	W Ball Width +.000 -.005	H* Housing Width +.000 -.005	C Chamfer +.015 -.000	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
020	.1650	.4687	.250	.187	.020	.343	.235	2000	.01
030	.1900	.5625	.281	.218	.020	.406	.293	2750	.02
040	.2500	.6562	.343	.250	.022	.500	.364	4200	.02
050	.3125	.7500	.375	.281	.022	.562	.419	5800	.03
060	.3750	.8125	.406	.312	.032	.625	.475	7150	.04
070	.4375	.9062	.437	.343	.032	.687	.530	8625	.05
080	.5000	1.0000	.500	.390	.032	.781	.600	11200	.07
090	.5625	1.0937	.562	.437	.032	.875	.670	14000	.09
100	.6250	1.1875	.625	.500	.032	.968	.739	17700	.12
120	.7500	1.4375	.750	.593	.044	1.187	.920	25750	.21
140	.8750	1.5625	.875	.703	.044	1.312	.980	33600	.27
160	1.0000	1.7500	1.000	.797	.044	1.500	1.118	37520	.38

NOTE: X = Filler character.

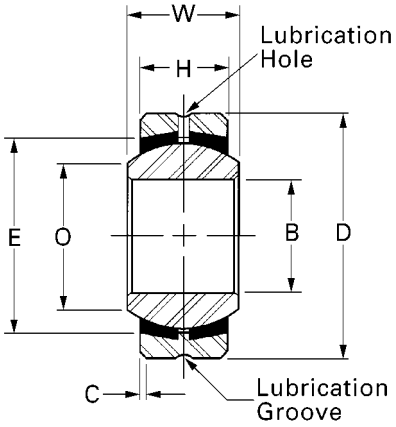
*"H" tolerance across inserts is ±.015

See Technical Section for additional design options.

Quality Bearings & Components

Four-Piece
PRECISION SPHERICAL BEARINGS

- Brass Insert
- Metal-to-Metal
- Coated Carbon Steel Outer Member
- 52100 Alloy Steel Ball, Heat Treated



Part Number Example

B P F L S X – 0 7 0

- Spherical Bearing
- 52100 Alloy Steel
- Style Code
- Inch Size
- Bearing Code

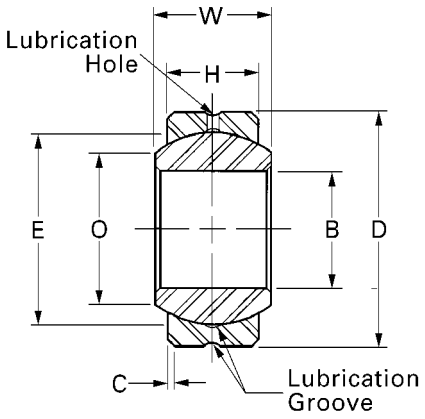
Bearing Code	B Bore +.0000 -.0005	D Outside Dia. +.0000 -.0005	W Ball Width +.000 -.005	H* Housing Width +.000 -.005	C Chamfer +.015 -.000	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.6250	.281	.187	.016	.406	.293	2960	.02
040	.2500	.7500	.375	.281	.016	.515	.354	5245	.04
050	.3125	.8750	.437	.313	.016	.625	.447	6550	.05
060	.3750	1.0000	.500	.375	.016	.718	.517	8605	.08
070	.4375	1.1875	.562	.437	.032	.812	.586	11100	.12
080	.5000	1.3125	.687	.531	.044	.937	.637	15600	.18
100	.6250	1.5625	.875	.687	.044	1.187	.802	25700	.33
120	.7500	2.2500	1.250	.937	.044	1.625	1.038	47600	.97
160	1.0000	2.3750	1.125	.875	.062	1.750	1.345	48200	.94
190	1.1875	2.6250	1.250	1.000	.085	2.000	1.562	63000	1.27
240	1.5000	3.2500	1.500	1.250	.085	2.500	2.000	98000	2.38
300	1.8750	4.0000	1.625	1.313	.125	3.000	2.521	123500	3.75

NOTE: X = Filler character.
*"H" tolerance across inserts is ±.015

See Technical Section for additional design options.

Two-Piece
PRECISION SPHERICAL BEARINGS

- Choice of Outer Member Material
- Metal-to-Metal
- 52100 Alloy Steel or 440C Stainless Steel Ball



Part Number Example

B P F L H B – 0 7 0

- Spherical Bearing
- Ball Material
- Style Code
- Inch Size
- Bearing Code

Style Code			Bearing Code	B Bore	D Outside Dia.	W Ball Width	H Housing Width	C Chamfer	E Ball Dia.	O Ball Flat Dia.	Maximum Static Radial Load LBF			Approx. Weight
LHA	LHB	LHS		+.0000 -.0005	+.0000 -.0005	+.000 -.005	±.005	+.015 -.000	REF	REF	LHA Series	LHB Series	LHS Series	lbs
4130 or 4340 Outer Member* 52100 Alloy Steel Ball[D]	Aluminum Bronze Outer Member 52100 Alloy Steel Ball[D]	300 Series Stainless Outer Member 440C Stainless Ball	020	.1650	.4687	.250	.187	.020	.343	.235	4400	2000	3200	.01
			030	.1900	.5625	.281	.218	.020	.406	.293	6480	2750	4400	.02
			040	.2500	.6562	.343	.250	.022	.500	.364	10000	4200	6700	.02
			050	.3125	.7500	.375	.281	.022	.562	.419	13900	5800	9200	.03
			060	.3750	.8125	.406	.312	.032	.625	.475	18750	7750	12400	.04
			070	.4375	.9062	.437	.343	.032	.687	.530	22300	9300	14900	.05
			080	.5000	1.0000	.500	.390	.032	.781	.600	26900	11200	17900	.07
			090	.5625	1.0937	.562	.437	.032	.875	.670	36000	14800	23700	.09
			100	.6250	1.1875	.625	.500	.032	.968	.739	48000	20000	32000	.12
			120	.7500	1.4375	.750	.593	.044	1.187	.920	78000	30000	48000	.21
			140	.8750	1.5625	.875	.703	.044	1.312	.980	103000	43000	69000	.27
			160	1.0000	1.7500	1.000	.797	.044	1.500	1.118	125000	52000	83000	.38

*Alloy steel, heat treated, with corrosion-resistant coating.

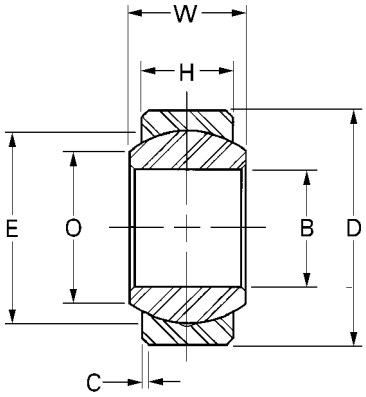
[D] Heat treated, chrome plated.

See Technical Section for additional design options.

Quality Bearings & Components

Two-Piece
PRECISION SPHERICAL BEARINGS

- 17-4 Ph Stainless Steel Outer Member, Heat Treated
- 440C Stainless Steel Ball, Heat Treated, Chrome Plated
- Metal-to-Metal



Part Number Example

B P S C O S – 0 7 0

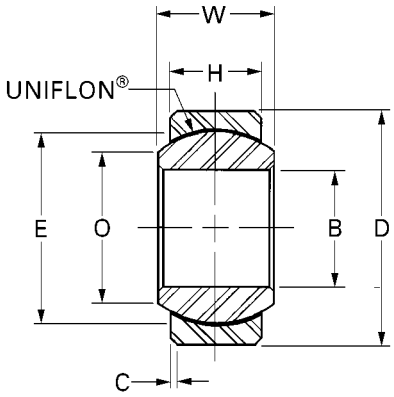
- B P S — Spherical Bearing
- C O S — 440C Stainless
- C O — Style Code
- S — Inch Size
- 0 7 0 — Bearing Code

Bearing Code	B Bore +.0000 -.0005	D Outside Dia. +.0000 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	C Chamfer +.015 -.000	E Ball Diameter REF	O Ball Flat Diameter REF	Maximum Static Radial Load lbs
030	.1900	.5625	.281	.218	.020	.406	.293	4800
040	.2500	.6562	.343	.250	.022	.500	.364	7500
050	.3125	.7500	.375	.281	.022	.562	.419	10400
060	.3750	.8125	.406	.312	.032	.625	.475	14000
070	.4375	.9062	.437	.343	.032	.687	.530	16750
080	.5000	1.0000	.500	.390	.032	.781	.600	20000
090	.5625	1.0937	.562	.437	.032	.875	.670	27000
100	.6250	1.1875	.625	.500	.032	.968	.739	36000
120	.7500	1.4375	.750	.593	.044	1.187	.920	54000
140	.8750	1.5625	.875	.703	.044	1.312	.980	77000
160	1.0000	1.7500	1.000	.797	.044	1.500	1.118	93500

See Technical Section for additional design options.

Self-Lubricating
PRECISION SPHERICAL BEARINGS

- 300 Series Stainless Steel Outer Member
- 440C Stainless Steel Ball, Heat Treated
- "E" Uniflon® Liner



Part Number Example

B P S L S E – 0 7 0

- Spherical Bearing
- 440C Stainless
- Style Code
- Inch Size
- Bearing Code

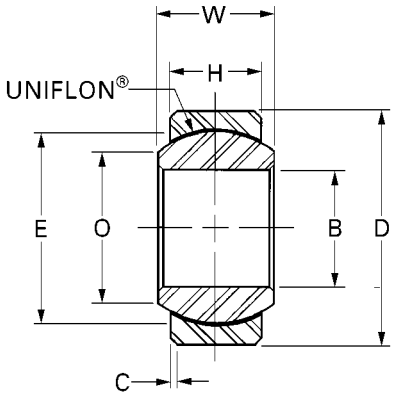
Bearing Code	B Bore +.0000 -.0005	D Outside Dia. +.0000 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	C Chamfer +.015 -.000	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
020	.1650	.4687	.250	.187	.020	.343	.235	3200	.01
030	.1900	.5625	.281	.218	.020	.406	.293	4400	.02
040	.2500	.6562	.343	.250	.022	.500	.364	6700	.02
050	.3125	.7500	.375	.281	.022	.562	.419	9200	.03
060	.3750	.8125	.406	.312	.032	.625	.475	11700	.04
070	.4375	.9062	.437	.343	.032	.687	.530	14100	.05
080	.5000	1.0000	.500	.390	.032	.781	.600	17900	.07
090	.5625	1.0937	.562	.437	.032	.875	.670	22900	.09
100	.6250	1.1875	.625	.500	.032	.968	.739	29000	.12
120	.7500	1.4375	.750	.593	.044	1.187	.920	42200	.21
140	.8750	1.5625	.875	.703	.044	1.312	.980	55300	.27
160	1.0000	1.7500	1.000	.797	.044	1.500	1.118	71700	.38

See Technical Section for additional design options.

Quality Bearings & Components

Self-Lubricating
PRECISION SPHERICAL BEARINGS

- 300 Series Stainless Steel Outer Member
- "VV" Uniflon® Liner
- 440C Stainless Steel Ball, Heat Treated



Part Number Example

B P S L S H – 0 7 0

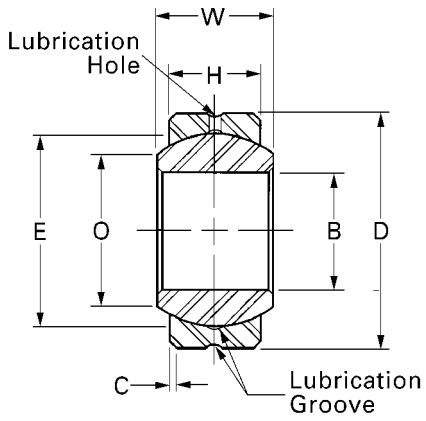
- Spherical Bearing
- 440C Stainless
- Style Code
- Inch Size
- Bearing Code

Bearing Code	B Bore +.0000 -.0005	D Outside Dia. +.0000 -.0005	W Ball Width +.000 -.005	H Housing Width ±.005	C Chamfer +.015 -.000	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
020	.1650	.4687	.250	.187	.020	.343	.235	2000	.01
030	.1900	.5625	.281	.218	.020	.406	.293	2750	.02
040	.2500	.6562	.343	.250	.022	.500	.364	4200	.02
050	.3125	.7500	.375	.281	.022	.562	.419	5800	.03
060	.3750	.8125	.406	.312	.032	.625	.475	7750	.04
070	.4375	.9062	.437	.343	.032	.687	.530	9300	.05
080	.5000	1.0000	.500	.390	.032	.781	.600	11200	.07
090	.5625	1.0937	.562	.437	.032	.875	.670	14800	.09
100	.6250	1.1875	.625	.500	.032	.968	.739	20000	.12
120	.7500	1.4375	.750	.593	.044	1.187	.920	30000	.21
140	.8750	1.5625	.875	.703	.044	1.312	.980	43000	.27
160	1.0000	1.7500	1.000	.797	.044	1.500	1.118	52000	.38

See Technical Section for additional design options.

Two-Piece
COMMERCIAL SPHERICAL BEARINGS

- Carbon Steel Outer Member
- Metal-to-Metal
- 52100 Alloy Steel Ball, Heat Treated, Chrome Plated



Part Number Example

B P F C O M – 0 8 0

- B P F — Spherical Bearing, 52100 Alloy Steel
- C O M — Style Code
- 0 8 0 — Inch Size
- Bearing Code

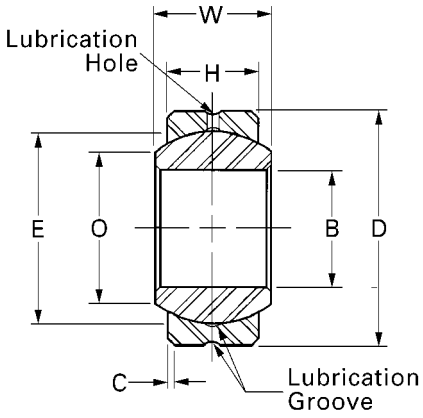
Bearing Code	B Bore +.0025 -.0005	D Outside Dia. +.0000 -.0007	W Ball Width ±.005	H Housing Width ±.010	C Chamfer +.015 -.000	E Ball Diameter REF	O Ball Flat Diameter REF	Max. Static Radial Load lbs	Approx. Weight lbs
030	.1900	.5625	.281	.218	.020	.406	.293	3250	.02
040	.2500	.6562	.343	.250	.022	.500	.364	4900	.02
050	.3125	.7500	.375	.281	.032	.562	.419	6450	.03
060	.3750	.8125	.406	.312	.032	.625	.475	8250	.04
070	.4375	.9062	.437	.343	.032	.687	.530	10200	.05
080	.5000	1.0000	.500	.390	.032	.781	.600	13600	.07
090	.5625	1.0937	.562	.437	.032	.875	.670	15900	.09
100	.6250	1.1875	.625	.500	.032	.968	.739	21000	.12
120	.7500	1.4375	.750	.593	.044	1.187	.920	30000	.21
140	.8750	1.5625	.875	.703	.044	1.312	.980	41100	.27
160	1.0000	1.7500	1.000	.797	.044	1.500	1.118	54700	.38

See Technical Section for additional design options.

Quality Bearings & Components

Two-Piece
COMMERCIAL SPHERICAL BEARINGS

- Coated Carbon Steel Outer Member
- Metal-to-Metal
- 52100 Alloy Steel Ball, Heat Treated, Chrome Plated



Part Number Example

B P F C L H – 2 4 0

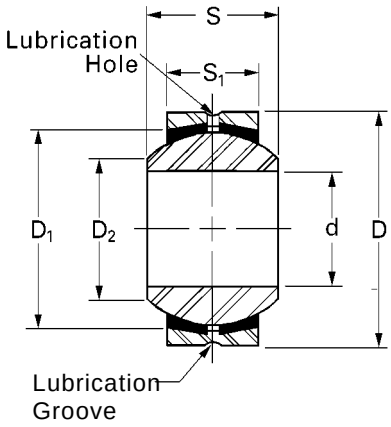
- B P F: Spherical Bearing, 52100 Alloy Steel
- C L H: Style Code
- 2 4 0: Bearing Code
- Inch Size

Bearing Code	B Bore +.0000 -.0007	D Outside Dia. +.0000 -.0007	W Ball Width +.000 -.005	H Housing Width ±.007	C Chamfer +.015 -.000	E Ball Diameter REF	O Ball Flat Diameter REF	Maximum Static Radial Load lbs.
160	1.0000	2.0000	1.000	.781	.035	1.688	1.360	68525
190	1.1875	2.3750	1.187	.937	.035	2.000	1.610	97440
200	1.2500	2.3750	1.187	.937	.035	2.000	1.610	97440
240	1.5000	2.7500	1.375	1.094	.035	2.313	1.860	131550
280	1.7500	3.1250	1.562	1.250	.040	2.625	2.080	169000
320	2.0000	3.5000	1.750	1.375	.040	2.938	2.360	209985

See Technical Section for additional design options.

Four-Piece
PRECISION SPHERICAL BEARINGS

- Brass Insert
- Metal-to-Metal
- Coated Carbon Steel Outer Member
- 52100 Alloy Steel Ball



Part Number Example

B P F S S X M 1 4 0

- Spherical Bearings
- 52100 Alloy Steel
- Style Code
- Metric Size
- Bearing Code

Bearing Code	d Bore H7	S Ball Width +.000 -.130	S_1 Housing Width +.000 -.130	D Outside Diameter h6	D_1 Ball Diameter REF	D_2 Ball Flat Diameter REF	Max. Static Radial Load N	Approx. Weight gram
050	5	8	6	16	11.11	7.71	7800	9
060	6	9	6.75	18	12.7	8.96	9800	12
080	8	12	9	22	15.88	10.4	16700	24
100	10	14	10.5	26	19.05	12.92	23500	38
120	12	16	12	30	22.23	15.43	31400	57
140	14	19	13.5	34	25.4	16.86	40200	83
160	16	21	15	38	28.58	19.39	50000	110
180	18	23	16.5	42	31.75	21.89	61800	150
200	20	25	18	46	34.92	24.38	73600	200
220	22	28	20	50	38.1	25.84	88300	250
250	25	31	22	56	42.85	29.6	110800	360

NOTE: X = Filler character.

Also available: Stainless Steel, Teflon Liner, Chrome Plated Ball, Reduced Play