



Industries Served
Heavy-Duty Truck
Fluid Handling
Off-Highway Vehicles
Military
Oil/Natural Gas
Steel

Link-Belt Series M1000, 1200, 1300, 1900, 5200, 5300, 6200, 7300 Cylindrical Roller Bearings

Metric series cylindrical roller bearings are manufactured to ABMA boundary dimensions. These bearings require minimum space and provide maximum rated capacity. Various configurations including separable inner or outer ring combinations offer ample application flexibility.



High Quality Rings

Rings of high quality bearing steel for strength, toughness and durability.

Microfinished Raceways Assure Smooth Operations

Optimized Raceway Contact Area

Exclusive honed crown on roller profile for optimized raceway contact area and high capacity.

Positive Roller Spacing

- Structural design segmented retainer provides high strength, positive roller spacing and guidance.
- One-piece formed Steel Retainer provides positive roller spacing and controlled roller guidance.

Polymeric Retainer

Polymeric retainer of glass fiber reinforced nylon 6/6 provides full roller guidance, superior lubrication and reduced noise.

Segmented Retainers

Rigid structural design segmented Steel Retainer provides high strength, positive roller spacing and guidance.

All contact surfaces are contoured to minimize the wiping action between retainer segments and rollers, assuring full roller lubrication. Precision spacer segments contact the rollers above and below pitch diameter resulting in low friction loss and positive roller control.



Polymeric Retainers

Made of glass fiber reinforced nylon 6/6, molded polymeric retainers provide close control of roller "drop," low noise, full roller guidance and superior lubrication, at a competitive price.

Extensive testing has established compatibility with a broad range of standard lubricants and satisfactory operation at sustained temperatures to 275°F.



Formed Steel Retainers

One-piece deep coined formed Steel Retainer combines strength with positive roller spacing and roller guidance.

The retainer guides the rollers below the pitch line and provides control of roller drop. Line contact of rollers on guidance surfaces minimizes wiping action and promotes hydrodynamic lubrication.



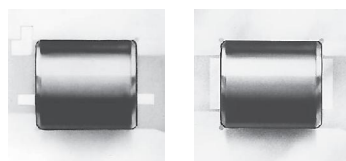
Optional Series and Configurations

Series M cylindrical roller bearings are available in seven series with segmented retainers, five series with formed Steel Retainers, several series with polymeric retainers, and five series of the full roller complement type. Various configurations, including separable inner or outer ring combinations are offered.



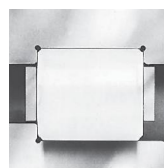
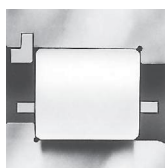
Rollers

Exclusively crowned honed rollers provide optimized contact at the raceway. This assures efficient bearing performance under load, provides controlled stress distribution under all loads within the design capacity and compensates for shaft deflection.



Rings

Rings are manufactured from high quality bearing steel to enhance fatigue resistance, strength, toughness and hardenability.



Bearings and ring and roller assemblies for omitted-ring applications are ABMA standard boundary plan for bore, outside diameter, and width... standard tolerances are RBEC-1. Precision tolerances to RBEC-5 are available.

Nomenclature

Symbol	Description	M	A	1	2	05	GEA	X	C0
M	Metric series designation								
A	Plain cylindrical inner ring								
R	Single rib inner ring								
SN	Short, single rib w/inner ring side plate								
U	Double rib inner ring								
S	Metric bore size of next smaller bearing								
None	Standard capacity								
6	High capacity series								
1	Narrow width								
5	Wide width								
7	Intermediate width								
0	Extra light series								
2	Light series								
3	Medium series								
9	Extra extra light series								
05	One-fifth of bore diameter (mm)								
G	Snap ring groove in outer ring O.D.								
GG	Two snap ring grooves in outer ring O.D.								
R	Snap ring groove in outer ring O.D. snap ring included								
RR	Two snap ring grooves in outer ring O.D.; snap rings included								
C	Plain cylindrical outer ring								
D	Single rib outer ring								
E	Double rib outer ring								
SN	Short single rib w/outer ring side plate								
T	Outer ring w/two retaining rings in I.D.								
U	Single rib outer ring, one retaining ring in I.D.								
A	Oversize O.D. outer ring								
H	Blind dowel hole in outer ring O.D.								
X	Segmented retainer								
M	Full complement (no retainer)								
V	Formed Steel Retainer								
B	Polymeric retainer								
Wxxx	This suffix specifies special bearing features								
None	Standard commercial clearance								
C2	Less than basic clearance								
C0	Basic clearance								
C3	Greater than basic clearance								
C4	Greater than C3 clearance								
C5	Greater than standard clearance (STANDARD FOR ASSEMBLY WITH "A" OUTER RING AND OMITTED IN MODEL NUMBER)								
Cxxx	Special specific clearance or range—i.e./C002 or/C35-49 or C3549								

Cylindrical Roller Bearings Selection Guide

To select a bearing, determine the applied radial load, any applied thrust load, the desired Rating Life, and applicable operating conditions. The procedure shown here will aid in selecting a bearing to meet an L₁₀ design life. The formulas for calculating life expectancy should be used to determine the Rating Life L₁₀ for the bearing selected. Cylindrical roller bearings are available in various series with cylindrical bores for direct shaft mounting.

Bearings in several series may fulfill the L₁₀ life requirements. Speed limits, minimum shaft diameters, arrangement requirements and space limitations may be determining factors in final bearing selection. The selection procedures and rating formulas shown here are in agreement with The American Bearing Manufacturers Association Standards and ANSI/ABMA STD 11. Ratings are based on fatigue life. The Rating Life L₁₀ or fatigue life at 90% reliability is the usual basis for bearing selection. Cylindrical roller bearings are essentially radial bearings. Nevertheless those styles where integral ribs are in the proper location

on inner and outer rings will also support thrust loading. In fact, most such styles do support incidental, axial locating loads. Whenever applied thrust loading is known to exist, the guidelines given for Thrust Loads on the next page must be carefully followed.

Selection and life expectancy formulas shown here are also valid for inner ring and roller assemblies and for outer ring and roller assemblies provided they are run directly on bearing quality steel shafts or housings properly hardened and ground. To assure a satisfactory bearing application, fitting practice, mounting, lubrication, sealing, static rating, housing strength, operating conditions and maintenance must be considered.

Steps for Selection

Step 1

Determine an appropriate L₁₀ design life.

Type of service	Operating time, hours per year	Design life, years	L ₁₀ design life, hours
Light seasonal usage	500 to 750	3-5	3,000
Heavy seasonal usage	1,400 to 1,600	4-6	8,000
Industrial—8 hour shift	2,000	10	20,000
Industrial—16 hour shift	4,000	10	40,000
Industrial—continuous	8,700	10	80,000 to 100,000
Continuous—high reliability	—	—	120,000 to 300,000

Step 2

Determine a required $\left(\frac{C}{P}\right)$ from Table 1.

Step 3

Calculate the required C and select a cylindrical roller bearing.

$P = F_r$

required $C = \left(\frac{C}{P}\right)P$ using $\left(\frac{C}{P}\right)$ from Step 2.

Select a cylindrical roller bearing of the desired type having a Basic Load Rating C equal to or greater than the required C from the appropriate series. The life expectancy of other sizes and series of cylindrical roller bearings can be calculated. When thrust load is present, check the individual bearing thrust capacity and follow the requirements for lubrication under thrust conditions.

Step 4

Determine the permissible speed limit of the bearing through the following procedure:

Permissible speed limits are of practical value only when considered with other factors of bearing operation. Not every application functions satisfactorily at the listed speeds. Load, lubrication, and temperature factors influence the performance. Bearing operation at the listed speed limit demands excellent lubrication, moderate load, and reasonable temperature environment.

Permissible speed can be approximated from the limiting DN value, which is the product of the bearing bore in millimeters and the speed in RPM. The DN values shown below are nominal. For higher permissible speeds, consult Rexnord Bearing Division.

DN value = Bearing bore (mm) x speed (RPM)	
Bearing series	Limit of DN Value*
Series 1900, 1000, 1200, 1300 & 7300	
with segmented or polymeric retainer	450,000
with formed Steel Retainer	250,000
Series 5200, 6200, and 5300	
with segmented or polymeric retainer (5200, 5300 only)	330,000
with formed Steel Retainer	180,000
Full complement	150,000

*These values assume oil lubrication

Selection

Symbols for formulas:

C = Basic Load Rating, pounds (or newtons)

Co = static Load Rating, pounds (or newtons)

Fr = radial load, pounds (or newtons)

L₁₀ = rating life, hours

n = speed, revolutions per minute

P = equivalent radial load, pounds (or newtons)

Table 1 • Relation of L₁₀ life and speed to $\left(\frac{C}{P}\right)$

Bearing life hours L ₁₀	Ratio $\left(\frac{C}{P}\right)$									
	Speed, n									
	50	100	200	300	400	500	600	700	800	
3000	1.93	2.38	2.93	3.31	3.61	3.86	4.07	4.27	4.44	
4000	2.11	2.59	3.19	3.61	3.93	4.20	4.44	4.65	4.84	
5000	2.25	2.77	3.42	3.86	4.20	4.50	4.75	4.97	5.18	
6000	2.38	2.93	3.61	4.07	4.44	4.75	5.02	5.25	5.47	
8000	2.59	3.19	3.93	4.44	4.84	5.18	5.47	5.73	5.96	
10000	2.77	3.42	4.20	4.75	5.18	5.54	5.85	6.12	6.37	
12000	2.93	3.61	4.44	5.02	5.47	5.85	6.18	6.47	6.73	
14000	3.07	3.78	4.65	5.25	5.73	6.12	6.47	6.77	7.05	
16000	3.19	3.93	4.84	5.47	5.96	6.37	6.73	7.05	7.34	
18000	3.31	4.07	5.02	5.66	6.18	6.60	6.97	7.30	7.60	
20000	3.42	4.20	5.18	5.85	6.37	6.81	7.20	7.54	7.85	
25000	3.65	4.50	5.54	6.25	6.81	7.29	7.70	8.06	8.39	
30000	3.86	4.75	5.85	6.60	7.20	7.70	8.13	8.51	8.86	
35000	4.04	4.97	6.12	6.92	7.54	8.06	8.51	8.92	9.28	
40000	4.20	5.18	6.37	7.20	7.85	8.39	8.86	9.28	9.66	
45000	4.36	5.36	6.60	7.46	8.13	8.69	9.18	9.61	10.00	
50000	4.50	5.54	6.81	7.70	8.39	8.97	9.48	9.92	10.30	
60000	4.75	5.85	7.20	8.13	8.86	9.48	10.00	10.5	10.90	
70000	4.97	6.12	7.54	8.51	9.28	9.92	10.50	11.00	11.40	
80000	5.18	6.37	7.85	8.86	9.66	10.30	10.90	11.40	11.90	
90000	5.36	6.60	8.13	9.18	10.00	10.70	11.30	11.80	12.30	
100000	5.54	6.81	8.39	9.48	10.30	11.00	11.70	12.20	12.70	
150000	6.25	7.70	9.48	10.70	11.70	12.50	13.20	13.80	14.40	
200000	6.81	8.39	10.30	11.70	12.70	13.60	14.40	15.00	15.70	
	Speed, n									
	900	1000	1200	1500	1800	2400	3000	3600	6000	
3000	4.60	4.75	5.02	5.36	5.66	6.18	6.60	6.97	8.13	
4000	5.02	5.18	5.47	5.85	6.18	6.73	7.20	7.60	8.86	
5000	5.36	5.54	5.85	6.25	6.60	7.20	7.70	8.13	9.48	
6000	5.66	5.85	6.18	6.60	6.97	7.60	8.13	8.59	10.00	
8000	6.18	6.37	6.73	7.20	7.60	8.29	8.86	9.36	10.90	
10000	6.60	6.81	7.20	7.70	8.13	8.86	9.48	10.00	11.70	
12000	6.97	7.20	7.60	8.13	8.59	9.36	10.00	10.60	12.30	
14000	7.30	7.54	7.96	8.51	8.99	9.80	10.50	11.10	12.90	
16000	7.60	7.85	8.29	8.86	9.36	10.20	10.90	11.50	13.40	
18000	7.88	8.13	8.59	9.18	9.70	10.60	11.30	11.90	13.90	
20000	8.13	8.39	8.86	9.48	10.00	10.90	11.70	12.30	14.40	
25000	8.69	8.97	9.48	10.10	10.70	11.70	12.50	13.20	15.40	
30000	9.18	9.48	10.00	10.70	11.30	12.30	13.20	13.90	16.20	
35000	9.61	9.92	10.50	11.20	11.80	12.90	13.80	14.60	17.00	
40000	10.00	10.30	10.90	11.70	12.30	13.40	14.40	15.20	17.70	
45000	10.40	10.70	11.30	12.10	12.80	13.90	14.90	15.70	18.30	
50000	10.70	11.00	11.70	12.50	13.20	14.40	15.40	16.20	18.90	
60000	11.30	11.70	12.30	13.20	13.90	15.20	16.20	17.10	20.00	
70000	11.80	12.20	12.90	13.80	14.60	15.90	17.00	17.90	20.90	
80000	12.30	12.70	13.40	14.40	15.20	16.50	17.70	18.70	21.80	
90000	12.80	13.20	13.90	14.90	15.70	17.10	18.30	19.40	22.60	
100000	13.20	13.60	14.40	15.40	16.20	17.70	18.90	20.00	23.30	
150000	14.90	15.40	16.20	17.30	18.30	20.00	21.40	22.60	26.30	
200000	16.20	16.70	17.70	18.90	20.00	21.80	23.30	24.60	28.70	

Basic Formulas

$$\left(\frac{C}{P}\right) = \left(\frac{L_{10} \times n \times 60}{1,000,000}\right)^{3/10}$$

$$L_{10} = \frac{\left(\frac{C}{P}\right)^{10/3} \times 1,000,000}{n \times 60}$$

Life Expectancy

To calculate the Rating Life L₁₀ of any pair of selected or trial bearings:

Step 1

Determine the equivalent radial load P.

$$P = F_r$$

Step 2 Calculate the ratio of the bearing Basic Load Rating C to the equivalent radial load.

$$\frac{C}{P}$$

Step 3

Approximate the bearing life from Table 1.

Thrust Loads

The integral guiding ribs on standard cylindrical roller bearing inner and outer rings will support limited thrust loads. In addition, special tolerances and processing can be used to substantially increase axial load capacity. In either case, excellent lubrication (preferably with an EP lubricant) and a stabilizing radial load are required. For standard bearings, the allowable thrust load is estimated as

$$TM = \frac{C_A}{3n^{0.3}}$$

where	TM	Maximum allowable thrust load, pounds (or newtons)
	C _A	Load rating C (pounds or newtons) of the narrowest series for the given annulus (O.D. and bore) at 33 1/3 RPM and 500L ₁₀ hours.
	n	Operating speed, RPM

In addition, the thrust load should be no greater than 25% of the radial load. Where application conditions exceed either of these limits, Rexnord Bearing Division should be consulted.

Life Adjustment

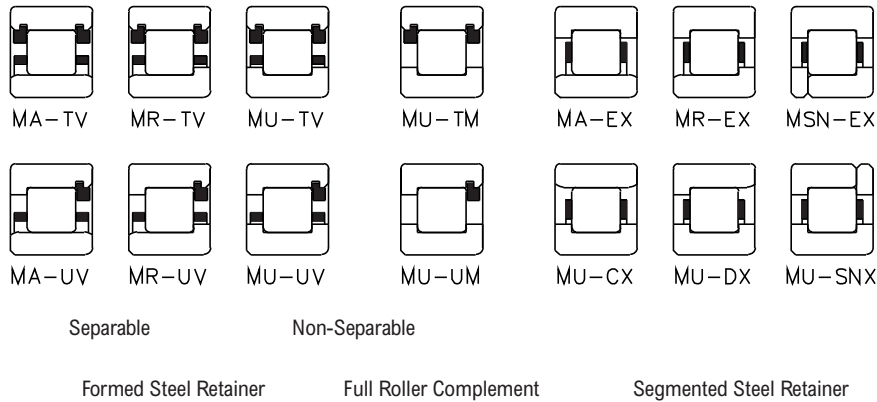
The Rating Life, L₁₀, may be modified for some applications in accordance with the formula

$$L_n = a_1 a_2 a_3 L_{10}$$

where	L _n	Adjusted life for (100-n) % reliability,
	a ₁	Life adjustment factor for reliability
	a ₂	Life adjustment factor for material and processing
	a ₃	Life adjustment factor for operating conditions.

For most normal applications, all factors will be taken as 1, and the Rating Life used as the selection basis or life estimate. In addition, as long as standard catalog bearings are used, a₂ will be normally set equal to one. The factor a₃ covers such things as lubrication, misalignment, and temperature. Some conditions that could yield a₃ significantly different than unity include speeds less than 20000 DN or greater than 200000 DN, temperatures below -40°F (-40°C) or above 275°F (135°C), or misalignment greater than 0.0005 radians. For other possible conditions, as well as additional information on life adjustment factors, consult Rexnord Bearing Division.

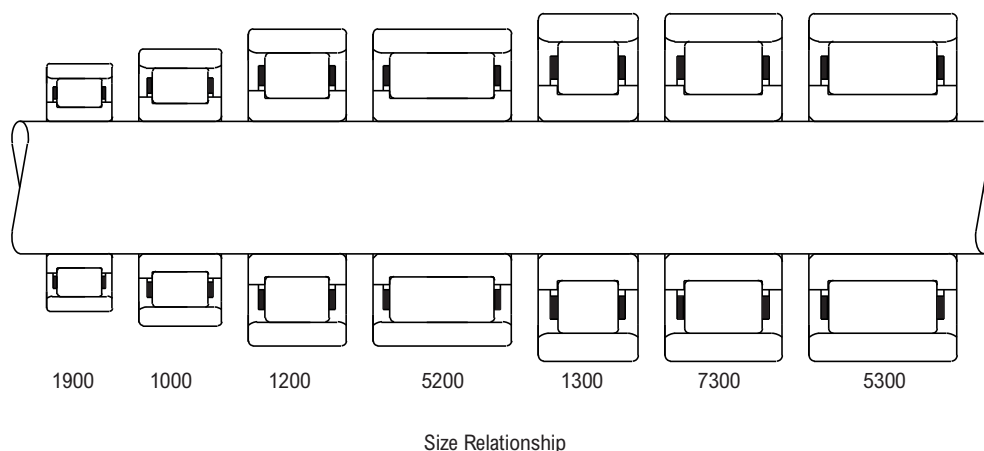
Ratings 25mm, 30mm, 35mm, 40mm Bores



pounds/newtons

Basic bearing number	Formed Steel Retainer						Segmented Steel Retainer			Full Roller Complement		
	Separable			Non-separable			C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating
	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating						
1205	4330	1120	5220	5280	1370	5220	6170	1600	6430	7020	1820	7630
	19200	4980	23200	23500	6080	23200	27500	7110	28600	31200	8090	33900
5205	5930	1540	7830	7240	1880	7830	8460	2190	9640	9620	2490	11400
	26400	6830	34800	32200	8340	34800	37600	9750	42900	42800	11100	50900
1305	6310	1630	6690	7710	2000	6690	8840	2290	8030	9920	2570	9370
	28100	7270	29800	34300	8880	29800	39300	10200	35700	44100	11400	41700
7305	8070	2090	9180	9850	2550	9180	11300	2930	11000	12700	3280	12800
	35900	9300	40800	43800	11400	40800	50200	13000	49000	56400	14600	57100
5305	9720	2520	11700	11900	3070	11700	13600	3530	14000	15300	3960	16300
	43200	11200	51900	52800	13700	51900	60500	15700	62300	68100	17600	72500
1206	5990	1550	7170	7320	1900	7170	8150	2110	8270	9340	2420	9930
	26700	6910	31900	32600	8430	31900	36200	9390	36800	41600	10800	44200
5206	9040	2340	12200	11000	2860	12200	12300	3180	14000	14100	3650	16800
	40200	10400	54100	49100	12700	54100	54700	14200	62500	62700	16200	74900
1306	7970	2060	9270	9730	2520	9270	10300	2680	10000	12100	3130	12400
	35400	9180	41200	43300	11200	41200	45900	11900	44700	53700	13900	55000
7306	10500	2720	13200	12800	3320	13200	13600	3530	14400	15900	4130	17700
	46800	12100	58900	57100	14800	58900	60600	15700	63800	70700	18400	78700
5306	12800	3320	17100	15700	4060	17100	16600	4310	18500	19400	5030	22800
	57000	14800	76100	69600	18000	76100	74000	19200	82400	86400	22400	101000
1207	6840	1770	8030	8350	2160	8030	9290	2410	9270	10700	2760	11100
	30400	7870	35700	37100	9610	35700	41300	10700	41200	47400	12300	49500
5207	11300	2920	15300	13800	3570	15300	15300	3970	17700	17600	4560	21200
	50200	13000	68100	61300	15900	68100	68300	17700	78600	78300	20300	94300
1307	9840	2550	12000	12000	3110	12000	13500	3490	14000	15600	4040	17000
	43800	11300	53400	53400	13800	53400	60000	15500	62400	69400	18000	75700
7307	13800	3580	18700	16900	4380	18700	17900	4630	20100	20700	5350	24400
	61500	15900	83100	75100	19500	83100	79400	20600	89500	91900	23800	109000
5307	15900	4120	22400	19400	5030	22400	20500	5320	24100	23800	6150	29200
	70800	18300	99400	86400	22400	99400	91400	23700	107000	106000	27400	130000
1208	8270	2140	10200	10100	2620	10200	11200	2890	11600	12700	3290	13800
	36800	9530	45300	44900	11600	45300	49700	12900	51800	56500	14600	61500
5208	14300	3710	20700	17500	4530	20700	19400	5010	23600	22000	5700	28000
	63800	16500	91900	77900	20200	91900	86100	22300	105000	97900	25400	125000
1308	12600	3260	15200	15400	3980	15200	16300	4230	16400	19100	4940	20200
	56000	14500	67500	68400	17700	67500	72600	18800	73100	84800	22000	90000
7308	17900	4630	23800	21800	5660	23800	23200	6010	25800	27100	7020	31800
	79600	20600	106000	97200	25200	106000	103000	26700	115000	121000	31200	141000
5308	20000	5190	27600	24500	6330	27600	26000	6720	29900	30300	7860	36800
	89100	23100	123000	109000	28200	123000	115000	29900	133000	135000	35000	163000

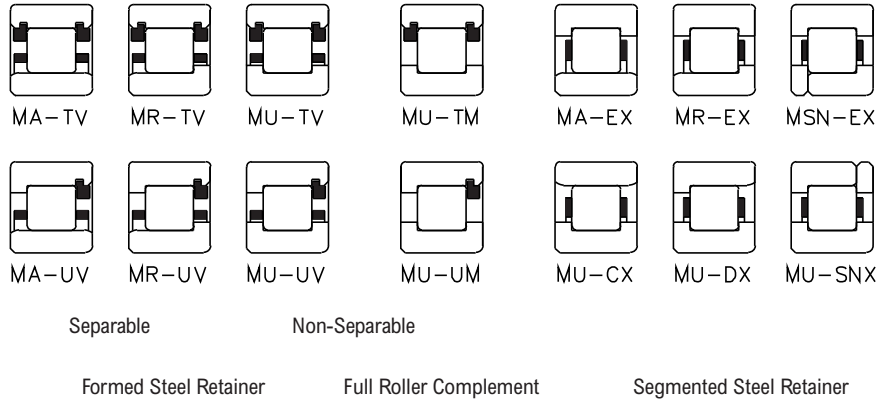
Ratings 45mm, 50mm, 55mm Bores



pounds/newtons

Basic bearing number	Formed Steel Retainer						Segmented Steel Retainer			Full Roller Complement		
	Separable			Non-separable			C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating
	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating						
1209	9670	2500	12900	11800	3060	12900	12900	3340	14500	14500	3750	16900
	43000	11100	57300	52500	13600	57300	57400	14900	64500	64400	16700	75200
5209	15600	4030	23800	19000	4920	23800	20800	5380	26700	23300	6040	31200
	69200	17900	106000	84500	21900	106000	92300	23900	119000	104000	26800	139000
1309	15900	4120	20400	19400	5040	20400	20600	5320	22000	23800	6160	26700
	70800	18300	90900	86500	22400	90900	91400	23700	97900	106000	27400	119000
7309	20300	5260	28000	24800	6430	28000	26200	6790	30100	30300	7860	36600
	90400	23400	124000	110000	28600	124000	117000	30200	134000	135000	35000	163000
5309	24800	6440	36200	30300	7860	36200	32100	8310	39000	37100	9610	47400
	111000	28600	161000	135000	35000	161000	143000	37000	174000	165000	42700	211000
1010	.....	.....	.....	.....	.....	.....	8840	2290	11100	.....	.....	.....
	.....	.....	.....	.....	.....	.....	39300	10200	49400	.....	.....	.....
1210	9830	2550	13600	12000	3110	13600	13000	3380	15200	15100	3900	18400
	43700	11300	60600	53400	13800	60600	58000	15000	67700	67000	17300	82000
5210	15800	4100	25100	19300	5000	25100	21000	5440	28100	24200	6280	34000
	70400	18200	112000	85900	22300	112000	93400	24200	125000	108000	27900	151000
1310	18600	4810	24000	22700	5870	24000	23900	6200	25900	27700	7170	31400
	82500	21400	107000	101000	26100	107000	107000	27600	115000	123000	31900	140000
7310	24000	6220	33500	29300	7590	33500	31000	8030	36000	35900	9290	43800
	107000	27700	149000	130000	33800	149000	138000	35700	160000	159000	41300	195000
5310	29300	7600	43300	35800	9280	43300	37900	9810	46600	43800	11300	56600
	131000	33800	193000	159000	41300	193000	169000	43600	207000	195000	50500	252000
1911	.....	.....	.....	.....	.....	.....	6960	1800	9570	.....	.....	.....
	.....	.....	.....	.....	.....	.....	31000	8020	42600	.....	.....	.....
1011	.....	.....	.....	.....	.....	.....	11200	2890	14300	.....	.....	.....
	.....	.....	.....	.....	.....	.....	49800	12900	63400	.....	.....	.....
1211	11700	3040	16400	1430	3710	16400	15600	4030	18400	18000	4650	22300
	52200	13500	73200	63700	16500	73200	69200	17900	81800	79900	20700	99000
5211	19200	4960	30900	23400	6060	30900	25400	6590	34600	29400	7600	41900
	85300	22100	138000	104000	27000	138000	113000	29300	154000	131000	33800	186000
1311	21900	5680	28800	26800	6930	28800	26800	6930	28800	31000	8020	35000
	97500	25300	128000	119000	30800	128000	119000	30800	128000	138000	35700	156000
7311	29300	7590	41800	35800	9270	41800	35800	9270	41800	41400	10700	50800
	130000	33800	186000	159000	41200	186000	159000	41200	186000	184000	47700	226000
5311	38100	9860	58600	46500	12000	58600	46500	12000	58600	53800	13900	71100
	169000	43900	260000	207000	53500	260000	207000	53500	260000	239000	61900	316000

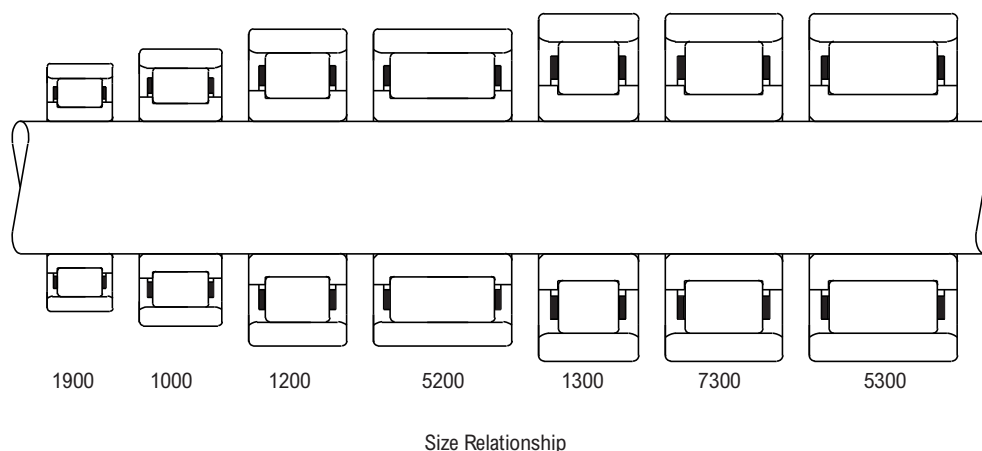
Ratings 60mm, 65mm, 70mm Bores



pounds/newtons

Basic bearing number	Formed Steel Retainer						Segmented Steel Retainer			Full Roller Complement		
	Separable			Non-separable			C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating
	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating						
1912	.....	.....	.....	.....	.....	.....	7200	1870	10300	.....	.....	.....
1012	.....	.....	.....	.....	.....	.....	32000	8300	45600	.....	.....	.....
	.....	.....	.....	.....	.....	.....	11700	3040	15600	.....	.....	.....
1212	.....	.....	.....	.....	.....	.....	52200	13500	69200	.....	.....	.....
	14500	3760	19600	17700	4590	19600	19400	5020	22100	21700	5630	25800
5212	64600	16700	87400	78900	20400	87400	86100	22300	98300	96700	25000	115000
	24700	6390	38900	30100	7800	38900	32900	8520	43700	36900	9570	51000
1312	110000	28400	173000	134000	34700	173000	146000	37900	194000	164000	42600	227000
	24900	6450	32800	30400	7880	32800	32100	8330	35300	37200	9630	42900
7312	111000	28700	146000	135000	35500	146000	143000	37000	157000	165000	42800	191000
	32600	8450	46400	39800	10300	46400	42100	10900	50000	48700	12600	60700
5312	145000	37600	206000	177000	45900	206000	187000	48500	222000	217000	56100	270000
	43900	11400	68000	53600	13900	68000	56600	14700	73200	65500	17000	88900
	195000	50500	302000	238000	61700	302000	252000	65200	326000	291000	75500	395000
1913	.....	.....	.....	.....	.....	.....	7600	1970	11200	.....	.....	.....
1013	.....	.....	.....	.....	.....	.....	33800	8750	50000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	12000	3100	16300	.....	.....	.....
1213	.....	.....	.....	.....	.....	.....	53200	13800	72400	.....	.....	.....
	16800	4360	24400	20500	5320	24400	21400	5540	25800	24700	6390	31200
5213	74800	19400	109000	91400	23700	109000	95100	24600	115000	110000	28400	139000
	26800	6930	44400	32700	8460	44400	34000	8810	46800	39300	10200	56700
1313	119000	30800	197000	145000	37600	197000	151000	39200	208000	175000	45200	252000
	30800	7970	41900	37600	9730	41900	37600	9730	41900	43400	11300	50900
7313	137000	35400	186000	167000	43300	186000	167000	43300	186000	193000	50100	226000
	39200	10100	57200	47800	12400	57200	47800	12400	57200	55300	14300	69400
5313	174000	45100	254000	213000	55100	254000	213000	55100	254000	246000	63700	309000
	54900	14200	88200	67000	17300	88200	67000	17300	88200	77500	20100	107000
	244000	63200	392000	298000	77200	392000	298000	77200	392000	345000	89300	476000
1914	.....	.....	.....	.....	.....	.....	10900	2810	15800	.....	.....	.....
1014	.....	.....	.....	.....	.....	.....	48300	12500	70400	.....	.....	.....
	.....	.....	.....	.....	.....	.....	14600	3770	18600	.....	.....	.....
1214	.....	.....	.....	.....	.....	.....	64800	16800	82800	.....	.....	.....
	18100	4700	26300	22100	5730	26300	24100	6230	29400	27900	7190	35600
5214	80600	20900	117000	98500	25500	117000	107000	27700	131000	124000	32000	158000
	29900	7750	50100	36600	9470	50100	39700	10300	56000	45900	11900	67800
1314	133000	34500	223000	163000	42100	223000	177000	45800	249000	204000	52800	302000
	35300	9130	48800	43000	11100	48800	43000	11100	48800	49800	12900	59200
7314	157000	40600	217000	191000	49600	217000	191000	49600	217000	221000	57400	263000
	43800	11300	64400	53500	13800	64400	53500	13800	64400	61800	16000	78200
5314	195000	50400	287000	238000	61600	287000	238000	61600	287000	275000	71300	348000
	57600	14900	91700	70400	18200	91700	70400	18200	91700	81400	21100	111000
	256000	66400	408000	313000	81100	408000	313000	81100	408000	362000	93800	495000

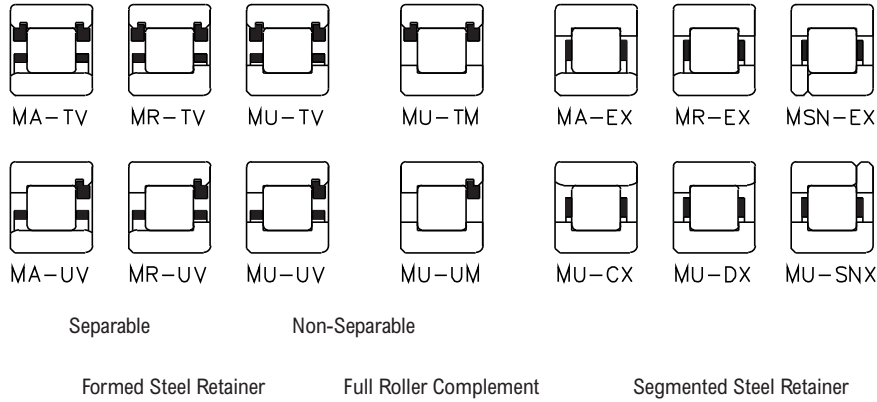
Ratings 75mm, 80mm, 85mm Bores



pounds/newtons

Basic bearing number	Formed Steel Retainer						Segmented Steel Retainer			Full Roller Complement		
	Separable			Non-separable			C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating
	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating						
1915	.....	.....	.....	.....	.....	.....	11200	2910	16900	.....	.....	.....
	.....	.....	.....	.....	.....	.....	50000	13000	75200	.....	.....	.....
1015	.....	.....	.....	.....	.....	.....	15300	3970	20300	.....	.....	.....
	.....	.....	.....	.....	.....	.....	68200	17700	90300	.....	.....	.....
1215	18800	4880	28000	23000	5960	28000	24900	6450	31100	28600	7390	37400
	83800	21700	125000	102000	26500	125000	111000	28700	139000	157000	32900	166000
5215	32500	8430	56600	39700	10300	56600	43000	11100	62900	49300	12800	75500
	145000	37500	252000	177000	45800	252000	191000	49500	280000	219000	56800	336000
1315	36600	9470	49700	44600	11600	49700	44600	11600	49700	51600	13400	60300
	163000	42100	221000	199000	51400	221000	199000	51400	221000	230000	59500	268000
7315	48500	12600	71500	59300	15400	71500	59300	15400	71500	68600	17800	86900
	216000	55900	318000	264000	68300	318000	264000	68300	318000	305000	79000	386000
5315	70900	18400	116000	86600	22400	116000	86600	22400	116000	100000	25900	141000
	315000	81700	518000	385000	99800	518000	385000	99800	518000	446000	115000	629000
1916	.....	.....	.....	.....	.....	.....	11600	3010	18000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	51700	13400	80000	.....	.....	.....
1016	.....	.....	.....	.....	.....	.....	19200	4970	25800	.....	.....	.....
	.....	.....	.....	.....	.....	.....	85300	22100	115000	.....	.....	.....
1216	20600	5330	30100	25100	6500	30100	27200	7040	33400	30200	7820	38400
	91500	23700	134000	112000	28900	134000	121000	31300	149000	134000	34800	171000
5216	36800	9540	63700	45000	11600	63700	48700	12600	70700	54000	14000	81300
	164000	42400	283000	200000	51800	283000	216000	56100	315000	240000	62300	362000
1316	41500	10800	57300	50700	13100	57300	50700	13100	57300	58700	15200	69600
	185000	47900	255000	226000	58400	255000	226000	58400	255000	261000	67600	309000
7316	55100	14300	82400	67300	17400	82400	67300	17400	82400	77900	20200	100000
	245000	63500	367000	299000	77500	367000	299000	77500	367000	346000	89700	445000
5316	73300	19000	119000	89400	23200	119000	89400	23200	119000	103000	26800	144000
	326000	84400	528000	398000	103000	528000	398000	103000	528000	460000	119000	642000
1917	.....	.....	.....	.....	.....	.....	13700	3550	20900	.....	.....	.....
	.....	.....	.....	.....	.....	.....	60900	15800	93100	.....	.....	.....
1017	.....	.....	.....	.....	.....	.....	19700	5100	27000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	87500	22700	120000	.....	.....	.....
1217	24800	6410	36700	30200	7830	36700	31500	8160	38700	36300	9410	46900
	110000	28500	163000	134000	34800	163000	140000	36300	172000	162000	41900	208000
5217	45300	11700	79700	55300	14300	79700	57600	14900	84100	66400	17200	102000
	201000	52200	354000	246000	63700	354000	356000	66300	374000	296000	76500	453000
1317	44600	11500	61200	54400	14100	61200	54400	14100	61200	63000	16300	74300
	198000	51300	272000	242000	62700	272000	242000	62700	272000	280000	72500	330000
7317	61700	16000	92900	75400	19500	92900	75400	19500	92900	87200	22600	113000
	275000	71100	413000	335000	86800	413000	335000	86900	413000	388000	100000	502000
5317	86300	22400	143000	105000	27300	143000	105000	27300	143000	122000	31600	174000
	384000	99500	636000	469000	121000	636000	469000	121000	636000	542000	140000	773000

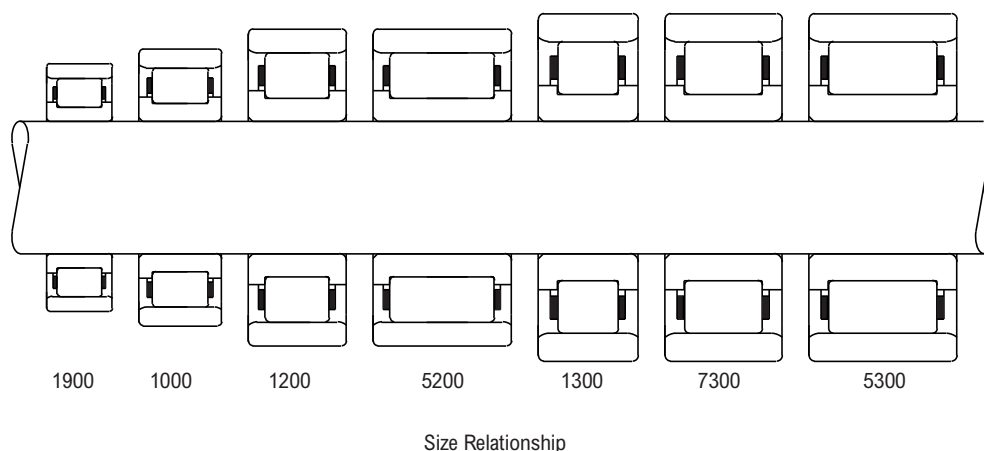
Ratings 90mm, 95mm, 100mm Bores



pounds/newtons

Basic bearing number	Formed Steel Retainer						Segmented Steel Retainer			Full Roller Complement		
	Separable			Non-separable			C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating
	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating						
1918	.....	.....	.....	.....	.....	.....	14200	3670	22200	.....	.....	.....
1018	.....	.....	.....	.....	.....	.....	6300	16300	98900	.....	.....	.....
	.....	.....	.....	.....	.....	.....	24900	6440	33500	.....	.....	.....
1218	.....	.....	.....	.....	.....	.....	111000	28600	149000	.....	.....	.....
	28700	7440	42600	35100	9090	42600	38100	9880	47600	42600	11000	55100
5218	128000	33100	190000	156000	40400	190000	170000	43900	212000	189000	49000	245000
	51000	13200	89100	62300	16100	89100	67700	17500	99600	75500	19600	115000
1318	227000	58700	396000	277000	71700	396000	301000	78000	443000	336000	87000	513000
	52600	13600	74200	64200	16600	74200	64200	16600	74200	74200	19200	90100
7318	234000	60600	330000	285000	73900	330000	285000	73900	330000	330000	85500	401000
	69000	17900	105000	84300	21800	105000	84300	21800	105000	97500	25300	128000
5318	307000	79500	469000	375000	97100	469000	375000	97100	469000	434000	112000	569000
	88400	22900	145000	108000	27900	145000	108000	27900	145000	125000	32300	176000
1919	393000	102000	644000	480000	124000	644000	480000	124000	644000	556000	144000	783000
	.....	.....	.....	.....	.....	.....	14600	3790	23600	.....	.....	.....
1019	.....	.....	.....	.....	.....	.....	65100	16900	105000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	25500	6600	35100	.....	.....	.....
1219	.....	.....	.....	.....	.....	.....	113000	29400	156000	.....	.....	.....
	33400	8650	50000	40800	10600	50000	42600	11000	53000	49500	12800	64700
5219	149000	38500	222000	181000	47000	222000	189000	49000	236000	220000	57000	288000
	58500	15200	103000	71400	18500	103000	74600	19300	109000	86700	22400	133000
1319	260000	67400	457000	318000	82300	457000	332000	85900	484000	386000	99800	592000
	55300	14300	80500	67600	17500	80500	67600	17500	80500	77400	20100	96600
7319	246000	63700	358000	300000	77800	358000	300000	77800	358000	344000	89200	430000
	75800	19600	121000	92600	24000	121000	92600	24000	121000	106000	27500	145000
5319	337000	87400	537000	412000	107000	537000	412000	107000	537000	472000	122000	644000
	93000	24100	157000	114000	29400	157000	114000	29400	157000	130000	33700	188000
1920	414000	107000	698000	505000	131000	698000	505000	131000	698000	579000	150000	838000
	.....	.....	.....	.....	.....	.....	17300	4470	25600	.....	.....	.....
1020	.....	.....	.....	.....	.....	.....	76800	19900	114000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	26100	6760	36700	.....	.....	.....
1220	.....	.....	.....	.....	.....	.....	116000	30100	163000	.....	.....	.....
	36500	9470	54800	44600	11600	54800	46600	12100	58000	54100	14000	70900
5220	163000	42100	244000	198000	51400	244000	207000	53700	258000	241000	62400	315000
	65900	17100	117000	80500	20800	117000	84000	21800	124000	97700	25300	151000
1320	293000	76000	520000	358000	92700	520000	374000	96800	551000	434000	113000	674000
	60600	15700	88300	74000	19200	88300	74000	19200	88300	84800	22000	106000
7320	270000	69800	393000	329000	85300	393000	329000	85300	393000	377000	97700	472000
	82500	21400	131000	101000	26100	131000	101000	26100	131000	115000	29900	157000
5320	367000	95000	584000	448000	116000	584000	448000	116000	584000	513000	133000	700000
	111000	28700	192000	135000	35100	192000	135000	35100	192000	155000	40200	231000
5320	493000	128000	855000	602000	156000	855000	602000	156000	855000	691000	179000	1030000
												

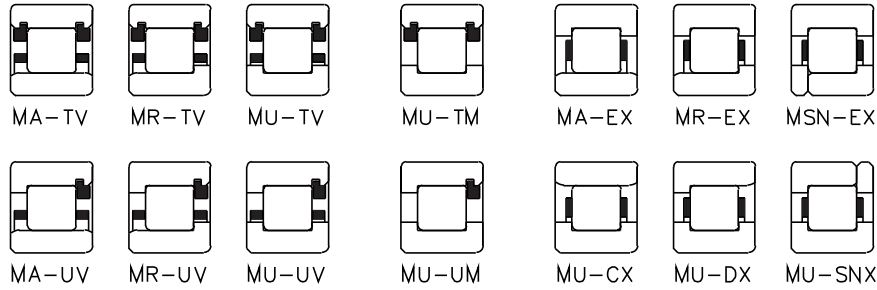
Ratings 105mm, 110mm, 120mm Bores



pounds/newtons

Basic bearing number	Formed Steel Retainer						Segmented Steel Retainer			Full Roller Complement		
	Separable			Non-separable			C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating
	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating						
1921	.....	.....	.....	.....	.....	.....	17900	4650	27300	.....	.....	.....
	.....	.....	.....	.....	.....	.....	79800	20700	121000	.....	.....	.....
1021	.....	.....	.....	.....	.....	.....	31000	8040	45000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	138000	35800	200000	.....	.....	.....
1221	38600	9990	57800	47100	12200	57800	49200	12700	61200	57200	14800	74800
	172000	44400	257000	210000	54300	257000	219000	56600	272000	254000	65800	333000
5221	73400	19000	132000	89600	23200	132000	93600	24200	140000	109000	28200	171000
	327000	84600	588000	399000	103000	588000	416000	108000	622000	484000	125000	760000
1321	71700	18600	108000	87500	22700	108000	87500	22700	108000	100000	26000	129000
	319000	82500	479000	389000	101000	479000	389000	101000	479000	446000	116000	575000
7321	90500	23400	145000	110000	28600	145000	110000	28600	145000	127000	32800	174000
	403000	104000	647000	491000	127000	647000	491000	127000	647000	563000	146000	776000
5321	118000	30500	204000	144000	37200	204000	144000	37200	204000	165000	42700	244000
	523000	136000	906000	639000	165000	906000	639000	165000	906000	734000	190000	1090000
1922	.....	.....	.....	.....	.....	.....	18200	4720	28200	.....	.....	.....
	.....	.....	.....	.....	.....	.....	81200	21000	125000	.....	.....	.....
1022	.....	.....	.....	.....	.....	.....	35300	9150	50600	.....	.....	.....
	.....	.....	.....	.....	.....	.....	157000	40700	225000	.....	.....	.....
1222	43600	11300	67300	53200	13800	67300	55400	14400	71100	61900	16000	82300
	194000	50200	299000	237000	61300	299000	247000	63900	316000	275000	71300	366000
5222	79900	20700	147000	97600	25300	147000	102000	26300	155000	113000	29400	179000
	356000	92100	653000	434000	112000	653000	452000	117000	689000	505000	131000	798000
1322	72800	18900	107000	88900	23000	107000	88900	23000	107000	102000	26400	129000
	324000	83800	477000	395000	102000	477000	395000	102000	477000	453000	117000	572000
7322	99800	25800	161000	122000	31500	161000	122000	31500	161000	140000	36200	193000
	444000	115000	715000	542000	140000	715000	542000	140000	715000	621000	161000	858000
5322	138000	35700	244000	169000	43600	244000	169000	43600	244000	193000	50000	293000
	614000	159000	1090000	750000	194000	1090000	750000	194000	1090000	859000	223000	1300000
1924	.....	.....	.....	.....	.....	.....	23800	6160	37300	.....	.....	.....
	.....	.....	.....	.....	.....	.....	106000	27400	166000	.....	.....	.....
1024	.....	.....	.....	.....	.....	.....	37000	9590	55100	.....	.....	.....
	.....	.....	.....	.....	.....	.....	165000	42700	245000	.....	.....	.....
1224	49400	12800	77900	60300	15600	77900	62800	16300	82300	72500	18800	99600
	220000	56900	347000	268000	69500	347000	279000	72400	366000	323000	83500	443000
5224	97200	25200	186000	119000	30700	186000	124000	32000	196000	143000	36900	238000
	432000	112000	827000	528000	137000	827000	550000	142000	873000	634000	164000	1060000
1324	84600	21900	126000	103000	26700	126000	103000	26700	126000	118000	30700	151000
	376000	97400	562000	459000	119000	562000	459000	119000	562000	527000	136000	674000
7324	118000	30500	193000	144000	37300	193000	144000	37300	193000	165000	42700	232000
	524000	136000	861000	640000	166000	861000	640000	166000	861000	734000	190000	1030000
5324	170000	44100	310000	208000	53900	310000	208000	53900	310000	238000	61700	373000
	757000	196000	1380000	925000	240000	1380000	925000	240000	1380000	1060000	275000	1660000

Ratings 130mm, 140mm, 150mm Bores



Separable

Non-Separable

Formed Steel Retainer

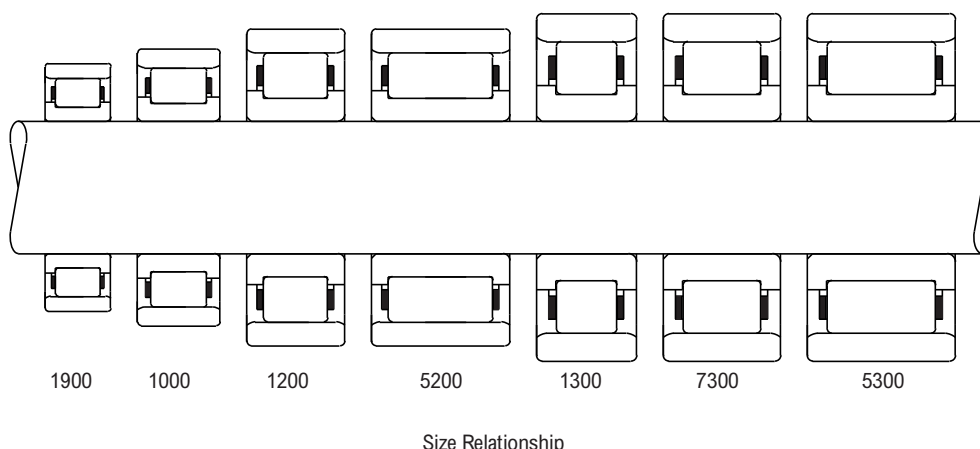
Full Roller Complement

Segmented Steel Retainer

pounds/newtons

Basic bearing number	Formed Steel Retainer						Segmented Steel Retainer			Full Roller Complement		
	Separable			Non-separable			C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating
	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating						
1926	.....	.....	.....	.....	.....	.....	30100	7800	47600	.....	.....	.....
	.....	.....	.....	.....	.....	.....	134000	34700	212000	.....	.....	.....
1026	.....	.....	.....	.....	.....	.....	47500	12300	69100	.....	.....	.....
	.....	.....	.....	.....	.....	.....	211000	54700	307000	.....	.....	.....
1226	55300	14300	85200	67500	17500	85200	67500	17500	85200	78500	20300	104000
	246000	63700	379000	300000	77800	379000	300000	77800	379000	349000	90400	463000
5226	104000	26900	192000	127000	32800	192000	127000	32800	192000	147000	38200	234000
	462000	120000	852000	564000	146000	852000	564000	146000	852000	655000	170000	1040000
1326	100000	25900	151000	122000	31700	151000	122000	31700	151000	140000	36300	182000
	446000	115000	674000	544000	141000	674000	544000	141000	674000	624000	162000	808000
7326	138000	35700	228000	168000	43600	228000	168000	43600	228000	193000	50000	274000
	613000	159000	1020000	749000	194000	1020000	749000	194000	1020000	858000	222000	1220000
5326	190000	49300	346000	232000	60200	346000	232000	60200	346000	267000	69000	415000
	847000	219000	1540000	1030000	268000	1540000	1030000	268000	1540000	1190000	307000	1850000
1928	.....	.....	.....	.....	.....	.....	31100	8060	50800	.....	.....	.....
	.....	.....	.....	.....	.....	.....	138000	35900	226000	.....	.....	.....
1028	.....	.....	.....	.....	.....	.....	49900	12900	75100	.....	.....	.....
	.....	.....	.....	.....	.....	.....	222000	57400	334000	.....	.....	.....
1228	61700	16000	95000	75300	19500	95000	75300	19500	95000	87600	22700	116000
	274000	71100	422000	335000	86800	422000	335000	86800	422000	390000	101000	516000
5228	129000	33400	244000	157000	40700	244000	157000	40700	244000	183000	47300	299000
	573000	148000	1090000	699000	181000	1090000	699000	181000	1090000	813000	211000	1330000
1328	111000	28800	170000	136000	35200	170000	136000	35200	170000	156000	40400	204000
	495000	128000	756000	605000	157000	756000	605000	157000	756000	693000	180000	907000
7328	158000	40800	266000	192000	49800	266000	192000	49800	266000	221000	57100	319000
	701000	182000	1180000	856000	222000	1180000	856000	222000	1180000	981000	254000	1420000
5328	209000	54200	383000	256000	66200	383000	256000	66200	383000	293000	75900	460000
	931000	241000	1700000	1140000	295000	1700000	1140000	295000	1700000	1300000	338000	2050000
1930	.....	.....	.....	.....	.....	.....	41800	10800	68600	.....	.....	.....
	.....	.....	.....	.....	.....	.....	186000	48100	305000	.....	.....	.....
1030	.....	.....	.....	.....	.....	.....	56700	14700	85800	.....	.....	.....
	.....	.....	.....	.....	.....	.....	252000	65300	382000	.....	.....	.....
1230	71000	18400	111000	86700	22500	111000	86700	22500	111000	101000	26100	135000
	316000	81800	492000	386000	99900	492000	386000	99900	492000	448000	116000	601000
5230	150000	38900	289000	183000	47500	289000	183000	47500	289000	213000	55200	354000
	668000	173000	1290000	815000	211000	1290000	815000	211000	1290000	948000	245000	1570000

Ratings 160mm, 170mm, 180mm, 190mm, 200mm Bores



pounds/newtons

Basic bearing number	Formed Steel Retainer						Segmented Steel Retainer			Full Roller Complement		
	Separable			Non-separable			C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating
	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating	C Basic Load Rating	Bearing Capacity 500 RPM, 3000 Hrs. L ₁₀	Co Basic Static Load Rating						
1932	.....	.....	.....	.....	.....	.....	43200	11200	73100	.....	.....	.....
1032	.....	.....	.....	.....	.....	.....	192000	49800	325000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	65000	16800	99800	.....	.....	.....
1232	.....	.....	.....	.....	.....	.....	289000	74800	444000	.....	.....	.....
	78300	20300	120000	95600	24800	120000	99800	25800	127000	112000	29000	148000
5232	348000	90200	534000	425000	110000	534000	444000	115000	565000	498000	129000	660000
	174000	45100	336000	213000	55100	336000	222000	57500	356000	249000	64600	415000
	775000	201000	1490000	946000	245000	1490000	988000	256000	1580000	1110000	287000	1850000
1934	.....	.....	.....	.....	.....	.....	43700	11300	75500	.....	.....	.....
1034	.....	.....	.....	.....	.....	.....	195000	50400	336000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	81400	21100	130000	.....	.....	.....
1234	.....	.....	.....	.....	.....	.....	362000	93800	577000	.....	.....	.....
	95700	24800	149000	117000	30300	149000	122000	31600	158000	137000	35500	184000
5234	426000	110000	664000	520000	135000	664000	543000	141000	703000	609000	158000	820000
	202000	52400	391000	247000	64000	391000	258000	66800	414000	290000	75000	483000
	900000	233000	1740000	1100000	285000	1740000	1150000	297000	1840000	1290000	334000	2150000
1936	.....	.....	.....	.....	.....	.....	56000	14500	93700	.....	.....	.....
1036	.....	.....	.....	.....	.....	.....	249000	64500	417000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	97900	25400	154000	.....	.....	.....
1236	.....	.....	.....	.....	.....	.....	436000	113000	685000	.....	.....	.....
	99600	25800	159000	122000	31500	159000	122000	31500	159000	136000	35300	186000
5236	443000	115000	708000	541000	140000	708000	541000	140000	708000	607000	157000	826000
	195000	50600	379000	239000	61800	379000	239000	61800	379000	268000	69400	442000
	870000	225000	1690000	1060000	275000	1690000	1060000	275000	1690000	1190000	309000	1970000
1938	.....	.....	.....	.....	.....	.....	56800	14700	97000	.....	.....	.....
1038	.....	.....	.....	.....	.....	.....	253000	65500	431000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	100000	26000	161000	.....	.....	.....
1238	.....	.....	.....	.....	.....	.....	446000	115000	716000	.....	.....	.....
	143200	37000	239400	175400	45600	239400	190600	49300	267700	205000	53000	299000
5238	637000	164900	1065000	780000	203000	1065000	848000	219500	1191000	912000	236000	1330000
	242000	62800	489000	296000	76600	489000	296000	76600	489000	332000	86000	570000
	1080000	279000	2170000	1320000	341000	2170000	1320000	341000	2170000	1480000	383000	254000
1940	.....	.....	.....	.....	.....	.....	73700	19100	125000	.....	.....	.....
1040	.....	.....	.....	.....	.....	.....	328000	84900	556000	.....	.....	.....
	.....	.....	.....	.....	.....	.....	121000	31300	193000	.....	.....	.....
1240	.....	.....	.....	.....	.....	.....	538000	139000	859000	.....	.....	.....
	123000	31900	201000	150000	38900	201000	150000	38900	201000	175000	45200	246000
5240	547000	142000	893000	668000	173000	893000	668000	173000	893000	777000	201000	1090000
	270000	69900	551000	329000	85300	551000	329000	85300	551000	383000	99200	673000
	1200000	311000	2450000	1460000	379000	2450000	1460000	379000	2450000	1700000	441000	2990000

Shaft Bearing Seat Diameters

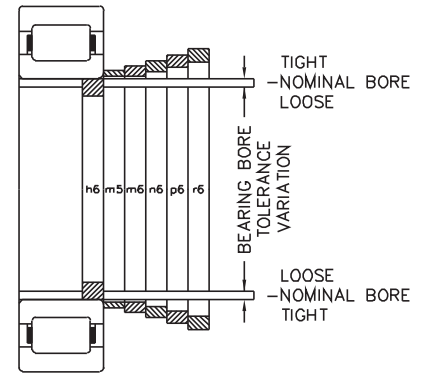
Bearing bore tolerances are in accordance with the system of tolerancing established by the International Standards Organization (ISO) and adopted by the American Bearing Manufacturers Association (ABMA) and the American National Standards Institute (ANSI).

A system of limits and fits has been established by ISO for shafts. A portion of this system has been adopted by ABMA to provide flexibility in selecting shaft fits. Shaft fits are designated by a lower case letter and a number, such as h6. The letter indicates the location of the shaft tolerance limits with respect to the nominal bearing bore. The number indicates the size of the tolerance zone.

Shaft fits recommended for various types of applications are listed in the table at right. A graphic relationship of various shaft fits is illustrated in the figure at the left.

Many factors influence the proper fit of the bearing inner ring on a shaft. The magnitude of the load and its direction with respect to bearing inner or outer rings are generally the first factors considered in shaft fit selection. The effects of other factors such as vibration, shock, temperature, speed, etc., are of secondary importance but sometimes need to be considered. Where assembly or disassembly requirements are of prime importance special shaft fits may be required.

Appropriate diameter shafting is determined (as shown) from the tables below.



Class of Fit and Shaft Diameters (inches/μm)

Bearing Series, 1000, 1200, 1300, 1900, 5200, 5300, 7300	Nominal Bearing Bore And Shaft Diameter				Bearing/Shaft Diameter Fits ▲			
					H6		M5	
					Tolerance		Tolerance	
					Fit		Fit	
Basic Size	mm	inches	μm	inches	Fit	Shaft Dia.	Fit	Shaft Dia.
					.0004T	-.0000	.0011T	0.0007
04	20.000	0.7874	0	0.0000	.0005L	-.0005	.0003T	0.0003
05	25.000	0.9843	-10	-.0004	10T	0	27T	17
06	30.000	1.1811			13L	-13	8T	8
07	35.000	1.3780			.0005T	0.0000	.0013T	0.0008
08	40.000	1.5748	0	0.0000	.0006L	-.0006	.0004T	0.0004
09	45.000	1.7717	-12	-.0005	12T	0	33T	20
10	50.000	1.9685			16L	-16	9T	9
11	55.000	2.1654						
12	60.000	2.3622			.0006T	0.0000	.0016T	0.001
13	65.000	2.5591	0	0.0000	.0007L	0.0007	.0005T	0.0005
14	70.000	2.7559	-15	-.0006	15T	0	39T	24
15	75.000	2.9528			19L	-19	11T	11
16	80.000	3.1496						
17	85.000	3.3465						
18	90.000	3.5433			.0008T	-.0000	.0019T	0.0011
19	95.000	3.7402	0	0.0000	.0009L	-.0009	.0005T	0.0005
20	100.000	3.9370	-20	-.0008	20T	0	48T	28
21	105.000	4.1339			22L	-22	13T	13
22	110.000	4.3307						
24	120.000	4.7244						
26	130.000	5.1181						
28	140.000	5.5118			.0010T	-.0000	.0023T	0.0013
30	150.000	5.9055	0	0.0000	.0010L	-.0010	.0006T	0.0006
32	160.000	6.2992	-25	-.0010	25T	0	58T	33
34	170.000	6.6929			25L	-25	15T	13
36	180.000	7.0866						
					.0012T	0.000	.0026T	0.0014
38	190.000	7.4803	0	0.0000	.0012L	-.0012	.0006T	0.0006
40	200.000	7.8740	-30	-.0012	30T	0	67T	37
					29L	-29	17T	17

Class of Fit Selection

Operating conditions ■	Nominal shaft dia.		Class of fit	Remarks
	mm	inches		
Inner ring stationary in relation to direction of load	All diameters		h6	Tap fit inner ring
Inner ring rotating in relation to direction of load (Normal load $m=0.18C$)●	17-40	0.67-1.57	m5	Press fit inner ring
	40-65	1.57-2.56	m6	
	65-140	2.56-5.52	n6	
	140-200	5.52-7.88	p6	
Inner ring rotating in relation to direction of load (Heavy load $>.018C$)●	35-65	1.37-2.56	n6	Heavy press fit inner ring
	65-140	2.56-5.52	p6	
	140-200	5.52-7.88	r6	

Bearing/Shaft Diameter Fit

Bearing Series 1000, 1200, 1300, 1900, 5200, 5300, 7300	m6		n6		p6		r6	
	Tolerance		Tolerance		Tolerance		Tolerance	
	Basic size	Fit	Shaft dia.	Fit	Shaft dia.	Fit	Shaft dia.	Fit
	04	.....	.....	.....	.....	.....	.....	.....
	05	.....	.....	.....	.....	.....	.....	.....
	06	.....	.....	.....	.....	.....	.....	.....
	07	.0015T	0.0010	.0018T	0.0013	.....	.....	.....
	thru	.0004T	0.0004	.0007T	0.0007	.....	.....	.....
	10	38T	25	46T	33	.....	.....	.....
		9T	9	17T	17	.....	.....	.....
	11	.0018T	0.0012	.0021T	0.0015	.0027T	0.0021	.....
	thru	.0005T	0.0005	.0008T	0.0008	.0014T	0.0014	.....
	16	45T	30	54T	39	66T	51	.....
		11T	11	20T	20	32T	32	.....
	17	.0022T	0.0014	.0027T	0.0019	.0033T	0.0025	.0037T
	thru	.0005T	0.0005	.0010T	0.0010	.0016T	0.0016	.0020T
	24	55T	35	65T	45	79T	59	96T
		13T	13	23T	23	37T	37	54T
	26	.0026T	0.0016	.0032T	0.0022	.0038T	0.0028	.0045T
	thru	.0006T	0.0006	.0012T	0.0012	.0018T	0.0018	.0025T
	36	65T	40	77T	52	93T	68	118T
		15T	15	27T	27	43T	43	68T
		.0030T	0.0018	.0038T	0.0026	.0044T	0.0032	.0054T
	38	.0006T	0.0006	.0014T	0.0014	.0020T	0.0020	.0030T
	40	76T	46	90T	60	109T	79	136T
		17T	17	31T	31	50T	50	77T

△ Symbol L indicates a loose or clearance fit, Symbol T indicates a tight or interference fit. The appropriate shaft diameter for any class of fit can be easily determined by applying the shaft tolerance to the nominal shaft diameter. Example: (Using basic bearing size 03 and fit class h6)

	inches	mm
Nominal shaft diameter	= .6693 .6693	= 17.000 17.000
Shaft diameter tolerance	= +.0000 -.0004	= + 0.000 -0.010

Resultant shaft diameter = .6693 .6689 = 17.000 16.989

1μm = .001 mm

■ For solid steel shafts.

● C = Basic Load Rating of bearing.

▲ The arithmetical mean of the largest and smallest single diameter to be within tolerance shown. Allowable deviations from mean diameter per ANSI/ABMA STD 20, latest printing.

Housing Bearing Seat Diameters

Bearing outside diameter tolerances are in accordance with the system of tolerancing established by the International Standards Organization (ISO) and adopted by the American Bearing Manufacturers Association (ABMA) and the American National Standards Institute (ANSI).

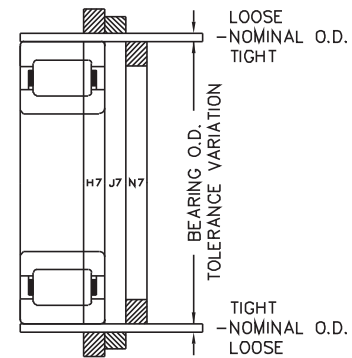
A system of limits and fits has been established by ISO for holes. A portion of this system has been adopted by ABMA to provide flexibility in selecting housing fits. Housing fits are designated by a capital letter and a number such as H7. The letter indicates the location of the housing bore tolerance limits with respect to the nominal bearing O.D. The number indicates the size of the tolerance zone.

Housing fits recommended for various types of applications are listed in the table at the right. A graphic relationship of various housing fits is illustrated in the figure at the left. The class of fit is determined by nature of loading (oscillating, vibrating, reversing, etc.), axial movement requirements, temperature conditions, housing material and cross section of housing.

Shaft expansion increases bearing center distances and requires all but one bearing on a shaft to be movable axially in the housing. In most bearings the outer rings are subjected to stationary loads which permit a loose housing fit.

Operating temperature may affect the housing fit, as the housing may dissipate heat rapidly and not expand with the outer ring. However, the loose fit must never be greater than necessary. Excessive looseness results in less accurate shaft centering and additional ring deformation under load.

The appropriate housing bores are determined (as shown) from the tables below.



Class of Fit and Housing Bores (inches/μm)

Bearing Series						Bearing/Housing Diameter Fits▲						
1900	1000	1200	1300	Nominal Bearing O.D. And Housing Bore	Bearing O.D. ToleranceΔ	H7		J7		N7		
		5200	5300			Tolerance		Tolerance		Tolerance		
						Fit	Housing Bore	Fit	Housing Bore	Fit	Housing Bore	
Basic Size				mm	inches							
...	...	205	304	52	2.0472	0	0	0	.0004T	-0.0004	.0002L	-0.0003
...	...	206	305	62	2.4409	-.0005	.0017L	0.0012	.0013L	±.0008	.0015T	-0.0015
...	...	207	306	72	2.8346	0	0	0	12T	-12	4L	-9
911	010	208	307	80	3.1496	-13	43L	30	31L	-18	39T	-39
912	...	209	...	85	3.3465							
913	011	210	308	90	3.5433							
...	012	...	...	95	3.7402	0	0	0	.0005T	-0.0005	.0002L	-0.0004
914	013	211	309	100	3.9370	-.0006	.0020L	0.0014	.0015L	0.0009	.0018T	-0.0018
915	...	...	...	105	4.1339	0	0	0	13T	-13	5L	-10
916	014	212	310	110	4.3307	-15	50L	35	37L	22	45T	-45
...	015	...	...	115	4.5276							
917	...	213	311	120	4.7244							
918	016	214	...	125	4.9213	0	0	0	.0006T	-0.0006	.0002L	-0.0006
919	017	215	312	130	5.1181	-.0008	.0024L	0.0016	.0018L	0.0010	.0022T	-0.0002
920	018	216	313	140	5.5118	0	0	0	14T	-14	6L	-12
921	019	...	...	145	5.7087	-20	61L	41	44L	26	52T	-52
922	020	217	314	150	5.9055							
...	021	218	315	160	6.2992	0	0	0	.0006T	-0.0006	.0004L	-0.0006
924	...	...	...	165	6.4961	-.0010	.0026L	0.0016	.0020L	0.001	.0022T	-0.0022
...	022	219	316	170	6.6929	0	0	0	14T	-14	13L	-12
926	024	220	317	180	7.0866	-25	65L	40	51L	26	57T	-52
928	...	221	318	190	7.4803							
...	026	222	319	200	7.8740							
930	028	...	...	210	8.2677	0	0	0	.0007T	-0.0007	.0004L	-0.0008
...	...	224	320	215	8.4646	-0.0012	.0030L	0.0018	.0023L	0.0011	.0026T	-0.0026
932	...	...	321	220	8.6614	0	0	0	16T	-16	16L	-14
...	030	...	...	225	8.8583	-30	76L	46	60L	30	60T	-60
934	...	226	322	230	9.0551							
...	032	...	...	240	9.4488							
936	...	228	...	250	9.8425							
938	034	...	324	260	10.2362	0	0	0	.0007T	-0.0007	.0006L	-0.0008
...	...	230	...	270	10.6299	-.0014	.0034L	0.002	.0027L	0.0013	.0028T	-0.0028
940	036	...	326	280	11.0236	0	0	0	16T	-16	21L	-14
...	038	232	...	290	11.4173	-35	87L	52	71L	36	66T	-66
...	...	...	328	300	11.8110							
...	040	234	...	310	12.2047							
...	...	236	330	320	12.5984	-.0016	.0038L	0	.0007T	-0.0007	.0008L	-0.0008
...	...	238	...	340	13.3858	0	0	0.0022	.0030L	0.0014	.0030T	-0.003
...	...	240	...	360	14.1732	-40	97L	57	8T	-18	24L	-16
...	...	...	...	...	...	...	...	...	79L	39	73T	-73

1 μm = .001 mm

□ Minimum housing bore is same as ABMA fit class; tolerance is within ABMA range.

■ Style A outer ring has oversize O.D. designed to give a heavy press fit with a tap fit housing bore. Inner ring to be press fit for values.

Δ The arithmetical mean of the largest and smallest single diameter to be within tolerance shown.

Allowable deviations from mean diameter per ANSI/ABMA STD 20, latest printing.

Class of Fit Selection

Operating conditions	Class of fit	Remarks
Housing stationary in relation to direction of load	H7	Push fit outer ring for non-separable bearing styles MU...UV and MU...UM
Housing stationary in relation to direction of load	J7□	Tap fit outer ring
Housing rotating in relation to direction of load	N7□	Press fit outer ring
	■	Heavy press fit with Style A outer ring

Heavy Press Fit With Style A Outer Ring (inches/μm)

Bearing Series						Nominal Bearing O.D. And Housing Bore Style A Outer Ring	Bearing O.D. ToleranceΔ	Bearing/Housing Diameter Fits ▲			
1900	1000	1200	1300	mm	inches			Tolerance			
		5200	5300					Fit	Housing Bore		
		7300									
...	...	205	304	52.024	2.0482	0.0000	.00000	0	-.0005	-13	
						-.0005	.0014T	35T	-.0014	-35	
...	...	206	305	62.029	2.4421	0	.0001T	2T	-.0006	-15	
						-13	.0016T	40T	-.0016	-40	
		207	306	72.032	2.8359		.0002T	5T	-.0007	-18	
							.0017T	43T	-.0017	-43	
911	010	208	307	80.035	3.151		.0003T	7T	-.0008	-20	
							.0018T	45T	-.0018	-45	
912	...	209	...	85.039	3.348		.0004T	10T	-.0010	-25	
							.0020T	50T	-.0020	-50	
913	011	210	308	90.04	3.5449		.0005T	13T	-.0011	-28	
							.0021T	53T	-.0021	-53	
...	012	...	...	95.044	3.7419	0.0000	.0006T	15T	-.0012	-30	
						-.0006	.0022T	56T	-.0022	-56	
914	013	211	309	100.046	3.9388	0	.0007T	18T	-.0013	-33	
						-15	.0023T	58T	-.0023	-58	
915	...	...	...	105.049	4.1358		.0008T	20T	-.0014	-35	
							.0024T	61T	-.0024	-61	
916	014	212	310	110.056	4.3329		.0009T	23T	-.0017	-38	
	015	...	...	115.057	4.5298		.0027T	69T	-.0027	-69	
917	...	213	311	120.056	4.7266						
918	016	214	...	125.059	4.9236	0.0000	.0009T	23T	-.0017	-43	
919	017	215	312	130.058	5.1204	-0.0008	.0029T	74T	-.0029	-74	
920	018	216	313	140.058	5.5141						
921	019	...	...	145.067	5.7113	0	.0010T	25T	-.0018	-45	
922	020	217	314	150.066	5.9081	-20	.0032T	81T	-.0032	-81	
...	021	218	315	160.071	6.302	0.0000	.0010T	25T	-.0020	-50	
924	...	...	...	165.072	6.4989	-.0010	.0034T	86T	-.0034	-86	
...	022	219	316	170.071	6.6957	0					
926	024	220	317	180.071	7.0894	-25					
928	...	221	318	190.076	7.4833	0	.0011T	28T	-.0023	-58	
...	026	222	319	200.078	7.8771	-.0012	.0037T	94T	-.0037	-94	
							.0012T	30T	-.0024	-60	
930	028	...	...	210.081	8.2709		.0038T	97T	-.0038	-97	
							.0013T	33T	-.0025	-63	
...	...	224	320	215.087	8.468		.0039T	99T	-.0039	-99	
932	...	...	...	220.088	8.6649		.0013T	33T	-.0025	-63	
...	030	...	321	225.09	8.8618		.0041T	104T	-.0041	-104	
						0	.0014T	36T	-.0026	-66	
934	...	226	...	230.091	9.0587	-30	.0042T	107T	-.0042	-107	
...	032	...	322	240.096	9.4526		.0015T	38T	-.0027	-68	
936	...	228	...	250.096	9.8463		.0043T	109T	-.0043	-109	
							.0015T	38T	-.0027	-68	
							.0045T	114T	-.0045	-114	
938	034	...	324	260.101	10.2402	0.0000	.0015T	38T	-.0029	-73	
...	...	230	...	270.101	10.6339	-0.0014	.0047T	119T	-.0047	-119	
940	036	...	326	280.101	11.0276	0	.0016T	41T	-.0030	-76	
...	038	232	...	290.109	11.4216	-35	.0050T	127T	-.0050	-127	
...	...	...	328	300.111	11.8154		.0017T	43T	-.0031	-78	
...	040	234	...	310.111	12.2091		.0051T	130T	-.0051	-130	
...	...	236	330	320.121	12.6032	0.0000	.0017T	43T	-.0033	-83	
...	...	238	...	340.121	13.3906	-0.0016	.0055T	140T	-.0055	-140	
...	...	240	...	360.124	14.1781	0	.0018T	46T	-.0043	-86	
						-40	.0056T	142T	-.0056	-142	

▲ Symbol L indicates a loose or clearance fit. Symbol T indicates a tight or interference fit. The appropriate housing bore for any class of fit can be easily determined by applying the housing tolerance to the nominal housing bore. Example: (Using basic bearing size 926 and fit class N7)

	inches	mm	
Nominal housing bore	= 7.0866	7.0866 =	180.000 180.000
Housing bore tolerance	= -.0006	-.0022 =	-.012 -.052
Resultant housing bore	= 7.0860	7.0844 =	179.988 179.948

Operation Without Inner Ring/Outer Ring

Outer Ring and Roller Assembly

for Series M-EX, M-EAX, M-EB, M-EAB, M-TV, M-TAV, M-UV and M-UAV

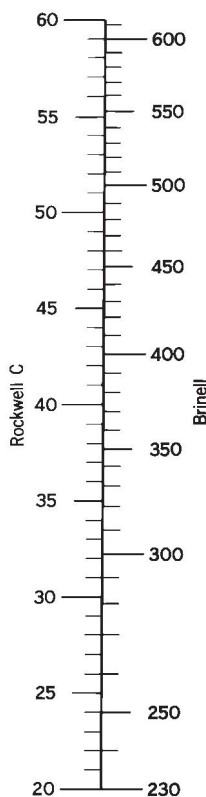
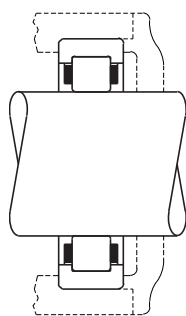
Cylindrical roller bearings with the inner ring omitted may be installed so that the rollers operate directly on the surface of the shaft.

This type of design is useful for applications where space is limited or a larger shaft is required. Surface hardness of shaft must be Rockwell C59 to C64 to achieve full bearing capacity. Where the required hardness cannot be attained, the bearing rating must be reduced accordingly. Where the shaft is case hardened, the combination of case depth and core hardness must be adequate. Consult Rexnord Bearing Division for a specific recommendation. Shaft surface should be finished to a roughness value of 13 micro-inches, RMS, maximum (.33 μm).

Maximum and minimum shaft diameter values for tap fit and press fit outer rings are listed below.

Hardness Factor

If operation at rated capacity is desired when cylindrical roller bearings are used with either ring omitted, the surface on which the rollers operate must have a hardness of Rockwell C59 to C64 or equivalent Brinell hardness (see chart below). If this hardness cannot be attained, the bearing C capacity must be reduced by a rating reduction factor determined from chart on facing page.



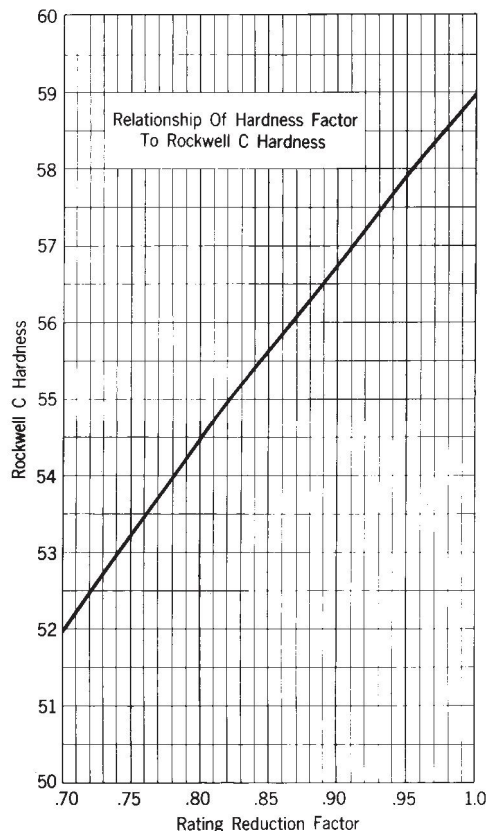
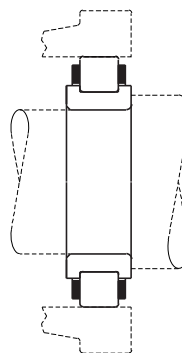
Inner Ring and Roller Assembly

for Series MU-X, MU-B

Cylindrical roller bearings with the outer ring omitted may be installed so that the rollers operate directly on the hardened and ground surface of a bore in an alloy steel housing.

This type of design is useful for applications where space is limited and a smaller housing bore or a larger bearing and shaft are required. Housing surface hardness must be Rockwell C59 to C64 or Brinell equivalent to achieve full bearing capacity. Where the required hardness cannot be attained, the bearing rating must be reduced accordingly. See graph for rating reduction factor. Where the housing bore is case hardened, the combination of case depth and core hardness must be adequate. Consult Rexnord Bearing Division for a specific recommendation. Housing surface should be finished to a roughness value of 13 micro-inches, A.A., maximum (.33 μm).

Maximum and minimum housing bore values for tap fit and press fit inner rings are listed on the next page.



Shaft Diameters for Outer Ring

Shaft Diameter for Tap Fit Outer Ring ▲									Shaft Diameter for Press Fit Outer Ring							
Bearing series	1900	1000	1200-5200	1300-5300-7300									1900	1000	1200-5200	1300-5300-7300
Basic size	(max-min)								inches							
03	.....	.....	0.8757	0.8753	0.8725	0.8721	0.9803	0.9799	.....	.....	0.8750	0.8746	0.8718	0.8714	0.9796	0.9792
04	0.9769	0.9765	1.0329	1.0325	1.1092	1.1087	1.1013	1.1008	0.9762	0.9758	1.0322	1.0318	1.1085	1.1080	1.1005	1.1000
05	1.1759	1.1754	1.2259	1.2254	1.2672	1.2667	1.3383	1.3378	1.1753	1.1748	1.2253	1.2248	1.2665	1.2660	1.3376	1.3371
06	1.3710	1.3705	1.4523	1.4518	1.4994	1.4989	1.6024	1.6019	1.3704	1.3699	1.4515	1.4510	1.4986	1.4981	1.6016	1.6011
07	1.6112	1.6107	1.6611	1.6606	1.7322	1.7317	1.8452	1.8447	1.6104	1.6099	1.6603	1.6598	1.7314	1.7309	1.8444	1.8439
08	1.8061	1.8056	1.8777	1.8772	1.9667	1.9662	2.0600	2.0595	1.8054	1.8049	1.8770	1.8765	1.9660	1.9655	2.0590	2.0585
09	2.0263	2.0258	2.0831	2.0825	2.1870	2.1864	2.3382	2.3376	2.0255	2.0250	2.0823	2.0817	2.1861	2.1855	2.3373	2.3367
10	2.2014	2.2008	2.2802	2.2796	2.3816	2.3810	2.5660	2.5654	2.2006	2.2000	2.2794	2.2788	2.3807	2.3801	2.5651	2.5645
11	2.4316	2.4310	2.5408	2.5402	2.6354	2.6348	2.8136	2.8130	2.4308	2.4302	2.5398	2.5392	2.6344	2.6338	2.8127	2.8121
12	2.6316	2.6310	2.7377	2.7371	2.8511	2.8505	3.0545	3.0538	2.6307	2.6301	2.7368	2.7362	2.8502	2.8496	3.0534	3.0527
13	2.8267	2.8261	2.9348	2.9341	3.1677	3.1670	3.2957	3.2950	2.8258	2.8252	2.9339	2.9332	3.1668	3.1661	3.2946	3.2939
14	3.0719	3.0712	3.1588	3.1581	3.3392	3.3385	3.5132	3.5125	3.0710	3.0703	3.1579	3.1572	3.3381	3.3374	3.5120	3.5113
15	3.2669	3.2662	3.3569	3.3562	3.5063	3.5056	3.7780	3.7772	3.2660	3.2653	3.3560	3.3553	3.5052	3.5045	3.7769	3.7761
16	3.4619	3.4612	3.5969	3.5962	3.7532	3.7525	4.0031	4.0023	3.4610	3.4603	3.5958	3.5951	3.7520	3.7513	4.0020	4.0012
17	3.7274	3.7267	3.7944	3.7936	4.0182	4.0174	4.2746	4.2738	3.7265	3.7258	3.7933	3.7925	4.0171	4.0163	4.2735	4.2727
18	3.9225	3.9217	4.0324	4.0316	4.2235	4.2227	4.4915	4.4907	3.9214	3.9206	4.0313	4.0305	4.2224	4.2216	4.4902	4.4894
19	4.1174	4.1166	4.2284	4.2276	4.4714	4.4706	4.8113	4.8105	4.1163	4.1155	4.2273	4.2265	4.4703	4.4695	4.8099	4.8091
20	4.3330	4.3322	4.4254	4.4246	4.7663	4.7655	5.1267	5.1258	4.3319	4.3311	4.4243	4.4235	4.7652	4.7644	5.1254	5.1245

Housing Bore for Outer Ring

Housing Bore for Tap Fit Inner Ring									Housing Bore for Press Fit Inner Ring							
Bearing series	1900	1000	1200-5200	1300-5300-7300									1900	1000	1200-5200	1300-5300-7300
Basic size	(max-min)								inches							
03	.....	.....	1.1992	1.1988	1.3708	1.3704	1.5402	1.5398	.....	.....	1.1996	1.1992	1.3712	1.3708	1.5406	1.5402
04	1.2689	1.2685	1.4383	1.4379	1.6075	1.6070	1.7305	1.7300	1.2694	1.2690	1.4388	1.4384	1.6080	1.6075	1.7309	1.7304
05	1.4680	1.4675	1.6314	1.6309	1.7656	1.7651	2.1031	2.1026	1.4686	1.4681	1.6320	1.6315	1.7661	1.7656	2.1036	2.1031
06	1.6631	1.6626	2.9090	1.9085	2.1285	2.1280	2.3780	2.3775	1.6637	1.6632	1.9096	1.9091	2.1291	2.1286	2.3785	2.3780
07	1.9346	1.9341	2.1594	2.1589	2.4591	2.4586	2.6745	2.6740	1.9353	1.9348	2.1600	2.1595	2.4597	2.4592	2.6751	2.6746
08	2.2116	2.2111	2.3760	2.3755	2.7405	2.7400	3.0572	3.0567	2.2123	2.2118	2.3767	2.3762	2.7411	2.7406	3.0578	3.0573
09	2.4317	2.4312	2.6430	2.6424	2.9517	2.9511	3.3894	3.3888	2.4325	2.4320	2.6438	2.6432	2.9526	2.9520	3.3902	3.3896
10	2.6068	2.6062	2.8400	2.8394	3.1311	3.1305	3.7195	3.7189	2.6077	2.6071	2.8409	2.8403	3.1319	3.1313	3.7203	3.7197
11	2.8881	2.8875	3.1697	3.1691	3.4646	3.4640	4.0784	4.0778	2.8892	2.8886	3.1707	3.1701	3.4656	3.4650	4.0793	4.0787
12	3.0882	3.0876	3.3668	3.3662	3.8481	3.8475	4.4280	4.4273	3.0893	3.0887	3.3678	3.3672	3.8491	3.8485	4.4289	4.4282
13	3.2832	3.2826	3.5639	3.5632	4.1649	4.1642	4.7775	4.7768	3.2843	3.2837	3.5649	3.5642	4.1658	4.1651	4.7758	4.7751
14	3.6316	3.6309	3.9323	3.9316	4.3902	4.3895	5.0926	5.0919	3.6329	3.6322	3.9337	3.9330	4.3915	4.3908	5.0938	5.0931
15	3.8266	3.8259	4.1304	4.1297	4.5573	4.5566	5.4770	5.4762	3.8280	3.8273	4.1317	4.1310	4.5585	4.5578	5.4782	5.4774
16	4.0217	4.0210	Δ	Δ	4.9068	4.9061	5.8033	5.8025	4.0230	4.0223	Δ	Δ	4.9081	4.9074	5.8045	5.8037
17	4.3561	4.3554	4.6515	4.6507	5.2829	5.2821	6.1966	6.1958	4.3578	4.3571	4.6772	4.6764	5.2845	5.2837	6.1981	6.1973
18	4.5512	4.5504	5.0292	5.0284	5.5968	5.5960	6.5109	6.5101	4.5529	4.5521	5.0309	5.0301	5.5984	5.5976	6.5124	6.5116
19	4.7463	4.7455	5.2253	5.2245	5.9532	5.9524	6.8308	6.8300	4.7480	4.7472	5.2269	5.2261	5.9548	5.9540	6.8322	6.8314
20	5.1064	5.1056	Δ	Δ	6.3459	6.3451	7.2787	7.2778	5.1082	5.1074	Δ	Δ	6.3474	6.3466	7.2802	7.2793

For shaft diameters larger than above, consult Rexnord Bearing Division.

Δ For size, consult Rexnord Bearing Division.

▲ Shaft diameter limits also apply to Style A outer ring bearings.

■ Hultgren 10 mm ball penetrator; 3000 kg load.

□ Brale penetrator; 150 kg load.