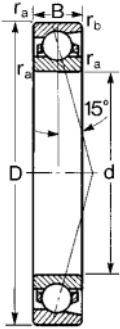


1900-R Extremely Light Series (Single Bearings)

MRC Bearing Services



1900-R Extremely Light Series bearings are made with bores ranging from 10 mm to 200 mm. The extremely light section on the 1900-R bearing permits the use of these bearings in applications where there are space and weight limitations. These bearings can accommodate light radial loads and one directional thrust loads, or a combination of both. Use duplex bearings for two-directional thrust loads. 1900-R bearings can be furnished duplex ground for installation in pairs.

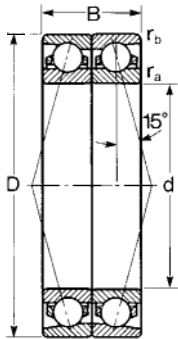
MRC Bearing Number	Bore d mm in		Outside Diameter D mm in		Width B mm in		Fillet Radius ¹⁾ r _a r _b ZD ²⁾ mm in mm in mm in					Basic Radial Load Rating				Speed Rating ²⁾		
												Dynamic C ₃₎		Static C ₀		Grease RPM	Oil RPM	
												N	lbf	N	lbf			
1900-R	10	.3937	22	.8661	6	.2362	.30	.012	.10	.004	110	.17	3 120	701	1 560	351	33 000	40 000
1901-R	12	.4724	24	.9449	6	.2362	.30	.012	.10	.004	123	.19	3 250	731	1 800	405	30 000	36 000
1902-R	15	.5906	28	1.1024	7	.2756	.30	.012	.10	.004	187	.29	4 800	1 100	2 700	607	24 000	30 000
1903-R	17	.6693	30	1.1811	7	.2756	.30	.012	.10	.004	206	.32	5 400	1 210	3 000	674	22 000	28 000
1904-R	20	.7874	37	1.4567	9	.3543	.30	.012	.15	.006	400	.62	9 360	2 100	5 850	1 320	18 000	22 000
1905-R	25	.9843	42	1.6535	9	.3543	.30	.012	.15	.006	342	.53	7 610	1 710	5 300	1 190	16 000	19 000
1906-R	30	1.1811	47	1.8504	9	.3543	.30	.012	.15	.006	452	.70	9 750	2 190	7 100	1 600	14 000	17 000
1907-R	35	1.3780	55	2.1654	10	.3937	.64	.025	.15	.006	555	.86	11 200	2 520	9 000	2 020	11 000	14 000
1908-R	40	1.5748	62	2.4409	12	.4724	.64	.025	.15	.006	722	1.12	14 300	3 210	11 600	2 600	10 000	15 000
1909-R	45	1.7717	68	2.6772	12	.4724	.64	.025	.15	.006	806	1.25	15 100	3 400	13 400	3 010	9 000	11 000
1910-R	50	1.9685	72	2.8346	12	.4724	.64	.025	.15	.006	1 070	1.66	19 500	4 380	17 300	3 900	8 500	10 000
1911-R	55	2.1654	80	3.1496	13	.5118	1.0	.04	.30	.012	1 260	1.95	22 900	5 150	20 400	4 590	8 000	9 500
1912-R	60	2.3622	85	3.3465	13	.5118	1.0	.04	.30	.012	1 380	2.15	24 200	5 440	22 800	5 730	7 500	9 000
1913-R	65	2.5591	90	3.5433	13	.5118	1.0	.04	.30	.012	1 450	2.25	24 700	5 550	24 000	5 400	6 700	8 000
1914-R	70	2.7559	100	3.9370	16	.6299	1.0	.04	.30	.012	1 990	3.09	33 200	7 460	32 500	7 300	6 300	7 500
1915-R	75	2.9528	105	4.1339	16	.6299	1.0	.04	.30	.012	2 080	3.23	34 500	7 760	34 500	7 760	6 000	7 000
1916-R	80	3.1496	110	4.3307	16	.6299	1.0	.04	.30	.012	2 180	3.38	34 500	7 760	36 000	8 100	5 600	6 700
1917-R	85	3.3465	120	4.7244	18	.7087	1.0	.04	.60	.024	2 840	4.40	44 900	10 100	46 500	10 500	5 300	6 300
1918-R	90	3.5433	125	4.9213	18	.7087	1.0	.04	.60	.024	3 400	5.27	52 700	11 800	56 000	12 600	5 000	6 000
1919-R	95	3.7402	130	5.1181	18	.7087	1.0	.04	.60	.024	3 090	4.79	47 500	10 700	52 000	11 700	4 800	5 600
1920-R	100	3.9370	140	5.5118	20	.7874	1.0	.04	.60	.024	3 870	6.00	58 500	13 200	64 000	14 400	4 500	5 300
1921-R	105	4.1339	145	5.7087	20	.7874	1.0	.04	.60	.024	4 030	6.25	60 500	13 600	67 000	15 100	4 300	5 000
1922-R	110	4.3307	150	5.9055	20	.7874	1.0	.04	.60	.024	3 820	5.93	55 300	12 400	64 000	14 400	4 000	4 800
1924-R	120	4.7244	165	6.4961	22	.8661	1.0	.04	.60	.024	5 100	7.91	74 100	16 700	85 000	19 100	3 600	4 300
1926-R	130	5.1181	180	7.0866	24	.9449	1.5	.06	.60	.024	6 300	9.77	90 400	20 500	106 000	23 800	3 400	4 000
1928-R	140	5.5118	190	7.4803	24	.9449	1.5	.06	.60	.024	6 580	10.2	95 600	21 400	110 000	24 700	3 200	3 800
1930-R	150	5.9055	210	8.2677	28	1.1024	2.0	.08	1.0	.04	9 090	14.1	125 000	28 200	150 000	33 700	2 800	3 400
1932-R	160	6.2992	220	8.6614	28	1.1024	2.0	.08	1.0	.04	9 420	14.6	127 000	28 600	156 000	35 100	2 600	3 200
1934-R	170	6.6929	230	9.0551	28	1.1024	2.0	.08	1.0	.04	10 200	15.8	133 000	29 800	170 000	38 300	2 400	3 000
1936-R	180	7.0866	250	9.8425	33	1.2992	2.0	.08	1.0	.04	12 800	19.9	168 000	36 000	212 000	47 800	2 200	2 800
1938-R	190	7.4803	260	10.2362	33	1.2992	2.0	.08	1.0	.04	13 400	20.7	174 000	39 100	224 000	50 400	2 200	2 800
1940-R	200	7.8740	280	11.0236	38	1.4961	2.0	.08	1.0	.04	16 800	26.0	216 100	48 600	275 000	61 800	2 000	2 600

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.



Note: ABEC 1 & 3 are stocked as half-pairs where available.

"D" indicates a duplex ground half pair matched with an identical half pair and is followed by an additional suffix letter to describe the type of duplex. See pages 236 and 237 for suffix description.

Use these values for back-to-back (DB) or face-to-face (DF) mounting arrangements.

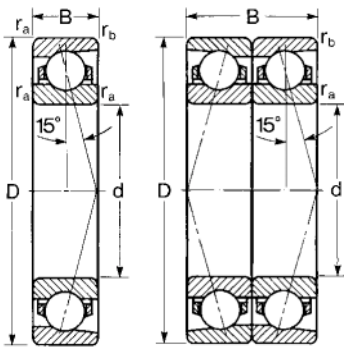
MRC Bearing Number	Bore d mm in		Outside Diameter D mm in		Width B mm in		Fillet Radius ¹⁾ r _a r _b mm in mm in					Basic Radial Load Rating				Speed Rating ²⁾		
												Dynamic C ₃ ³⁾		Static C ₀		Grease RPM	Oil RPM	
												N	lbf	N	lbf			
1900-RD	10	.3737	22	.8661	12	.4724	.30	.012	.10	.004	110	.17	5 070	1 140	3 100	697	26 000	32 000
1901-RD	12	.4724	24	.9449	12	.4724	.30	.012	.10	.004	123	.19	5 270	1 180	3 550	798	24 000	29 000
1902-RD	15	.5906	28	1.1024	14	.5512	.30	.012	.10	.004	187	.29	7 930	1 780	5 400	1 210	19 000	24 000
1903-RD	17	.6693	30	1.1811	14	.5512	.30	.012	.10	.004	206	.32	8 710	1 960	6 100	1 370	18 000	22 000
1904-RD	20	.7874	37	1.4567	18	.7087	.30	.012	.15	.006	400	.62	15 300	3 440	11 600	2 600	14 000	18 000
1905-RD	25	.9843	42	1.6535	18	.7087	.30	.012	.15	.006	342	.53	12 400	2 790	10 800	2 430	13 000	15 000
1906-RD	30	1.1811	47	1.8504	18	.7087	.30	.012	.15	.006	452	.70	15 900	3 580	14 300	3 210	11 000	14 000
1907-RD	35	1.3780	55	2.1654	20	.7874	.64	.025	.15	.006	555	.86	18 200	4 090	18 000	4 050	8 800	11 000
1908-RD	40	1.5748	62	2.4409	24	.9449	.64	.025	.15	.006	722	1.12	22 900	5 150	23 200	5 220	8 000	10 000
1909-RD	45	1.7717	68	2.6772	24	.9449	.64	.025	.15	.006	806	1.25	24 700	5 550	26 500	5 960	7 200	8 800
1910-RD	50	1.9685	72	2.8346	24	.9449	.64	.025	.15	.006	1 070	1.66	31 900	7 170	34 500	7 760	6 800	8 000
1911-RD	55	2.1654	80	3.1496	26	1.0236	1.0	.04	.30	.012	1 260	1.95	37 100	8 340	40 500	9 100	6 400	7 600
1912-RD	60	2.3622	85	3.3465	26	1.0236	1.0	.04	.30	.012	1 380	2.15	39 000	8 770	45 500	10 200	6 000	7 200
1913-RD	65	2.5591	90	3.5433	26	1.0236	1.0	.04	.30	.012	1 450	2.25	39 700	8 920	48 000	10 800	5 400	6 400
1914-RD	70	2.7559	100	3.9370	32	1.2598	1.0	.04	.30	.012	1 990	3.09	54 000	12 100	65 500	14 700	5 000	6 000
1915-RD	75	2.9528	105	4.1339	32	1.2598	1.0	.04	.30	.012	2 080	3.23	55 900	12 600	68 000	15 300	4 800	5 600
1916-RD	80	3.1496	110	4.3307	32	1.2598	1.0	.04	.30	.012	2 180	3.38	57 200	12 900	72 000	16 200	4 500	5 400
1917-RD	85	3.3465	120	4.7244	36	1.4173	1.0	.04	.60	.024	2 840	4.40	74 100	16 700	93 000	20 900	4 200	5 000
1918-RD	90	3.5433	125	4.9213	36	1.4173	1.0	.04	.60	.024	3 400	5.27	85 200	19 200	112 000	25 200	4 000	4 800
1919-RD	95	3.7402	130	5.1181	36	1.4173	1.0	.04	.60	.024	3 090	4.77	76 100	17 100	104 000	23 400	3 800	4 500
1920-RD	100	3.9370	140	5.5118	40	1.5748	1.0	.04	.60	.024	3 870	6.00	95 600	21 500	127 000	28 600	3 600	4 200
1921-RD	105	4.1339	145	5.7087	40	1.5748	1.0	.04	.60	.024	4 030	6.25	97 500	21 900	134 000	30 100	3 400	4 000
1922-RD	110	4.3307	150	5.9055	40	1.5748	1.0	.04	.60	.024	3 820	5.93	90 400	20 300	129 000	29 000	3 200	3 800
1924-RD	120	4.7244	165	6.4961	44	1.7323	1.0	.04	.60	.024	5 100	7.91	121 000	27 200	170 000	38 200	2 900	3 400
1926-RD	130	5.1181	180	7.0866	48	1.8898	1.5	.06	.60	.024	6 300	9.77	146 000	32 800	208 000	46 800	2 700	3 200
1928-RD	140	5.5118	190	7.4803	48	1.8898	1.5	.06	.60	.024	6 580	10.2	156 000	35 100	220 000	49 500	2 600	3 000
1930-RD	150	5.9055	210	8.2677	56	2.2047	2.0	.08	1.0	.04	9 090	14.1	203 000	45 600	300 000	67 400	2 200	2 700
1932-RD	160	6.2992	220	8.6614	56	2.2047	2.0	.08	1.0	.04	9 420	14.6	208 000	46 800	315 000	70 800	2 100	2 600
1934-RD	170	6.6929	230	9.0551	56	2.2047	2.0	.08	1.0	.04	10 200	15.8	216 000	48 600	340 000	76 400	1 900	2 400
1936-RD	180	7.0866	250	9.8425	66	2.5984	2.0	.08	1.0	.04	12 800	19.9	276 000	62 000	425 000	95 600	1 800	2 200
1938-RD	190	7.4803	260	10.2362	66	2.5984	2.0	.08	1.0	.04	13 400	20.7	281 000	63 200	440 000	98 900	1 800	2 200
1940-RD	200	7.8740	280	11.0236	76	2.9921	2.0	.08	1.0	.04	16 800	26.0	351 000	78 900	550 000	124 000	1 600	2 100

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.



Note: ABEC 1 & 3 are stocked as half-pairs where available.

100-R Extra Large Series bearings are available in bore diameters ranging from 100 mm to 320 mm. They are used with light to moderate radial loads, one-directional thrust loads, or a combination of both. Duplex bearings should be used for two-directional thrust loads.

"D" indicates a duplex ground half pair matched with an identical half pair and is followed by an additional suffix letter to describe the type of duplex. See pages 236 and 237 for suffix description.

Values for -RD bearings are for back-to-back (DB) or face-to-face (DF) mounting arrangements.

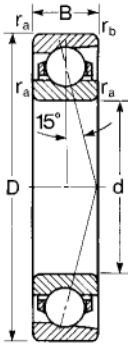
MRC Bearing Number	Bore		Outside Diameter		Width		Fillet Radius ¹⁾					Basic Radial Load Rating				Speed Rating ²⁾		
	d	mm	D	mm	B	mm	r _a		r _b		ZD ²⁾		Dynamic C ₃₎		Static C ₀		Grease RPM	Oil RPM
							mm	in	mm	in	mm	in	N	lbf	N	lbf		
120-R	100	3.9370	160	6.2992	28	1.1024	2.0	.08	1.0	.040	6 100	9.45	95 600	21 500	95 000	21 400	3 900	4 800
122-R	110	4.3307	175	6.8898	30	1.1811	2.0	.08	1.0	.040	7 290	11.3	114 000	25 600	114 000	25 600	3 600	4 400
124-R	120	4.7244	190	7.4803	32	1.2598	2.0	.08	1.0	.040	8 970	13.9	134 000	30 100	140 000	31 500	3 300	4 000
126-R	130	5.1181	205	8.0709	34	1.3386	2.0	.08	1.0	.040	9 350	14.5	138 000	31 000	150 000	33 700	3 000	3 700
128-R	140	5.5118	220	8.6614	36	1.4173	2.0	.08	1.0	.040	10 800	16.8	157 000	35 300	173 000	38 900	2 800	3 400
130-R	150	5.9055	235	9.2520	38	1.4961	2.0	.08	1.0	.040	12 400	19.3	176 000	39 600	200 000	45 000	2 600	3 200
132-R	160	6.2992	250	9.8425	40	1.5748	2.0	.08	1.0	.040	14 200	22.0	183 000	41 100	228 000	51 300	2 500	3 000
134-R	170	6.6929	265	10.4331	42	1.6535	2.5	.10	1.0	.040	16 000	24.8	216 000	48 600	255 000	57 300	2 300	2 800
136-R	180	7.0866	280	11.0236	44	1.7323	2.5	.10	1.0	.040	17 900	27.8	233 000	52 400	285 000	64 100	2 100	2 600
138-R	190	7.4803	300	11.8110	46	1.8110	2.5	.10	1.0	.040	22 200	34.4	275 000	61 800	355 000	79 800	2 100	2 500
140-R	200	7.8740	320	12.5984	48	1.8898	2.5	.10	1.0	.040	24 400	37.9	292 000	65 600	390 000	87 700	1 900	2 300
142-R	210	8.2677	340	13.3858	50	1.9685	2.5	.10	1.0	.040	28 000	43.4	319 000	71 700	440 000	98 900	1 800	2 200
144-R	220	8.6614	350	13.7795	51	2.0079	2.5	.10	1.0	.040	29 300	45.5	336 000	75 500	465 000	105 000	1 700	2 100
146-R	230	9.0551	370	14.5669	53	2.0866	3.0	.12	1.0	.040	31 900	49.5	352 000	79 100	510 000	115 000	1 600	2 000
148-R	240	9.4488	390	15.3543	55	2.1654	3.0	.12	1.0	.040	34 600	53.7	374 000	84 100	550 000	124 000	1 600	1 900
150-R	250	9.8425	410	16.1417	57	2.2441	3.0	.12	1.0	.040	37 500	58.1	393 000	88 400	600 000	135 000	1 500	1 800
152-R	260	10.2362	430	16.9291	59	2.3228	3.0	.12	1.0	.040	40 400	62.7	413 000	92 800	655 000	147 000	1 400	1 700
156-R	280	11.0236	460	18.1102	63	2.4803	3.0	.12	1.0	.040	46 600	72.3	457 000	103 000	750 000	169 000	1 300	1 600
164-R	320	12.5984	500	19.6850	71	2.7953	3.0	.12	1.0	.040	56 800	88.0	523 000	118 000	900 000	202 000	1 100	1 400
100-RD																		
120-RD	100	3.9370	160	6.2992	56	2.2047	2.0	.08	1.0	.040	6 100	9.45	156 000	35 100	190 000	42 700	3 100	3 800
122-RD	110	4.3307	175	6.8898	60	2.3622	2.0	.08	1.0	.040	7 290	11.3	185 000	41 800	228 000	51 300	2 900	3 500
124-RD	120	4.7244	190	7.4803	64	2.5197	2.0	.08	1.0	.040	8 970	13.9	221 000	49 700	280 000	62 900	2 600	3 200
126-RD	130	5.1181	205	8.0709	68	2.6722	2.0	.08	1.0	.040	9 350	14.5	221 000	49 700	300 000	67 400	2 400	3 000
128-RD	140	5.5118	220	8.6614	72	2.8346	2.0	.08	1.0	.040	10 800	16.8	255 000	57 300	345 000	77 600	2 200	2 700
130-RD	150	5.9055	235	9.2520	76	2.9921	2.0	.08	1.0	.040	12 400	19.3	286 000	64 300	400 000	89 900	2 100	2 600
132-RD	160	6.2992	250	9.8425	80	3.1496	2.0	.08	1.0	.040	14 200	22.0	296 000	66 500	455 000	102 000	2 000	2 400
134-RD	170	6.6929	265	10.4331	84	3.3071	2.5	.10	1.0	.040	16 000	24.8	351 000	78 900	510 000	115 000	1 800	2 200
136-RD	180	7.0866	280	11.0236	88	3.4646	2.5	.10	1.0	.040	17 900	27.8	377 000	84 800	570 000	128 000	1 700	2 100
138-RD	190	7.4803	300	11.8110	92	3.6220	2.5	.10	1.0	.040	22 200	34.4	442 000	99 400	710 000	160 000	1 700	2 000
140-RD	200	7.8740	320	12.5984	96	3.7795	2.5	.10	1.0	.040	24 400	37.8	475 000	107 000	780 000	175 000	1 500	1 800
142-RD	210	8.2677	340	13.3858	100	3.9370	2.5	.10	1.0	.040	28 000	43.4	527 000	118 000	880 000	198 000	1 400	1 800
144-RD	220	8.6614	350	13.7795	102	4.0157	2.5	.10	1.0	.040	29 300	45.5	540 000	121 000	930 000	209 000	1 400	1 700
146-RD	230	9.0551	370	14.5669	106	4.1732	3.0	.12	1.0	.040	31 900	49.5	572 000	129 000	1 020 000	229 000	1 300	1 600
148-RD	240	9.4488	390	15.3543	110	4.3307	3.0	.12	1.0	.040	34 600	53.7	605 000	136 000	1 100 000	247 000	1 300	1 500
150-RD	250	9.8425	410	16.1417	114	4.4882	3.0	.12	1.0	.040	37 500	58.1	637 000	143 000	1 200 000	270 000	1 200	1 400
152-RD	260	10.2362	430	16.9291	118	4.6457	3.0	.12	1.0	.040	40 400	62.7	676 000	152 000	1 290 000	290 000	1 100	1 400
156-RD	280	11.0236	460	18.1102	126	4.9606	3.0	.12	1.0	.040	46 600	72.3	741 000	167 000	1 500 000	337 000	1 000	1 300
164-RD	320	12.5984	500	19.6850	142	5.5904	3.0	.12	1.0	.040	56 800	88.0	852 000	192 000	1 800 000	405 000	880	1 100

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.



100-KR Extra Light Series bearings are made with bores ranging from 10 mm to 320 mm. 100-KR bearings can accommodate light to moderate radial loads or one-directional thrust loads, or a combination of both where space is somewhat limited. They can be furnished duplex-ground for mounting in pairs. Duplex bearings should be used for two-directional thrust loads.

MRC Bearing Number	Bore d mm in		Outside Diameter D mm in		Width B mm in		Fillet Radius ¹⁾ r _a r _b ZD ²⁾ mm in mm in mm in					Basic Radial Load Rating				Speed Rating ²⁾		
												Dynamic C ₃₎		Static C ₀		Grease RPM	Oil RPM	
												N	lbf	N	lbf			
100-KR	10	.3937	26	1.0236	8	.3150	.30	.012	.10	.004	181	.28	4 940	1 110	2 280	513	30 000	36 000
101-KR	12	.4724	28	1.1024	8	.3150	.30	.012	.10	.004	206	.32	5 530	1 240	2 650	596	26 000	32 000
102-KR	15	.5906	32	1.2598	9	.3543	.30	.012	.10	.004	226	.35	6 050	1 350	3 150	708	22 000	28 000
103-KR	17	.6693	35	1.3780	10	.3937	.30	.012	.10	.004	342	.53	8 520	1 920	4 650	1 050	19 000	24 000
104-KR	20	.7874	42	1.6535	12	.4724	.64	.025	.30	.012	445	.69	10 800	2 420	6 200	1 390	17 000	20 000
105-KR	25	.9843	47	1.8504	12	.4724	.64	.025	.30	.012	522	.81	12 100	2 720	7 650	1 720	15 000	18 000
106-KR	30	1.1811	55	2.1654	13	.5118	1.0	.04	.30	.012	716	1.11	15 600	3 500	10 600	2 380	12 000	15 000
107-KR	35	1.3780	62	2.4409	14	.5512	1.0	.04	.30	.012	884	1.37	18 600	4 180	13 200	2 970	10 000	13 000
108-KR	40	1.5748	68	2.6772	15	.5906	1.0	.04	.30	.012	942	1.46	19 500	4 380	14 600	3 280	9 500	12 000
109-KR	45	1.7717	75	2.9528	16	.6299	1.0	.04	.30	.012	1 220	1.89	24 200	5 440	19 000	4 270	9 000	11 000
110-KR	50	1.9685	80	3.1496	16	.6299	1.0	.04	.30	.012	1 300	2.01	25 100	5 640	20 400	4 590	8 500	10 000
111-KR	55	2.1654	90	3.5433	18	.7087	1.0	.04	.60	.024	1 810	2.81	33 800	7 600	28 000	6 290	7 500	9 000
112-KR	60	2.3622	95	3.7402	18	.7087	1.0	.04	.60	.024	1 920	2.97	35 100	7 890	30 000	6 740	6 700	8 000
113-KR	65	2.5591	100	3.9370	18	.7087	1.0	.04	.60	.024	2 030	3.14	35 800	8 050	32 500	7 310	6 300	7 500
114-KR	70	2.7559	110	4.3307	20	.7874	1.0	.04	.60	.024	2 470	3.83	42 300	9 510	40 000	8 990	6 000	7 000
115-KR	75	2.9528	115	4.5276	20	.7874	1.0	.04	.60	.024	2 590	4.02	43 600	9 800	42 500	9 550	5 600	6 770
116-KR	80	3.1496	125	4.9213	22	.8661	1.0	.04	.60	.024	3 390	5.25	55 900	12 600	54 000	12 100	5 300	6 300
117-KR	85	3.3465	130	5.1181	22	.8661	1.0	.04	.60	.024	3 550	5.50	57 200	12 900	57 000	12 800	5 000	6 000
118-KR	90	3.5433	140	5.5118	24	.9449	1.5	.06	.60	.024	4 280	6.64	68 900	15 500	68 000	15 300	4 800	5 600
119-KR	95	3.7402	145	5.7087	24	.9449	1.5	.06	.60	.024	5 040	7.81	83 200	18 700	80 000	18 000	4 500	5 300
120-KR	100	3.9370	150	5.9055	24	.9449	1.5	.06	.60	.024	4 700	7.28	71 500	16 100	76 500	17 200	4 300	5 000
121-KR	105	4.1339	160	6.2992	26	1.0236	2.0	.08	1.0	.040	5 540	8.59	85 200	19 200	90 000	20 200	4 000	4 800
122-KR	110	4.3307	170	6.6929	28	1.1024	2.0	.08	1.0	.040	6 400	9.93	99 500	22 400	102 000	23 000	3 800	4 500
124-KR	120	4.7244	180	7.0866	28	1.1024	2.0	.08	1.0	.040	6 710	10.4	101 000	22 600	110 000	24 700	3 400	4 000
126-KR	130	5.1181	200	7.8740	33	1.2992	2.0	.08	1.0	.040	9 350	14.5	138 000	31 000	150 000	33 700	3 200	3 800
128-KR	140	5.5118	210	8.2677	33	1.2992	2.0	.08	1.0	.040	9 350	14.5	135 000	30 300	153 000	34 400	3 000	3 600
130-KR	150	5.9055	225	8.8583	35	1.3780	2.0	.08	1.0	.040	10 800	16.8	156 000	35 000	176 000	39 600	2 600	3 200
132-KR	160	6.2992	240	9.4488	38	1.4961	2.0	.08	1.0	.040	12 400	18.3	178 000	40 000	204 000	45 900	2 400	3 000
134-KR	170	6.6929	260	10.2362	42	1.6535	2.0	.08	1.0	.040	15 300	23.7	212 000	47 700	245 000	55 100	2 200	2 800
136-KR	180	7.0866	280	11.0236	46	1.8110	2.0	.08	1.0	.040	17 900	27.8	234 000	52 600	290 000	65 200	2 000	2 600
138-KR	190	7.4803	290	11.4173	46	1.8110	2.0	.08	1.0	.040	18 800	29.1	242 000	54 400	305 000	68 600	2 000	2 600
140-KR	200	7.8740	310	12.2047	51	2.0079	2.0	.08	1.0	.040	22 200	34.4	276 000	62 000	355 000	79 800	1 900	2 400
144-KR	220	8.6614	340	13.3858	56	2.2047	2.5	.10	1.0	.040	30 400	47.2	345 000	77 600	480 000	108 000	1 800	2 200
148-KR	240	9.4488	360	14.1732	56	2.2047	2.5	.10	1.0	.040	31 900	49.5	351 000	78 900	510 000	115 000	1 700	2 000
152-KR	260	10.2362	400	15.7480	65	2.5591	3.0	.12	1.5	.060	41 500	64.3	423 000	95 100	655 000	147 000	1 500	1 800
156-KR	280	11.0236	420	16.5354	65	2.5591	3.0	.12	1.5	.060	43 500	67.4	436 000	98 000	695 000	156 000	1 400	1 700
160-KR	300	11.8110	460	18.1102	74	2.9134	3.0	.12	1.5	.060	54 200	84.0	520 000	117 000	850 000	191 000	1 200	1 500
164-KR	320	12.5984	480	18.8976	74	2.9134	3.0	.12	1.5	.060	56 800	88.0	527 000	118 000	900 000	202 000	1 100	1 400

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

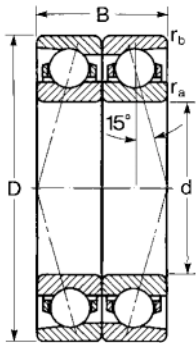
For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.

100-KRD

Extra Light Series, Duplex

MRC Bearing Services



"D" indicates a duplex ground half pair matched with an identical half pair and is followed by an additional suffix letter to describe the type of duplex. See pages 236 and 237 for suffix description.

Note: ABEC 1 & 3 are stocked as half-pairs where available

Use these values for back-to-back (DB) or face-to-face (DF) mounting arrangements

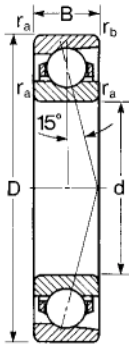
MRC Bearing Number	Bore		Outside Diameter		Width		Fillet Radius ¹⁾					Basic Radial Load Rating				Speed Rating ²⁾		
	d	in	D	in	B	in	r _a		r _b		ZD ²⁾		Dynamic C ₃₎		Static C ₀		Grease RPM	Oil RPM
							mm	in	mm	in	mm	in	mm	in	N	lbf		
100-KRD	10	.3937	26	1.0236	16	.6299	.30	.012	.10	.004	181	.28	8 060	1 810	4 550	1 020	24 000	29 000
101-KRD	12	.4724	28	1.1024	16	.6299	.30	.012	.10	.004	206	.32	8 840	1 990	5 300	1 190	21 000	26 000
102-KRD	15	.5906	32	1.2598	18	.7087	.30	.012	.10	.004	226	.35	9 750	2 190	6 300	1 420	18 000	22 000
103-KRD	17	.6693	35	1.3780	20	.7874	.30	.012	.10	.004	342	.53	13 800	3 100	9 300	2 090	15 000	19 000
104-KRD	20	.7874	42	1.6535	24	.9449	.64	.025	.30	.012	445	.69	17 400	3 910	12 500	2 810	14 000	16 000
105-KRD	25	.9843	47	1.8504	24	.9449	.64	.025	.30	.012	522	.81	19 500	4 380	15 300	3 440	12 000	14 000
106-KRD	30	1.1811	55	2.1654	26	1.0236	1.0	.04	.30	.012	716	1.11	25 500	5 730	21 200	4 760	9 600	12 000
107-KRD	35	1.3780	62	2.4409	28	1.1024	1.0	.04	.30	.012	884	1.37	30 200	6 790	26 500	5 960	8 000	10 000
108-KRD	40	1.5748	68	2.6772	30	1.1811	1.0	.04	.30	.012	942	1.46	31 900	7 170	29 000	6 520	7 600	9 600
109-KRD	45	1.7717	75	2.9528	32	1.2598	1.0	.04	.30	.012	1 220	1.89	39 000	8 770	37 500	8 430	7 200	8 800
110-KRD	50	1.9685	80	3.1496	32	1.2598	1.0	.04	.30	.012	1 300	2.01	40 300	9 060	40 500	9 100	6 800	8 000
111-KRD	55	2.1654	90	3.5433	36	1.4173	1.0	.04	.60	.024	1 810	2.81	55 300	12 400	56 000	12 600	6 000	7 200
112-KRD	60	2.3622	95	3.7402	36	1.4173	1.0	.04	.60	.024	1 820	2.97	55 900	12 600	61 000	13 700	5 400	6 400
113-KRD	65	2.5591	100	3.9370	36	1.4173	1.0	.04	.60	.024	2 030	3.14	58 500	13 200	64 000	14 400	5 000	6 000
114-KRD	70	2.7559	110	4.3307	40	1.5748	1.0	.04	.60	.024	2 470	3.83	68 900	15 500	80 000	18 000	4 800	5 600
115-KRD	75	2.9528	115	4.5276	40	1.5748	1.0	.04	.60	.024	2 590	4.02	70 200	15 800	85 000	19 100	4 500	5 400
116-KRD	80	3.1496	125	4.9213	44	1.7323	1.0	.04	.60	.024	3 390	5.25	90 400	20 300	110 000	24 700	4 200	5 000
117-KRD	85	3.3465	130	5.1181	44	1.7323	1.0	.04	.60	.024	3 550	5.50	92 300	20 700	116 000	26 100	4 000	4 800
118-KRD	90	3.5433	140	5.5118	48	1.8898	1.5	.06	.60	.024	4 280	6.64	111 000	25 000	137 000	30 800	3 800	4 500
119-KRD	95	3.7402	145	5.7087	48	1.8898	1.5	.06	.60	.024	5 040	7.81	135 000	30 300	160 000	36 000	3 600	4 200
120-KRD	100	3.9370	150	5.9055	48	1.8898	1.5	.06	.60	.024	4 700	7.28	117 000	26 300	153 000	34 400	3 400	4 000
121-KRD	105	4.1339	160	6.2992	52	2.0472	2.0	.08	1.0	.040	5 540	8.59	138 000	31 000	180 000	40 500	3 200	3 800
122-KRD	110	4.3307	170	6.6929	56	2.2047	2.0	.08	1.0	.040	6 400	9.93	163 000	36 600	204 000	45 900	3 000	3 600
124-KRD	120	4.7244	180	7.0866	56	2.2047	2.0	.08	1.0	.040	6 710	10.4	163 000	36 600	220 000	49 500	2 700	3 200
126-KRD	130	5.1181	200	7.8740	66	2.5984	2.0	.08	1.0	.040	9 350	14.5	225 000	50 000	300 000	67 400	2 600	3 000
128-KRD	140	5.5118	210	8.2677	66	2.5984	2.0	.08	1.0	.040	9 850	14.5	221 000	49 700	305 000	68 600	2 400	2 900
130-KRD	150	5.9055	225	8.8583	70	2.7559	2.0	.08	1.0	.040	10 800	16.8	255 000	57 300	355 000	79 800	2 100	2 600
132-KRD	160	6.2992	240	9.4488	76	2.9921	2.0	.08	1.0	.040	12 400	18.3	286 000	64 300	405 000	91 000	1 900	2 400
134-KRD	170	6.6929	260	10.2362	84	3.3071	2.0	.08	1.0	.040	15 300	23.7	345 000	77 600	490 000	110 000	1 800	2 200
136-KRD	180	7.0866	280	11.0236	92	3.6220	2.0	.08	1.0	.040	17 900	27.8	377 000	84 800	570 000	128 000	1 600	2 100
138-KRD	190	7.4803	290	11.4173	92	3.6220	2.0	.08	1.0	.040	18 800	29.1	390 000	87 700	610 000	137 000	1 600	2 100
140-KRD	200	7.8740	310	12.2047	102	4.0157	2.0	.08	1.0	.040	22 200	34.4	442 000	99 400	710 000	160 000	1 500	1 900
144-KRD	220	8.6614	340	13.3858	112	4.4094	2.5	.10	1.0	.040	30 400	47.2	559 000	126 000	965 000	217 000	1 400	1 800
148-KRD	240	9.4488	360	14.1732	112	4.4094	2.5	.10	1.0	.040	31 900	49.5	572 000	129 000	1 020 000	228 000	1 400	1 600
152-KRD	260	10.2362	400	15.7480	130	5.1181	3.0	.12	1.5	.060	41 500	64.3	702 000	158 000	1 320 000	297 000	1 200	1 400
156-KRD	280	11.0236	420	16.5354	130	5.1181	3.0	.12	1.5	.060	43 500	67.4	715 000	161 000	1 400 000	315 000	1 100	1 400
160-KRD	300	11.8110	460	18.1102	148	5.8268	3.0	.12	1.5	.060	54 200	84.0	832 000	187 000	1 700 000	382 000	960	1 200
164-KRD	320	12.5984	480	18.8976	148	5.8268	3.0	.12	1.5	.060	56 800	88.0	852 000	192 000	1 810 000	406 000	880	1 100

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.



200-R Light Series bearings are made with bore diameters ranging from 10 mm to 320 mm. These bearings are recommended for moderate to heavy radial loads, for heavy thrust loads in one direction, or for combinations of both. Duplex bearings should be used for two-directional thrust loads.

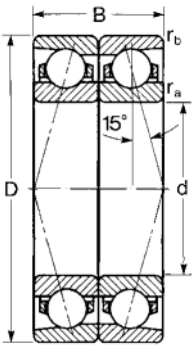
MRC Bearing Number	Bore d mm in		Outside Diameter D mm in		Width B mm in		Fillet Radius ¹⁾ r_a r_b ZD^2 mm in mm in mm in					Basic Radial Load Rating				Speed Rating ²⁾		
												Dynamic C_3		Static C_0		Grease RPM	Oil RPM	
												N	lbf	N	lbf			
200-R	10	.3937	30	1.1811	9	.3543	.64	.025	.30	.012	284	.44	7 280	1 640	3 200	719	24 000	30 000
201-R	12	.4724	32	1.2598	10	.3937	.64	.025	.30	.012	323	.50	8 190	1 840	3 900	877	22 000	28 000
202-R	15	.5906	35	1.3780	11	.4331	.64	.025	.30	.012	406	.63	9 750	2 190	5 100	1 150	19 000	24 000
203-R	17	.6693	40	1.5748	12	.4724	.64	.025	.30	.012	510	.79	12 100	2 730	6 550	1 470	17 000	20 000
204-R	20	.7874	47	1.8504	14	.5512	1.0	.04	.60	.024	613	.95	14 000	3 150	8 500	1 910	15 000	18 000
205-R	25	.9843	52	2.0472	15	.5906	1.0	.04	.60	.024	755	1.17	16 800	3 780	10 600	2 380	12 000	15 000
206-R	30	1.1811	62	2.4409	16	.6299	1.0	.04	.60	.024	884	1.37	19 000	4 270	12 900	2 910	10 000	13 000
207-R	35	1.3780	72	2.8346	17	.6693	1.0	.04	.60	.024	1 270	1.97	26 000	5 850	18 600	4 180	9 000	11 000
208-R	40	1.5748	80	3.1496	18	.7087	1.0	.04	.60	.024	1 730	2.68	34 500	7 760	25 000	5 620	8 500	10 000
209-R	45	1.7717	85	3.3465	19	.7480	1.0	.04	.60	.024	1 730	2.68	34 500	7 760	25 500	5 730	7 500	9 000
210-R	50	1.9685	90	3.5433	20	.7874	1.0	.04	.60	.024	1 910	3.06	37 700	8 480	30 000	6 740	7 000	8 500
211-R	55	2.1654	100	3.9370	21	.8268	1.5	.06	1.0	.040	2 860	4.43	54 000	12 100	41 500	9 330	6 300	7 500
212-R	60	2.3622	110	4.3307	22	.8661	1.5	.06	1.0	.040	3 260	5.06	59 200	13 300	49 000	11 000	6 000	7 000
213-R	65	2.5591	120	4.7244	23	.9055	1.5	.06	1.0	.040	4 030	6.25	60 500	13 600	58 500	13 200	5 300	6 300
214-R	70	2.7559	125	4.9213	24	.9449	1.5	.06	1.0	.040	4 530	7.03	78 000	17 500	68 000	15 300	5 000	6 000
215-R	75	2.9528	130	5.1181	25	.9843	1.5	.06	1.0	.040	5 190	8.04	88 400	19 900	76 500	17 200	4 800	5 600
216-R	80	3.1496	140	5.5118	26	1.0236	2.0	.08	1.0	.040	4 880	7.57	85 200	19 200	73 500	16 500	4 500	5 300
217-R	85	3.3465	150	5.9055	28	1.1024	2.0	.08	1.0	.040	6 170	9.56	104 000	23 400	93 000	20 900	4 300	5 000
218-R	90	3.5433	160	6.2992	30	1.1811	2.0	.08	1.0	.040	7 870	12.2	130 000	29 200	116 000	26 100	3 800	4 500
219-R	95	3.7402	170	6.6929	32	1.2598	2.0	.08	1.0	.040	8 390	13.0	138 000	31 000	125 000	28 000	3 600	4 300
220-R	100	3.9370	180	7.0866	34	1.3386	2.0	.08	1.0	.040	9 610	14.9	153 000	34 000	143 000	32 100	3 400	4 000
221-R	105	4.1339	190	7.4803	36	1.4173	2.0	.08	1.0	.040	10 300	16.0	168 000	37 800	153 000	34 400	3 200	3 800
222-R	110	4.3307	200	7.8740	38	1.4961	2.0	.08	1.0	.040	11 700	18.1	182 000	40 900	170 000	38 200	3 000	3 600
224-R	120	4.7244	215	8.4646	40	1.5748	2.0	.08	1.0	.040	13 000	20.2	199 000	44 700	193 000	43 300	2 800	3 400
226-R	130	5.1181	230	9.0551	40	1.5748	2.5	.10	1.0	.040	15 500	24.0	221 000	49 600	232 000	52 200	2 600	3 200
228-R	140	5.5118	250	9.8425	42	1.6535	2.5	.10	1.0	.040	17 200	26.6	238 000	53 500	260 000	58 500	2 400	2 900
230-R	150	5.9055	270	10.6299	45	1.7717	2.5	.10	1.0	.040	20 700	32.1	270 000	60 700	310 000	69 700	2 200	2 700
232-R	160	6.2992	290	11.4173	48	1.8898	2.5	.10	1.0	.040	24 600	38.2	307 000	69 000	365 000	82 100	2 100	2 500
234-R	170	6.6929	310	12.2047	52	2.0472	3.0	.12	1.0	.040	27 200	42.2	332 000	74 600	400 000	89 900	1 900	2 300
236-R	180	7.0866	320	12.5984	52	2.0472	3.0	.12	1.0	.040	29 000	44.9	345 000	77 600	430 000	96 700	1 800	2 200
238-R	190	7.4803	340	13.3858	55	2.1654	3.0	.12	1.0	.040	33 100	51.3	377 000	84 800	500 000	112 000	1 700	2 100
240-R	200	7.8740	360	14.1732	58	2.2835	3.0	.12	1.0	.040	35 500	55.1	390 000	87 700	540 000	121 000	1 600	2 000
242-R	210	8.2677	380	14.9606	61	2.4016	3.0	.12	1.0	.040	40 800	63.3	436 000	98 000	610 000	137 000	1 600	1 900
244-R	220	8.6614	400	15.7480	65	2.5591	3.0	.12	1.0	.040	43 900	68.0	462 000	104 000	655 000	147 000	1 500	1 800
246-R	230	9.0551	420	16.5354	68	2.6772	3.0	.12	1.0	.040	49 500	76.8	494 000	111 000	735 000	165 000	1 400	1 700
248-R	240	9.4488	440	17.3228	72	2.8346	3.0	.12	1.0	.040	55 500	86.1	540 000	121 000	830 000	187 000	1 300	1 600
250-R	250	9.8425	460	18.1102	76	2.9921	4.0	.16	1.5	.060	61 900	95.9	585 000	132 000	915 000	206 000	1 200	1 500
252-R	260	10.2362	480	18.8976	80	3.1496	4.0	.16	1.5	.060	68 400	106	624 000	140 000	1 020 000	229 000	1 100	1 400
256-R	280	11.0236	500	19.6850	80	3.1496	4.0	.16	1.5	.060	72 200	112	650 000	146 000	1 100 000	247 000	1 100	1 400
260-R	300	11.8110	540	21.2598	85	3.3465	4.0	.16	1.5	.060	80 000	124	689 000	155 000	1 220 000	274 000	1 100	1 300
264-R	320	12.5984	580	22.8346	92	3.6220	4.0	.16	1.5	.060	87 700	136	741 000	167 000	1 340 000	301 000	980	1 200

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.



"D" indicates a duplex ground half pair matched with an identical half pair and is followed by an additional suffix letter to describe the type of duplex. See pages 236 and 237 for suffix description.

Note: ABEC 1 & 3 are stocked as half-pairs where available

Use these values for back-to-back (DB) or face-to-face (DF) mounting arrangements

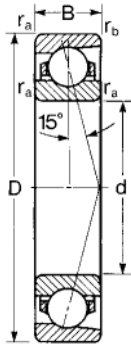
MRC Bearing Number	Bore		Outside Diameter		Width		Fillet Radius ¹⁾					Basic Radial Load Rating				Speed Rating ²⁾		
	d	mm	D	mm	B	mm	r _a		r _b		ZD ²		Dynamic C _d ³⁾		Static C ₀		Grease RPM	Oil RPM
							in	in	mm	in	mm	in	N	lbf	N	lbf		
200-RD	10	.3937	30	1.1811	18	.7087	.64	.025	.30	.012	284	.44	11 900	2 670	6 400	1 440	19 000	24 000
201-RD	12	.4724	32	1.2598	20	.7874	.64	.025	.30	.012	323	.50	13 300	2 990	7 800	1 750	18 000	22 000
202-RD	15	.5906	35	1.3780	22	.8661	.64	.025	.30	.012	406	.63	15 900	3 580	10 200	2 290	15 000	19 000
203-RD	17	.6693	40	1.5748	24	.9449	.64	.025	.30	.012	510	.79	19 900	4 470	13 200	2 970	14 000	16 000
204-RD	20	.7874	47	1.8504	28	1.1024	1.0	.04	.60	.024	613	.95	22 900	5 140	17 000	3 820	12 000	14 000
205-RD	25	.9843	52	2.0472	30	1.1811	1.0	.04	.60	.024	755	1.17	27 600	6 200	21 200	4 770	9 600	12 000
206-RD	30	1.1811	62	2.4409	32	1.2598	1.0	.04	.60	.024	884	1.37	30 700	6 900	26 000	5 850	8 000	10 000
207-RD	35	1.3780	72	2.8346	34	1.3386	1.0	.04	.60	.024	1 270	1.97	42 300	9 510	37 500	8 430	7 200	8 800
208-RD	40	1.5748	80	3.1496	36	1.4173	1.0	.04	.60	.024	1 730	2.68	55 900	12 600	50 000	11 200	6 800	8 000
209-RD	45	1.7717	85	3.3465	38	1.4961	1.0	.04	.60	.024	1 730	2.68	55 900	12 600	51 000	11 500	6 000	7 200
210-RD	50	1.9685	90	3.5433	40	1.5748	1.0	.04	.60	.024	1 970	3.06	60 500	13 600	60 000	13 500	5 600	6 800
211-RD	55	2.1654	100	3.9370	42	1.6535	1.5	.06	1.0	.040	2 860	4.43	88 400	19 900	83 000	18 700	5 000	6 000
212-RD	60	2.3622	110	4.3307	44	1.7323	1.5	.06	1.0	.040	3 260	5.06	95 600	21 500	96 500	21 700	4 800	5 600
213-RD	65	2.5591	120	4.7244	46	1.8110	1.5	.06	1.0	.040	4 030	6.25	97 500	21 900	118 000	26 500	4 200	5 000
214-RD	70	2.7559	125	4.9213	48	1.8898	1.5	.06	1.0	.040	4 530	7.03	125 000	28 200	137 000	30 800	4 000	4 800
215-RD	75	2.9528	130	5.1181	50	1.9685	1.5	.06	1.0	.040	5 190	8.04	143 000	32 100	153 000	34 400	3 800	4 500
216-RD	80	3.1496	140	5.5118	52	2.0472	2.0	.08	1.0	.040	4 880	7.57	138 000	31 000	140 000	31 500	3 600	4 200
217-RD	85	3.3465	150	5.9055	56	2.2047	2.0	.08	1.0	.040	6 170	9.56	168 000	37 700	186 000	41 800	3 400	4 000
218-RD	90	3.5433	160	6.2992	60	2.3622	2.0	.08	1.0	.040	7 870	12.2	212 000	47 700	232 000	52 200	3 000	3 600
219-RD	95	3.7402	170	6.6929	64	2.5197	2.0	.08	1.0	.040	8 390	13.0	221 000	49 700	250 000	56 200	2 900	3 400
220-RD	100	3.9370	180	7.0866	68	2.6772	2.0	.08	1.0	.040	9 610	14.9	251 000	56 400	285 000	64 100	2 700	3 200
221-RD	105	4.1339	190	7.4803	72	2.8346	2.0	.08	1.0	.040	10 300	16.0	270 000	60 700	305 000	68 600	2 600	3 000
222-RD	110	4.3307	200	7.8740	76	2.9921	2.0	.08	1.0	.040	11 700	18.1	296 000	66 500	340 000	76 400	2 400	2 900
224-RD	120	4.7244	215	8.4646	80	3.1496	2.0	.08	1.0	.040	13 000	20.2	319 000	71 800	390 000	87 700	2 200	2 700
226-RD	130	5.1181	230	9.0551	80	3.1496	2.5	.10	1.0	.040	15 500	24.0	358 000	80 500	455 000	102 000	2 100	2 600
228-RD	140	5.5118	250	9.8425	84	3.3071	2.5	.10	1.0	.040	17 200	26.6	390 000	87 700	510 000	115 000	1 900	2 300
230-RD	150	5.9055	270	10.6299	90	3.5433	2.5	.10	1.0	.040	20 700	32.1	442 000	99 400	620 000	139 000	1 800	2 200
232-RD	160	6.2992	290	11.4173	96	3.7795	2.5	.10	1.0	.040	24 600	38.7	494 000	111 000	735 000	165 000	1 700	2 000
234-RD	170	6.6929	310	12.2047	104	4.0945	3.0	.12	1.0	.040	27 200	42.2	527 000	118 000	800 000	180 000	1 500	1 800
236-RD	180	7.0866	320	12.5984	104	4.0945	3.0	.12	1.0	.040	29 000	44.9	559 000	126 000	865 000	194 000	1 400	1 800
238-RD	190	7.4803	340	13.3858	110	4.3307	3.0	.12	1.0	.040	33 100	51.3	605 000	136 000	1 000 000	225 000	1 400	1 700
240-RD	200	7.8740	360	14.1732	116	4.5669	3.0	.12	1.0	.040	35 500	55.1	637 000	143 000	1 080 000	243 000	1 300	1 600
242-RD	210	8.2677	380	14.9606	122	4.8031	3.0	.12	1.0	.040	40 800	63.3	702 000	158 000	1 220 000	274 000	1 300	1 500
244-RD	220	8.6614	400	15.7480	130	5.1181	3.0	.12	1.0	.040	43 900	63.0	741 000	167 000	1 320 000	297 000	1 200	1 400
246-RD	230	9.0551	420	16.5354	136	5.3543	3.0	.12	1.0	.040	49 500	76.8	806 000	181 000	1 500 000	337 000	1 100	1 400
248-RD	240	9.4488	440	17.3228	144	5.6693	3.0	.12	1.0	.040	55 500	86.1	871 000	196 000	1 660 000	373 000	1 000	1 300
250-RD	250	9.8425	460	18.1102	152	5.9842	4.0	.16	1.5	.060	61 900	95.9	956 000	215 000	1 830 000	411 000	960	1 200
252-RD	260	10.2362	480	18.8976	160	6.2992	4.0	.16	1.5	.060	68 400	106.0	1 010 000	227 000	2 040 000	459 000	880	1 100
256-RD	280	11.0236	500	19.6850	160	6.2992	4.0	.16	1.5	.060	72 200	112.0	1 060 000	238 000	2 200 000	495 000	880	1 100
260-RD	300	11.8110	540	21.2598	170	6.6929	4.0	.16	1.5	.060	80 000	124.0	1 140 000	256 000	2 400 000	540 000	880	1 000
264-RD	320	12.5984	580	22.8346	184	7.2441	4.0	.16	1.5	.060	87 700	136.0	1 210 000	272 000	2 700 000	607 000	780	960

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.



300-R Medium Series bearing bores range in diameter from 12 mm to 280 mm. They are used with heavy radial loads, one-directional thrust loads, or a combination of both. They can be furnished duplex ground for mounting in pairs with two-directional thrust loads.

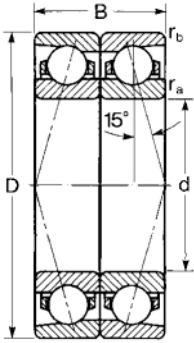
MRC Bearing Number	Bore d mm in		Outside Diameter D mm in		Width B mm in		Fillet Radius ¹⁾ r _a r _b ZD ²⁾ mm in mm in mm in					Basic Radial Load Rating				Speed Rating ²⁾		
												Dynamic C ₃₎		Static C ₀		Grease RPM	Oil RPM	
												N	lbf	N	lbf			
301-R	12	.4724	37	1.4567	12	.4727	1.0	.04	.60	.024	439	.68	10 600	2 380	4 900	1 100	19 000	24 000
302-R	15	.5906	42	1.6535	13	.5118	1.0	.04	.60	.024	510	.79	12 100	2 720	6 550	1 470	17 000	20 000
303-R	17	.6693	47	1.8504	14	.5512	1.0	.04	.60	.024	632	.98	14 800	3 330	8 150	1 830	16 000	19 000
304-R	20	.7874	52	2.0472	15	.5906	1.0	.04	.60	.024	909	1.41	20 300	4 560	11 400	2 560	13 000	16 000
305-R	25	.9843	62	2.4409	17	.6693	1.0	.04	.60	.024	1 090	1.69	23 400	5 260	15 300	3 440	11 000	14 000
306-R	30	1.1811	72	2.8346	19	.7480	1.0	.04	.60	.024	1 480	2.30	31 200	7 010	20 000	4 500	9 000	11 000
307-R	35	1.3780	80	3.1496	21	.8268	1.5	.06	1.0	.040	1 940	3.00	39 700	8 920	26 000	5 850	8 500	10 000
308-R	40	1.5748	90	3.5433	23	.9055	1.5	.06	1.0	.040	2 450	3.80	48 800	11 000	33 500	7 530	7 500	9 000
309-R	45	1.7717	100	3.9370	25	.9843	1.5	.06	1.0	.040	3 030	4.69	58 500	13 200	40 500	9 100	6 700	8 000
310-R	50	1.9685	110	4.3307	27	1.0630	2.0	.08	1.0	.040	4 350	6.75	80 600	18 100	57 000	12 800	6 300	7 500
311-R	55	2.1654	120	4.7244	29	1.1417	2.0	.08	1.0	.040	5 110	7.92	93 600	21 000	67 000	15 100	5 600	6 700
312-R	60	2.3622	130	5.1181	31	1.2205	2.0	.08	1.0	.040	5 930	9.19	108 000	24 300	78 000	17 500	5 000	6 000
313-R	65	2.5591	140	5.5118	33	1.2992	2.0	.08	1.0	.040	6 900	10.7	121 000	27 200	93 000	20 900	4 800	5 600
314-R	70	2.7559	150	5.9055	35	1.3780	2.0	.08	1.0	.040	6 770	10.5	121 000	27 200	93 000	20 900	4 500	5 300
315-R	75	2.9528	160	6.2992	37	1.4567	2.0	.08	1.0	.040	9 030	14.0	153 000	34 400	122 000	27 400	4 300	5 000
316-R	80	3.1496	170	6.6929	39	1.5354	2.0	.08	1.0	.040	9 480	14.7	159 000	35 700	129 000	29 000	3 800	4 500
317-R	85	3.3465	180	7.0866	41	1.6142	2.5	.10	1.0	.040	11 400	17.7	182 000	40 900	156 000	35 100	3 600	4 300
318-R	90	3.5433	190	7.4803	43	1.6929	2.5	.10	1.0	.040	11 800	18.3	186 000	41 800	160 000	36 000	3 400	4 000
319-R	95	3.7402	200	7.8740	45	1.7717	2.5	.10	1.0	.040	13 100	20.3	199 000	44 700	180 000	40 500	3 200	3 800
320-R	100	3.9370	215	8.4646	47	1.8504	2.5	.10	1.0	.040	14 400	22.4	212 000	47 700	200 000	45 000	3 000	3 600
321-R	105	4.1339	225	8.8583	49	1.9291	2.5	.10	1.0	.040	15 900	24.6	229 000	51 500	204 000	45 900	2 800	3 400
322-R	110	4.3307	240	9.4488	50	1.9685	2.5	.10	1.0	.040	18 800	29.2	255 000	57 300	255 000	57 300	2 600	3 200
324-R	120	4.7244	260	10.2362	55	2.1654	2.5	.10	1.0	.040	22 100	34.3	265 000	59 600	300 000	67 400	2 500	3 000
326-R	130	5.1181	280	11.0236	58	2.2835	3.0	.12	1.0	.040	25 700	39.8	296 000	66 500	345 000	77 600	2 300	2 800
328-R	140	5.5118	300	11.8110	62	2.4409	3.0	.12	1.0	.040	29 500	45.7	351 000	78 900	400 000	89 900	2 100	2 600
330-R	150	5.9055	320	12.5984	65	2.5591	3.0	.12	1.0	.040	33 900	52.6	390 000	87 700	475 000	107 000	2 000	2 400
332-R	160	6.2992	340	13.3858	68	2.6772	3.0	.12	1.0	.040	38 400	59.6	423 000	95 100	530 000	119 000	1 800	2 200
334-R	170	6.6929	360	14.1732	72	2.8346	3.0	.12	1.0	.040	40 800	63.2	436 000	98 000	570 000	128 000	1 700	2 100
336-R	180	7.0866	380	14.9606	75	2.9528	3.0	.12	1.0	.040	45 700	70.9	475 000	107 000	640 000	144 000	1 600	2 000
338-R	190	7.4803	400	15.7480	78	3.0709	4.0	.16	1.5	.060	51 000	79.0	507 000	114 000	710 000	160 000	1 600	1 900
340-R	200	7.8740	420	16.5354	80	3.1496	4.0	.16	1.5	.060	56 400	87.5	553 000	124 000	780 000	175 000	1 500	1 800
342-R	210	8.2677	440	17.3228	84	3.3071	4.0	.16	1.5	.060	62 200	96.5	592 000	133 000	865 000	194 000	1 400	1 700
344-R	220	8.6614	460	18.1102	88	3.4646	4.0	.16	1.5	.060	68 400	106	637 000	143 000	950 000	214 000	1 300	1 600
348-R	240	9.4488	500	19.6850	95	3.7402	4.0	.16	1.5	.060	74 800	116	676 000	152 000	1 060 000	238 000	1 100	1 400
352-R	260	10.2362	540	21.2598	102	4.0157	5.0	.20	2.0	.080	87 100	135	741 000	167 000	1 250 000	281 000	1 100	1 300
356-R	280	11.0236	580	22.8346	108	4.2520	5.0	.20	2.0	.080	102 000	158	832 000	187 000	1 460 000	328 000	980	1 200

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.



"D" indicates a duplex ground half pair matched with an identical half pair and is followed by an additional suffix letter to describe the type of duplex. See pages 236 and 237 for suffix description.

Note: ABEC 1 & 3 are stocked as half-pairs where available

Use these values for back-to-back (DB) or face-to-face (DF) mounting arrangements

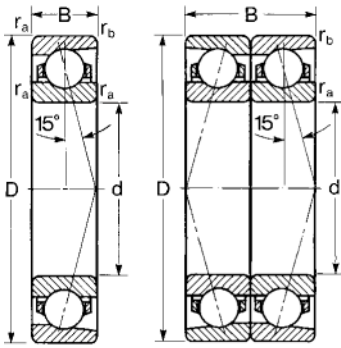
MRC Bearing Number	Bore		Outside Diameter		Width		Fillet Radius ¹⁾					Basic Radial Load Rating				Speed Rating ²⁾		
	d	mm	D	mm	B	mm	r _a	r _b	ZD ²⁾	Dynamic C ₃₎		Static C ₀		Grease RPM	Oil RPM			
										N	lbf	N	lbf					
301-RD	12	.4724	37	1.4567	24	.9449	1.0	.04	.60	.024	439	.68	17 200	3 870	9 800	2 200	15 000	19 000
302-RD	15	.5906	42	1.6535	26	1.0236	1.0	.04	.60	.024	510	.79	19 900	4 470	12 900	2 900	14 000	16 000
303-RD	17	.6693	47	1.8504	28	1.1024	1.0	.04	.60	.024	632	.98	23 800	5 350	16 300	3 660	13 000	15 000
304-RD	20	.7874	52	2.0472	30	1.1811	1.0	.04	.60	.024	909	1.41	32 500	7 310	22 400	5 040	10 000	13 000
305-RD	25	.9843	62	2.4409	34	1.3386	1.0	.04	.60	.024	1 090	1.69	37 700	8 480	30 500	6 860	8 800	11 000
306-RD	30	1.1811	72	2.8346	38	1.4961	1.0	.04	.60	.024	1 480	2.30	50 700	11 400	40 000	8 990	7 200	8 800
307-RD	35	1.3780	80	3.1496	42	1.6535	1.5	.06	1.0	.040	1 940	3.00	63 700	14 300	52 000	11 700	6 800	8 000
308-RD	40	1.5748	90	3.5433	46	1.8110	1.5	.06	1.0	.040	2 450	3.80	79 300	17 800	67 000	15 100	6 000	7 200
309-RD	45	1.7717	100	3.9370	50	1.9685	1.5	.06	1.0	.040	3 030	4.69	95 600	21 500	81 500	18 300	5 400	6 400
310-RD	50	1.9685	110	4.3307	54	2.1260	2.0	.08	1.0	.040	4 350	6.75	133 000	29 900	114 000	25 600	5 000	6 000
311-RD	55	2.1654	120	4.7244	58	2.2835	2.0	.08	1.0	.040	5 110	7.92	153 000	34 400	134 000	30 100	4 500	5 400
312-RD	60	2.3622	130	5.1181	62	2.4409	2.0	.08	1.0	.040	5 930	9.19	174 000	39 100	156 000	35 100	4 000	4 800
313-RD	65	2.5591	140	5.5118	66	2.5984	2.0	.08	1.0	.040	6 900	10.7	195 000	43 800	190 000	42 700	3 800	4 500
314-RD	70	2.7559	150	5.9055	70	2.7559	2.0	.08	1.0	.040	6 770	10.5	199 000	44 700	190 000	42 700	3 600	4 200
315-RD	75	2.9528	160	6.2992	74	2.9134	2.0	.08	1.0	.040	9 030	14.0	247 000	55 500	245 000	55 100	3 400	4 000
316-RD	80	3.1496	170	6.6929	78	3.0709	2.0	.08	1.0	.040	9 480	14.7	255 000	57 300	260 000	58 500	3 000	3 600
317-RD	85	3.3465	180	7.0866	82	3.2283	2.5	.10	1.0	.040	11 400	17.7	291 000	65 400	310 000	67 400	2 900	3 400
318-RD	90	3.5433	190	7.4803	86	3.3858	2.5	.10	1.0	.040	11 800	18.3	302 000	67 900	325 000	73 100	2 700	3 200
319-RD	95	3.7402	200	7.8740	90	3.5433	2.5	.10	1.0	.040	13 100	20.3	325 000	73 100	360 000	80 900	2 600	3 000
320-RD	100	3.9370	215	8.4646	94	3.7008	2.5	.10	1.0	.040	14 400	22.4	345 000	77 600	400 000	89 900	2 400	2 900
321-RD	105	4.1339	225	8.8583	98	3.8583	2.5	.10	1.0	.040	15 900	24.6	371 000	83 400	415 000	93 300	2 200	2 700
322-RD	110	4.3307	240	9.4488	100	3.9370	2.5	.10	1.0	.040	18 800	29.2	416 000	93 500	510 000	115 000	2 100	2 600
324-RD	120	4.7244	260	10.2362	110	4.3307	2.5	.10	1.0	.040	22 100	34.3	436 000	98 000	600 000	135 000	2 000	2 400
326-RD	130	5.1181	280	11.0236	116	4.5669	3.0	.12	1.0	.040	25 700	39.8	475 000	107 000	695 000	156 000	1 800	2 200
328-RD	140	5.5118	300	11.8110	124	4.8819	3.0	.12	1.0	.040	29 500	45.7	572 000	129 000	800 000	180 000	1 700	2 100
330-RD	150	5.9055	320	12.5984	130	5.1181	3.0	.12	1.0	.040	33 900	52.6	624 000	140 000	950 000	214 000	1 600	1 900
332-RD	160	6.2992	340	13.3858	136	5.3543	3.0	.12	1.0	.040	38 400	59.6	689 000	155 000	1 080 000	243 000	1 400	1 800
334-RD	170	6.6929	360	14.1732	144	5.6693	3.0	.12	1.0	.040	40 800	63.2	715 000	161 000	1 140 000	256 000	1 400	1 700
336-RD	180	7.0866	380	14.9606	150	5.9055	3.0	.12	1.0	.040	45 700	70.9	780 000	175 000	1 270 000	286 000	1 300	1 600
338-RD	190	7.4803	400	15.7480	156	6.1417	4.0	.16	1.5	.060	51 000	79.0	832 000	187 000	1 430 000	321 000	1 300	1 500
340-RD	200	7.8740	420	16.5354	160	6.2992	4.0	.16	1.5	.060	56 400	87.5	904 000	203 000	1 560 000	351 000	1 200	1 400
342-RD	210	8.2677	440	17.3228	168	6.6142	4.0	.16	1.5	.060	62 200	96.5	956 000	215 000	1 730 000	389 000	1 100	1 400
344-RD	220	8.6614	460	18.1102	176	6.9291	4.0	.16	1.5	.060	68 400	106.0	1 040 000	234 000	1 900 000	427 000	1 000	1 300
348-RD	240	9.4488	500	19.6850	190	7.4803	4.0	.16	1.5	.060	74 800	116.0	1 080 000	243 000	2 120 000	477 000	880	1 100
352-RD	260	10.2362	540	21.2598	204	8.0315	5.0	.20	2.0	.080	87 100	135.0	1 210 000	272 000	2 500 000	562 000	880	1 000
356-RD	280	11.0236	580	22.8346	216	8.5039	5.0	.20	2.0	.080	102 000	158.0	1 350 000	303 000	2 900 000	652 000	780	960

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.



Note: ABEC 1 & 3 are stocked as half-pairs where available

400-R and -RD Heavy Series bearings are available in bores from 17 mm to 110 mm. They can handle very heavy radial loads, one-directional thrust loads, or a combination of both. Use duplex bearings for two-directional thrust loads.

"D" indicates a duplex ground half pair matched with an identical half pair and is followed by an additional suffix letter to describe the type of duplex. See pages 236 and 237 for suffix description.

Values for -RD bearings are for back-to-back (DB) or face-to-face (DF) mounting arrangements.

MRC Bearing Number	Bore d mm in		Outside Diameter D mm in		Width B mm in		Fillet Radius ¹⁾ r _a r _b mm in mm in				Basic Radial Load Rating				Speed Rating ²⁾			
											Dynamic C ₃₎		Static C ₀		Grease RPM	Oil RPM		
											N	lbf	N	lbf				
403-R	17	.6693	62	2.4409	17	.6693	1.0	.04	.60	.024	1 290	2.00	23 400	5 260	14 600	3 280	12 000	15 000
404-R	20	.7874	72	2.8346	19	.7480	1.0	.04	.60	.024	1 840	2.85	37 100	8 340	21 200	4 770	10 000	13 000
405-R	25	.9843	80	3.1496	21	.8268	1.5	.06	1.0	.040	2 270	3.52	44 900	10 100	26 500	5 960	9 000	11 000
406-R	30	1.1811	90	3.5433	23	.9055	1.5	.06	1.0	.040	3 050	4.73	49 400	11 100	36 000	8 090	8 500	10 000
407-R	35	1.3780	100	3.9370	25	.9843	1.5	.06	1.0	.040	3 620	5.62	58 500	13 200	44 000	9 890	7 000	8 500
408-R	40	1.5748	110	4.3307	27	1.0630	2.0	.08	1.0	.040	4 260	6.60	67 600	15 200	52 000	11 700	6 700	8 000
409-R	45	1.7717	120	4.7244	29	1.1417	2.0	.08	1.0	.040	4 940	7.66	78 000	17 500	61 000	13 700	6 000	7 000
410-R	50	1.9685	130	5.1181	31	1.2205	2.0	.08	1.0	.040	6 240	9.67	95 600	21 500	78 000	17 500	5 300	6 300
411-R	55	2.1654	140	5.5118	33	1.2992	2.0	.08	1.0	.040	7 100	11.0	108 000	24 300	90 000	20 200	5 000	6 000
412-R	60	2.3622	150	5.9055	35	1.3780	2.0	.08	1.0	.040	8 000	12.4	117 000	26 300	102 000	22 900	4 800	5 600
413-R	65	2.5591	160	6.2992	37	1.4567	2.0	.08	1.0	.040	8 970	13.9	127 000	28 600	112 000	25 200	4 500	5 300
414-R	70	2.7559	180	7.0866	42	1.6535	2.5	.10	1.0	.040	12 200	18.9	156 000	35 100	150 000	33 700	3 800	4 500
415-R	75	2.9528	190	7.4803	45	1.7717	2.5	.10	1.0	.040	13 400	20.8	168 000	37 800	166 000	37 300	3 600	4 300
416-R	80	3.1496	200	7.8740	48	1.8898	2.5	.10	1.0	.040	14 600	22.7	178 000	40 000	183 000	41 100	3 400	4 000
417-R	85	3.3465	210	8.2677	52	2.0472	3.0	.12	1.0	.040	16 000	24.8	190 000	42 700	200 000	45 000	3 200	3 800
418-R	90	3.5433	225	8.8583	54	2.1260	3.0	.12	1.0	.040	18 700	29.0	212 000	47 700	236 000	53 100	3 000	3 600
419-R	95	3.7402	250	9.8425	55	2.1654	3.0	.12	1.0	.040	21 700	33.7	234 000	52 600	275 000	60 700	2 700	3 300
420-R	100	3.9370	265	10.4331	60	2.3622	3.0	.12	1.0	.040	25 000	38.7	260 000	58 500	305 000	68 600	2 500	3 100
421-R	105	4.1339	290	11.4173	65	2.5591	3.0	.12	1.0	.040	29 200	45.2	286 000	64 300	355 000	79 800	2 400	2 900
422-R	110	4.3307	320	12.5984	70	2.7559	3.0	.12	1.0	.040	34 500	53.5	319 000	71 700	425 000	95 500	2 100	2 600
400-RD																		
403-RD	17	.6693	62	2.4409	34	1.3386	1.0	.04	.60	.024	1 290	2.00	37 700	8 480	29 000	6 520	9 600	12 000
404-RD	20	.7874	72	2.8346	38	1.4961	1.0	.04	.60	.024	1 840	2.85	60 500	13 600	42 500	9 550	8 000	10 000
405-RD	25	.9843	80	3.1496	42	1.6535	1.5	.06	1.0	.040	2 270	3.52	74 100	16 700	53 000	11 900	7 200	8 800
406-RD	30	1.1811	90	3.5433	46	1.8110	1.5	.06	1.0	.040	3 050	4.73	80 600	18 100	72 000	16 200	6 800	8 000
407-RD	35	1.3780	100	3.9370	50	1.9685	1.5	.06	1.0	.040	3 620	5.62	95 600	21 500	86 500	19 400	5 600	6 800
408-RD	40	1.5748	110	4.3307	54	2.1260	2.0	.08	1.0	.040	4 260	6.60	111 000	25 000	104 000	23 400	5 400	6 400
409-RD	45	1.7717	120	4.7244	58	2.2835	2.0	.08	1.0	.040	4 940	7.66	127 000	28 600	122 000	27 400	4 800	5 600
410-RD	50	1.9685	130	5.1181	62	2.4409	2.0	.08	1.0	.040	6 240	9.67	153 000	34 400	156 000	35 100	4 200	5 000
411-RD	55	2.1654	140	5.5118	66	2.5984	2.0	.08	1.0	.040	7 100	11.0	174 000	39 100	180 000	40 500	4 000	4 800
412-RD	60	2.3622	150	5.9055	70	2.7559	2.0	.08	1.0	.040	8 000	12.4	190 000	42 700	204 000	45 900	3 800	4 500
413-RD	65	2.5591	160	6.2992	74	2.9134	2.0	.08	1.0	.040	8 970	13.9	208 000	46 800	224 000	50 400	3 600	4 200
414-RD	70	2.7559	180	7.0866	84	3.3071	2.5	.10	1.0	.040	12 200	18.9	255 000	57 300	300 000	67 400	3 000	3 600
415-RD	75	2.9528	190	7.4803	90	3.5433	2.5	.10	1.0	.040	13 400	20.8	270 000	60 700	335 000	75 300	2 900	3 400
416-RD	80	3.1496	200	7.8740	96	3.7795	2.5	.10	1.0	.040	14 600	22.7	286 000	64 300	365 000	82 100	2 700	3 200
417-RD	85	3.3465	210	8.2677	104	4.0945	3.0	.12	1.0	.040	16 000	24.8	307 000	69 000	400 000	89 900	2 600	3 000
418-RD	90	3.5433	225	8.8583	108	4.2520	3.0	.12	1.0	.040	18 700	29.0	345 000	77 600	465 000	105 000	2 400	2 900
419-RD	95	3.7402	250	9.8425	110	4.3307	3.0	.12	1.0	.040	21 700	33.7	377 000	84 800	550 000	124 000	2 200	2 600
420-RD	100	3.9370	265	10.4331	120	4.7244	3.0	.12	1.0	.040	25 000	38.7	416 000	93 500	610 000	137 000	2 000	2 500
421-RD	105	4.1339	290	11.4173	130	5.1181	3.0	.12	1.0	.040	29 200	45.2	462 000	104 000	710 000	160 000	1 900	2 300
422-RD	110	4.3307	320	12.5984	140	5.5118	3.0	.12	1.0	.040	34 500	53.5	520 000	117 000	850 000	191 000	1 700	2 100

¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ Listed values are for pressed steel or polyamide cage, ABEC-1.

For phenolic composition cage, multiply by 1.66 for grease and 2.00 for oil. For machined bronze cage, multiply by 1.25 for grease and 1.50 for oil. For phenolic composition cage, ABEC-5 or 7, multiply by 2.30 for grease and 2.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276.

³⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.

**Dynamic and static equivalent radial load
and life rating**

Dynamic equivalent radial load

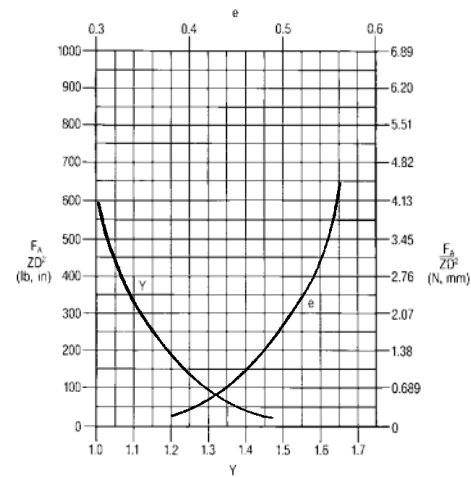
$P = XF_R + YF_A$ P = Dynamic equivalent radial load
 F_R = Radial load
 F_A = Thrust load
 Z = Number of balls
 D = Ball diameter
 X = Radial load factor
 Y = Thrust load factor
 e = Limiting factor for F_A/F_R

Static equivalent radial load

$P_0 = 0.6 F_R + 0.5 F_A$
 P_0 is always $\geq F_R$
 P_0 = Static equivalent radial load
 F_R = Radial load
 F_A = Thrust load

Contact Angle	F_A/ZD^2		$F_A/F_R > e$		e
	Units N, mm	Units lb, in	X	Y	
15°	0.172	25	0.44	1.47	0.38
	0.345	50		1.40	0.40
	0.689	100		1.30	0.43
	1.03	150		1.23	0.46
	1.38	200		1.19	0.47
	2.07	300		1.12	0.50
	3.45	500		1.02	0.55
	5.17	750		1.00	0.56
	6.89	1 000		1.00	0.56

When $F_A/F_R \leq e$, use $X = 1.0$, $Y = 0$.
 Values of Y for loads not shown are obtained from chart to the right.



Life rating

$L_{10} = \left(\frac{C}{P}\right)^3$ (Millions of revolutions)

or

$L_{10h} = \frac{10^6}{60n} \left(\frac{C}{P}\right)^3$ (Hours)

- C = Basic dynamic load rating
- P = Dynamic equivalent radial load
- n = Speed in RPM

**Dynamic equivalent radial load
and life calculation examples**

Bearing size: 309R

Speed = 2000 RPM

Basic dynamic load rating (C) = 13200 lbf

ZD² = 4.69

Case 1Radial load (F_R) = 1890Equivalent load (P) = X F_R + Y F_AP = F_R = 1890

$$\text{Life (L}_{10}\text{)} = \left(\frac{C}{P}\right)^3 = \left(\frac{13200}{1890}\right)^3 = 341 \times 10^6 \text{ Rev.}$$

or

$$\begin{aligned}\text{Life (L}_{10}\text{h)} &= \frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{13200}{1890}\right)^3 \\ &= 2839 \text{ Hrs}\end{aligned}$$

Case 2Radial load (F_R) = 1890Thrust load (F_A) = 1250Equivalent load (P) = X F_R + Y F_AF_A/ZD² = 1250/4.69 = 267

X = 0.44

Y = 1.15

P = 0.44 × 1890 + 1.15 × 1250 = 2269

$$\text{Life (L}_{10}\text{)} = \left(\frac{C}{P}\right)^3 = \left(\frac{13200}{2269}\right)^3 = 197 \times 10^6 \text{ Rev.}$$

or

$$\begin{aligned}\text{Life (L}_{10}\text{h)} &= \frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{13200}{2269}\right)^3 \\ &= 1641 \text{ Hrs}\end{aligned}$$

Case 3Thrust load (F_A) = 1250Equivalent load (P) = Y F_AF_A/ZD² = 1250/4.69 = 267

Y = 1.15

P = 1.15 × 1250 = 1438

$$\text{Life (L}_{10}\text{)} = \left(\frac{C}{P}\right)^3 = \left(\frac{13200}{1438}\right)^3 = 773 \times 10^6 \text{ Rev.}$$

or

$$\begin{aligned}\text{Life (L}_{10}\text{h)} &= \frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{13200}{1438}\right)^3 \\ &= 6646 \text{ Hrs}\end{aligned}$$

Dynamic equivalent radial load

$P = X F_R + Y F_A$ P = Dynamic equivalent radial load
 F_R = Radial load
 F_A = Thrust load
 X = Radial load factor
 Y = Thrust load factor
 Z = Number of balls
 D = Ball diameter
 e = Limiting factor for F_A/F_R

Contact Angle	F_A / ZD^2		Tandem DT Mounting		DB or DF Mounting				e	
	Units N, mm	Units lb, in	$F_A/F_R > e$		$F_A/F_R \leq e$		$F_A/F_R > e$			
			X	Y	X	Y	X	Y		
15°	0.172	25	0.44	1.47	1	1.65	0.72	2.39	0.38	
	0.345	50		1.40		1.57		2.28		0.40
	0.689	100		1.30		1.46		2.11		0.43
	1.03	150		1.23		1.38		2.00		0.46
	1.38	200		1.19		1.34		1.93		0.47
	2.07	300		1.12		1.26		1.82		0.50
	3.45	500		1.02		1.14		1.66		0.55
	5.17	750		1.00		1.12		1.63		0.56
	6.89	1 000		1.00		1.12		1.63		0.56

For tandem DT, when $F_A/F_R < e$, use $X = 1.0$, $Y = 0$
 Values of Y for loads not shown are obtained from chart below

Life rating

$L_{10} = \left(\frac{C}{P}\right)^3$ (millions of revolutions)

or

$L_{10h} = \frac{10^6}{60n} \left(\frac{C}{P}\right)^3$ (Hours)

For DB or DF Mounting:

C = Duplex pair dynamic radial load rating (from duplex bearing tables)
 or

C = Single-row dynamic radial load rating times $(i)^{0.7}$, where $i = 2$

For tandem mounting:

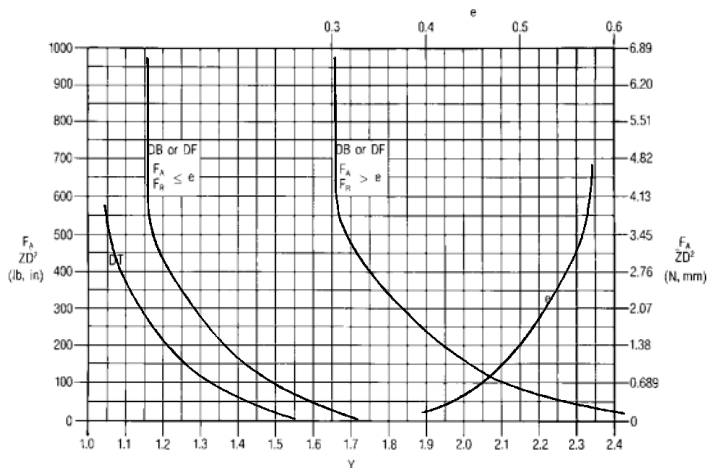
C = Single-row dynamic radial load rating times $(i)^{0.7}$, where i = number of bearings in set

P = Dynamic equivalent radial load

n = Speed in RPM

Static equivalent radial load

$P_0 = 1.0 F_R + 0.94 F_A$
 P_0 = Static equivalent radial load
 F_R = Radial load
 F_A = Thrust load



**Dynamic equivalent radial load
and life calculation examples**

Bearing size: 309 RDU (DB or DF Pair)
 Speed: 2000 RPM
 Duplex pair basic dynamic radial load
 Rating (C) = 21500 lbf
 $ZD^2 = 4.69$

Case 1

Radial load (F_R) = 1890
 Thrust load (F_A) = 1250
 Equivalent load (P) = $X F_R + Y F_A$
 $F_A/F_R = 1250/1890 = 0.66$
 $F_A/ZD^2 = 1250/4.69 = 267$
 Since $F_A/F_R > e$, $X = 0.72$, $Y = 1.86$
 $P = 0.72 \times 1890 + 1.86 \times 1250 = 3686$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{21500}{3686}\right)^3 = 198 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{21500}{3686}\right)^3$
 = 1654 Hrs

Case 2

Radial load (F_R) = 1890
 Thrust load (F_A) = 450
 Equivalent load (P) = $X F_R + Y F_A$
 $F_A/F_R = 450/1890 = 0.24$
 $F_A/ZD^2 = 450/4.69 = 96$
 Since $F_A/F_R < e$, $X = 1.0$, $Y = 1.46$
 $P = 1.0 \times 1890 + 1.46 \times 450 = 2547$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{21500}{2547}\right)^3 = 601 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{21500}{2547}\right)^3$
 = 5012 Hrs

Case 3

Thrust load (F_A) = 1250
 Equivalent load (P) = $X F_R + Y F_A$
 $F_A/F_R = 1250/0 = \infty$
 $F_A/ZD^2 = 1250/4.69 = 267$
 Since $F_A/F_R > e$, $Y = 1.86$
 $P = 1.86 \times 1250 = 2325$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{21500}{2325}\right)^3 = 791 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{21500}{2325}\right)^3$
 = 6590 Hrs

Bearing size: 309 RDT
 3 bearings in tandem
 Speed: 2000 RPM
 Single-row basic dynamic radial
 Load Rating (C) = 13200 lbf
 $ZD^2 = 4.69$

Case 1

Thrust load (F_A) = 2500
 Equivalent load (P) = $X F_R + Y F_A$
 $F_A/F_R = 2500/0 = \infty$
 $F_A/ZD^2 = 2500/4.69 = 533$
 Since $F_A/F_R > e$, $X = 0.44$, $Y = 1.02$
 $P = 1.02 \times 2500 = 2550$
 Load rating = $(i)^{0.7} \times 13200$
 = $(3)^{0.7} \times 13200 = 28510$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{28510}{2550}\right)^3 = 1398 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{28510}{2550}\right)^3$
 = 11650 Hrs

Case 2

Radial load (F_R) = 1890
 Thrust load (F_A) = 2500
 Equivalent load (P) = $X F_R + Y F_A$
 $F_A/F_R = 2500/1890 = 1.32$
 $F_A/ZD^2 = 2500/4.69 = 533$
 Since $F_A/F_R > e$, $X = 0.44$, $Y = 1.02$
 $P = 0.44 \times 1890 + 1.02 \times 2500 = 3382$
 Load rating = $(i)^{0.7} \times 13200$
 = $(3)^{0.7} \times 13200 = 28510$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{28510}{3382}\right)^3 = 599 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{28510}{3382}\right)^3$
 = 4992 Hrs