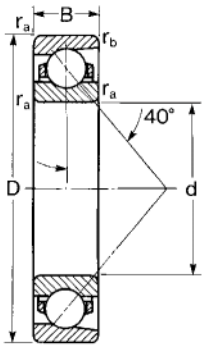


7200-P Light Series (Single Bearings)

MRC Bearing Services



7200-P Light Series bearings are available in bore sizes ranging from 10 mm to 200 mm. They are used with heavy one-directional thrust loads, or combined radial and thrust loads where the thrust load is predominant.

Caution: Single bearings are not to be used where only radial loads are present. For two-direction thrust loads, use duplex bearings.

MRC Bearing Number	Bore		Outside Diameter D		Width B		Fillet Radius ¹⁾				Basic Radial Load Rating ²⁾				Speed Rating ³⁾	
											Dynamic C ⁴⁾		Static C ₀		Grease RPM	Oil RPM
	d mm	in	mm	in	mm	in	mm	in	mm	in	N	lbf	N	lbf		
7200-P	10	.3937	30	1.1811	9	.3543	.64	.025	.30	.012	7 020	1 580	3 200	719	19 000	28 000
7201-P	12	.4724	32	1.2598	10	.3937	.64	.025	.30	.012	7 610	1 710	3 750	843	18 000	26 000
7202-P	15	.5906	35	1.3780	11	.4331	.64	.025	.30	.012	8 840	1 990	4 250	955	17 000	24 000
7203-P	17	.6693	40	1.5748	12	.4724	.64	.025	.30	.012	11 700	2 630	6 000	1 350	15 000	20 000
7204-P	20	.7874	47	1.8504	14	.5512	1.0	.04	.60	.024	14 800	3 330	8 300	1 870	12 000	17 000
7205-P	25	.9843	52	2.0472	15	.5906	1.0	.04	.60	.024	16 800	3 780	10 400	2 340	10 000	15 000
7206-P	30	1.1811	62	2.4409	16	.6299	1.0	.04	.60	.024	21 200	4 770	12 700	2 860	8 500	12 000
7207-P	35	1.3780	72	2.8346	17	.6693	1.0	.04	.60	.024	29 100	6 540	19 300	4 340	8 000	11 000
7208-P	40	1.5748	80	3.1496	18	.7087	1.0	.04	.60	.024	32 500	7 310	22 400	5 040	7 000	9 500
7209-P	45	1.7717	85	3.3465	19	.7480	1.0	.04	.60	.024	39 000	8 770	27 500	6 180	6 700	9 000
7210-P	50	1.9685	90	3.5433	20	.7874	1.0	.04	.60	.024	40 300	9 060	30 000	6 740	6 000	8 000
7211-P	55	2.1654	100	3.9370	21	.8268	1.5	.06	1.0	.040	48 800	11 000	37 500	8 430	5 600	7 500
7212-P	60	2.3622	110	4.3307	22	.8661	1.5	.06	1.0	.040	58 500	13 200	45 500	10 200	5 000	6 700
7213-P	65	2.5591	120	4.7244	23	.9055	1.5	.06	1.0	.040	63 700	14 300	51 000	11 500	4 500	6 000
7214-P	70	2.7559	125	4.9213	24	.9449	1.5	.06	1.0	.040	68 900	15 500	56 000	12 600	4 300	5 600
7215-P	75	2.9528	130	5.1181	25	.9843	1.5	.06	1.0	.040	71 500	16 100	60 000	13 500	4 000	5 300
7216-P	80	3.1496	140	5.5118	26	1.0236	2.0	.08	1.0	.040	83 200	18 700	71 000	16 000	3 800	5 000
7217-P	85	3.3465	150	5.9055	28	1.1024	2.0	.08	1.0	.040	95 600	21 500	83 000	18 700	3 600	4 800
7218-P	90	3.5433	160	6.2992	30	1.1811	2.0	.08	1.0	.040	108 000	24 300	95 000	21 400	3 400	4 500
7219-P	95	3.7402	170	6.6929	32	1.2598	2.0	.08	1.0	.040	124 000	27 900	110 000	24 700	3 200	4 300
7220-P	100	3.9370	180	7.0866	34	1.3386	2.0	.08	1.0	.040	130 000	29 200	125 000	28 100	3 000	4 000
7221-P	105	4.1339	190	7.4803	36	1.4173	2.0	.08	1.0	.040	143 000	32 100	129 000	29 000	2 800	3 800
7222-P	110	4.3307	200	7.8740	38	1.4961	2.0	.08	1.0	.040	153 000	34 400	156 000	35 100	2 600	3 600
7224-P	120	4.7244	215	8.4646	40	1.5748	2.0	.08	1.0	.040	165 000	37 100	163 000	36 600	2 200	3 200
7226-P	130	5.1181	230	9.0551	40	1.5748	2.5	.10	1.0	.040	186 000	41 800	193 000	43 400	1 900	2 800
7228-P	140	5.5118	250	9.8425	42	1.6535	2.5	.10	1.0	.040	199 000	44 700	216 000	48 600	1 800	2 600
7230-P	150	5.9055	270	10.6299	45	1.7717	2.5	.10	1.0	.040	216 000	48 600	260 000	58 500	1 700	2 400
7232-P	160	6.2992	290	11.4173	48	1.8898	2.5	.10	1.0	.040	238 000	53 500	280 000	62 900	1 600	2 200
7234-P	170	6.6929	310	12.2047	52	2.0472	3.0	.12	1.0	.040	265 000	59 600	335 000	75 300	1 600	2 200
7236-P	180	7.0866	320	12.5984	52	2.0472	3.0	.12	1.0	.040	276 000	62 000	355 000	79 800	1 500	2 000
7238-P	190	7.4803	340	13.3858	55	2.1654	3.0	.12	1.0	.040	302 000	67 900	405 000	91 000	1 400	1 900
7240-P	200	7.8740	360	14.1732	58	2.2835	3.0	.12	1.0	.040	319 000	71 700	440 000	98 900	1 300	1 800

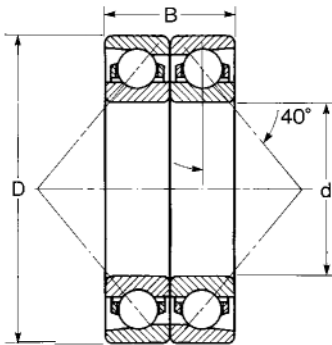
¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ For thrust rating multiply C by 1.75 and C₀ by 3.85.

³⁾ Listed values are for machined bronze cage, ABEC-1.

For phenolic composition cage, multiply by 1.33 for both grease and oil. For phenolic composition cage, ABEC-5 or 7, multiply by 1.86 for both grease and oil. For pressed steel cage, ABEC-1, multiply by 0.67 for grease and 0.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276

⁴⁾ 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.

For duplex sets of 7000 and 9000 series bearings see page 239

Note: ABEC - 1 & 3 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 D		Width B		Fillet Radius ¹⁾				Basic Radial Load Rating ²⁾				Speed Rating ³⁾	
											Dynamic C _d		Static C ₀		Grease	Oil
	d	mm	in	mm	in	mm	in	r _a	r _b	mm	in	N	lbf	N	lbf	RPM
7200-PD	10	.3937	30	1.1811	18	.7087	.64	.025	.30	.012	11 400	2 560	6 400	1 440	16 000	22 000
7201-PD	12	.4724	32	1.2598	20	.7874	.64	.025	.30	.012	12 500	2 810	7 500	1 690	13 000	18 000
7202-PD	15	.5906	35	1.3780	22	.8661	.64	.025	.30	.012	14 300	3 210	8 500	1 910	12 000	17 000
7203-PD	17	.6693	40	1.5748	24	.9449	.64	.025	.30	.012	19 000	4 270	12 000	2 700	11 000	16 000
7204-PD	20	.7874	47	1.8504	28	1.1024	1.0	.04	.60	.024	24 200	5 440	16 600	3 730	9 500	14 000
7205-PD	25	.9843	52	2.0472	30	1.1811	1.0	.04	.60	.024	27 000	6 070	20 800	4 680	8 500	12 000
7206-PD	30	1.1811	62	2.4409	32	1.2598	1.0	.04	.60	.024	34 500	7 760	25 500	5 730	7 500	10 000
7207-PD	35	1.3780	72	2.8346	34	1.3386	1.0	.04	.60	.024	47 500	10 700	39 000	8 770	6 300	8 500
7208-PD	40	1.5748	80	3.1496	36	1.4173	1.0	.04	.60	.024	52 700	11 800	45 000	10 100	5 600	7 500
7209-PD	45	1.7717	85	3.3465	38	1.4961	1.0	.04	.60	.024	62 400	14 000	55 000	12 400	5 300	7 000
7210-PD	50	1.9685	90	3.5433	40	1.5748	1.0	.04	.60	.024	65 000	14 600	60 000	13 500	4 800	6 300
7211-PD	55	2.1654	100	3.9370	42	1.6535	1.5	.06	1.0	.040	79 300	17 800	75 000	16 900	4 500	6 000
7212-PD	60	2.3622	110	4.3307	44	1.7323	1.5	.06	1.0	.040	95 600	21 500	91 600	20 600	4 000	5 300
7213-PD	65	2.5591	120	4.7244	46	1.8110	1.5	.06	1.0	.040	104 000	23 400	100 000	22 500	3 600	4 800
7214-PD	70	2.7559	125	4.9213	48	1.8898	1.5	.06	1.0	.040	112 000	25 200	112 000	25 200	3 400	4 500
7215-PD	75	2.9528	130	5.1181	50	1.9685	1.5	.06	1.0	.040	117 000	26 300	120 000	27 000	3 200	4 300
7216-PD	80	3.1496	140	5.5118	52	2.0472	2.0	.08	1.0	.040	135 000	30 300	140 000	31 500	3 000	4 000
7217-PD	85	3.3465	150	5.9055	56	2.2047	2.0	.08	1.0	.040	156 000	35 100	166 000	37 300	2 800	3 800
7218-PD	90	3.5433	160	6.2992	60	2.3622	2.0	.08	1.0	.040	178 000	40 000	190 000	42 700	2 600	3 600
7219-PD	95	3.7402	170	6.6929	64	2.5197	2.0	.08	1.0	.040	199 000	44 700	220 000	49 500	2 400	3 400
7220-PD	100	3.9370	180	7.0866	68	2.6772	2.0	.08	1.0	.040	212 000	47 700	250 000	56 200	2 200	3 200
7221-PD	105	4.1339	190	7.4803	72	2.8346	2.0	.08	1.0	.040	229 000	51 500	260 000	58 500	2 000	3 000
7222-PD	110	4.3307	200	7.8740	76	2.9921	2.0	.08	1.0	.040	251 000	56 400	310 000	69 700	1 900	2 800
7224-PD	120	4.7244	215	8.4646	80	3.1496	2.0	.08	1.0	.040	270 000	60 700	325 000	73 100	1 700	2 400
7226-PD	130	5.1181	230	9.0551	80	3.1496	2.5	.10	1.0	.040	302 000	67 900	390 000	87 700	1 700	2 400
7228-PD	140	5.5118	250	9.8425	84	3.3071	2.5	.10	1.0	.040	319 000	71 700	430 000	96 700	1 600	2 200
7230-PD	150	5.9055	270	10.6299	90	3.5433	2.5	.10	1.0	.040	351 000	78 900	520 000	117 000	1 500	2 000
7232-PD	160	6.2992	290	11.4173	96	3.7795	2.5	.10	1.0	.040	390 000	87 700	560 000	126 000	1 300	1 700
7234-PD	170	6.6929	310	12.2047	104	4.0945	3.0	.12	1.0	.040	436 000	98 000	655 000	147 000	1 200	1 600
7236-PD	180	7.0866	320	12.5984	104	4.0945	3.0	.12	1.0	.040	449 000	101 000	710 000	160 000	1 100	1 500
7238-PD	190	7.4803	340	13.3858	110	4.3307	3.0	.12	1.0	.040	488 000	110 000	815 000	183 000	1 100	1 500
7240-PD	200	7.8740	360	14.1732	116	4.5669	3.0	.12	1.0	.040	520 000	117 000	880 000	198 000	1 000	1 400

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

²⁾ For thrust rating multiply C by 1.08 and C₀ by 1.93.

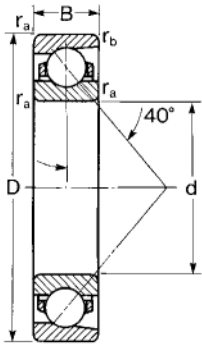
³⁾ Listed values are for machined bronze cage, ABEC-1.

For phenolic composition cage, multiply by 1.33 for both grease and oil. For phenolic composition cage, ABEC-5 or 7, multiply by 1.86 for both grease and oil. For pressed steel cage, ABEC-1, multiply by 0.67 for grease and 0.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276

⁴⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.

7300-P Medium Series (Single Bearings)

MRC Bearing Services



7300-P Medium Series bearings are available in bore sizes from 10 mm to 200 mm. They can accommodate very heavy one-directional thrust loads, or combined radial and thrust loads where the thrust load is predominant.

Caution: Single bearings are not to be used where only radial loads are present. For two-direction thrust loads, use duplex bearings.

MRC Bearing Number	Bore		Outside Diameter D		Width B		Fillet Radius ¹⁾				Basic Radial Load Rating ²⁾				Speed Rating ³⁾	
											Dynamic C _d		Static C ₀		Grease	Oil
	d	in	mm	in	mm	in	mm	in	mm	in	N	lbf	N	lbf	RPM	RPM
7300-P	10	.3937	35	1.3780	11	.4331	.64	.025	.30	.012	9 360	2 100	4 150	933	18 000	26 000
7301-P	12	.4724	37	1.4567	12	.4724	1.0	.04	.60	.024	11 200	2 520	5 000	1 120	17 000	24 000
7302-P	15	.5906	42	1.6535	13	.5118	1.0	.04	.60	.024	12 700	2 860	6 100	1 370	15 000	20 000
7303-P	17	.6693	47	1.8504	14	.5512	1.0	.04	.60	.024	16 800	3 780	8 500	1 910	13 000	18 000
7304-P	20	.7874	52	2.0472	15	.5906	1.0	.04	.60	.024	18 600	4 180	9 500	2 140	11 000	16 000
7305-P	25	.9843	62	2.4409	17	.6693	1.0	.04	.60	.024	24 200	5 440	13 400	3 010	9 000	13 000
7306-P	30	1.1811	72	2.8346	19	.7480	1.0	.04	.60	.024	32 500	7 310	19 600	4 410	8 000	11 000
7307-P	35	1.3780	80	3.1496	21	.8268	1.5	.06	1.0	.040	39 700	8 920	24 500	5 510	7 500	10 000
7308-P	40	1.5748	90	3.5433	23	.9055	1.5	.06	1.0	.040	47 500	10 700	30 500	6 860	6 700	9 000
7309-P	45	1.7717	100	3.9370	25	.9843	1.5	.06	1.0	.040	59 200	13 300	40 000	8 990	6 000	8 000
7310-P	50	1.9685	110	4.3307	27	1.0630	2.0	.08	1.0	.040	68 900	15 500	52 000	11 700	5 300	7 000
7311-P	55	2.1654	120	4.7244	29	1.1417	2.0	.08	1.0	.040	79 300	17 800	56 000	12 600	4 800	6 300
7312-P	60	2.3622	130	5.1181	31	1.2205	2.0	.08	1.0	.040	90 400	20 300	64 000	13 500	4 500	6 000
7313-P	65	2.5591	140	5.5118	33	1.2992	2.0	.08	1.0	.040	101 000	22 700	80 000	18 000	4 300	5 600
7314-P	70	2.7559	150	5.9055	35	1.3780	2.0	.08	1.0	.040	117 000	26 300	93 000	20 900	3 800	5 000
7315-P	75	2.9528	160	6.2992	37	1.4567	2.0	.08	1.0	.040	127 000	28 600	100 000	22 500	3 600	4 800
7316-P	80	3.1496	170	6.6929	39	1.5354	2.0	.08	1.0	.040	138 000	31 000	110 000	24 700	3 400	4 500
7317-P	85	3.3465	180	7.0866	41	1.6142	2.5	.10	1.0	.040	148 000	33 300	122 000	27 400	3 200	4 300
7318-P	90	3.5433	190	7.4803	43	1.6299	2.5	.10	1.0	.040	159 000	35 700	137 000	30 800	3 000	4 000
7319-P	95	3.7402	200	7.8740	45	1.7717	2.5	.10	1.0	.040	168 000	37 800	150 000	33 700	2 800	3 800
7320-P	100	3.9370	215	8.4646	47	1.8504	2.5	.10	1.0	.040	190 000	42 700	190 000	42 700	2 600	3 600
7321-P	105	4.1339	225	8.8583	49	1.9291	2.5	.10	1.0	.040	203 000	45 600	196 000	44 100	2 400	3 400
7322-P	110	4.3307	240	9.4488	50	1.9685	2.5	.10	1.0	.040	212 000	47 700	228 000	51 300	2 200	3 200
7324-P	120	4.7244	260	10.2362	55	2.1654	2.5	.10	1.0	.040	238 000	53 500	265 000	59 600	1 900	2 800
7326-P	130	5.1181	280	11.0236	58	2.2835	3.0	.12	1.0	.040	276 000	62 000	305 000	68 600	1 800	2 600
7328-P	140	5.5118	300	11.8110	62	2.4409	3.0	.12	1.0	.040	302 000	67 900	345 000	77 600	1 700	2 400
7330-P	150	5.9055	320	12.5984	65	2.5591	3.0	.12	1.0	.040	325 000	73 100	390 000	87 700	1 600	2 200
7332-P	160	6.2992	340	13.3858	68	2.6772	3.0	.12	1.0	.040	345 000	77 600	425 000	95 500	1 500	2 000
7334-P	170	6.6929	360	14.1732	72	2.8346	3.0	.12	1.0	.040	377 000	84 800	490 000	110 000	1 400	1 900
7336-P	180	7.0866	380	14.9606	75	2.9528	3.0	.12	1.0	.040	403 000	90 600	540 000	121 000	1 300	1 800
7338-P	190	7.4803	400	15.7480	78	3.0709	4.0	.16	1.5	.060	416 000	93 500	570 000	128 000	1 200	1 700
7340-P	200	7.8740	420	16.5354	80	3.1496	4.0	.16	1.5	.060	449 000	101 000	655 000	147 000	1 100	1 600

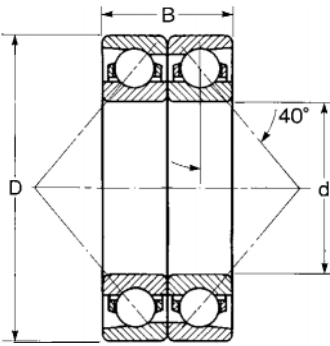
¹⁾ Fillet radius indicates maximum fillet radius on shaft or in housing which bearing corner will clear.

²⁾ For thrust rating multiply C by 1.75 and C₀ by 3.85.

³⁾ Listed values are for machined bronze cage, ABEC-1.

For phenolic composition cage, multiply by 1.33 for both grease and oil. For phenolic composition cage, ABEC-5 or 7, multiply by 1.86 for both grease and oil. For pressed steel cage, ABEC-1, multiply by 0.67 for grease and 0.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276

⁴⁾ Rating for one million revolutions or 500 hours at 33⅓ RPM.



Note: ABEC-1 & 3 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.

For duplex sets of 7000 and 9000 series bearings see page 239

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

MRC Bearing Number	Bore		Outside Diameter D		Width B		Fillet Radius ¹⁾				Basic Radial Load Rating ²⁾				Speed Rating ³⁾	
											Dynamic C _d ⁴⁾		Static C ₀		Grease	Oil
	d	mm	in	mm	in	mm	in	r _a	r _b	mm	in	N	lbf	N	lbf	RPM
7300-PD	10	.3937	35	1.3780	22	.8661	.64	.025	.30	.012	15 300	3 440	8 300	1 870	15 000	21 000
7301-PD	12	.4724	37	1.4567	24	.9449	1.0	.04	.60	.024	18 200	4 090	10 200	2 290	14 000	19 000
7302-PD	15	.5906	42	1.6535	26	1.0236	1.0	.04	.60	.024	20 300	4 560	12 200	2 740	11 000	16 000
7303-PD	17	.6693	47	1.8504	28	1.1024	1.0	.04	.60	.024	27 600	6 200	17 000	3 820	9 500	14 000
7304-PD	20	.7874	52	2.0472	30	1.1811	1.0	.04	.60	.024	30 200	6 790	19 000	4 270	9 000	13 000
7305-PD	25	.9843	62	2.4409	34	1.3386	1.0	.04	.60	.024	39 000	8 770	27 000	6 070	7 500	10 000
7306-PD	30	1.1811	72	2.8346	38	1.4961	1.0	.04	.60	.024	52 700	11 800	39 000	8 770	6 700	9 000
7307-PD	35	1.3780	80	3.1496	42	1.6535	1.5	.06	1.0	.040	63 700	14 300	49 000	11 000	6 000	8 000
7308-PD	40	1.5748	90	3.5433	46	1.8110	1.5	.06	1.0	.040	76 100	17 100	61 000	13 700	5 300	7 000
7309-PD	45	1.7717	100	3.9370	50	1.9685	1.5	.06	1.0	.040	97 500	21 900	80 000	18 000	4 800	6 300
7310-PD	50	1.9685	110	4.3307	54	2.1260	2.0	.08	1.0	.040	112 000	25 200	104 000	23 400	4 300	5 600
7311-PD	55	2.1654	120	4.7244	58	2.2835	2.0	.08	1.0	.040	130 000	29 200	112 000	25 200	3 800	5 000
7312-PD	60	2.3622	130	5.1181	62	2.4409	2.0	.08	1.0	.040	148 000	33 300	129 000	29 000	3 600	4 800
7313-PD	65	2.5591	140	5.5118	66	2.5984	2.0	.08	1.0	.040	165 000	37 100	160 000	36 000	3 200	4 300
7314-PD	70	2.7559	150	5.9055	70	2.7559	2.0	.08	1.0	.040	190 000	42 700	186 000	41 800	3 000	4 000
7315-PD	75	2.9528	160	6.2992	74	2.9134	2.0	.08	1.0	.040	208 000	46 800	200 000	45 000	2 800	3 800
7316-PD	80	3.1496	170	6.6929	78	3.0709	2.0	.08	1.0	.040	225 000	50 600	220 000	49 500	2 600	3 600
7317-PD	85	3.3465	180	7.0866	82	3.2283	2.5	.10	1.0	.040	238 000	53 500	245 000	55 100	2 400	3 400
7318-PD	90	3.5433	190	7.4803	86	3.3858	2.5	.10	1.0	.040	255 000	57 300	270 000	60 700	2 200	3 200
7319-PD	95	3.7402	200	7.8740	90	3.5433	2.5	.10	1.0	.040	276 000	62 000	300 000	67 400	2 000	3 000
7320-PD	100	3.9370	215	8.4646	94	3.7008	2.5	.10	1.0	.040	307 000	69 000	380 000	85 400	1 900	2 800
7321-PD	105	4.1339	225	8.8583	98	3.8583	2.5	.10	1.0	.040	325 000	73 100	390 000	87 700	1 800	2 600
7322-PD	110	4.3307	240	9.4488	100	3.9370	2.5	.10	1.0	.040	345 000	77 600	455 000	102 000	1 700	2 400
7324-PD	120	4.7244	260	10.2362	110	4.3307	2.5	.10	1.0	.040	390 000	87 700	530 000	119 000	1 600	2 200
7326-PD	130	5.1181	280	11.0236	116	4.5669	3.0	.12	1.0	.040	449 000	101 000	610 000	137 000	1 500	2 000
7328-PD	140	5.5118	300	11.8110	124	4.8319	3.0	.12	1.0	.040	488 000	110 000	695 000	156 000	1 400	1 900
7330-PD	150	5.9055	320	12.5984	130	5.1181	3.0	.12	1.0	.040	540 000	121 000	780 000	175 000	1 200	1 700
7332-PD	160	6.2992	340	13.3858	136	5.3543	3.0	.12	1.0	.040	553 000	124 000	850 000	191 000	1 200	1 600
7334-PD	170	6.6929	360	14.1732	144	5.6693	3.0	.12	1.0	.040	605 000	136 000	965 000	217 000	1 000	1 500
7336-PD	180	7.0866	380	14.9606	150	5.9055	3.0	.12	1.0	.040	650 000	146 000	1 100 000	247 000	950	1 400
7338-PD	190	7.4803	400	15.7480	156	6.1417	4.0	.16	1.5	.060	676 000	152 000	1 160 000	261 000	950	1 400
7340-PD	200	7.8740	420	16.5354	160	6.2992	4.0	.16	1.5	.060	741 000	167 000	1 320 000	297 000	880	1 300

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

²⁾ For thrust rating multiply C by 1.08 and C₀ by 1.93.

³⁾ Listed values are for machined bronze cage, ABEC-1.

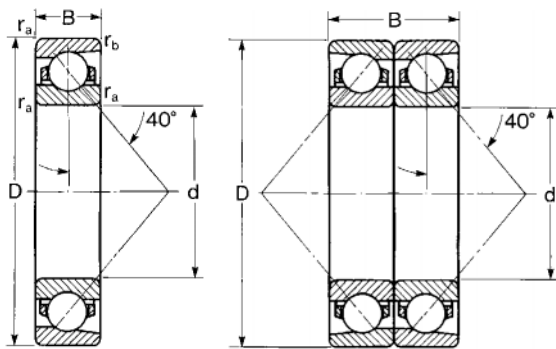
For phenolic composition cage, multiply by 1.33 for both grease and oil. For phenolic composition cage, ABEC-5 or 7, multiply by 1.86 for both grease and oil. For pressed steel cage, ABEC-1, multiply by 0.67 for grease and 0.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276

⁴⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.

7400-P Heavy Series

7400-PD Heavy Series Duplex

MRC Bearing Services



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

7400-P Series bearings are similar to the 7200-P and 7300-P Series but are heavier sectioned and are used for very heavy thrust loads or combined radial and thrust loads where thrust is predominant.

"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.

For duplex sets of 7000 and 9000 series bearings see page 239

Caution: Single bearings are not to be used where only radial loads are present. For two-direction thrust loads, use duplex bearings.

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

MRC Bearing Number	Bore		Outside Diameter D		Width B		Fillet Radius ¹⁾				Basic Radial Load Rating ²⁾				Speed Rating ³⁾	
											Dynamic C _d ⁴⁾		Static C ₀		Grease RPM	Oil RPM
	d mm	in	mm	in	mm	in	r _a mm	in	r _b mm	in	N	lbf	N	lbf		
7405P	25	.9843	80	3.1496	21	.8268	1.5	.060	1.0	.040	39 700	8 920	28 600	5 310	7 000	10 000
7406P	30	1.1811	90	3.5433	23	.9055	1.5	.060	1.0	.040	47 500	10 700	29 000	6 520	6 300	9 000
7407P	35	1.3780	100	3.9370	25	.9843	1.5	.060	1.0	.040	60 500	13 600	38 000	8 540	5 600	7 500
7408P	40	1.5748	110	4.3307	27	1.0630	2.0	.080	1.0	.040	70 200	15 800	45 000	10 100	5 300	7 000
7409P	45	1.7717	120	4.7244	29	1.1417	2.0	.080	1.0	.040	85 200	19 200	55 000	12 400	4 800	6 300
7410P	50	1.9685	130	5.1181	31	1.2205	2.0	.080	1.0	.040	95 600	21 500	64 000	14 400	4 300	6 000
7411P	55	2.1654	140	5.5118	33	1.2992	2.0	.080	1.0	.040	111 000	25 000	76 500	17 200	4 000	5 600
7412P	60	2.3622	150	5.9055	35	1.3780	2.0	.080	1.0	.040	119 000	26 800	86 500	19 400	3 600	5 000
7413P	65	2.5591	160	6.2992	37	1.4567	2.0	.080	1.0	.040	130 000	29 200	96 500	21 700	3 400	4 800
7414P	70	2.7559	180	7.0866	42	1.6535	2.5	.100	1.0	.040	159 000	35 700	127 000	28 600	3 000	4 300
7415P	75	2.9528	190	7.4803	45	1.7717	2.5	.100	1.0	.040	168 000	37 800	140 000	31 500	2 800	4 000
7416P	80	3.1496	200	7.8740	48	1.8898	2.5	.100	1.0	.040	183 000	41 100	156 000	35 100	2 600	3 800
7417P	85	3.3465	210	8.2677	52	2.0472	3.0	.120	1.0	.040	190 000	42 700	166 000	37 300	2 500	3 600
7418P	90	3.5433	225	8.8583	54	2.1260	3.0	.120	1.0	.040	216 000	48 600	200 000	45 000	2 400	3 400
7419P	95	3.7402	250	9.8425	55	2.1654	3.0	.120	1.0	.040	251 000	56 400	245 000	55 100	2 200	3 000
7420P	100	3.9370	265	10.4331	60	2.3622	3.0	.120	1.0	.040	276 000	62 000	275 000	61 800	2 000	2 800
7421P	105	4.1339	290	11.4173	65	2.5591	3.0	.120	1.0	.040	265 000	59 600	280 000	62 900	1 900	2 600

7400-PD

7405PD	25	.9843	80	3.1496	42	1.6535	1.5	.060	1.0	.040	65 000	14 500	47 500	10 600	5 600	8 000
7406PD	30	1.1811	90	3.5433	46	1.8110	1.5	.060	1.0	.040	78 000	17 400	58 500	13 000	5 000	7 200
7407PD	35	1.3780	100	3.9370	50	1.9685	1.5	.060	1.0	.040	97 500	22 100	76 500	17 100	4 500	6 000
7408PD	40	1.5748	110	4.3307	54	2.1260	2.0	.080	1.0	.040	114 000	25 700	90 000	20 200	4 300	5 600
7409PD	45	1.7717	120	4.7244	58	2.2835	2.0	.080	1.0	.040	138 000	31 200	110 000	24 800	3 800	5 000
7410PD	50	1.9685	130	5.1181	62	2.4409	2.0	.080	1.0	.040	156 000	34 900	129 000	28 800	3 400	4 800
7411PD	55	2.1654	140	5.5118	66	2.5984	2.0	.080	1.0	.040	182 000	40 600	153 000	34 400	3 200	4 500
7412PD	60	2.3622	150	5.9055	70	2.7559	2.0	.080	1.0	.040	195 000	43 600	173 000	38 800	2 800	4 000
7413PD	65	2.5591	160	6.2992	74	2.9134	2.0	.080	1.0	.040	212 000	47 400	193 000	43 400	2 700	3 800
7414PD	70	2.7559	180	7.0866	84	3.3071	2.5	.100	1.0	.040	260 000	58 000	255 000	57 200	2 400	3 400
7415PD	75	2.9528	190	7.4803	90	3.5433	2.5	.100	1.0	.040	276 000	61 400	280 000	63 000	2 200	3 200
7416PD	80	3.1496	200	7.8740	96	3.7795	2.5	.100	1.0	.040	296 000	66 500	310 000	69 700	2 000	3 000
7417PD	85	3.3465	210	8.2677	104	4.0945	3.0	.120	1.0	.040	307 000	69 400	335 000	74 600	2 000	2 800
7418PD	90	3.5433	225	8.8583	108	4.2520	3.0	.120	1.0	.040	351 000	78 900	400 000	89 900	1 900	2 700
7419PD	95	3.7402	250	9.8425	110	4.3307	3.0	.120	1.0	.040	410 000	92 200	490 000	110 000	1 800	2 400
7420PD	100	3.9370	265	10.4331	120	4.7244	3.0	.120	1.0	.040	449 000	101 000	550 000	124 000	1 600	2 200
7421PD	105	4.1339	290	11.4173	130	5.1181	3.0	.120	1.0	.040	436 000	96 900	560 000	126 000	1 500	2 000

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

²⁾ For thrust rating multiply C by 1.75 and C₀ by 3.85 (single) and C by 1.08 and C₀ by 1.93 (duplex).

³⁾ Listed values are for machined bronze cage, ABEC-1.

For phenolic composition cage, multiply by 1.33 for both grease and oil. For phenolic composition cage, ABEC-5 or 7, multiply by 1.86 for both grease and oil. For pressed steel cage, ABEC-1, multiply by 0.67 for grease and 0.80 for oil. The speed rating adjustment factors have been determined through historical application and practice. For a more complete explanation, see page 276

⁴⁾ Rating for one million revolutions or 500 hours at 33 1/3 RPM.

7000-P Series
40 Degree Angular
Contact Ball Bearings
Single Bearing

Dynamic and static equivalent radial load
and life rating

Dynamic equivalent radial load

$$P = F_R \quad \text{when } F_A/F_R \leq 1.14$$

or

$$P = 0.35 F_R + 0.57 F_A \quad \text{when } F_A/F_R > 1.14$$

P = Dynamic equivalent radial load

F_R = Radial load

F_A = Thrust load

Static equivalent radial load

$$P_0 = 0.5 F_R + 0.26 F_A$$

P_0 is always $\geq F_R$

P_0 = Static equivalent radial load

F_R = Radial load

F_A = Thrust load

Life rating

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

or

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

C = Basic dynamic radial load rating
(from single bearing tables)

P = Dynamic equivalent radial load

n = Speed in rpm

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

Bearing size: 7309 P

Speed: 2000 RPM

Basic dynamic radial load rating (C) = 13300

Case 1Radial load (F_R) = 1750Thrust load (F_A) = 1960 $F_A/F_R = 1960/1750 = 1.12$ Since $F_A/F_R < 1.14$, equivalent load $P = F_R = 1750$

$$\text{Life (L}_{10}) = \left(\frac{C}{P}\right)^3 = \left(\frac{13300}{1750}\right)^3 = 439 \times 10^6 \text{ Rev.}$$

or

$$\begin{aligned} \text{Life (L}_{10}\text{h)} &= \frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{13300}{1750}\right)^3 \\ &= 3658 \text{ Hrs} \end{aligned}$$

Case 2Radial load (F_R) = 1750Thrust load (F_A) = 2450 $F_A/F_R = 2450/1750 = 1.40$ Since $F_A/F_R > 1.14$, equivalent load (P) = $0.35 F_R + 0.57 F_A$ $P = 0.35 \times 1750 + 0.57 \times 2450 = 2009$

$$\text{Life (L}_{10}) = \left(\frac{C}{P}\right)^3 = \left(\frac{13300}{2009}\right)^3 = 290 \times 10^6 \text{ Rev.}$$

or

$$\begin{aligned} \text{Life (L}_{10}\text{h)} &= \frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{13300}{2009}\right)^3 \\ &= 2417 \text{ Hrs} \end{aligned}$$

Case 3Thrust load (F_A) = 2450 $F_A/F_R = 2450/0 = \infty$ Since $F_A/F_R > 1.14$, equivalent load (P) = $0.35 F_R + 0.57 F_A$ $P = 0.57 \times 2450 = 1397$

$$\text{Life (L}_{10}) = \left(\frac{C}{P}\right)^3 = \left(\frac{13300}{1397}\right)^3 = 863 \times 10^6 \text{ Rev.}$$

or

$$\begin{aligned} \text{Life (L}_{10}\text{h)} &= \frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{13300}{1397}\right)^3 \\ &= 7192 \text{ Hrs} \end{aligned}$$

*Duplex 7000-PD Series
40 Degree Angular Contact
Ball Bearings*

*Dynamic and static equivalent radial load
and life rating*

Dynamic equivalent radial load

DB or DF pair
 $P = 1.0 F_R + 0.55 F_A$ when $\frac{F_A}{F_R} \leq 1.14$

$P = 0.57 F_R + 0.93 F_A$ when $\frac{F_A}{F_R} > 1.14$

Tandem DT
 $P = 1.0 F_R$ when $\frac{F_A}{F_R} \leq 1.14$

$P = 0.35 F_R + 0.57 F_A$ when $\frac{F_A}{F_R} > 1.14$

P = Dynamic equivalent radial load

F_R = Radial load

F_A = Thrust load

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 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

$P_0 = 1.0 F_R + 0.52 F_A$

P_0 is always $\geq F_R$

P_0 = Static equivalent radial load

F_R = Radial load

F_A = Thrust load

Dynamic equivalent radial load and life calculation examples

Bearing size: 7309PDU (DB or DF Pair)
 Speed: 2000 RPM
 Duplex pair basic dynamic radial load
 Rating (C) = 21900 lbf

Case 1

Radial load (F_R) = 1750
 Thrust load (F_A) = 1960
 $F_A/F_R = 1960/1750 = 1.12$
 Since $F_A/F_R < 1.14$, equivalent load (P) =
 $1.0 F_R + 0.55 F_A$
 $= 1.0 \times 1750 + 0.55 \times 1960 = 2828$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{21900}{2828}\right)^3 = 464 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{21900}{2828}\right)^3$
 $= 3867$ Hrs

Case 2

Radial load (F_R) = 1750
 Thrust load (F_A) = 2450
 $F_A/F_R = 2450/1750 = 1.40$
 Since $F_A/F_R > 1.14$, equivalent load (P) =
 $0.57 F_R + 0.93 F_A = 0.57 \times 1750 + 0.93 \times 2450$
 $= 3276$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{21900}{3276}\right)^3 = 299 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{21900}{3276}\right)^3$
 $= 2490$ Hrs

Case 3

Thrust load (F_A) = 2450
 $F_A/F_R = 2450/0 = \infty$
 Since $F_A/F_R > 1.14$, equivalent load (P) =
 $0.57 F_R + 0.93 F_A = 0.93 \times 2450 = 2279$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{21900}{2279}\right)^3 = 887 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{21900}{2279}\right)^3$
 $= 7392$ Hrs

Case 4

Radial load (F_R) = 1750
 $F_A/F_R = 0/1750 = 0$
 Since $F_A/F_R < 1.14$, equivalent load (P) =
 $1.0 F_R + 0.55 F_A = 1.0 \times 1750 = 1750$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{21900}{1750}\right)^3 = 1960 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{21900}{1750}\right)^3$
 $= 16333$ Hrs

Bearing size: 7309 PDT
 3 bearings in tandem
 Speed: 2000 RPM
 Single-row basic dynamic radial load
 Rating (C) = 13300

Case 1

Thrust load (F_A) = 4200
 $F_A/F_R = 4200/0 = \infty$
 Since $F_A/F_R > 1.14$, equivalent load (P) =
 $0.35 F_R + 0.57 F_A = 0.57 \times 4200 = 2394$
 Load rating = (i)^{0.7} × 13300
 $= (3)^{0.7} \times 13300 = 28697$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{28697}{2394}\right)^3 = 1722 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{28697}{2394}\right)^3$
 $= 14350$ Hrs

Case 2

Radial load (F_R) = 3500
 Thrust load (F_A) = 4200
 $F_A/F_R = 4200/3500 = 1.20$
 Since $F_A/F_R > 1.14$, equivalent load (P) =
 $0.35 F_R + 0.57 F_A$
 $P = 0.35 \times 3500 + 0.57 \times 4200 = 3619$
 Load rating = (i)^{0.7} × 13300
 $= (3)^{0.7} \times 13300 = 28697$
 Life (L10) = $\left(\frac{C}{P}\right)^3 = \left(\frac{28697}{3619}\right)^3 = 499 \times 10^6$ Rev.
 or
 Life (L10h) = $\frac{10^6}{60n} \left(\frac{C}{P}\right)^3 = \frac{10^6}{60 \times 2000} \left(\frac{28697}{3619}\right)^3$
 $= 4158$ Hrs