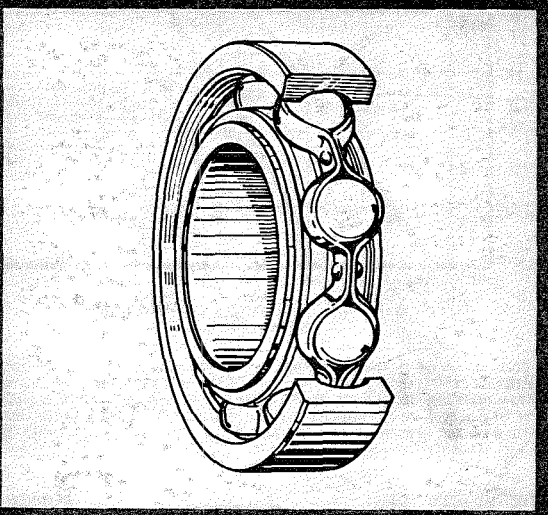
Catalog 2C-110
Revision B
Supersedes Revision A

Delco New Departure-Hyatt

DIMENSIONS

ENGINEERING



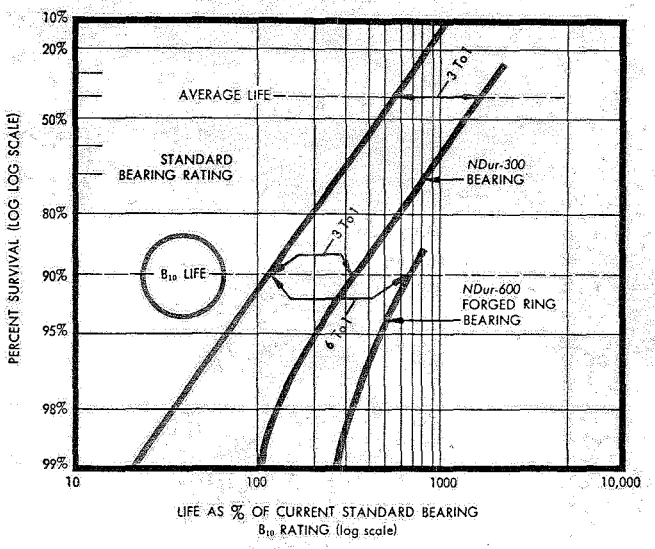
BALL BEARING

Catalog

unique with NDH

MARSTRESSING!

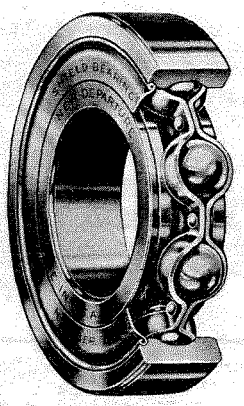
process is exclusive with *NDur-300* and *NDur-600* ball bearings!



THE COMBINATION OF MARSTRESSING AND AN EXCEPTIONALLY CLEAN VACUUM-PROCESSED STEEL ENABLED NEW DEPARTURE TO CREATE A NEW LINE OF BEARINGS WITH THREE TIMES THE RATED B_{10} LIFE OF ITS PREVIOUS LINE OF BEARINGS (B_{10} LIFE IS THE FATIGUE LIFE THAT 90% OF THE BEARINGS IN A GROUP WILL EXCEED). BY COMBINING THESE SAME FEATURES WITH FORGED RACES, NEW DEPARTURE CREATED A SECOND NEW LINE OF BEARINGS WITH SIX TIMES THE RATED B_{10} LIFE OF ITS PREVIOUS LINE.

More than two million bearing hours of testing have demonstrated that the extraordinary *NDur-300* and *NDur-600* bearings have B_{10} life ratings conservatively three and six times those of regular standard bearing ratings. A substantial part of this remarkable improvement is the result of an exclusive GM patented process called Marstressing.

The *NDur* improvement begins with *selected* vacuum-degassed steels to which Marstressing is applied. In the heat treatment process, extra steps are taken to impose a favorable residual stress in bearing components by controlling the time sequence of the phase transformation from austenite to martensite.



Research discovered that by dissolving certain alloying elements into the surface during heat treatment, the normal quenching cycle could be reversed, causing the *surface* to transform last. When the interior transforms first, its volumetric expansion is accommodated by yielding of the softer surrounding material. However, when the surface material transforms, its expansion is opposed by the already hardened interior. This produces the high residual compressive stresses so desirable in a rolling contact bearing element. Only New Departure-Hyatt offers Marstressed *NDur* ball bearings—a patented exclusive process.

United Delco

Delco New Departure

Bulletin 2 C-110
Revision B
Page 1
Supersedes Revision A

ENGINEERING AND DIMENSIONAL DATA

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80M—3-67

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UNITED MOTORS SERVICE
DIVISION OF GENERAL MOTORS CORPORATION
CENTRAL OFFICE—DETROIT

NUMERICAL INDEX

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CWC48009 to CWC48026	15
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CWC48500 to CWC48609	16
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Z49500 to Z49512	5
49604 to 49610	6
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55507W to 55610W	10
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CWC88500 to CWC88508	16
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88602 to 88609	16
C88602 to C88609	16
Z97035 to Z97039	3
97500 to 97512	5
Z97500 to Z97512	5
97603 to 97610	6
Z97602 to Z97610	6
Z99035 to Z99039	3
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C487009 to C487026	15
WC487009 to WC487026	15
CWC487009 to CWC487026	15
487500 to 487609	16
C487500 to C487609	16
WC487500 to WC487513	16
CWC487500 to CWC487513	16
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C488009 to C488026	15
WC488009 to WC488026	15
CWC488009 to CWC488026	15
488500 to 488609	16
C488500 to C488609	16
WC488500 to WC488513	16
CWC488500 to CWC488513	16
497500 to 497512	5
Z497500 to Z497512	5
497603 to 497610	6
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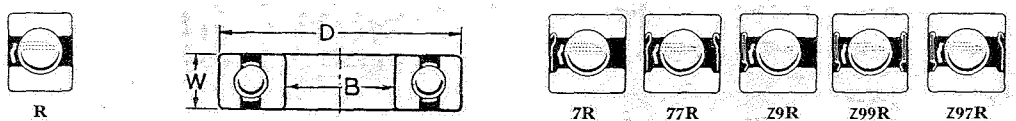
SINGLE ROW

EXTRA SMALL—SERIES "R"

Extra Light "Inch" Type

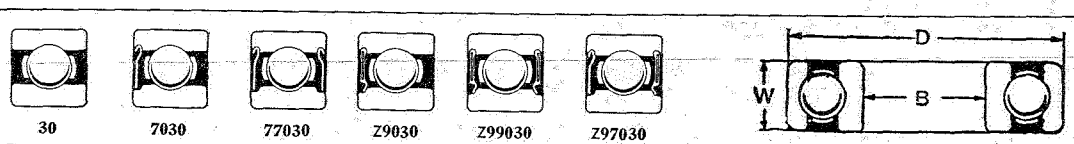


Bearing Size No.	Bore B		Diam. D		Width W		Bearing Size No.					Width W		Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
Plain	Frac.-tion	Decimal	Frac.-tion	Decimal	Frac-tion	Decimal	1 Shield	2 Shields	1Z Seal	2Z Seals	1Z Seal 1 Shld	Frac-tion	Decimal	
R2	1/8"	.1250	3/8"	.3750	5/32"	.1562	7R2	77R2				5/32"	.1562	17
R2A	1/8	.1250	1/2	.500	11/64	.1719	7R2A	77R2A				11/64	.1719	17
R3	3/16	.1875	1/2	.500	5/32	.1562	7R3	77R3		Z99R3			.1960	40
R4	1/4	.250	5/8	.6250		.1960	7R4	77R4	Z9R4	Z99R4	Z97R4		.1960	43
R4A	1/4	.250	3/4	.750	7/32	.2188	7R4A	77R4A	Z9R4A	Z99R4A	Z97R4A	9/32	.2812	84
R6	3/8	.3750	7/8	.8750	7/32	.2188	7R6	77R6	Z9R6	Z99R6	Z97R6	9/32	.2812	112
R8	1/2	.500	1 1/8	1.1250	1/4	.250	7R8	77R8	Z9R8	Z99R8	Z97R8	5/16	.3125	215
R10	5/8	.6250	1 3/8	1.3750	9/32	.2812	7R10	77R10	Z9R10	Z99R10	Z97R10	11/32	.3438	245
R12	3/4	.750	1 5/8	1.6250	5/16	.3125	7R12	77R12	Z9R12	Z99R12	Z97R12	7/16	.4375	425
R14	7/8	.8750	1 7/8	1.8750	3/8	.3750	7R14	77R14	Z9R14	Z99R14	Z99R14	1/2	.500	455
R16	1	1.000	2	2.000	3/8	.3750	7R16	77R16	Z9R16	Z99R16	Z97R16	1/2	.500	455
R18	1 1/8	1.1250	2 1/8	2.1250	3/8	.3750	7R18	77R18	Z9R18	Z99R18	Z97R18	1/2	.500	630
R20	1 1/4	1.2500	2 1/4	2.2500	3/8	.3750						1/2	.500	670
R22	1 3/8	1.3750	2 1/2	2.5000	7/16	.4375	7R22		Z9R22	Z99R22		9/16	.5625	790
R24	1 1/2	1.500	2 5/8	2.6250	7/16	.4375						9/16	.5625	830

*For load ratings at other speeds see page 62.

EXTRA SMALL—Type 30 & Z9030

Single row for light radial or combined load duty required of bearings below 10mm bore



BEARING SIZE NUMBER						Bore B		Diameter D		Width W		Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
Plain	1 Shield	2 Shields	1 Seal	2 Seals	1 Seal 1 Shield	mm	inch	mm	inch	mm	inch	
34	7034	77034	.....	.....	.....	4	.1575	16	.6299	5	.1969	83‡
35	7035	77035	Z9035	Z99035	Z97035	5	.1969	19	.7480	6	.2362	100
36	7036	77036	Z9036	Z99036	Z97036	6	.2362	19	.7480	6	.2362	100
37	7037	77037	Z9037	Z99037	Z97037	7	.2756	22	.8661	7	.2756	133
38	7038	77038	•Z9038	•Z99038	•Z97038	8	.3150	22	.8661	7	.2756	133
39	7039	77039	Z9039	Z99039	Z97039	9	.3543	26	1.0236	8	.3150	195

35 thru 38 inclusive available with Removable Shields, i.e. ‡7034—43

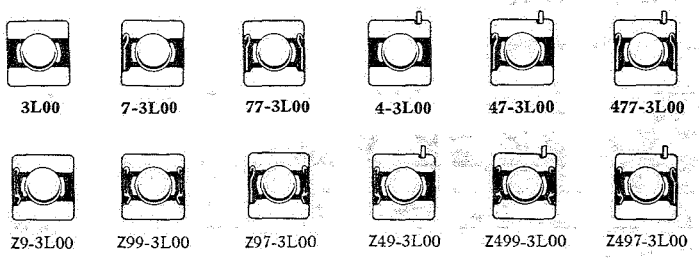
•Available with Type 9000 Seals.

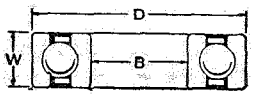
*For load ratings at other speeds see page 62.

Delco New Departure—Hyatt
BALL BEARING DIMENSION DATA

EXTRA LIGHT—Type 3L00 and **Z9-3L00

Single Row—Non-Loading Groove





BEARING SIZE NUMBER						Bore B		Diameter D		Width W		Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
Plain 1Z Seal	**1 Shield** 2Z Seals	**2 Shields** 1Z Seal 1 Shld	**Sn. Ring** 1Z Seal	**Sn. Ring 1 Shield** 2Z Seals	**Sn. Ring 2 Shields** 1Z Seal 1 Shld	mm	inch	mm	inch	mm	inch	
3L00 Z9-3L00	**7-3L00** Z99-3L00	**77-3L00** Z97-3L00				10	.3937	26	1.0236	8	.3150	195
3L01 Z9-3L01	**7-3L01** Z99-3L01	**77-3L01** Z97-3L01				12	.4724	28	1.1024	8	.3150	215
3L02 Z9-3L02	**7-3L02** Z99-3L02	**77-3L02** Z97-3L02	**4-3L02** Z49-3L02	**47-3L02** Z499-3L02	**477-3L02** Z497-3L02	15	.5906	32	1.2598	9	.3543	230
3L03 Z9-3L03	**7-3L03** Z99-3L03	**77-3L03** Z97-3L03	**4-3L03** Z49-3L03	**47-3L03** Z499-3L03	**477-3L03** Z497-3L03	17	.6693	35	1.3780	10	.3937	245
3L04 Z9-3L04	**7-3L04** Z99-3L04	**77-3L04** Z97-3L04	**4-3L04** Z49-3L04	**47-3L04** Z499-3L04	**477-3L04** Z497-3L04	20	.7874	42	1.6535	12	.4724	425
3L05 Z9-3L05	**7-3L05** Z99-3L05	**77-3L05** Z97-3L05	**4-3L05** Z49-3L05	**47-3L05** Z499-3L05	**477-3L05** Z497-3L05	25	.9843	47	1.8504	12	.4724	455
3L06 Z9-3L06	**7-3L06** Z99-3L06	**77-3L06** Z97-3L06	**4-3L06** Z49-3L06	**47-3L06** Z499-3L06	**477-3L06** Z497-3L06	30	1.1811	55	2.1654	13	.5118	630
3L07 Z9-3L07	**7-3L07** Z99-3L07	**77-3L07** Z97-3L07	**4-3L07** Z49-3L07	**47-3L07** Z499-3L07	**477-3L07** Z497-3L07	35	1.3780	62	2.4409	14	.5512	780
3L08 Z9-3L08	**7-3L08** Z99-3L08	**77-3L08** Z97-3L08	**4-3L08** Z49-3L08	**47-3L08** Z499-3L08	**477-3L08** Z497-3L08	40	1.5748	68	2.6772	15	.5906	840
3L09 Z9-3L09	**7-3L09** Z99-3L09	**77-3L09** Z97-3L09	**4-3L09** Z49-3L09	Z499-3L09	Z497-3L09	45	1.7717	75	2.9528	16	.6299	1070
3L10 Z9-3L10	**7-3L10** Z99-3L10	**77-3L10** Z97-3L10	**4-3L10** Z49-3L10	**47-3L10** Z499-3L10	**477-3L10** Z497-3L10	50	1.9685	80	3.1496	16	.6299	1130
3L11 Z9-3L11	**7-3L11** Z99-3L11	**77-3L11** Z97-3L11	**4-3L11** Z49-3L11	Z499-3L11	**477-3L11** Z497-3L11	55	2.1654	90	3.5433	18	.7087	1530
3L12 Z9-3L12	**7-3L12** Z99-3L12	**77-3L12** Z97-3L12	**4-3L12** Z49-3L12	**47-3L12** 499-3L12	**477-3L12**	60	2.3622	95	3.7402	18	.7087	1610
3L13 Z9-3L13	**7-3L13** Z99-3L13	**77-3L13** Z97-3L13	**4-3L13** Z49-3L13	**47-3L13** Z499-3L13	**477-3L13** Z497-3L13	65	2.5591	100	3.9370	18	.7087	1690
3L14 Z9-3L14	**7-3L14** Z99-3L14	**77-3L14** Z97-3L14	**4-3L14** Z49-3L14	**47-3L14** Z499-3L14	**477-3L14** Z497-3L14	70	2.7559	110	4.3307	20	.7874	2140
3L15 Z9-3L15	**7-3L15**	**77-3L15** Z97-3L15	**4-3L15**	**47-3L15**		75	2.9528	115	4.5276	20	.7874	2240
3L16	**7-3L16**	**77-3L16**	**4-3L16**	**47-3L16**	**477-3L16**	80	3.1496	125	4.9213	22	.8661	2640
3L17	**7-3L17**	**77-3L17**	**4-3L17**	**47-3L17**	**477-3L17**	85	3.3465	130	5.1181	22	.8661	2770
3L18	**7-3L18**	**77-3L18**	**4-3L18**	**47-3L18**	**477-3L18**	90	3.5433	140	5.5118	24	.9449	3190
3L19	**7-3L19**					95	3.7402	145	5.7087	24	.9449	3340
3L20	**7-3L20**	**77-3L20**	**4-3L20**	**47-3L20**	**477-3L20**	100	3.9370	150	5.9055	24	.9449	3340
3L21	**7-3L21**	**77-3L21**	**4-3L21**	**47-3L21**		105	4.1339	160	6.2992	26	1.0236	3910
3L22	**7-3L22**	**77-3L22**	**4-3L22**	**47-3L22**	**477-3L22**	110	4.3307	170	6.6929	28	1.1024	4360
3L24	**7-3L24**	**77-3L24**	**4-3L24**	**47-3L24**	**477-3L24**	120	4.7244	180	7.0866	28	1.1024	4560
3L26			**4-3L26**			130	5.1181	200	7.8740	33	1.2992	5430
3L28	**7-3L28**	**77-3L28**	**4-3L28**	**47-3L28**		140	5.5118	210	8.2677	33	1.2992	5670
3L30						150	5.9055	225	8.8583	35	1.3780	6320
3L36						180	7.0866	280	11.0236	46	1.8110	8660
3L38						190	7.4803	290	11.4173	46	1.8110	9040

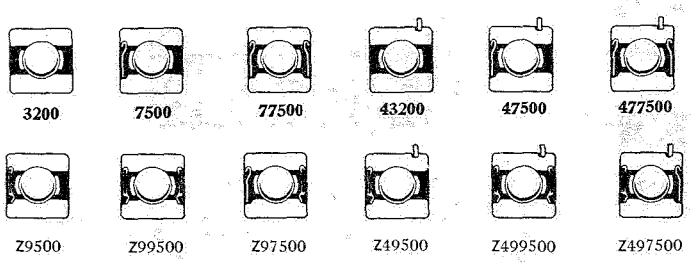
*For load ratings at other speeds see page 62.

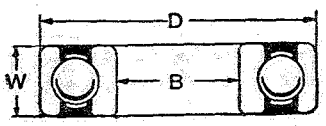
**Sentri Seals now standard, other seals available.

SINGLE ROW—LIGHT SERIES—TYPE 3200 & **Z9500

Non-Loading Groove

Deep uninterrupted race ways. Contains the maximum number and size of balls that can be introduced by eccentric displacement of rings.





BEARING SIZE NUMBER						Bore B		Diameter D		Width W		Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
Plain 1Z Seal	**1 Shield** 2Z Seals	**2 Shields** 1Z Seal 1 Shld	**Sn. Ring** 1Z Seal	**Sn. Ring 1 Shield** 2Z Seals	**Sn. Ring 2 Shields** 1Z Seal 1 Shld	mm	inch	mm	inch	mm	inch	
3200 Z9500	**7500** Z99500	**77500** Z97500	**43200** Z49500	**47500** Z499500	**477500** Z497500	10	.3937	30	1.1811	9	.3543	270
3201 Z9501	**7501** Z99501	**77501** Z97501	**43201** Z49501	**47501** Z499501	**477501** Z497501	12	.4724	32	1.2598	10	.3937	270
3202 Z9502	**7502** Z99502	**77502** Z97502	**43202** Z49502	**47502** Z499502	**477502** Z497502	15	.5906	35	1.3780	11	.4331	290
3203 Z9503	**7503** Z99503	**77503** Z97503	**43203** Z49503	**47503** Z499503	**477503** Z497503	17	.6693	40	1.5748	12	.4724	510
3204 Z9504	**7504** Z99504	**77504** Z97504	**43204** Z49504	**47504** Z499504	**477504** Z497504	20	.7874	47	1.8504	14	.5512	635
3205 Z9505	**7505** Z99505	**77505** Z97505	**43205** Z49505	**47505** Z499505	**477505** Z497505	25	.9843	52	2.0472	15	.5906	690
3206 Z9506	**7506** Z99506	**77506** Z97506	**43206** Z49506	**47506** Z499506	**477506** Z497506	30	1.1811	62	2.4409	16	.6299	1020
3207 Z9507	**7507** Z99507	**77507** Z97507	**43207** Z49507	**47507** Z499507	**477507** Z497507	35	1.3780	72	2.8346	17	.6693	1590
3208 Z9508	**7508** Z99508	**77508** Z97508	**43208** Z49508	**47508** Z499508	**477508** Z497508	40	1.5748	80	3.1496	18	.7087	1590
3209 Z9509	**7509** Z99509	**77509** Z97509	**43209** Z49509	**47509** Z499509	**477509** Z497509	45	1.7717	85	3.3465	19	.7480	1710
3210 Z9510	**7510** Z99510	**77510** Z97510	**43210** Z49510	**47510** Z499510	**477510** Z497510	50	1.9685	90	3.5433	20	.7874	1820
3211 Z9511	**7511** Z99511	**77511** Z97511	**43211** Z49511	**47511** Z499511	**477511** Z497511	55	2.1654	100	3.9370	21	.8268	2250
3212 Z9512	**7512** Z99512	**77512** Z97512	**43212** Z49512	**47512** Z499512	**477512** Z497512	60	2.3622	110	4.3307	22	.8661	2550
3213	**7513**	**77513**	**43213**	**47513**	**477513**	65	2.5591	120	4.7244	23	.9055	2990
3214	**7514**	**77514**	**43214**	**47514**	**477514**	70	2.7559	125	4.9213	24	.9449	3180
3215	**7515**	**77515**	**43215**	**47515**	**477515**	75	2.9528	130	5.1181	25	.9843	3180
3216	**7516**	**77516**	**43216**	**47516**	**477516**	80	3.1496	140	5.5118	26	1.0236	3430
3217	**7517**	**77517**	**43217**	**47517**	**477517**	85	3.3465	150	5.9055	28	1.1024	4190
3218	**7518**	**77518**	**43218**	**47518**	**477518**	90	3.5433	160	6.2992	30	1.1811	4670
3219	**7519**	**77519**	**43219**	**47519**	**477519**	95	3.7402	170	6.6929	32	1.2598	5180
3220	**7520**	**77520**	**43220**	**47520**	**477520**	100	3.9370	180	7.0866	34	1.3386	5710
Q3221						105	4.1339	190	7.4803	35	1.4173	5950
3222	**7522**	**77522**	**43222**	**47522**	**477522**	110	4.3307	200	7.8740	38	1.4961	6510
3224						120	4.7244	215	8.4646	40	1.5748	7040
3226						130	5.1181	230	9.0551	40	1.5748	7630
3228						140	5.5118	250	9.8425	42	1.6535	8840

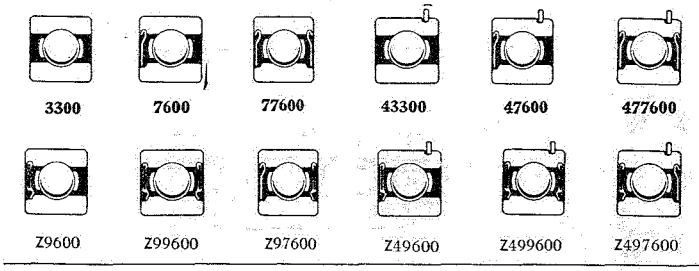
*For load ratings at other speeds see page 62.

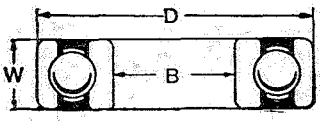
**Sentri Seals now standard, other seal types available.

Delco New Departure—Hyatt
BALL BEARING DIMENSION DATA

SINGLE ROW—MEDIUM SERIES—3300 & **Z9600

Non Loading Groove





BEARING SIZE NUMBER						Bore B		Diameter D		Width W		Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
Plain 1 Seal	1 Shield 2 Seals	2 Shields 1 Seal 1 Shld	Sn. Ring 1 Seal	Sn. Ring 1 Shield 2 Seals	Sn. Ring 2 Shields 1 Seal 1 Shld	mm	inch	mm	inch	mm	inch	
3300	**7600**	**77600**	**43300**	**47600**	**477600**	10	.3937	35	1.3780	11	.4331	360
3301	**7601**	**77601**	**43301**			12	.4724	37	1.4567	12	.4724	465
3302	**7602**	**77602**	**43302**	**47602**	**477602**	15	.5906	42	1.6535	13	.5118	580
Z9602	Z99602	Z97602	Z49602	Z499602	Z497602							
3303	**7603**	**77603**	**43303**	**47603**	**477603**	17	.6693	47	1.8504	14	.5512	710
Z9603	Z99603	Z97603		Z499603	Z497603							
3304	**7604**	**77604**	**43304**	**47604**	**477604**	20	.7874	52	2.0472	15	.5906	1010
Z9604	Z99604	Z97604	Z49604	Z499604	Z497604							
3305	**7605**	**77605**	**43305**	**47605**	**477605**	25	.9843	62	2.4409	17	.6693	1110
Z9605	Z99605	Z97605	Z49605	Z499605	Z497605							
3306	**7606**	**77606**	**43306**	**47606**	**477606**	30	1.1811	72	2.8346	19	.7480	1470
Z9606	Z99606	Z97606	Z49606	Z499606	Z497606							
3307	**7607**	**77607**	**43307**	**47607**	**477607**	35	1.3780	80	3.1496	21	.8268	1820
Z9607	Z99607	Z97607	Z49607	Z499607	Z497607							
3308	**7608**	**77608**	**43308**	**47608**	**477608**	40	1.5748	90	3.5433	23	.9055	2200
Z9608	Z99608	Z97608	Z49608	Z499608	Z497608							
3309	**7609**	**77609**	**43309**	**47609**	**477609**	45	1.7717	100	3.9370	25	.9843	2780
Z9609	Z99609	Z97609	Z49609	Z499609	Z497609							
3310	**7610**	**77610**	**43310**	**47610**	**477610**	50	1.9685	110	4.3307	27	1.0630	3000
Z9610	Z99610	Z97610	Z49610	Z499610	Z497610							
3311	**7611**	**77611**	**43311**	**47611**	**477611**	55	2.1654	120	4.7244	29	1.1417	3390
3312	**7612**	**77612**	**43312**	**47612**	**477612**	60	2.3622	130	5.1181	31	1.2205	3780
3313	**7613**	**77613**	**43313**	**47613**	**477613**	65	2.5591	140	5.5118	33	1.2992	4190
3314	**7614**	**77614**	**43314**	**47614**		70	2.7559	150	5.9055	35	1.3780	4620
3315	**7615**	**77615**	**43315**	**47615**	**477615**	75	2.9528	160	6.2992	37	1.4567	4810
3316		**77616**	**43316**	**47616**		80	3.1496	170	6.6929	39	1.5354	5260
3317	**7617**	**77617**	**43317**	**47617**		85	3.3465	180	7.0866	41	1.6142	5700
3318	**7618**	**77618**				90	3.5433	190	7.4803	43	1.6929	6170
3319			**43319**			95	3.7402	200	7.8740	45	1.7717	7150
3320	**7620**	**77620**				100	3.9370	215	8.4646	47	1.8504	7610
Q3321						105	4.1339	225	8.8583	49	1.9291	8180
3322						110	4.3307	240	9.4488	50	1.9685	8680

**Sentri Seal now standard, other seals available.

SINGLE ROW—HEAVY SERIES—3400

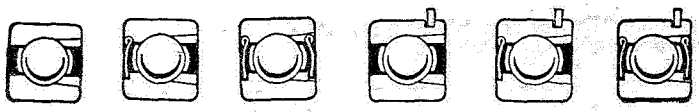
Sealed Bearings with Single Row Width Currently Not Available

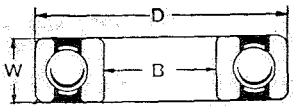
3404						20	.7874	72	2.8346	19	.7480	1660
3405	**7705**	**77705**		**47705**		25	.9843	80	3.1496	21	.8268	1970
3406						30	1.1811	90	3.5433	23	.9055	2290
3407						35	1.3780	100	3.9373	25	.9843	2640
3408	**7708**	**77708**		**47708**		40	1.5748	110	4.3307	27	1.0630	2950
3409	**7709**	**77709**	**43409**			45	1.7717	120	4.7244	29	1.1417	3640
3410	**7710**	**77710**	**43410**	**47710**		50	1.9685	130	5.1181	31	1.2205	4030
3411			**43411**			55	2.1654	140	5.5118	33	1.2992	4400
3412			**43412**			60	2.3622	150	5.9055	35	1.3780	4810

*For load ratings at other speeds see page 62.

SINGLE ROW—LIGHT SERIES—1200

Contains maximum number and size of balls. Has greatest Radial capacity obtainable in bearing with one row of balls.





BEARING SIZE NUMBER						Bore B		Diameter D		Width W		Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
Plain	1 Shield	2 Shields	Sn. Ring	Sn. Ring 1 Shield	Sn. Ring 2 Shields	mm	inch	mm	inch	mm	inch	
1206	7206	77206	41206	47206	477206	30	1.1811	62	2.4409	16	.6299	1230
1207	7207	77207	41207	47207	477207	35	1.3780	72	2.8346	17	.6693	1690
1208	7208	77208	41208	47208	477208	40	1.5748	80	3.1496	18	.7087	2030
1209	7209	77209	41209	47209	477209	45	1.7717	85	3.3465	19	.7480	2140
1210	7210	77210	41210	47210	477210	50	1.9685	90	3.5433	20	.7874	2240
1211	7211	77211	41211	47211	477211	55	2.1654	100	3.9370	21	.8268	2770
1212	•7212	77212	41212	47212	477212	60	2.3622	110	4.3307	22	.8661	3340
1213	7213	77213	41213	47213	477213	65	2.5591	120	4.7244	23	.9055	3910
1214	7214	77214	41214	47214		70	2.7559	125	4.9213	24	.9449	3910
1215	7215	77215	41215	47215	477215	75	2.9528	130	5.1181	25	.9843	4090
1216	7216	77216	41216	47216		80	3.1496	140	5.5118	26	1.0236	4580
1217	7217	77217	41217	47217		85	3.3465	150	5.9055	28	1.1024	5390
1218	7218	77218	41218	47218	477218	90	3.5433	160	6.2992	30	1.1811	5740
1219	7219	77219	41219	47219	477219	95	3.7402	170	6.6929	32	1.2598	6370
1220	7220	77220	41220			100	3.9370	180	7.0866	34	1.3386	7020
1221	7221	77221				105	4.1339	190	7.4803	36	1.4173	7640
1222	7222	77222	41222			110	4.3307	200	7.8740	38	1.4961	8350
1224						120	4.7244	215	8.4646	40	1.5748	9040

•Available as 9212, 1-flush seal.

SINGLE ROW—MEDIUM SERIES—1300

1304	7304	77304	41304	47304	477304	20	.7874	52	2.0472	15	.5906	1200
1305	7305	77305	41305	47305	477305	25	.9843	62	2.4409	17	.6693	1490
1306	7306	77306	41306	47306	477306	30	1.1811	72	2.8346	19	.7480	1820
1307	7307	•77307	41307	47307	477307	35	1.3780	80	3.1496	21	.8268	2250
1308	7308	77308	41308	47308	477308	40	1.5748	90	3.5433	23	.9055	3120
1309	7309	77309	41309	47309	477309	45	1.7717	100	3.9370	25	.9843	3640
1310	7310	77310	41310	47310	477310	50	1.9685	110	4.3307	27	1.0630	3930
1311	7311	77311	41311	47311	477311	55	2.1654	120	4.7244	29	1.1417	4440
1312	7312	77312	41312	47312	477312	60	2.3622	130	5.1181	31	1.2205	4950
1313	7313	77313	41313	47313	477313	65	2.5591	140	5.5118	33	1.2992	5490
1314	7314	77314	41314	47314		70	2.7559	150	5.9055	35	1.3780	6050
1315	7315	77315	41315	47315		75	2.9528	160	6.2992	37	1.4576	6660
1316			41316			80	3.1496	170	6.6929	39	1.5354	7270
1317	7317	77317	41317	47317		85	3.3465	180	7.0866	41	1.6142	7870
1318	7318					90	3.5433	190	7.4803	43	1.6929	8530
1319			41319			95	3.7402	200	7.8740	45	1.7717	9370
1320			41320			100	3.9370	215	8.4646	47	1.8504	9970
1321						105	4.1339	225	8.8583	49	1.9291	10725
1322						110	4.3307	240	9.4488	50	1.9685	11375

•Available as 97307, 1-flush seal.

SINGLE ROW—HEAVY SERIES—1400

See 3400 Series Bearings, foot of page 6, for sizes and types omitted from this series.

1404		(77400 Series)	(41400 Series)	(47400 Series)	(477400 Series)	20	.7874	72	2.8346	19	.7480	2000
1405	7405					25	.9843	80	3.1496	21	.8268	2380
1406						30	1.1811	90	3.5433	23	.9055	3000
1407						35	1.3780	100	3.9370	25	.9843	3460
1408	7408					40	1.5748	110	4.3307	27	1.0630	3860
1409	7409		41409			45	1.7717	120	4.7244	29	1.1417	4620
1410	7410		41410			50	1.9685	130	5.1181	31	1.2205	5110
1411			41411			55	2.1654	140	5.5118	33	1.2992	5590
1412	7412		41412			60	2.3622	150	5.9055	35	1.3780	6110
1413	7413					65	2.5591	160	6.2992	37	1.4567	6610
1414						70	2.7559	180	7.0866	42	1.6535	7730
1415						75	2.9528	190	7.4803	45	1.7717	8830
V1418						90	3.5433	225	8.8583	54	2.1260	11400

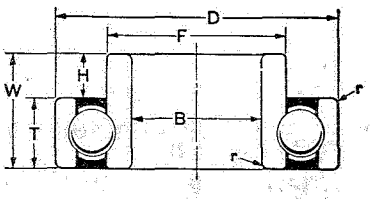
"V" indicates Bronze Separator.

*For load ratings at other speeds see page 62.

Delco New Departure—Hyatt
BALL BEARING DIMENSION DATA

SINGLE ROW—WIDE INNER RING—TYPE 4000

Non-Loading Groove—Same as Type 3000 Except Has Wide Inner Ring
Extensively used in commercial electric Motors.



Bearing Size No.	Bore B		Diameter D		WIDTHS				Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
					Inner Ring W		Outer Ring T		
	mm	inch	mm	inch	mm	inch	mm	inch	
4510	50	1.9685	90	3.5433	30.16	1.1875	20	.7874	1820
4604	20	.7874	52	2.0472	22.2	.875	15	.5906	1020
4605	25	.9843	62	2.4409	25.40	1.0000	17	.6693	1120
4606	30	1.1811	72	2.8346	30.16	1.1875	19	.7480	1480
4607	35	1.3780	80	3.1496	34.93	1.3750	21	.8268	1820
4608	40	1.5748	90	3.5433	36.5	1.4375	23	.9055	2200
4609	45	1.7717	100	3.9370	39.69	1.5625	25	.9843	2780
4610	50	1.9685	110	4.3307	44.45	1.7500	27	1.0630	3000
4611	55	2.1654	120	4.7244	49.21	1.9375	29	1.1417	3400
4613	65	2.5591	140	5.5118	58.7	2.3125	33	1.2992	4200
4615	75	2.9528	160	6.2992	68.26	2.6875	37	1.4567	4800

*For load ratings at other speeds see page 62.

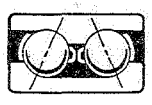
DOUBLE ROW

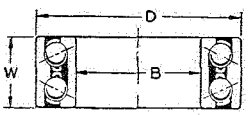
ANGULAR CONTACT

EXTRA LIGHT—SERIES 5L00

Angular Contact

For combined loads from any direction. One-piece inner and outer rings with two rows of balls permanently pre-loaded for greater rigidity.



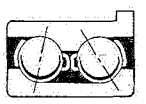


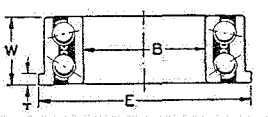
Bearing Size No.	Bore B		Diameter D		Width W	
	mm	inch	mm	inch	mm	inch
5L11	55	2.1654	90	3.5433	30	1.1811
5L12	60	2.3622	95	3.7402	32	1.2598
5L14	70	2.7559	110	4.3307	36	1.4173
5L16	80	3.1496	125	4.9213	40	1.5748
5L18	90	3.5433	140	5.5118	44	1.7323
5L20	100	3.9370	150	5.9055	44	1.7323
5L22	110	4.3307	170	6.6929	52	2.0472
5L24	120	4.7244	180	7.0866	52	2.0472

FLANGED—SERIES N5L00A

Angular Contact

Available only to precision specifications.
(For Machine Tool Precision Spindles)

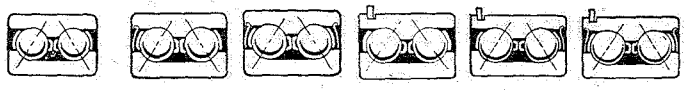


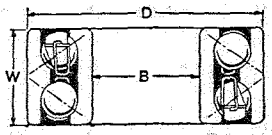


Bearing Size No.	Flange O.D. E		Flange Width T		Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
	mm	inch	mm	inch	
N5L11A	95	3.7402	5	.197	2800
N5L12A	99.5	3.9173	4.5	.177	3050
N5L14A	115	4.5276	5	.197	4200
N5L16A	130.5	5.1378	5.5	.216	5200
N5L18A	146	5.7480	6	.236	6200
N5L20A	156	6.1417	6	.236	6600
N5L22A	177	6.9685	7	.276	8500
N5L24A	187	7.3622	7	.276	8800

*For load ratings at other speeds see page 62.

DOUBLE ROW—LIGHT SERIES—5200





Plain	1 Shield	2 Shields	Sn. Ring	Sn. Ring 1 Shield	Sn. Ring 2 Shields	Bore B mm	Bore B inch	Diameter D mm	Diameter D inch	Width W mm	Width W inch	Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life
5200‡	5500‡	55500‡	45200‡	45500‡	455500‡	10	.3937	30	1.1811	14.29	.5625	415
5201‡	5501‡	55501‡	45201‡	45501‡	455501‡	12	.4724	32	1.2598	15.88	.625	485
5202‡	5502‡	55502‡	45202‡	45502‡	455502‡	15	.5906	35	1.3780	15.88	.625	530
•5203‡	5503‡	55503‡	45203‡	45503‡	455503‡	17	.6693	40	1.5748	17.46	.6875	705
•5204‡	5504‡	55504‡	45204‡	45504‡	455504‡	20	.7874	47	1.8504	20.64	.8125	980
•5205‡	5505‡	55505‡	45205‡	45505‡	455505‡	25	.9843	52	2.0472	20.64	.8125	1060
5206‡	5506‡	55506‡	45206‡	45506‡	455506‡	30	1.1811	62	2.4409	23.81	.9375	1565
5207‡	5507	55507	45207‡	45507‡	455507	35	1.3780	72	2.8346	26.99	1.0625	2100
5208	5508	55508	45208	45508	455508	40	1.5748	80	3.1496	30.16	1.1875	2880
5209	5509	55509	45209	45509	455509	45	1.7717	85	3.3465	30.16	1.1875	3020
5210	5510	55510	45210	45510	455510	50	1.9685	90	3.5433	30.16	1.1875	3150
5211	5511	55511	45211	45511	455511	55	2.1654	100	3.9370	33.34	1.3125	4000
5212	5512	55512	45212	45512	455512	60	2.3622	110	4.3307	36.51	1.4375	4450
5213	5513	55513	45213	45513	455513	65	2.5591	120	4.7244	38.10	1.50	5110
5214	5514	55514	45214	45514		70	2.7559	125	4.9213	39.69	1.5625	5600
5215	5515	55515	45215	45515	455515	75	2.9528	130	5.1181	41.28	1.625	6070
5216	5516	55516	45216	45516	455516	80	3.1496	140	5.5118	44.45	1.75	6780
5217	5517	55517	45217		455517	85	3.3465	150	5.9055	49.21	1.9375	7830
5218	5518	55518	45218			90	3.5433	160	6.2992	52.39	2.0625	8730
5219			45219			95	3.7402	170	6.6929	55.56	2.1875	9740
5220	5520	55520	45220	45520	455520	100	3.9370	180	7.0866	60.33	2.375	10775
5222	5522	55522	45222	45522		110	4.3307	200	7.8740	69.85	2.75	11600

•For Sentri Seal Double Row Type Check Special Commercial Bearing List. (*Z995200*)

DOUBLE ROW—MEDIUM SERIES—5300

5300	5600	55600	45300		455600	10	.3937	35	1.3780	19.05	.75	605
5301	5601	55601				12	.4724	37	1.4567	19.05	.75	655
5302‡	5602‡	55602‡	45302‡			15	.5906	42	1.6535	19.05	.75	780
5303	5603	55603	45303	45603	455603	17	.6693	47	1.8504	22.23	.875	1140
5304‡	5604‡	55604‡	45304‡	45604‡	455604‡	20	.7874	52	2.0472	22.23	.875	1200
5305	5605	55605	45305	45605	455605	25	.9843	62	2.4409	25.40	1.00	1890
5306	5606	55606	45306	45606	455606	30	1.1811	72	2.8346	30.16	1.1875	2600
5307	5607	55607	45307	45607		35	1.3780	80	3.1496	34.93	1.375	3300
5308	5608	55608	45308	45608	455608	40	1.5748	90	3.5433	36.51	1.4375	3880
5309	5609	55609	45309	45609	455609	45	1.7717	100	3.9370	39.68	1.5625	4680
5310	5610	55610	45310	45610	455610	50	1.9685	110	4.3307	44.45	1.75	5600
5311	5611	55611	45311	45611		55	2.1654	120	4.7244	49.21	1.9375	6460
5312	5612	55612	45312	45612		60	2.3622	130	5.1181	53.98	2.125	7620
5313	5613	55613	45313	45613		65	2.5591	140	5.5118	58.74	2.3125	8460
5314			45314			70	2.7559	150	5.9055	63.50	2.50	9320
5315			45315			75	2.9528	160	6.2992	68.26	2.6875	9720
5316			45316			80	3.1496	170	6.6929	68.26	2.6875	10625
5318						90	3.5433	190	7.4803	73.03	2.875	12125

DOUBLE ROW—HEAVY SERIES—5400

5407	(*5700 Series*)	(*55700 Series*)	(*45400 Series*)	(*45700 Series*)	(*455700 Series*)	35	1.3780	100	3.9370	44.45	1.750	4960

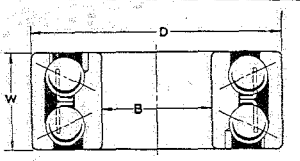
*For load ratings at other speeds see page 62.
‡Non Loading groove assembly.

Delco New Departure—Hyatt
BALL BEARING DIMENSION DATA

DOUBLE ROW—"W" SERIES—TYPES 5200W & 5300W

With Reverse Angle of Contact—"Externally Diverging Angles of Contact".
Used where slight misalignment occurs due to heat warping housings, etc.—often used with loose internal fit-up.

LIGHT SERIES—5200W



Plain	1 Shield	2 Shields	Snap Ring	Sn. Ring 1 Shield	Bore B mm	Bore B inch	Diameter D mm	Diameter D inch	Width W mm	Width W inch	Radial Load Rating @ 1000 RPM*
5205W	.....	.....	45205W	.....	25	.9843	52	2.0472	20.64	.8125	1280
5206W	5506W	55506W	45206W	.....	30	1.1811	62	2.4409	23.8	15/16	1660
5207W	5507W	55507W	.....	45507W	35	1.3780	72	2.8346	26.99	1.0625	2500
5208W	.....	.....	45208W	.....	40	1.5748	80	3.1496	30.2	1 3/16	2900
5210W	5510W	55510W	.....	.....	50	1.9685	90	3.5433	30.16	1.1875	3150
5211W	5511W	.....	45211W	45511W	55	2.1654	100	3.9370	33.34	1.3125	4000
5212W	.....	.....	45212W	.....	60	2.3622	110	4.3307	36.51	1.4375	4450
5213W	5513W	.....	45213W	.....	65	2.5591	120	4.7244	38.10	1.50	5100
.....	.....	.....	45214W	.....	70	2.7559	125	4.9213	39.7	1.5625	5600
5215W	.....	.....	45215W	.....	75	2.9528	130	5.1181	41.28	1.625	6100
5216W	5516W	.....	.....	.....	80	3.1496	140	5.5118	44.45	1.75	6800
5218W	5518W	.....	45218W	.....	90	3.5433	160	6.2992	52.39	2.0625	8700
5222W	.....	55522W	.....	.....	110	4.3307	200	7.8740	69.85	2.75	12800

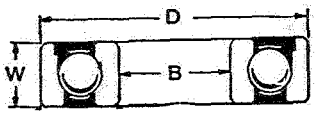
MEDIUM SERIES—5300W

5306W	5606W	55606W	45306W	45606W	30	1.1811	72	2.8346	30.16	1.1875	2800
.....	5607W	.....	45307W	45607W	35	1.3780	80	3.1496	34.93	1.375	3300
.....	.....	.....	45308W	45608W	40	1.5748	90	3.5433	36.51	1.4375	3900
5309W	.....	.....	45309W	45609W	45	1.7717	100	3.9370	39.68	1.5625	4700
5310W	5610W	55610W	45310W	45610W	50	1.9685	110	4.3307	44.45	1.75	5600
5311W	.....	.....	45311W	45611W	55	2.1654	120	4.7244	49.21	1.9375	6500
5312W	5612W	.....	45312W	.....	60	2.3622	130	5.1181	53.98	2.125	7600
5313W	.....	.....	45313W	.....	65	2.5591	140	5.5118	58.74	2.3125	8500

*For load ratings at other speeds see page 62.

ANGULAR CONTACT—SINGLE ROW

MAGNETO BEARINGS—Series ND5 to ND20



For radial and light thrust loads. Mounted two bearings opposed. Made separable to speedup assembly of mechanisms in which they are used.

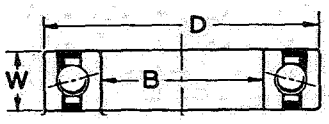
BEARING PART NO.	Bore B mm	Bore B inch	Diameter D mm	Diameter D inch	Width W mm	Width W inch
ND5	5	.1969	16	.6299	5	.1969
ND8	8	.3150	24	.9449	7	.2756
ND8-6	6	.2362	24	.9449	7	.2756
ND8-7	7	.2750	24	.9449	7	.2756
ND10	10	.3937	28	1.1024	8	.3150
ND10-9	9	.3543	28	1.1024	8	.3150
ND12	12	.4724	32	1.2598	7	.2756
ND13	13	.5118	30	1.1811	7	.2756
ND15	15	.5906	35	1.3780	8	.3150
ND15F†	15	.5906	35	1.3780	8	.3150
ND16	16	.6299	38	1.4961	10	.3937
ND17	17	.6693	44	1.7323	11	.4331
ND17E	17	.6693	44	1.7323	10	.3937
ND17F†	17	.6693	44	1.7323	10	.3937
ND17H	17	.6693	40	1.5748	10	.3937
ND17J	17.4	.6875	34.9	1.3754	11	.4331
ND20	20	.7874	47	1.8504	14	.5512

† Separable cone.

Angular Contact

SINGLE ROW—EXTRA LIGHT SERIES—0L00

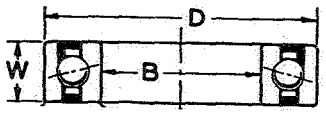
Available singly or in matched pairs for Duplex Mounting:—"DB," "DF" or "DT." "DT" type bearings may be used to replace "DB" and "DF" types—but if "DB" or "DF" are ordered as needed, it enables supplier to ship as ordered or substitute "DT," or 2 "U" Prefix "Universal" bearings. "Q" indicates non-metallic, "V" indicates bronze separators.

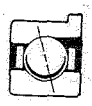


Flanged Precision Bearings—Type N0L00 Manufactured to A.B.E.C. 5, 7, 9 precision specifications only.

Brg. Size No.	Bore B		Diameter D		Width W		Brg. Size No.	Flange O. D.	Flange Width	Radial Rating @ 1000 RPM*	Thrust Rating @ 1000 RPM**
15° Contact Angle	mm	inch	mm	inch	mm	inch	Flanged	inch	inch		
Q0L00	10	.3937	26	1.0236	8	.3150				205	215
Q0L01	12	.4724	28	1.1024	8	.3150				220	230
Q0L02	15	.5906	32	1.2598	9	.3543				255	270
0L03	17	.6693	35	1.3780	10	.3937				270	285
0L04	20	.7874	42	1.6535	12	.4724				470	495
Q0L05	25	.9843	47	1.8504	12	.4724				520	555
Q0L06	30	1.1811	55	2.1654	13	.5118	QN0L06	2.293	.128	710	755
Q0L07	35	1.3780	62	2.4409	14	.5512	QN0L07	2.579	.138	930	985
Q0L08	40	1.5748	68	2.6772	15	.5906	QN0L08	2.815	.148	980	1030
Q0L09	45	1.7717	75	2.9528	16	.6299	QN0L09	3.11	.157	1240	1310
Q0L10	50	1.9685	80	3.1496	16	.6299	QN0L10	3.307	.157	1280	1360
0L11	55	2.1654	90	3.5433	18	.7087	N0L11	3.720	.177	1760	1860
0L12	60	2.3622	95	3.7402	18	.7087	N0L12	3.917	.177	1900	2010
Q0L13	65	2.5591	100	3.9370	18	.7087	QN0L13	4.114	.177	1990	2070
0L14	70	2.7559	110	4.3307	20	.7874	N0L14	4.528	.197	2600	2760
Q0L15	75	2.9528	115	4.5276	20	.7874	QN0L15	4.724	.197	2700	2850
0L16	80	3.1496	125	4.9213	22	.8661	N0L16	5.138	.216	3250	3410
Q0L17	85	3.3465	130	5.1181	22	.8661	QN0L17	5.335	.216	3350	3530
0L18	90	3.5433	140	5.5118	24	.9449	N0L18	5.748	.236	3900	4120
Q0L19	95	3.7402	145	5.7087	24	.9449				4050	4250
0L20	100	3.9370	150	5.9055	24	.9449				4150	4390
Q0L21	105	4.1339	160	6.2992	26	1.0236	QN0L21	6.555	.256	4750	4980
0L22	110	4.3307	170	6.6929	28	1.1024				5300	5620
0L24	120	4.7244	180	7.0866	28	1.1024	N0L24	7.362	.276	5500	5800
Q0L26	130	5.1181	200	7.8740	33	1.2992	QN0L26	8.199	.325	6600	6910
Q0L28	140	5.5118	210	8.2677	33	1.2992				6800	7130
Q0L30	150	5.9055	225	8.8583	35	1.3780				7500	7950
Q0L36	180	7.0866	280	11.0236	46	1.8110				10480	

*Radial capacity for two bearings mounted duplex may be taken as 1.7 times rating listed.
**Thrust capacity for two bearings mounted DT may be taken as 1.7 times rating listed.
Thrust capacity for two bearings mounted DB, DF same as a single bearing.
For ratings at speeds not given see page 62.





ANGULAR CONTACT SINGLE ROW HIGH PRECISION, SEPARABLE INNER RING BEARINGS

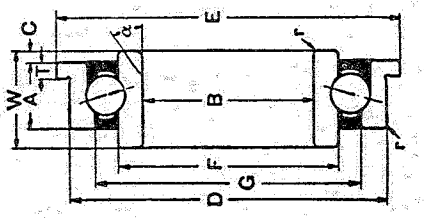
Type Q0L00B angular contact ball bearings are designed to meet the specific requirements of high precision, high speed spindles. They are available only in the extra-light series and high grades of precision (ABEC 7 and ABEC 9) with nonmetallic separators.

BEARING PART NO.	Bore B		Diameter D		Width W	
	mm	inch	mm	inch	mm	inch
Q0L01B	12	.4724	28	1.1024	8	.3150
Q0L02B	15	.5906	32	1.2598	9	.3543
Q0L03B	17	.6693	35	1.3780	10	.3937
Q0L04B	20	.7874	42	1.6535	12	.4724
Q0L05B	25	.9843	47	1.8504	12	.4724
Q0L06B	30	1.1811	55	2.1654	13	.5118
Q0L07E	35	1.3780	62	2.4409	14	.5512
Q0L08B	40	1.5748	68	2.6772	15	.5906
Q0L10C	50	1.9685	80	3.1496	16	.6299
Q0L13B	65	2.5591	100	3.9370	18	.7087

SINGLE ROW ANGULAR CONTACT—Cont'd

FLANGED PRECISION BEARINGS—TYPE NM0200B

Available in ABEC-5 precision specifications only.



Single Row Angular Contact bearings. Mounted two bearings opposed for combined loads from either direction.

BEARING PART NO.	Bore B		Diameter D		Width W		Flange OD	Flange Width	Radial Rating @ 1000 RPM*	Thrust Rating @ 1000 RPM**
	mm	inch	mm	inch	mm	inch	inch	inch		
NM0205B	25	.9843	52	2.0472	17	.6693	2.1720	.148	645	680
NM0206B	30	1.1811	62	2.4409	19	.7480	2.6378	.157	1190	1250
NM0207B	35	1.3780	72	2.8346	21	.8268	3.0315	.157	1630	1720
NM0210B	50	1.9685	90	3.5433	27	1.0630	3.7402	.197	2160	2270
NM0212B	60	2.3622	110	4.3307	31	1.2205	4.5669	.216	3230	3400
NM0214B	70	2.7559	125	4.9213	35	1.3780	5.1575	.236	3780	3980
NM0216B	80	3.1496	140	5.5118	39	1.5354	5.7677	.256	4430	4660
NM0218B	90	3.5433	160	6.2992	43	1.6929	6.5945	.295	5550	5840
NM0220B	100	3.9370	180	7.0866	47	1.8504	7.4212	.335	6780	7140
NM0224B	120	4.7244	215	8.464	40	2.1654	8.8583	.394	8730	9190

FLANGED PRECISION BEARINGS—TYPE N20200

Available in ABEC 5, 7, 9 precision specifications only.
Single Row Angular Contact bearings. Mounted two bearings opposed for combined loads from either direction.

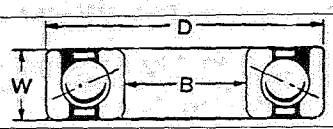
Bearing Size No.	Bore B		Diameter D		Width W		Flange OD	Flange Width	Radial Rating @ 1000 RPM*	Thrust Rating @ 1000 RPM**
Flanged	mm	inch	mm	inch	mm	inch	inch	inch		
N20202	15	.5096	35	1.3780	11	.4331	1.503	.108	330	345
N20203	17	.6693	40	1.5748	12	.4724	1.700	.118	440	465
N20204	20	.7874	47	1.8504	14	.5512	1.975	.138	605	635
N20205	25	.9843	52	2.0472	15	.5906	2.172	.148	645	680
N20206	30	1.1811	62	2.4409	16	.6299	2.6378	.157	1190	1250
N20207	35	1.3780	72	2.8346	17	.6693	3.0315	.157	1630	1720
N20208	40	1.5748	80	3.1496	18	.7087	3.3465	.177	1970	2070
N20210	50	1.9685	90	3.5433	20	.7874	3.7402	.197	2160	2270
N20211	55	2.1654	100	3.9370	21	.8268	4.1339	.207	2670	2810
N20212	60	2.3622	110	4.3307	22	.8661	4.5669	.216	3230	3400
N20214	70	2.7559	125	4.9213	24	.9449	5.1575	.236	3780	3980
N20216	80	3.1496	140	5.5118	26	1.0236	5.7677	.256	4430	4660
N20218	90	3.5433	160	6.2992	30	1.1811	6.5945	.295	5550	5840
N20220	100	3.9370	180	7.0866	34	1.3386	7.4212	.335	6780	7140
N20222	110	4.3307	200	7.8740	38	1.4961	8.2480	.374	8070	8500
QN20226	130	5.1181	230	9.0551	40	1.5748	9.4488	.394	9470	9960
QN30208	40	1.5748	80	3.1496	18	.7087	3.3465	.177	1760	3450
QN30216	80	3.1496	140	5.5118	26	1.0236	5.7677	.256	4160	8160

*Radial capacity for two bearings mounted duplex may be taken as 1.7 times rating listed.
**Thrust capacity for two bearings mounted DT may be taken as 1.7 times rating listed.
Thrust capacity for two bearings mounted DB, DF same as a single bearing.
For load ratings at other speeds see page 62.

Angular Contact—Cont'd

SINGLE ROW—LIGHT SERIES—20200 AND 30200

Available singly or in matched pairs for Duplex Mounting:-"DB," "DF" or "DT." "DT" type bearings may be used to replace "DB" and "DF" types—but if "DB" or "DF" are ordered as needed, it enables supplier to ship as ordered or substitute "DT," or 2 "U" Prefix "Universal" bearings. "Q" indicates non-metallic, "V" indicates bronze separators.



Bearing Size No.			Bore B		Diameter D		Width W		Radial Rating @ 1000 RPM*		Thrust Rating @ 1000 RPM**	
15° Contact Angle	35° Contact Angle	Snap Ring	mm	inch	mm	inch	mm	inch	20200 Series	30200 Series	20200 Series	30200 Series
20200			10	.3927	30	1.1811	9	.3543	220		230	
20201			12	.4724	32	1.2598	10	.3937	310		325	
20202			15	.5906	35	1.3780	11	.4331	330		345	
		1 Shield										
†20203	30203#	Q720203	17	.6693	40	1.5748	12	.4724	440	395	465	665
†20204	30204		20	.7874	47	1.8504	14	.5512	605	735	635	1440
†20205	30205	Q420205	25	.9843	52	2.0472	15	.5906	645	785	680	1540
†20206	Q30206	420206	30	1.1811	62	2.4409	16	.6299	1190	1010	1250	1980
†20207	Q30207		35	1.3780	72	2.8346	17	.6693	1630	1380	1720	2710
†20208	Q30208	420208	40	1.5748	80	3.1496	18	.7087	1970	1760	2070	3450
20209	Q30209	420209	45	1.7717	85	3.3465	19	.7480	2060	1850	2170	3630
†20210	Q30210		50	1.9685	90	3.5433	20	.7874	2160	1950	2270	3820
†20211	Q30211		55	2.1654	100	3.9370	21	.8268	2670	2390	2810	4690
†20212	Q30212		60	2.3622	110	4.3307	22	.8661	3230	2840	3400	5570
20213	Q30213		65	2.5591	120	4.7244	23	.9055	3780	3300	3980	6470
†20214	Q30214	420214	70	2.7559	125	4.9213	24	.9449	3780	3460	3980	6790
20215	Q30215		75	2.9528	130	5.1181	25	.9843	3950	3610	4160	7080
†20216	Q30216		80	3.1496	140	5.5118	26	1.0236	4430	4160	4660	8160
20217	Q30217		85	3.3465	150	5.9055	28	1.1024	5200	4450	5480	8730
†20218	Q30218		90	3.5433	160	6.2992	30	1.1811	5550	4960	5840	9730
20219	Q30219		95	3.7402	170	6.6929	32	1.2598	6150	5490	6480	10775
†20220	Q30220		100	3.9370	180	7.0866	34	1.3386	6780	6000	7140	11775
20221	Q30221		105	4.1339	190	7.4803	36	1.4173	7380	6560	7770	12875
†20222	Q30222		110	4.3307	200	7.8740	38	1.4961	8070	7100	8500	13925
20224			120	4.7244	215	8.4646	40	1.5748	8730		9190	
†Q20226	Q30226		130	5.1181	230	9.0551	40	1.5748	9470	8670	9960	17000
Q20228			140	5.5118	250	9.8425	42	1.6535	10950		11525	
Q20230	V30230		150	5.9055	270	10.6299	45	1.7717	12200	9900	12800	19200

†Available with flange see page 12.
#30° Contact angle.

SINGLE ROW—MEDIUM SERIES—H20300 AND 30300

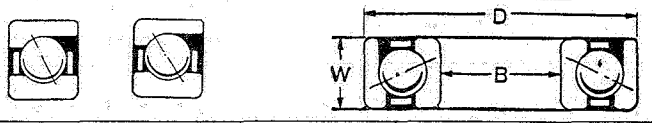
25° Contact Angle	35° Contact Angle	Snap Ring	Bore B		Diameter D		Width W		H20300 Series	30300 Series	H20300 Series	30300 Series
			mm	inch	mm	inch	mm	inch				
H20300			10	.3937	35	1.3780	11	.4331	355		505	
H20301			12	.4724	37	1.4567	12	.4724	385		550	
H20302			15	.5906	42	1.6535	13	.5118	535		765	
H20303			17	.6693	47	1.8504	14	.5512	670		955	
H20304	Q30304		20	.7874	52	2.0472	15	.5906	1090	895	1560	1760
H20305	Q30305		25	.9843	62	2.4409	17	.6693	1360	1220	1940	2390
H20306	Q30306		30	1.1811	72	2.8346	19	.7480	1650	1560	2360	3060
H20307	Q30307		35	1.3780	80	3.1496	21	.8268	2040	2030	2920	3980
H20308	Q30308		40	1.5748	90	3.5433	23	.9055	2460	2410	3520	4730
H20309	Q30309		45	1.7717	100	3.9370	25	.9843	3060	2810	4370	5510
H20310	Q30310		50	1.9685	110	4.3307	27	1.0630	3560	3240	5090	6350
H20311	Q30311		55	2.1654	120	4.7244	29	1.1417	4030	3830	5760	7510
H20312	Q30312	V430312	60	2.3622	130	5.1181	31	1.2205	4480	4280	6400	8390
H20313	Q30313		65	2.5591	140	5.5118	33	1.2992	4970	4730	7100	9280
H20314	Q30314		70	2.7559	150	5.9055	35	1.3780	5480	5170	7830	10150
H20315	Q30315		75	2.9528	160	6.2992	37	1.4567	6030	5650	8620	11075
H20316	Q30316		80	3.1496	170	6.6929	39	1.5354	6590	6120	9420	12000
H20317	Q30317		85	3.3465	180	7.0866	41	1.6142	7140	6630	10200	13000
H20318	Q30318		90	3.5433	190	7.4803	43	1.6929	7740	7160	11050	14050
H20319	Q30319		95	3.7402	200	7.8740	45	1.7717	8490	7670	12125	15050
H20320	Q30320		100	3.8370	215	8.4646	47	1.8504	9040	8780	12925	17225
QH20321	Q30321		105	4.1339	225	8.8583	49	1.9291	9710	9320	13875	18275
H20322	Q30322		110	4.3307	240	9.4488	50	1.9685	10300	10550	14725	20700
	Q30326		130	5.1181	280	11.0236	58	2.2835		13125		25750

*Radial capacity for two bearings mounted duplex may be taken as 1.7 times rating listed.
**Thrust capacity for two bearings mounted DT may be taken as 1.7 times rating listed.
Thrust capacity for two bearings mounted DB, DF same as single bearing.
For load ratings at other speeds see page 62.

Angular Contact—Cont'd

SINGLE ROW—HEAVY SERIES—20400 AND 30400

Available singly or in matched pairs for Duplex Mounting:—"DB," "DF" or "DT." "DT" type bearings may be used to replace "DB" and "DF" types—but if "DB" or "DF" are ordered as needed, it enables supplier to ship as ordered or substitute "DT," or 2 "U" Prefix "Universal" bearings.



Bearing Size No.		Bore B		Diameter D		Width W		Radial Rating @ 1000 RPM*	
25° Contact Angle	35° Contact Angle	mm	inch	mm	inch	mm	inch	H20000 Series	30000 Series
QH20404	**Q30404**	20	.7874	72	2.8346	19	.7480	1820	1640
H20405	**Q30405**	25	.9843	80	3.1496	21	.8268	2200	2100
QH20406	**Q30406**	30	1.1811	90	3.5433	23	.9055	2700	2450
H20407	**Q30407**	35	1.3780	100	3.9370	25	.9843	3150	2850
H20408	**Q30408**	40	1.5748	110	4.3307	27	1.0630	3500	3400
H20409	**Q30409**	45	1.7717	120	4.7244	29	1.1417	4150	3800
H20410	**Q30410**	50	1.9685	130	5.1181	31	1.2205	4650	4200
H20411	**Q30411**	55	2.1654	140	5.5118	33	1.2992	5050	4600
H20412	**Q30412**	60	2.3622	150	5.9055	35	1.3780	5550	5000
H20413	**Q30413**	65	2.5591	160	6.2992	37	1.4567	6000	5900
H20414	**Q30414**	70	2.7559	180	7.0866	42	1.6535	7000	6800
H20415	**Q30415**	75	2.9528	190	7.4803	45	1.7717	8000	7800
H20416	**Q30416**	80	3.1496	200	7.8740	48	1.8898	8600	8300
QH20417		85	3.3465	210	8.2677	52	2.0472	9100	8800
QH20418	**Q30418**	90	3.5433	225	8.8583	54	2.1260	10100	9900

*Radial capacity for two bearings mounted duplex may be taken as 1.7 times rating listed. For load ratings at other speeds see page 62.

NEW DEPARTURE STEEL BALLS

HIGH CARBON CHROME—GRADE A1

Ball Size	Part Number	Standard Package Quantity	Ball Size	Part Number	Standard Package Quantity
1/16	**1000909582**	200	1/2	**1000909506**	25
3/32	**1000909595**	200	17/32	**1000909655**	25
1/8	**1000909555**	200	9/16	**1000909622**	25
9/64	**1000909637**	200	19/32	**1000909859**	10
5/32	**1000909594**	200	5/8	**1000909554**	10
3/16	**1000909596**	200	21/32	**1000909904**	10
7/32	**1000909611**	100	11/16	**1000909530**	10
15/64	**1000909917**	100	23/32	**1000909597**	10
1/4	**1000909512**	100	3/4	**1000909513**	10
17/64	**1000909922**	100	25/32	**1000909847**	5
9/32	**1000909625**	100	13/16	**1000909591**	5
5/16	**1000909511**	100	27/32	**1000909702**	5
11/32	**1000909671**	50	7/8	**1000909549**	5
3/8	**1000909505**	50	29/32	**1000909964**	5
13/32	**1000909529**	50	15/16	**1000909550**	5
7/16	**1000909532**	50	31/32	**1000909848**	5
15/32	**1000909531**	25	1	**1000909545**	5

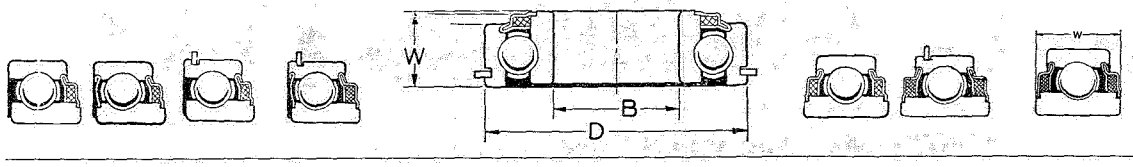
SPECIAL NOTE: Steel Balls are supplied in standard package quantities only.

8000 Seal Types

For radial or combined loads in either direction. Self-contained seal. Furnished completely lubricated, ready for service. If Snap Ring is desired on same side as seal, indicate with suffix "V," otherwise will be furnished on side opposite to seal as illustrated below.

NOTE: If seal bearing to be replaced is standard Single Row Width, see pages 3 to 6 for 9000, 99000 and 97000 Series.

8000 ND SEAL BEARINGS (Without "WC" Prefix)

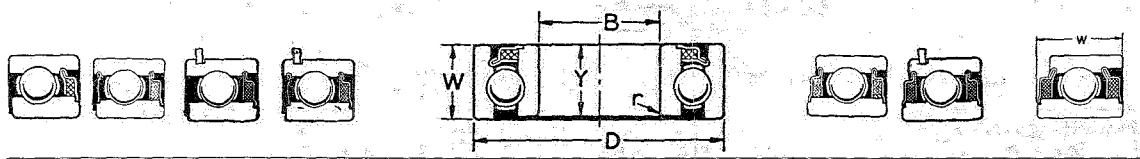


Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life

"WC" PREFIX—WIDE CUP ND SEAL—WC-8000

Over-all dimension same as 8000 Series—Outer ring is extended so as to be flush with inner ring on one face.

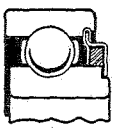
Available in sizes underlined as "WC,".



Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life

BEARING SIZE NUMBER				Bore B		Diameter D		Width W		BEARING SIZE No.		Width W		
One Seal	Shield & Seal	Sn. Ring 1 Seal	Sn. Ring Sh. & Sl.	mm	inch	mm	inch	mm	inch	Double Seal	Sn. Ring 2 Seals	mm	inch	
8006	87006			6	.2362	24	.9449	10.3	.406	88006		12.62	.4970	112
8007	87007			7	.2756	24	.9449	10.3	.406	88007		12.62	.4970	112
8008	87008			8	.3150	24	.9449	10.3	.406	88008		12.62	.4970	112
8009	87009	48009	487009	9	.3543	30	1.1811	12.699	.500	88009	488009	16.40	.6457	270
8011	87011	48011	487011	11	.4331	32	1.2598	12.699	.500	88011	488011	15.40	.6063	270
8013	87013	48013	487013	13	.5118	32	1.2598	12.699	.500	88013	488013	15.40	.6063	270
8014	87014	48014	487014	14	.5512	35	1.3780	12.699	.500	88014	488014	14.40	.5669	290
8016	87016	48016	487016	16	.6299	35	1.3780	12.699	.500	88016	488016	14.40	.5669	290
8026	87026	48026	487026	26	1.0236	52	2.0472	15.87	.625	88026	488026	16.75	.6594	690
8035	87035			5	.1969	19	.748	10.3	.406	88035		12.6	.4970	100
8036	87036			6	.2362	19	.748	10.3	.406	88036		12.6	.4970	100
8037	87037			7	.2756	22	.8661	10.3	.406	88037		12.6	.4970	133
8038	87038			8	.3150	22	.8661	10.3	.406	88038		12.6	.4970	133
8039	87039			9	.3543	26	1.0236	10.3	.406	88039		12.6	.4970	195

C-Prefix



*For load ratings at other speeds see page 62.

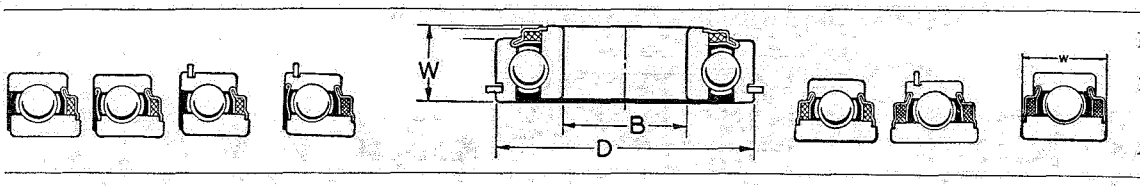
All the above sizes of ND seal bearings are available with metal slingers ("C" prefix), desirable where minimum seal friction is needed.

8000 Seal Types—Cont'd

For radial or combined loads in either direction. Self-contained seal. Furnished completely lubricated, ready for service. If Snap Ring is desired on same side as seal, indicate with suffix "V," otherwise will be furnished on side opposite to seal as illustrated below.

NOTE: If seal bearing to be replaced is standard Single Row Width, see pages 3 to 6 for 9000, 99000 and 97000 Series.

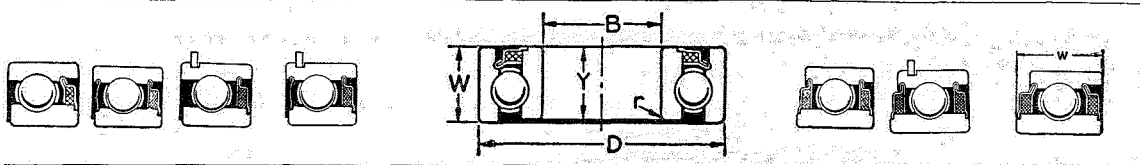
8000 ND Seal Bearings (Without "WC" Prefix)—Cont'd



Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life

"WC" Prefix—Wide Cup ND Seal—WC-8000—Cont'd

Over-all dimension same as 8000 Series—Outer ring is extended so as to be flush with inner ring on one face. Available in sizes underlined as "WC".



Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life

BEARING SIZE NUMBER				Bore B		Diameter D		Width W		BEARING SIZE No.		Width W		
One Seal	Shield & Seal	Sn. Ring 1 Seal	Sn. Ring Sh. & Sl.	mm	inch	mm	inch	mm	inch	Double Seal	Sn. Ring 2 Seals	mm	inch	
8500	87500	48500	487500	10	.3937	30	1.1811	12.699	.500	88500	488500	16.4	.6457	270
8501	87501	48501	487501	12	.4724	32	1.2598	12.699	.500	88501	488501	15.4	.6063	270
8502	87502	48502	487502	15	.5906	35	1.3780	12.699	.500	88502	488502	14.4	.5669	290
8503	87503	48503	487503	17	.6693	40	1.5748	14.299	.563	88503	488503	16.6	.6536	510
8504	87504	48504	487504	20	.7874	47	1.8504	15.87	.625	88504	488504	17.8	.6988	635
8505	87505	48505	487505	25	.9843	52	2.0472	15.87	.625	88505	488505	16.8	.6594	690
8506	87506	48506	487506	30	1.1811	62	2.4409	19.989	.787	88506†	488506	24	.9449	1020
8507	87507	48507	487507	35	1.3780	72	2.8346	21	.827	88507	488507	25	.9843	1390
8508	87508	48508	487508	40	1.5748	80	3.1496	25	.945	88508†	488508	27	1.063	1590
8509	87509	48509	487509	45	1.7717	85	3.3465	25	.945	88509†	488509	27	1.063	1710
8510	87510	48510	487510	50	1.9685	90	3.5433	26	1.024	88510†	488510	30	1.1811	1820
8511	87511	48511	487511	55	2.1654	100	3.9370	27	1.063	88511	488511	33.3	1.3125	2250
8512	87512	48512	487512	60	2.3622	110	4.3307	29	1.142	88512	488512	33	1.2992	2550
8513	87513	48513	487513	65	2.5591	120	4.7244	31	1.221	88513	488513	36	1.4173	2990
8514	87514			70	2.7559	125	4.9213	31.2	1.299					3180

Above size bores 00 thru 08 of ND seal bearings are available with metal slingers "C" prefix.

Medium Series—8600

8602	87602	48602		15	.5906	42	1.6535	15	.591	88602	488602	17	.6693	580
8603	87603	48603	487603	17	.6693	47	1.8504	16	.630	88603	488603	18	.7087	710
8604	87604	48604	487604	20	.7874	52	2.0472	19	.7480	88604	488604	23	.9055	1010
8605	87605	48605	487605	25	.9843	62	2.4409	21	.827	88605	488605	25	.9843	1110
8606	87606	48606	487606	30	1.1811	72	2.8346	23	.9055	88606†	488606	27	1.0630	1470
8607	87607	48607	487607	35	1.3780	80	3.1496	25	.9843	88607	488607	29	1.1417	1820
8608	87608	48608	487608	40	1.5748	90	3.5433	27	1.0630	88608	488608	31	1.2205	2200
8609	87609	48609	487609	45	1.7717	100	3.9370	30	1.1811	88609†	488609	35	1.3780	2780

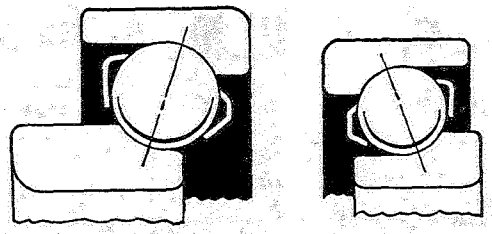
Above size bores 04 thru 06 of ND seal bearings are available with metal slingers "C" prefix.

†PROPELLER SHAFT BEARINGS, TYPE XD88000—Outside Dimensions are same as shown above. See page 18.

____Underlined numbers available in "WC" 8000 Series.

*For load ratings at other speeds see page 62.

FRONT WHEEL BEARINGS—TYPE 909000



Inner Outer

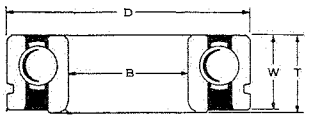
STANDARD TYPE

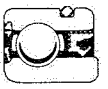
Angular contact, separable bearings, particularly adapted to the radial and thrust loads encountered in front wheel service.

Complete Bearing Part No.	Principal Dimensions			Component Parts		
	Bore	O.D.	Width	Cone Part No.	Cup Part No.	Retainer Part No.
909001	.7503	2.5000	.708	**909501**	**909601**	**909701**
909002•	1.1904	2.963	1.145	**909502**	**909602**	**909702**
909003•	.8128	2.437	.829	**909503**	**909603**	**909703**
909004•	1.2815	3.375	1.308	**909504**	**909604**	**909704**
909021	.6875	1.875	.688	**909521**	**909621**	**909721**
909022•	1.125	2.5000	.984	**909522**	**909622**	**909722**
909023•	.7503	2.250	.790	**909523**	**909623**	**909723**
909024•	1.3128	3.1496	1.226	**909524**	**909624**	**909724**
909025	.8440	2.250	.790	**909565**	**909673**	**909725**
909026	1.4065	3.1496	1.226	**909526**	**909648**	**909726**
909027•	.9379	2.8125	.910	**909527**	**909627**	**909727**
909028•	1.500	3.750	1.450	**909528**	**909628**	**909728**
909032•	1.2500	2.9630	1.145	**909532**	**909602**	**909702**
909035•	.9379	2.3750	.790	**909535**	**909635**	**909735**
909040	1.2504	2.5635	.759	**909540**	**909640**	**909740**
909041	.7503	1.9390	.650	**909541**	**909641**	
909042•	1.2815	2.963	1.145	**909542**	**909602**	**909702**
909044	1.5000	3.1496	1.226	**909546**	**909648**	**909726**
909045	.9065	2.2500	.790	**909547**	**909673**	**909725**
909046•	1.500	3.1496	1.226	**909546**	**909648**	**909726**
909047	.9065	2.2500	.790	**909547**	**909673**	**909725**
909048	1.500	3.1496	.900	**909548**	**909648**	**909726**
909052	1.2815	2.9630	1.145	**909552**	**909602**	**909702**
909060	1.3750	2.8125	1.062	**909560**	**909660**	**909760**
909062	1.3750	2.9630	.760	**909566**	**909666**	**909762**
909065	.8440	2.2500	.790	**909565**	**909673**	**909725**
909066	1.3750	2.9630	.760	**909566**	**909666**	**909762**
909067	.7503	2.0800	.708	**909567**	**909667**	**909767**
909070	1.2504	2.6500	.800	**909570**	**909670**	**909770**
909072	1.3750	2.9630	.770	**909566**	**909666**	**909762**
909073	.8440	2.2500	.790	**909565**	**909673**	**909725**

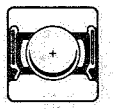
•Consult for availability.

REAR WHEEL BEARINGS—"RW" TYPE





TYPE I*



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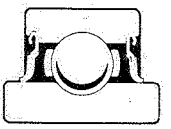


TYPE III

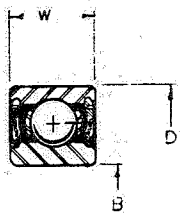
TYPE IV

Basic Size	Bearing Assembly	Sealing "O" Ring	Sealing Outboard (Wheel) side	Sealing Inboard (differential) side	Bore B mm	Bore B inch	Diameter D mm	Diameter D inch	Width W mm	Width W inch	Width T mm	Width T inch	Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life	Type
RW101	**RW101R**	No	Land Riding	Land Riding	—	1.3780	—	2.7475	—	.660	—	.9843	1390	III
907279	**RW506AR**	No	Sentri Seal	Shield	—	1.2500	—	2.5625	17	.6693	—	.7293	1290	II
RW507	**RW507AR**	No	Sentri Seal	Sentri Seal	35	1.3780	—	2.890	—	.7000	—	.7400	1590	II
	RW507CR	No	Sentri Seal	Sentri Seal	35	1.3780	—	2.7475	—	.6600	—	.7000	1390	II
	RW507ER	Yes	Sentri Seal	Garter Spring	35	1.3780	72	2.8346	—	.8858	—	.9250	1390	I
	RW507FR	Yes	None	Garter Spring	35	1.3780	72	2.8346	—	.8858	—	.9250	1390	I
	RW507GR	Yes	Garter Spring	None	—	1.4370	—	2.8900	—	.7000	—	.7400	1390	I
	RW507JR	Yes	Sentri Seal	Sentri Seal	35	1.3780	72	2.8346	—	.8449	—	.9250	1390	II
	RW507RR	No	Sentri Seal	Sentri Seal	35	1.3780	72	2.8346	—	.8449	—	.8449	1390	II
RW508	**RW508BR**	No	Sentri Seal	Sentri Seal	—	1.5312	—	3.0265	—	.7360	—	.7760	1770	II
	RW508DR	Yes	Garter Spring	None	—	1.5312	80	3.1496	21	.8268	25	.9843	1770	I
RW509	**RW509AR**	Yes	Garter Spring	None	—	1.6250	83	3.2677	—	1.0136	26	1.0236	1970	I
	RW509C	Yes	Sentri Seal	None	—	1.6250	—	3.2677	—	1.0136	—	1.0630	1970	I
	RW509FR	Yes	Sentri Seal	Garter Spring	—	1.6250	85	3.2677	—	1.0136	27	1.0630	1970	I
	RW509JR	No	Sentri Seal	Sentri Seal	—	1.6250	83	3.2677	—	1.0136	26	1.0236	1970	II
	RW509KR		Sentri Seal	Land Riding	—	1.6250	23	3.2677	—	1.0136	27	1.0630	1970	I
RW607	**RW607BR**	Two	Sentri Seal	Garter Spring	35	1.3780	—	3.000	—	1.000	—	1.032	1820	I
88107	**88107CR**	No	Land Riding	Land Riding	35	1.3780	72	2.8346	17	.6693	25	.9843	1390	III
	88107DR	No	Land Riding	Land Riding	34	1.3386	68	2.6772	21	.8268	24	.9449	1390	III
88128	**881288R**	No	Internal Felt	Internal Felt	—	1.5312	80	3.1496	21	.8268	—	1.083	1770	IV
	88128RC	No	Internal Felt	Internal Felt	—	1.5312	80	3.1496	21	.8268	—	1.083	1770	IV
88130	**Use 88128**													
D88506	**D88506CR**	No	Land Riding	Land Riding	30	1.1811	62	2.4409	16	.6299	24	.9449	1200	III
	D88506FR	No	Land Riding	Land Riding	30	1.1811	62	2.4409	—	.7874	—	.7874	1200	III
D88609	**D88609**	No	Internal Felt	Internal Felt	45	1.7717	100	3.9370	25	.9843	35	1.3780	2780	IV
904262	**904278**	Yes	Garter Spring	None	35	1.3780	—	3.000	—	.905	—	.905	1820	I
904824	**RW607BR**	Yes	Sentri Seal	Garter Spring	35	1.3780	—	3.000	—	1.000	—	1.032	1820	I
907071	**RW607BR**													
907261	**907225**													
	RW509	No	None	None	—	1.6250	83	3.2677	—	1.0136	25	1.0236	1820	

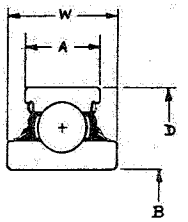
*Garter Spring Seal may be reversed in some sizes.

Propeller Shaft Bearings
Series X88100, XD88500, XD88600 and Z99506P

Rear Wheel Bearings with looser felt fitup, processed to operate at the higher speeds required for Propeller Shafts.



TYPE I



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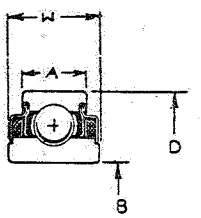


TYPE III

BEARING PART No.	Bore B mm	Bore B inch	Diameter D mm	Diameter D inch	Width W mm	Width W inch	Width A inch	Radial Load Rating at 1000 RPM* Based on 3800 Hrs. Average Life	Type
Z993LL08B	40	1.5748	62	2.4409	15	.5906	—	510	I
X88107									II
XD88107	35	1.3780	72	2.8346	25	.9843	.6693	1390	II
X88107B									II
88108E	38.09	1.4995	80	3.1496	27	1.063	.8268	1770	III
XD88506									III
XD88506A	30	1.1811	62	2.4409	24	.9449	.630	1020	III
XD88506C									III
XD88506CA									I
XD88506C29	—	1.125	62	2.4409	24	.9449	.630	1020	III
XD88508	40	1.5748	80	3.1496	27	1.0630	.8268	1770	III
XD88508AD	40	1.5748	80	3.1496	27	1.0630	.8268	1770	II
XD88509	45	1.7717	85	3.3465	27	1.0630	.8268	1770	III
XD88510	50	1.9685	90	3.5433	30	1.1811	.866	1820	III
Z99506P	30	1.1811	62	2.4409	16	.6299		1015	I

CLUTCH RELEASE BEARING AND ASSEMBLIES

NUMERICAL DIMENSIONAL LIST

A	Annular
AC	Angular Contact
A, DR	Annular Double Row
B	Banded
BI	Banded Inside
BO	Banded Outside
CU	Cup
FCB	Full Complement of Balls
G	Grooved Races
GN	Grease Notch
H	Housing
R	Retainer
RB	Roller Bearing
S	Stainless
SA	Self Aligning Type
SBO	Specially Designed Band Outside
SC	Special Construction
SD	Special Design
SP, A	Special Annular
W	Washer
Z	Zerk Fitting

NOTE: The inside diameter of the smaller race or the outside diameter of the larger race is listed.

	ID	OD	Thickness	Features	Brg. Used
CT1	.500	1.425	.563	BO, BR	
CT2	2.000	3.234	.375	AC, G, W	
CT3	1.8605	3.219	.375	AC, G, W	
CT20	.8661	1.6536	.5532	G	
CT22		Assembly			
CT22A		Assembly			
CT22AT		Assembly			
CT22C		Assembly			
CT22D		Assembly			
CT22E		Assembly			
CT24A	1.500	2.813	.625		
CT24AT	3.250	5.21875	.890	SBO	
CT24B	1.500	2.813	.687		
CT24E		Assembly			
CT24H		Assembly			
CT24J		Assembly			
CT24K		Assembly			
CT24R	1.6562	2.813	.625		
CT24U		Assembly			
CT25	2.250	3.4375	.750	BO	
CT25AT	3.250	5.21875	.890	BO, GN	
CT26	2.131	3.595	.8125	BO, FCB	
CT27	2.750	4.625	.625	SBO	
CT30		Assembly			
CT31	1.255	2.59375	.7656	BO, FCB	
CT32	2.000	3.237	.678		
CT32AT	1.630	2.5625	.750	BO, FCB	
CT34	2.1355	3.487	.750		
CT34B		Assembly			
CT35	1.646	3.000	.844	BO	
CT36	2.250	3.487	.750		
CT36AT	2.258	3.6875	.807	SBO	
CT38	.6693	1.102	.376	G	
CT39	2.0625	3.375	.770	BO, GN	
CT39S		Assembly			CT39
CT39S1		Assembly			CT39
CT40	2.500	4.075	1.063		
CT41S		Assembly			CT24A
CT41S1		Assembly			CT24A
CT44	2.7500	4.075	.813		
CT46	2.499	4.125	.833	SBO	
CT46S		Assembly			CT46
CT48	2.2490	3.812	.807	SBO, G	
CT48S		Assembly			CT48
CT48S1		Assembly			CT48
CT48S2		Assembly			CT48
CT48S3		Assembly			CT48
CT48S4		Assembly			CT48
CT48S5		Assembly			CT48
CT48S7		Assembly			CT48
CT48S8		Assembly			CT48
CT48S9		Assembly			CT48
CT50	3.4990	5.218	.899	SBO	
CT51	2.000	3.687	.807	SBO, G	
CT51S		Assembly			CT51
CT51S1		Assembly			CT51
CT51S2		Assembly			CT51
CT52S		Assembly			CT97
CT52S3		Assembly			CT97
CT58	1.7465	3.062	.682	SBO	
CT58S		Assembly			CT58
CT60		Assembly			CT24A
CT61	1.6725	3.218	.755	BO	
CT62	2.508	4.500	1.062	BO	
CT75S		Assembly			CT46
CT77	3.756	6.000	1.000	SBO	
CT78	1.968	2.625	.4375	SBO	
CT84	.437	.906	.312	SP, A	
CT97	2.0625	3.5625	.807	BO, GN	
CT97S		Assembly			CT97
CT98S1		Assembly			CT97
CT99	.879	1.718	.630	BO	
CT101	1.6250	3.125	.744	SBO, Z	
CT101S1		Assembly			CT101
CT106		Assembly			CT24A
CT107	2.375	3.812	.807	BO	
CT108		Assembly			CT848
CT119	2.500	4.125	1.526	BO, GN	
CT121	2.062	3.563	.750	SBO	
CT121S		Assembly			CT121
CT121S1		Assembly			CT121
CT124S		Assembly			CT173
CT124S1		Assembly			CT173
CT124S2		Assembly			CT173
CT124S3		Assembly			CT173
CT124S4		Assembly			CT173
CT124S5		Assembly			CT173
CT129	1.625	3.125	.678	BO, GN	
CT129S1		Assembly			CT129
CT148	2.072	3.672	1.062	SBO	
CT149S2		Assembly			CT48
CT151	1.8125	3.062	.750	AC	
CT151S		Assembly			CT151
CT157	2.750	4.500	1.00	SBO	
CT157S		Assembly			CT157
CT157S1		Assembly			CT157
CT157S2		Assembly			CT157
CT160	1.687	2.749	.875	AC, R	
CT161S		Assembly			CT24A
CT161S1		Assembly			CT24A
CT161S2		Assembly			CT24A
CT161S3		Assembly			CT24A
CT163	.661	1.125	.343	BO, FCB	
CT164	2.000	3.281	.750	SBO	
CT166	.504	1.275	.078	BO	
CT169	2.478	4.125	.8125	BO	

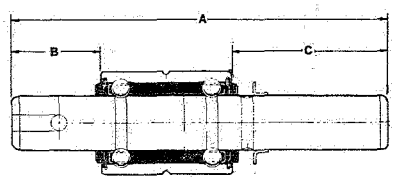
CLUTCH RELEASE BEARING AND ASSEMBLIES—Cont'd

	ID	OD	Thickness	Features	Brg. Used
CT170	.875	1.656	.625	G, SD	
CT173	2.000	3.687	.750	BO, Z	
CT182		Assembly			**CT24A**
CT189		Assembly			**CT97**
CT191		Assembly			
CT192		Assembly			**CT989**
CT197	2.1355	3.562	.750	BO	
CT381	1.125	2.5625	.750	BO	
CT477	2.250	3.500	.90625	AC, H	
CT524	2.125	3.375	.750	BO	
CT524S		Assembly			**CT524**
CT590	2.250	3.625	.750	BO	
CT669S		Assembly			**CT44**
CT700	2.630	3.564	.5812	BO	
CT763S1		Assembly			**CT34**
CT763S2		Assembly			**CT34**
CT763S5		Assembly			**CT34**
CT773	2.375	3.4375	.750	BO	
CT774	2.0625	3.375	.8125	BO	
CT785	1.010	2.5937	.625	AC, H	
CT785S		Assembly			**CT785**
CT838	1.875	3.2187	.8125	SBO	
CT841S		Assembly			**CT97**
CT841S2		Assembly			**CT97**
CT841S3		Assembly			**CT97**
CT848	1.750	3.0625	.698	BO	
CT848S		Assembly			**CT848**
CT848S1		Assembly			**CT848**
CT852	1.562	3.062	.671	BO	
CT852S		Assembly			**CT852**
CT865S		Assembly			**CT97**
CT865S1		Assembly			**CT97**
CT865S2		Assembly			**CT97**
CT865S5		Assembly			**CT97**
CT865S6		Assembly			**CT97**
CT866S		Assembly			**CT97**
CT872	2.000	3.188	.750	AC, SBO	
CT873S		Assembly			**CT995**
CT873S1		Assembly			**CT995**
CT873S2		Assembly			**CT895**
CT873S3		Assembly			**CT995**
CT874S		Assembly			**CT24A**
CT874S1		Assembly			**CT24A**
CT874S2		Assembly			**CT24A**
CT874S3		Assembly			**CT24A**
CT878	2.2812	3.500	.9062	AC, H	
CT882	1.7187	3.0625	.750	SBO	
CT882S		Assembly			**CT882**
CT886	2.2812	3.500	.875	SBO	
CT894S3		Assembly			**CT48**
CT894S4		Assembly			**CT48**
CT901S		Assembly			**CT24A**
CT905		Assembly			**CT24A**
CT915	1.691	2.8125	.6875	SBO	
CT915S		Assembly			**CT915**
CT915S1		Assembly			**CT915**
CT918	1.5212	3.010	.844	BO	
CT919S		Assembly			**CT24B**
CT920		Assembly			**CT24A**
CT927S		Assembly			**CT24A**
CT930		Assembly			**CT848**
CT934	.441	1.0937	1.0312	SBO	
CT947S		Assembly			**CT97**
CT949	1.6873	2.749	.875	G	
CT953S1		Assembly			**CT51**
CT953S2		Assembly			**CT51**
CT954	4.3307	5.817	.984	BO, BR	
CT955	1.496	4.500	.866	BO, BR	
CT956	3.7402	5.3906	.984	BO, BR	
CT958		Assembly			**CT24A**
CT971	2.750	4.060	1.010	SBO	
CT971S2		Assembly			**CT971**
CT978	2.7495	4.500	.870	BO, GN	
CT978S		Assembly			**CT978**
CT979	1.751	3.125	.744	BO, GN	
CT979S1		Assembly			**CT979**
CT983S		Assembly			**CT48**
CT984	1.4460	2.594	.766	BO, FCB	
CT988S1		Assembly			**CT97**
CT988S2		Assembly			**CT97**
CT988S3		Assembly			**CT97**
CT988S4		Assembly			**CT97**
CT988S5		Assembly			**CT97**
CT989	1.6250	3.125	.744	BO	
CT989S		Assembly			**CT989**
CT989S1		Assembly			**CT989**
CT989S2		Assembly			**CT989**
CT989S3		Assembly			**CT989**
CT989S5		Assembly			**CT989**
CT989S6		Assembly			**CT989**
CT995	1.8750	3.281	.807	BO, GN	
900545		Assembly			

For more detailed information refer to Catalog 2A101

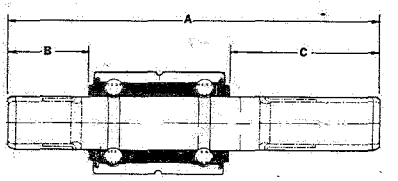
INTEGRAL SHAFT FAN AND WATER PUMP BEARINGS

885100



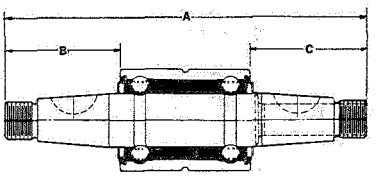
Radial Load Rating @ 1000 RPM for each row of balls = 230 lbs.

885800



Radial Load Rating at 1000 RPM for each row of balls = 445 lbs.

885900



Radial Load Rating @ 1000 RPM for each row of ball—655 lbs.

INTEGRAL SHAFT FAN AND WATER PUMP BEARINGS—Cont'd

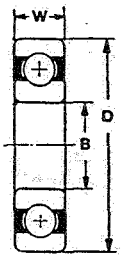
The tabulation below classifies Fan and Water Pump bearings having specialties such as snap ring groove, soft shaft ends, threads, keyways, and flats. Bearings are arranged according to series and overall shaft length (A). Dimensions B and C (short and long shaft end respectively) are listed for reference.

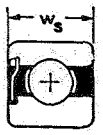
The purpose of this index is to facilitate locating bearings with common specialties. Bearings containing more than one specialty are listed in several places depending on which specialties they possess. The shaft dimensions shown are for basic reference only **and for complete bearing dimensions and supplementary data, consult your supplier.**

Bearing Size	Shaft Length Overall (A)	Short End (B)	Long End (C)
Keyway on Shaft			
885140AB	4.062	.922	1.609*
885140F	4.062	.922*	1.609*
885140U	4.062	.922*	1.609
885193	4.125	1.157*	1.437
885158K	5.406	1.250*	2.625
885158U	5.406	1.250*	2.625
885191A	5.565	1.500	2.534*
885119	5.969	.938	3.500*
885119A	5.969	.938	3.500*
885809A	3.875	.875*	.875*
885822	3.875	.406	1.344*
885800H	4.750	.875*	1.750*
885819	5.312	1.187*	2.000*
885828	5.425	1.650*	1.650*
885802A	5.750	1.750*	1.875*
885802C	6.312	1.188*	2.999*
885900A	6.990	2.120*	2.120*
885900	7.015	2.105*	2.160
Snap Ring Groove on Shaft			
885123	3.562	.200	1.831*
885123A	3.562	.200	1.831*
885129D	3.594	.782*	1.281*
885112B	3.797	.852*	1.414
885193	4.125	1.157*	1.437
885102	4.406	1.063*	1.812
885102A	4.406	1.063*	1.812
885102B	4.406	1.063*	1.812
885103B	4.656	.578*	2.547*
885101	4.900	1.300*	2.069
885101A	4.900	1.300*	2.069
885132	5.594	1.704	2.359*
885144ES	5.625	1.578*	2.516
885119B	5.844	2.078	2.235*
885119	5.969	.938	3.500*
885119A	5.969	.938	3.500*
885131	6.953	2.687*	2.735
885822	3.875	.406	1.344*
885900C	6.400	1.640	2.010
Shaft Ends Left Soft			
885143A	2.656	.531	.594
885124	2.750	.469	.750
885154A	2.891	.157**	1.203
885143B	2.970	.499	.940
885165A	3.250	1.57	1.562
885123A	3.562	.200**	1.831
885129D	3.594	.782	1.281
885197	3.734	.594	1.609
885127	3.781	1.000	1.250
885110A	3.844	.750	1.563
885130	3.921	1.015	1.375
885147J	4.032	.871	1.630
885147P	4.032	.871	1.630
885140AB	4.062	.922	1.609
885140F	4.062	.922	1.609
885140U	4.062	.922	1.609
885193	4.125	1.157	1.437
885106B	4.170	.159	2.480
885107A	4.310	1.279	1.500
885147H	4.344	1.183	1.630
885167E	4.390	.934	1.925
885102C	4.412	1.129	1.752
885155C	4.453	1.250	1.672
885146	4.516	.157	2.828
885146B	4.516	.157**	2.828
885146C	4.531	.968	2.032
885103B	4.656	.578	2.547
885137	4.672	1.141	2.000
885118B	4.688	.968	2.189
885135B	4.734	1.594	1.609
885135D	4.745	1.485	1.729
885141H	5.031	1.016	2.484
885151D	5.031	1.750	1.750
885134S	5.050	1.249**	2.270
885161A	5.140	1.312	2.297
885205	5.195	1.250	2.414
885158D	5.438	1.610	2.297
885158J	5.438	1.610	2.297
885126	5.531	1.437	2.563
885191A	5.565	1.500	2.534
885144A	5.625	1.578	2.516
885119A	5.969	.938	3.500
885119C	5.969	.938	3.500
885131	6.953	2.687	2.735
885195A	6.969	2.300	3.138
885800F	4.300	.140**	2.035
885800H	4.750	.875	1.750
885819	5.312	1.187	2.000
885819A	5.312	1.187	2.000
885828	5.425	1.650	1.650
885802A	5.750	1.750	1.875
885802S	5.750	1.750	1.875**
885801A	5.870	1.640	2.105
885801B	5.870	1.640	2.105
885801E	5.870	1.640	2.105
885802E	5.875	1.750	2.000
885807R	6.040	1.800	2.115
885813	6.125	.968	3.032
885802C	6.312	1.188	2.999
885820	6.625	2.000	2.500
885816	7.125	2.500	2.500
885816A	7.125	.125	4.875
885900A	6.990	2.120	2.120
885900	7.015	2.105	2.160
885901	8.625	.125	5.750
Flats on Shaft			
885124	2.750	.469*	.750
885127	3.781	1.000*	1.250*
885112A	3.812	.922*	1.359
885128	3.906	.656*	1.719
885130	3.921	1.015*	1.375
885147J	4.320	.871*	1.630*
885107	4.312	.578	2.203*
885147E	4.344	1.183	1.630*
885155D	4.453	1.250*	1.672*
885137	4.672	1.141*	2.000
885135B	4.734	1.594	1.609*
885135D	4.745	1.485*	1.729
885108	4.828	1.578*	1.719
885126	5.531	1.437	2.563*
885132	5.594	1.704*	2.359
885119	5.969	.938*	3.500
885119A	5.969	.938*	3.500
885138	6.344	1.517*	3.296*
885131	6.953	2.687	2.735*
885822	3.875	.406*	1.344
885801A	5.870	1.640*	2.105*
885816	7.125	2.500*	2.500*
885816A	7.125	.125	4.875*
Threads on Shaft End			
885124	2.750	.469	.750*
885129D	3.594	.782	1.281*
885128	3.906	.656	1.719*
885130	3.921	1.015	1.375*
885146	4.516	.157	2.828*
885135B	4.734	1.594*	1.609
885135D	4.745	1.485	1.729*
885108	4.828	1.578	1.719*
885158K	5.406	1.250	2.625*
885158U	5.406	1.250	2.625*
885191A	5.565	1.500*	2.534
885132	5.594	1.704	2.359*
885138	6.344	1.517	3.296*
885131	6.953	2.687*	2.735
885195	6.969	2.300*	3.138
885828	5.425	1.650*	1.650*
885802A	5.750	1.750	1.875*
885802C	6.312	1.188	2.999*
885900A	6.990	2.120*	2.120*
885900	7.015	2.105*	2.160

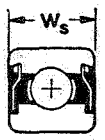
* Shaft end containing feature ** Shaft ends hardened

INSTRUMENT BEARINGS





One Shield



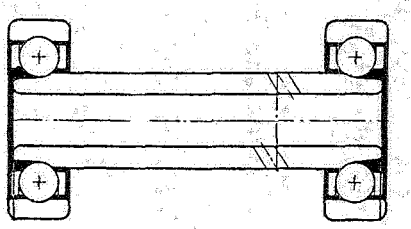
Two Shields

STAINLESS STEEL
MINIATURE INCH SERIES

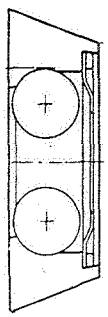
INCH AND METRIC SERIES

Illustrations not necessarily descriptive of separator type.

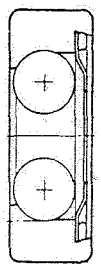
Miniature Series.....M0310 to 77NM2032
Metric & Inch Series—Low Torque.....34D to 38U—R2 to R6DD
Gimbal Bearings.....34G to 34GA
Gyro Rotor Bearing.....Q34BA
Coil Spring Separator–Open Wound.....SR2 to SR6DD
–Close Wound.....CSR3D to CS38F
Flanged OR Tapered OD.....NR3HA to NR5H



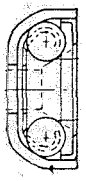
Gyro Rotor Bearings & Shaft Assemblies.....QR1½B to Q3200B



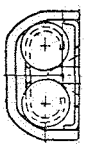
Pivot Bearing 0105A
5 — 5/32" balls



Pivot Bearing 0104A
5 — 5/32" balls



Pivot Bearing PF4
6 — 1 mm. balls



Pivot Bearing C270
3 — 1 mm. balls

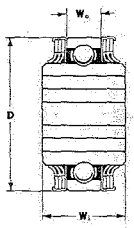
Pivot Bearings

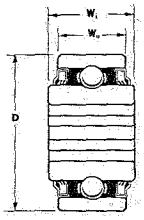
Pivot Bearing 0105A **Pivot Bearing 0104A** **Pivot Bearing PF4** **Pivot Bearing C270**

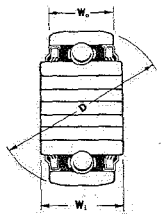
*Availability limited to manufactured stock.

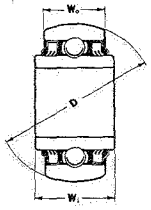
CONSULT SUPPLIER FOR AVAILABILITY

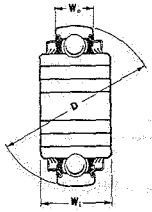
Bearings extensively used on
AGRICULTURAL EQUIPMENT
HEAVY DUTY DISC HARROW BEARINGS


TYPE I*


TYPE II


TYPE III


TYPE IV

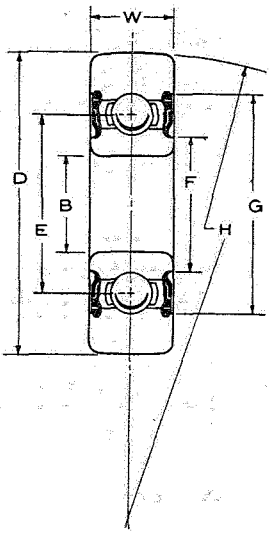

TYPE V

CYLINDRICAL OD		SPHERICAL OD								
Round Bore	Square Bore	Round Bore	Square Bore	Type	Shaft Size	OD	W_I Ring Inner	W_O Width Outer	Flange No.	Radial Load @ 100 RPM
		AS4508FO	AS4508FC	III	7/8	3 7/16	1 7/16	1 3/16	FL87	2850
	AS4508FF			V	7/8	3.1496	1.438	.703	—	2850
AS4508FH				II	7/8	3.150	1.438	1.888	—	2850
	AS4508A			I	1	3.149	1 11/16	.7087	—	2850
	AS4508AD		AS4508BE	II, IV	1	3.149	1 7/16	1 3/16	FL80	2850
			AS4508AC	III	1	3 7/16	1 7/16	1 3/16	FL87	2850
	AS4508BD		AS4508EF	II, IV	1 1/8	3.149	1 7/16	1 3/16	FL80	2850
	AS4508BH		AS4508BJ	V	1 1/8	3.149	1 7/16	.7087	FL80	2850
	AS4508B			I	1 1/8	3.149	1 11/16	.7087	—	2850
			AS4508BC	III	1 1/8	3 7/16	1 7/16	1 3/16	FL87	2850
			AS4508HC same as **AS4508BC** except .05 smaller bore tolerance.							
	AS4510B			II	1 1/8	3.543	1 3/16	1 3/16	—	3250
	RAS4510B			(Same as **AS4510B** with lube holes).					—	3250
	AS4509AD		AS4509A	II, IV	1 1/4	3.346	1 7/16	1 3/16	FL85	3050
			AS4509AC	III	1 1/4	3 7/16	1 7/16	1 3/16	FL87	3050
AS4508ED				II	1 1/2	3.150	1 7/16	1 3/16	—	2850
			AS4509B	III	1 1/2	3.438	1.188	1.188	FL87	3050
	AS4511AE			II	1 1/2	4.000	1.750	1.438	—	4000
	AS4511BD			II	1 1/2	3 15/16	1 5/16	1 5/16	—	4000
		AS4509BD		IV	1 1/2	3.346	1 3/16	1 3/16	FL85	3050
		AS4508EC		II	1 1/2	3 7/16	1 7/16	1 3/16	FL87	2850
			AS4511AC	III	1 1/2	4 1/8	1 3/4	1 7/16	—	4000
		AS4509BE		IV	1 3/4	3.346	1 3/16	1 3/16	FL85	3050
		AS4509BC		III	1 3/4	3 7/16	1 7/16	1 3/16	FL87	3050
		AS4510D		IV	1 3/4	3.543	1 3/16	1 3/16	FL90	3250
3210B				I	1 15/16	3.543	1 15/16	.7874	—	3250

Bearings extensively used on Agricultural Equipment—Con't

CF SERIES

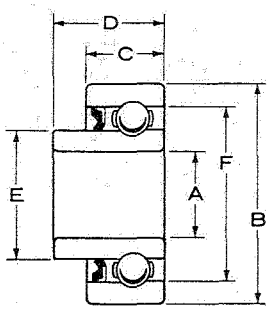
CAM FOLLOWER BEARINGS



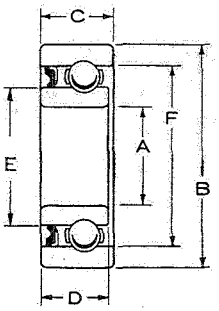
Bearing Number	Mounting Bolt Dia. B	O.D. D	Width W	Crown Radius H	Radial Load @ 1000 RPM*
CF2-108	½	1.500	.433	3.000	290
CF3-200	⅝	2.000	.505	4.000	465

*For load ratings at other speeds see page 62.

HAY RAKE TINE BAR BEARINGS



TYPE II



TYPE III

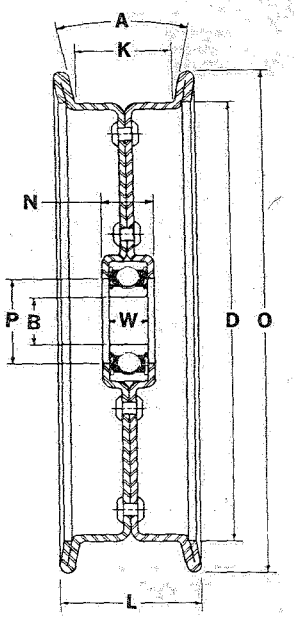
Bearing Number	Type	Bore A	O.D. B	Width O.R. C	Width I.R. D	Inner Ring O.D. E	Radial Load @ 100 RPM*
900537	II	.750	2.047	.700	1.053	1.158	1130
900539	III	.750	2.047	.700	.640	1.158	1130

*For load ratings at other speeds see page 62.

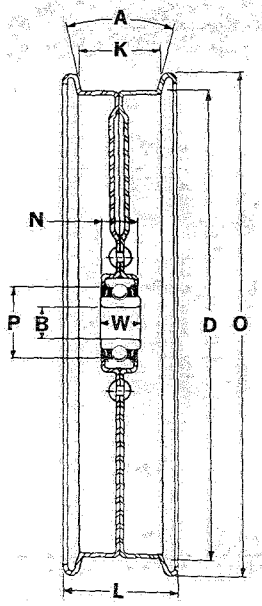
Bearings extensively used on Agricultural Equipment

IDLER UNIT ASSEMBLIES

TYPE PF FLAT BELT PULLEYS

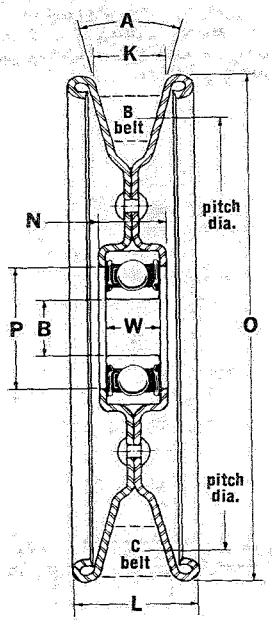


PF2 series

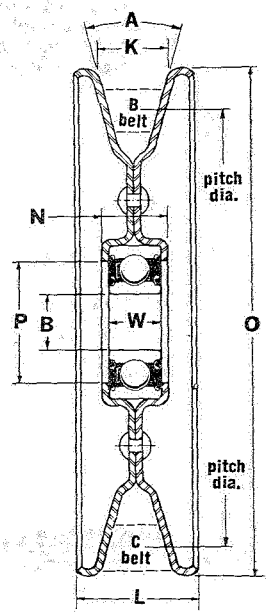


PF3 series

TYPE PV V-BELT PULLEYS



PV2 series



PV3 series

Dimensions and Load Ratings: Type PF

AVAILABLE TYPES AND SIZES unit number	mounting bolt dia. B	effective o.d. D	sheave o.d. O	width N	sheave width L	belt pitch dia. "B" section	belt pitch dia. "C" section	face width K	sheave bore P	inner ring width W	included angle A	radial load rating @ 500 rpm (lbs.)	seal type
PF2-212AB	½	2.75	3.25	.567	1.076	—	—	.700	1.00	.433	20°	345	Crimped In Sentri-Seals
PF2-212	½	2.75	3.25	.567	1.076	—	—	.700	1.00	.433	20°	345	Armor-Gard Seals
PF2-400*	½	4.00	4.63	.567	1.500	—	—	1 1/16	1.00	.433	10°	345	Armor-Gard Seals
PF2-400AC*	⅝	4.00	4.63	.567	1.500	—	—	1 1/16	1.00	.720	10°	345	Sentri-Seals
PF2-500	½	5.00	5.75	.567	1.562	—	—	1 1/16	1.00	.433		345	Sentri-Seals
PF2-400B	½	4.00	4.50	.567	1.375	—	—	1 1/16	1.00	.433		345	Sentri-Seals
PF2-400C	½	4.00	4.63	.567	1.500	—	—	1 1/16	1.00	.720		345	Sentri-Seals
PF3-600	⅝	6.00	6.75	.622	1.590	—	—	1 1/16	1.14	.720		605	Land-Riding Seals
PF3-600AF	½	6.00	6.75	.622	1.590	—	—	1 1/16	1.14	.720		605	Land-Riding Seals
PF3-800*	⅝	8.00	8.75	.592	1.969	—	—	1½	1.14	.720		605	Land-Riding Seals

Dimensions and Load Ratings: Type PV

PV2-404*	½	—	4.875	.567	1.170	4	4¾	.737	1.00	.433	32°	345	Sentri-Seals
PV2-404AC*	⅝	—	4.875	.567	1.170	4	4¾	.737	1.00	.720	32°	345	Sentri-Seals
PV3-612*	½	—	7.312	.622	1.328	6	6¾	.872	1.14	.720	32°	605	Land-Riding Seals
PV3-612AC*	⅝	—	7.312	.622	1.328	6	6¾	.872	1.14	.720	32°	605	Land-Riding Seals

*Have rolled edges.

Bearings extensively used on Agricultural Equipment

Bearings by Bore Size

To assist in selecting a bearing for a particular application, New Departure-Hyatt has prepared the following tables from which ball bearings can be chosen according to bore size. Many of the bearings are also included in other sections of this catalog, however, some appear for the first time. Such bearings were originally designed for non-farm applications, but, since they have farm equipment adaptability, are offered for your consideration.

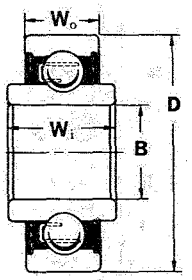


FIG. 1

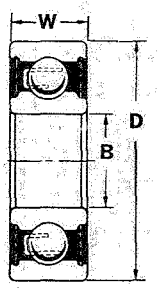


FIG. 2

APPROXIMATELY ½" ROUND BORE BEARINGS

Bearing Number	Bore B	OD D	Ring Width Inner W_I	Ring Width Outer W_O	Closure Type	Radial Load Rating @ 100 RPM (lbs.)
99502AB** Fig. 2	.5006 .4996	1.3750 1.3740	.4381 .4281	.4381 .4281	2 Crimped-in Sentri-Seals	515
9502AB** Fig. 2	.5006 .4996	1.3750 1.3740	.4381 .4281	.4381 .4281	1 Crimped-in Sentri-Seal	515
Z99503AR Fig. 2	.5006 .5000	1.5748 1.5743	.4724 .4674	.4724 .4674	2 Sentri-Seals	905
T99502BA Fig. 2	.5006 .5000	1.3780 1.3775	.4331 .4281	.4331 .4281	2 Armor-Gard Seals	515
T99502U** Fig. 2	.5060 .5000	1.3750 1.3744	.4381 .4281	.4381 .4281	2 Armor-Gard Seals	515
3203AF Fig. 1	.5060 .5000	1.5748 1.5743	.725 .715	.477 .467	2 Armor-Gard L Seals	905
Z99502CF** Fig. 1	.515 .510	1.3750 1.3744	.725 .715	.4381 .4281	2 Sentri-Seals	515
99502J** Fig. 2	.5625 .5615	1.3750 1.3740	.4381 .4281	.4381 .4281	2 Crimped-in Sentri-Seals	515
9502J** Fig. 2	.5625 .5615	1.3750 1.3740	.4381 .4281	.4381 .4281	1 Crimped-in Sentri-Seal	515
Z9109 Fig. 2	.5906 .5901	1.3780 1.3774	.3543 .3493	.3543 .3493	1 Sentri-Seal	515
7109 Fig. 2	.5906 .5901	1.3780 1.3774	.3543 .3493	.3543 .3493	1 Shield	515
7109B Fig. 2	.5906 .5900	1.3780 1.3770	.354 .348	.354 .348	1 Shield	515

**Bearing also available with snap ring by adding 4 prefix to bearing number.

BEARINGS EXTENSIVELY USED ON AGRICULTURAL EQUIPMENT—Cont'd

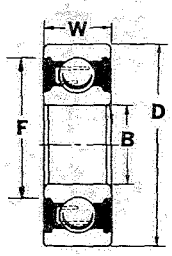


FIG. 3

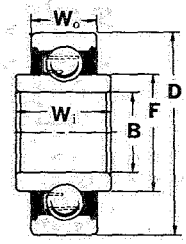


FIG. 4

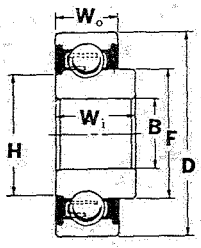


FIG. 5

APPROXIMATELY 5/8" ROUND BORE BEARINGS

Bearing Number	Bore B	OD D	Ring Width Inner Wi	Ring Width Outer Wo	Closure Type	Radial Load Rating @ 100 RPM (lbs.)
99502H**	.6250	1.3750	.4381	.4381	2 Crimped-in Sentri-Seals	515
Fig. 3	.6240	1.3740	.4281	.4281		
9502H**	.6250	1.3750	.4381	.4381	1 Crimped-in Sentri-Seal	515
Fig. 3	.6240	1.3740	.4281	.4281		
7502H**	.6250	1.3750	.4381	.4381	1 Shield	515
Fig. 3	.6240	1.3740	.4281	.4281		
99502BP	.6250	1.389§	.4381	.4381	2 Crimped-in Sentri-Seals	515
Fig. 3	.6240	1.379§	.4281	.4281		
T99502AC**	.6250	1.3750	.4381	.4381	2 Armor-Gard Seals	515
Fig. 3	.6244	1.3744	.4281	.4281		
Z99502AC**	.6250	1.3750	.4381	.4381	2 Sentri-Seals	515
Fig. 3	.6244	1.3744	.4281	.4281		
Z99502AM	.6310	1.3750	.725	.4381	2 Sentri-Seals	515
Fig. 4	.6250	1.3744	.715	.4281		
88503BB	.6310	1.8504	.725	.477	2 Armor-Gard L Seals	827
Fig. 4	.6250	1.8499	.715	.467		
T99503U**	.6310	1.5748	.510	.510	2 Armor-Gard Seals	905
Fig. 3	.6250	1.5743	.500	.500		
3203AC	.6310	1.5748	.725	.477	2 Armor-Gard L Seals	905
Fig. 4	.6250	1.5743	.715	.467		
T99503AD	.6256	1.5748	.4724	.4724	2 Armor-Gard Seals	905
Fig. 3	.6250	1.5743	.4674	.4674		
Z99503AD	.6256	1.5748	.4724	.4724	2 Sentri-Seals	905
Fig. 3	.6250	1.5743	.4674	.4674		
87504A16	.632	1.8504	1.130	.5512	1 Armor-Gard 2L Seal	1130
Fig. 5	.626	1.8499	1.120	.5462		
87504U	.632	1.8504	.6906	.5512	1 Armor-Gard 2L Seal & 1 Shield	1130
Fig. 5	.626	1.8499	.6806	.5462		
3203AE	.6693	1.5748	.654	.477	2 Armor-Gard L Seals	905
Fig. 4	.6687	1.5743	.644	.467		
T99503	.6693	1.5748	.4724	.4724	2 Armor-Gard Seals	905
Fig. 3	.6690	1.5743	.4674	.4674		
88503BC	.6693	1.5748§	.654	.4724	2 Armor-Gard L Seals	905
Fig. 4	.6690	1.5743§	.644	.4674		

§Spherical OD.

**Bearing also available with snap ring by adding 4 prefix to bearing number.

BEARINGS EXTENSIVELY USED ON AGRICULTURAL EQUIPMENT—Cont'd

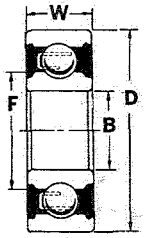


FIG. 3

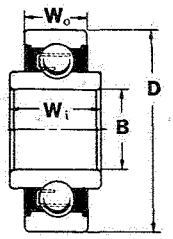


FIG. 4

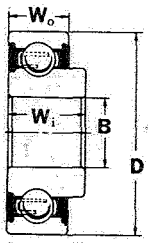


FIG. 5

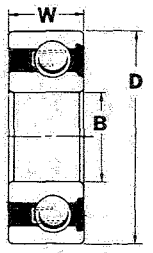


FIG. 6

APPROXIMATELY ¾″ ROUND BORE BEARINGS

Bearing Number	Bore B	OD D	Ring Width Inner W_I	Ring Width Outer W_O	G	Closure Type	Radial Load Rating @ 100 RPM (lbs.)
Z9504B Fig. 6	.7505 .7500	1.7805 1.7800	.615 .605	.615 .605	1.492	1 Land-Riding & 1 Sentri-Seal	1130
Z9504BSY1624Z8 Fig. 6	.7505 .7500	1.7805 1.7800	.615 .605	.615 .605	1.492	1 Land-Riding Seal	1130
Z9504BSY1965Z8 Fig. 6	.7505 .7500	1.7805 1.7800	.615 .605	.615 .605	1.492	1 Low-Torque Land-Riding & 1 Sentri-Seal	1130
D88506BB Fig. 4	.758 .750	2.4409 2.4399	.9499 .9399	.6349 .6249	—	2 Land-Riding Seals 1 with Trash Guard	1810
900537 Fig. 5	.758 .750	2.0472 2.0467	1.058 1.048	.700 .695	1.530	1 Land-Riding Seal	1130
900539 Fig. 6	.756 .750	2.0472 2.0467	.640 .635	.700 .695	1.530	1 Land-Riding Seal	1130
3204AJ Fig. 4	.7874 .7870	1.8504 1.8499	.605 .599	.630 .620	—	1 Land-Riding Seal	1130
T99504 Fig. 3	.7874 .7870	1.8504 1.8499	.5512 .5462	.5512 .5462	—	2 Armor-Gard Seals	1130
T99505 Fig. 3	.9843 .9839	2.0472 2.0467	.5906 .5856	.5906 .5856	—	2 Armor-Gard Seals	1220
T99505BJ Fig. 3	.9843 .9839	2.0472§ 2.0467§	.5906 .5856	.5906 .5856	—	2 Armor-Gard Seals	1220

GREATER THAN 1″ ROUND BORE BEARINGS

Bearing Number	Bore B	OD +.000 −.0005 D	Ring Width Inner W_I	Ring Width Outer W_O	Closure Type	Radial Load Rating @ 100 RPM (lbs.)
88505CH Fig. 8	1.0006 1.0000	2.0472§	1.000*	.5906*	2 Land-Riding Seals with Trash Guards	1220
88505CF Fig. 8	1.0006 1.0000	2.0472	1.000*	.5906*	2 Land-Riding Seals with Trash Guards	1220
88506E Fig. 8	1.1258 1.1250	2.4409§	.9449 .9399	.6299 .6249	2 Land-Riding Seals with Trash Guards	1810
88506BD Fig. 8	1.1258 1.1250	2.4409	.9449 .9399	.6299 .6249	2 Land-Riding Seals with Trash Guards	1810
D88506C Fig. 8	1.1811 1.1807	2.4409	.9449 .9399	.6299 .6249	2 Land-Riding Seals	2130
T99506 Fig. 7	1.1811 1.1807	2.4409	.6299 .6249	.6299 .6249	2 Armor-Gard Seals	1810
Z99506P Fig. 7	1.1811 1.1807	2.4409	.6299 .6249	.6299 .6249	2 Sentri-Seals	1810
Z99506BC Fig. 7	1.1811 1.1807	2.4409§	.6299 .6249	.6299 .6249	2 Sentri-Seals	1810

§Spherical OD.

*Ring width tolerance ± .005.

BEARINGS EXTENSIVELY USED ON AGRICULTURAL EQUIPMENT—Cont'd

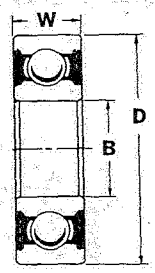


FIG. 7

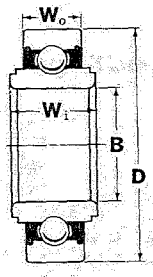


FIG. 8

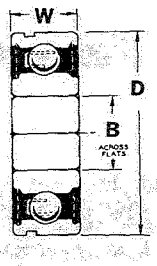


FIG. 9

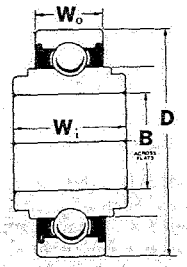


FIG. 10

GREATER THAN 1″ ROUND BORE BEARINGS

Bearing Number	Bore B	OD +.0000 −.0005 D	Ring Width Inner W_I	Ring Width Outer W_O	Closure Type	Radial Load Rating @ 100 RPM (lbs.)
D8506AP Fig. 8	1.1811 1.1807	2.4409	.9449 .9399	.6299 .6249	1 Land-Riding Seal with Trash Guard	1810
X88107F Fig. 8	1.2500 1.2495	2.8346§	.9843 .9793	.6693 .6643	2 Armor-Gard L Seals	2480
X88107B Fig. 8	1.3780 1.3775	2.8346	.9843 .9793	.6693 .6643	2 Land-Riding Seals	2480
X88107H Fig. 8	1.3780 1.3775	2.8346	.9843 .9793	.6693 .6643	2 Armor-Gard L Seats	2480
88107C Fig. 8	1.3780 1.3775	2.8346	.9843 .9793	.6693 .6643	2 Land-Riding Seals	2480
88107E Fig. 8	1.3780 1.3775	2.8346	.9843 .9793	.6693 .6643	2 Armor-Gard L Seals	2480
T99507 Fig. 7	1.3780 1.3775	2.8346	.6693 .6643	.6693 .6643	2 Armor-Gard Seals	2830
T99507AR Fig. 7	1.3780 1.3775	2.8346§	.6693 .6643	.6693 .6643	2 Armor-Gard Seals	2480
88128 Fig. 8	1.5312 1.5307	3.1496	1.0830 1.0780	.8286 .8218	2 Felt Seals	3150
T99508 Fig. 7	1.5748 1.5743	3.1496	.7087 .7037	.7087 .7037	2 Armor-Gard Seals	2830

HEXAGONAL BORE BEARINGS

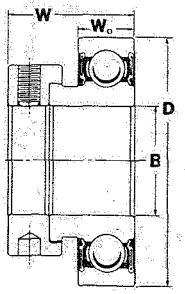
Bearing Number	Bore B	OD +.0000 −.0005 D	Ring Width Inner W_I	Ring Width Outer W_O	Closure Type	Radial Load Rating @ 100 RPM (lbs.)
T992502AU Fig. 9	.568 .563	1.3750†	.4381 .4281	.4381 .4281	2 Armor-Gard Seals	515
88120C Fig. 10	.697 .692	1.8504	.8200 .8150	.5512 .5452	2 Armor-Gard 2L Seals	1130
3205BA Fig. 10	.881 .876	2.0472	1.0050 .9950	.5956 .5856	2 Land-Riding Seals with Trash Guards	1220
3205BC Fig. 10	.881 .876	2.0472§	1.0050 .9950	.5956 .5856	2 Land-Riding Seals with Trash Guards	1220
88506H Fig. 10	1.005 1.000	2.4409§	.9449 .9399	.6299 .6249	2 Land-Riding Seals with Trash Guards	1810
88506CF Fig. 10	Same as **88506H** except with two relube holes in outer ring.					1810
88506J Fig. 10	1.005 1.000	2.4409	.9449 .9399	.6299 .6249	2 Land-Riding Seals with Trash Guards	1810

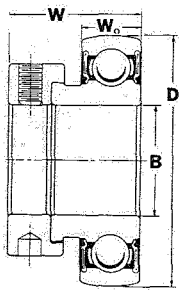
§Spherical OD.
†OD tolerance is +.0000, −.0006

BEARINGS EXTENSIVELY USED ON AGRICULTURAL EQUIPMENT—Cont'd

Adapter Bearings

New Departure adapter bearings make it possible to use a prelubricated efficiently sealed, precision ball bearing directly on commercial steel shafting without machining the bearing seat. They are designed for installations where loads and speeds are moderate and concentricity requirements are not too rigorous.





Type Z99AE

Type TE

Type TA Dimensions**

Type ZA Dimensions**

Cylindical O.D. **Spherical O.D.**

AVAILABLE SIZES									
Old No.	New No. ‡Spherical OD Bearing No.	Collar No.	Shaft Dia. B	Spherical or Cylindrical D		W	Wo	Radial Load 1000 RPM	* Stamped Flange No.
				mm	in.				
TE008	**TA008**	**E008**	1/2	40	1.5748	1 1/8	.5118	510	FL40
TE009	**TA009**	**E009**	9/16	40	1.5748	1 1/8	.5118	510	FL40
TE010	**TA010**	**E010**	5/8	40	1.5748	1 1/8	.5118	510	FL40
TE011	**TA011**	**E011**	11/16	40	1.5748	1 1/8	.5118	510	FL40
TE012	**TA012**	**E012**	3/4	47	1.8504	1 7/32	.5906	635	FL47
TE013	**TA013•**	**E013**	13/16	52	2.0472	1 7/32	.5906	690	FL52
TE014	**TA014•**	**E014**	7/8	52	2.0472	1 7/32	.5906	690	FL52
TE015	**TA015•**	**E015**	15/16	52	2.0472	1 7/32	.5906	690	FL52
TE100	**TA100•**	**E100**	1	52	2.0472	1 7/32	.5906	690	FL52
TE101	**TA101•**	**E101**	1 1/16	62	2.4409	1 13/32	.7087	1020	FL62
TE102	**TA102•**	**E102**	1 1/8	62	2.4409	1 13/32	.7087	1020	FL62
TE103	**TA103•**	**E103**	1 3/16	62	2.4409	1 13/32	.7087	1020	FL62
TE104B	**TA104B•**	**E104B**	1 1/4	62	2.4409	1 13/32	.7087	1020	FL62
TE104	**TA104•**	**E104**	1 1/4	72	2.8346	1 17/32	.7480	1390	FL72
TE105	**TA105•**	**E105**	1 5/16	72	2.8346	1 17/32	.7480	1390	FL72
TE106	**TA106•**	**E106**	1 3/8	72	2.8346	1 17/32	.7480	1390	FL72
TE107	**TA107•**	**E107**	1 7/16	72	2.8346	1 17/32	.7480	1390	FL72
TE108	**TA108•**	**E108**	1 1/2	80	3.1496	1 11/16	.8661	1590	FL80
TE109	**TA109•**	**E109**	1 9/16	80	3.1496	1 11/16	.8661	1590	FL80
Z99AE110	**ZA110**	**E110**	1 5/8	85	3.3465	1 23/32	.8661	1710	FL85
Z99AE111	**ZA111**	**E111**	1 11/16	85	3.3465	1 23/32	.8661	1710	FL85
Z99AE112	**ZA112**	**E112**	1 3/4	85	3.3465	1 23/32	.8661	1710	FL85
Z99AE113	**ZA113**	**E113**	1 13/16	90	3.5433	1 23/32	.8661	1820	FL90
Z99AE114	**ZA114**	**E114**	1 7/8	90	3.5433	1 23/32	.8661	1820	FL90
Z99AE115	**ZA115**	**E115**	1 15/16	90	3.5433	1 23/32	.8661	1820	FL90
	ZA200A	**E200A**	2	90	3.5433	1 23/32	.8661	1820	—
Z99AE200	**ZA200**	**E200**	2	100	3.9370	1 29/32	.9449	2250	FL100
Z99AE201	**ZA201**	**E201**	2 1/16	100	3.9370	1 29/32	.9449	2250	FL100
Z99AE202	**ZA202**	**E202**	2 1/8	100	3.9370	1 29/32	.9449	2250	FL100
Z99AE203	**ZA203**	**E203**	2 3/16	100	3.9370	1 29/32	.9449	2250	FL100
Z99AE204	**ZA204**	**E204**	2 1/4	110	4.3307	1 15/16	.8661	2550	—
Z99AE205	**ZA205**	**E205**	2 5/16	110	4.3307	1 15/16	.8661	2550	—
Z99AE206	**ZA206**	**E206**	2 3/8	110	4.3307	1 15/16	.8661	2550	—
Z99AE207	**ZA207**	**E207**	2 7/16	110	4.3307	1 15/16	.8661	2550	—

‡The numbers shown are for specifying a bearing with a locking collar and spherical OD. To specify a bearing with a cylindrical OD, add the suffix "C" to the bearing number (consult for availability): To specify a bearing without a locking collar, add the prefix "LC" to the bearing number.

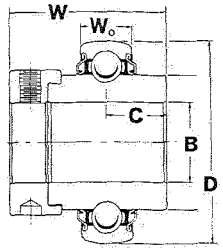
*See page 32 for flange details.

•Indicates available with relube feature, specify R prefix.

**Current industry standard widths, wider than Z99AE and TE Series.

BEARINGS EXTENSIVELY USED ON AGRICULTURAL EQUIPMENT—Cont'd

ADAPTER BEARINGS—Cont'd



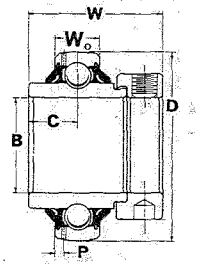
‡Cross section shows spherical O.D. which is standard. Also available with cylindrical O.D. —see note below.

TYPE WE DIMENSIONS

AVAILABLE SIZES		Shaft Dia. B	Spherical or Cylindrical D		W	Wo	C	* Stamped Flange No.
‡Spherical OD Bearing No.	Collar No.		mm	in.				
WE012	**E012**	3/4	47	1.8504	1 23/32	.5512	.672	FL47
WE014	**E014**	7/8	52	2.0472	1 3/4	.5906	.688	FL52
WE100	**E100**	1	52	2.0472	1 3/4	.5906	.688	FL52
WE101	**E101**	1 1/16	62	2.4409	1 29/32	.6299	.719	FL62
WE102	**E102**	1 1/8	62	2.4409	1 29/32	.6299	.719	FL62
WE103	**E103**	1 3/16	62	2.4409	1 29/32	.6299	.719	FL62
WE104B	**E104B**	1 1/4	62	2.4409	1 29/32	.6299	.719	FL62
WE104	**E104**	1 1/4	72	2.8346	2 1/64	.6693	.742	FL72
WE106	**E106**	1 3/8	72	2.8346	2 1/64	.6693	.742	FL72
WE107	**E107**	1 7/16	72	2.8346	2 1/64	.6693	.742	FL72
WE108	**E108**	1 1/2	80	3.1496	2 7/32	.7087	.844	FL80
WE110	**E110**	1 5/8	85	3.3465	2 7/32	.7480	.844	FL85
WE112	**E112**	1 3/4	85	3.3465	2 7/32	.7480	.844	FL85

‡The numbers shown are for specifying a bearing with a locking collar and spherical OD To specify a bearing with a cylindrical OD, add the suffix "C" to the bearing number (consult for availability): To specify a bearing without a locking collar, add the prefix "LC" to the bearing number.

*See page 32 for flange details.



‡Cross section shows spherical O.D. which is standard. Also available with cylindrical O.D. —see note below.

RELUBE ADAPTER BEARINGS

TYPE RWA DIMENSIONS

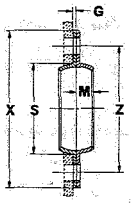
AVAILABLE SIZES		Shaft Dia. B	Spherical or Cylindrical D		W	Wo	C	P	* Stamped Flange Numbers	
Spherical OD Bearing No.	Collar No.		mm	in.					Fitting Half	Plain Half
RWA014	**E014**	7/8	52	2.0472	1 3/4	.5906	.688	.132	RFL52C	RFL52D
RWA100	**E100**	1	52	2.0472	1 3/4	.5906	.688	.132	RFL52C	RFL52D
RWA101	**E101**	1 1/16	62	2.4409	1 29/32	.7087	.719	.156	RFL62C	RFL62D
RWA102	**E102**	1 1/8	62	2.4409	1 29/32	.7087	.719	.156	RFL62C	RFL62D
RWA103	**E103**	1 3/16	62	2.4409	1 29/32	.7087	.719	.156	RFL62C	RFL62D
RWA104B	**E104B**	1 1/4	62	2.4409	1 29/32	.7087	.719	.156	RFL62C	RFL62D
RWA104	**E104**	1 1/4	72	2.8346	2 1/64	.7480	.742	.157	RFL72C	RFL72D
RWA106	**E106**	1 3/8	72	2.8346	2 1/64	.7480	.742	.157	RFL72C	RFL72D
RWA107	**E107**	1 7/16	72	2.8346	2 1/64	.7480	.742	.157	RFL72C	RFL72D
RWA108	**E108**	1 1/2	80	3.1496	2 7/32	.8268	.844	.178	RFL80C	RFL80D
RWA112	**E112**	1 3/4	85	3.3465	2 7/32	.8661	.844	.180	RFL85C	RFL85D

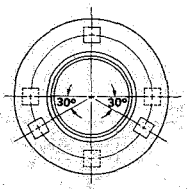
‡The numbers shown are for specifying a bearing with a locking collar and spheridal OD. To specify a bearing with a cylindrical OD, add the suffic "C" to the bearing number (consult for availability): To specify a bearing without a locking collar, add the prefix "LC" to the bearing number.

*See page 32 for flange details.

BEARINGS EXTENSIVELY USED ON AGRICULTURAL EQUIPMENT—Cont'd

Stamped Flanges





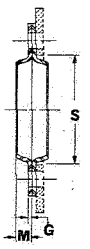
STANDARD NON-RELUBE TYPE DIMENSIONS AND LOAD RATINGS

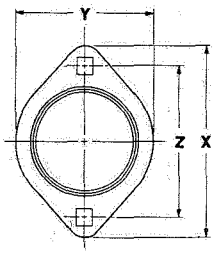
* Stamped Flange No.	G	X	Z	Mounting Holes (square)		M	S	Stamped Flange Limiting Radial Load Rating (lbs.)
				No.	Size			
FL40	.075	3 3/16	2 1/2	3	9/32	9/32	1 7/8	600
FL47	.083	3 9/16	2 13/16	3	11/32	5/16	2 3/16	700
FL52	.083	3 3/4	3	3	11/32	11/32	2 3/8	800
FL62	.104	4 7/16	3 9/16	3	13/32	11/32	2 13/16	1100
FL72	.104	4 13/16	3 15/16	3	13/32	3/8	3 3/16	1400
FL80	.134	5 13/16	4 11/16	4	17/32	13/32	3 9/16	1700
FL85	.134	5 7/8	4 3/4	4	17/32	7/16	3 13/16	1700
FL87**	.134	5 3/4	4 5/8 to 4 3/4	4	17/32 x 37/64	21/32	3 7/8	1800
FL90	.149	6 1/8	5	4	17/32	7/16	4	1900
FL100	.149	6 9/16	5 7/16	4	17/32	15/32	4 7/16	2300

SPECIAL FLANGES

FL47A	.083	3 9/16	2 13/16	None	—	5/16	2 3/16	700
FL52A	.083	3 3/4	3	None	—	11/32	2 3/8	800
FL62A	.104	4 7/16	3 9/16	None	—	11/32	2 13/16	1100
FL72B	.134	4 13/16	3 15/16	3	13/32	3/8	3 3/16	1400
FL80A	.134	5 13/16	4 11/16	None	—	13/32	3 9/16	1700
FL85A	.134	5 7/8	4 3/4	None	—	7/16	3 13/16	1700
FL87B**	.149	5 3/4	4 5/8 to 4 3/4	4	17/32 x 37/64	21/32	3 7/8	1800

*Order two flanges per bearing.
**Holes in FL87 and FL87B are rectangular.





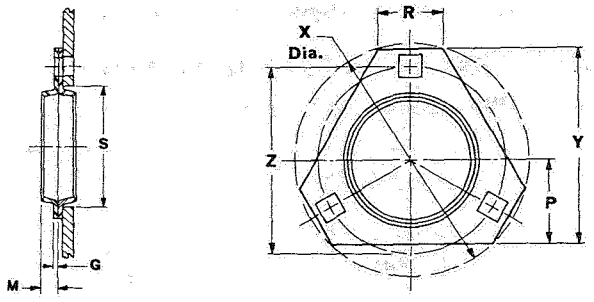
TWO-HOLE NON-RELUBE TYPE DIMENSIONS AND LOAD RATINGS

* Stamped Flange Number	G	X	Z	Mounting Holes (square)		M	S	Y	Stamped Flange Limiting Radial Load Rating (lbs.)
				No.	Size				
FL40-2	.075	3 3/16	2 1/2	2	9/32	9/32	1 7/8	2 5/16	600
FL47-2	.083	3 9/16	2 13/16	2	11/32	5/16	2 3/16	2 5/8	700
FL52-2	.083	3 3/4	3	2	11/32	11/32	2 3/8	2 51/64	800

*Order two flanges per bearing.

BEARINGS EXTENSIVELY USED ON AGRICULTURAL EQUIPMENT—Cont'd

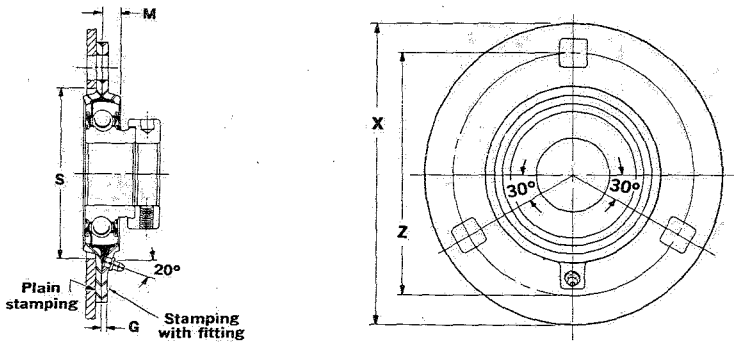
STAMPED FLANGES—Cont'd



TRIANGULAR NON-RELUBE TYPE DIMENSIONS AND LOAD RATINGS

* Stamped Flange Number	G	X	Z	Mounting Holes (square)		M	S	P	Y	R	Stamped Flange Limiting Radial Load Rating (lbs.)
				No.	Size						
FL62-3	104	4 7/16	3 9/16	3	13/32	11/32	2 13/16	1 1/2	3 11/16	1	1100

*Order two flanges per bearing.



STANDARD RELUBE TYPE DIMENSIONS AND LOAD RATINGS

Flange Numbers for Matching Pair		G	X	Z	Mounting Holes (square)		M	S	Stamped Flange Limiting Radial Load Rating (lbs.)	Type of Fitting (or equivalent)
Stamping with Fitting	Plain Stamping				No.	Size				
RFL52C	**RFL52D**	.083	3 3/4	3	3	11/32	11/32	2 3/8	800	str. (Alemite #3009)
RFL62C	**RFL62D**	.104	4 7/16	3 9/16	3	13/32	3/8	2 13/16	1100	str. (Alemite #3009)
RFL72C	**RFL72D**	.134	4 13/16	3 15/16	3	13/32	7/16	3 3/16	1400	str. (Alemite #3009)
RFL80C	**RFL80D**	.149	5 13/16	4 11/16	4	17/32	5/8	3 9/16	1700	str. (Alemite #3009)

SPECIALS

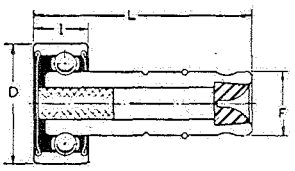
RFL52CA	**RFL52D**	.083	3 3/4	3	3	11/32	11/32	2 3/8	800	angular (Lincoln #700347)
RFL62E	**RFL62F**	.134	4 7/16	3 9/16	3	13/32	3/8	2 13/16	1100	str. (Alemite #3009)
RFL72CA	**RFL72D**	.134	4 13/16	3 15/16	3	13/32	7/16	3 3/16	1400	angular (Lincoln #700347)
RFL80CA	**RFL80D**	.149	5 13/16	4 11/16	4	17/32	5/8	3 9/16	1700	angular (Lincoln #700347)
RFL80H	**RFL80J**	.149	5 13/16	4 11/16	None	—	5/8	3 9/16	1700	angular (Lincoln #700347)

Bearings extensively used in TEXTILE INDUSTRY

(Many Have Other Applications)

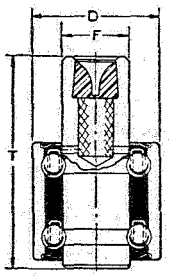
SEAL TYPE—TENSION PULLEY BEARINGS

HORIZONTAL—TYPES TP 15 & 23, 26

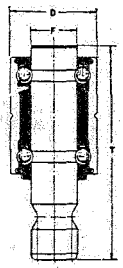


Brg. No.	F	D	I	L
TP-15-500	.6267	1.1811	.551	$2\frac{11}{64}$
TP-23-500	.6267	1.1811	.500	$1\frac{45}{64}$
TP-26	.5490	1.0236	.3150	1.438
Radial load @ 1000 RPM* 270 lbs.				

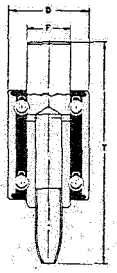
VERTICAL—TYPES TP-17, TP-20 & TP-21



TP-20-500



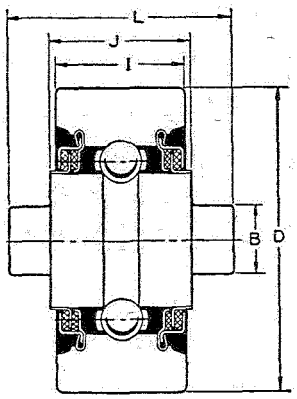
TP-21-500



TP-17-500

Bearing No.	Shaft Diam. F	Bearing OD D	Overall Length T	Outer Race Width
TP-17-500	.6267	1.1811	$3\frac{1}{8}$	1.532
Radial load @ 1000 RPM 460 lbs.				
TP-20-500	.6267	1.1811	$1\frac{59}{64}$	1.062
TP-21-500	.6267	1.1811	$2\frac{13}{16}$	1.530
Radial load @ 1000 RPM* 460 lbs.				

TREADLE ROLL BEARINGS



PRINCIPAL DIMENSIONS

Bearing No.	B	D	L	J	I
TM-11-505	.500	2.062	1.375	.7812	.813
TM-13-505	.520	2.313	2.000	1.093	1.000
TM-14-505	.500	2.313	1.375	.906	.813
TM-15-505	.500	2.313	2.125	1.594	1.500
***TM-17-505**	.500	2.000	1.875	.781	.688
***TM-18-505**	.500	2.062	1.375	.906	.813
***TM-19-505**	.500	2.313	1.375	.906	.815
***TM-20-505**	.520	2.313	2.000	1.094	1.002
***TM-22-505**	.753	2.313	2.500	1.594	1.500
TM-23-505 (Same as TM-14-505 except Adiprene 600t)					
Radial load @ 1000 RPM* 450 lbs.					

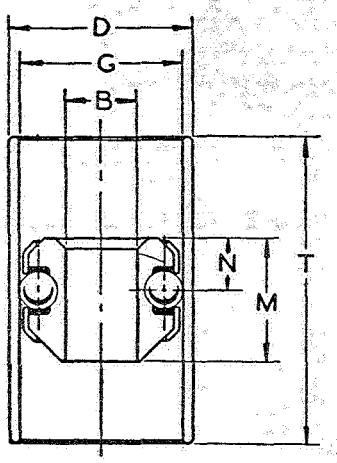
*Land riding seals with trash guards.

TM-11, 13, 14, is interchangeable respectively with old TM numbers 1, 3, 4, 5.

*For load ratings at other speeds see page 62.

Bearings extensively used in Textile Industry—Cont'd

SPINDLE BEARINGS



PRINCIPAL DIMENSIONS

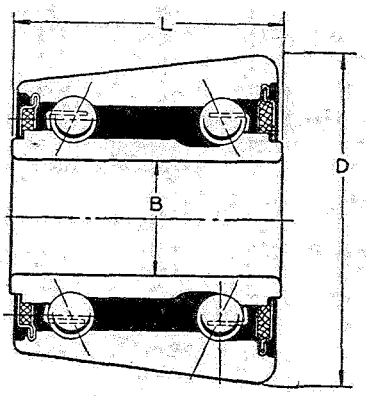
Bearing No.	B	D	G	M	N	T
TS-2	.4724	1.1250	1.012	.625	.313	.625

Radial load @ 1000 RPM* 73 lbs. and 108 lbs. respectively.

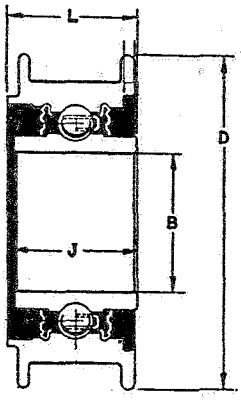
PICK BALL CAM ROLLER

Bearing No.	B	D	L
TC-2-504	.7874	2.250	1.8125

Radial load @ 1000 RPM* 1160 lbs.



TC-2-504



TP-30

SHEAVE BEARING

PRINCIPAL DIMENSIONS

Bearing No.	B	D	L	J
TP-30	1.000	2.375	.922	.875
	M		R	
	.654		2.000	

Radial load @ 1000 RPM* 455 lbs.

*For load ratings at other speeds see page 62.

SPECIAL COMMERCIAL BEARINGS

These specials are only a part of the specials made by New Departure. The list is restricted to those numbers that are most generally available. Standard sizes available with significant prefix and suffix letters are not listed. For the current availability on these and any specials, please check with your supplier.

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
0L00B	.3937	1.0236	.3150	.3150	**0L00**	Stabilized, Snap On I.R.
QJ0L00D	.3937	1.0236	.3150	.3150	**Q0L00**	Snap On I.R.
Q0L00A11	.4150	1.0236	.3150	.3150	**0L00**	Bore
0L01E	.4724	1.1024	.3150	.3150	**0L01**	Customer Completes Brg.
3L00AE	.3937	1.0236	.3150	.2900	**3L00**	O.R. Width
3L00B	.3937	1.0236	.3070	.3050	**3L00**	Spec. X-Corner Control
3L00C	.3937	1.0236	.3150	.3150	**3L00**	Hi-Temp Stabilized
WD3L00AA	.3937	1.0236	.3150	.3150		Stabilized, CEVM Steel
WD3L00CA	.3937	1.0236	.3150	.3150	**WD3L00**	Stabilized
WD3L00D	.3937	1.0236	.3150	.3150	**3L00**	Stabilized, O.R. Controlled
SSWD3L00P	.3937	1.0236	.3150	.3150	**WD3L00**	Stabilized, Teflon Coated—Sep.
WD3L00R	.3937	1.0236	.3150	.3150	**3L00**	Spec. Sep. Coating
WC873L00A	.3937	1.0236	.4530	.4530		Replaces Norma-6010P
JL01A	.4724	1.1024	.3130	.3130	**3L01**	Stabilized, I.R. Snap, Special
Q0L01B	.4724	1.1024	.3150	.3150	**0L01**	Separable I.R.
3L01C	.4724	1.1024	.3150	.3150	**3L01**	Spec. Corner Form
SS3L01F	.4724	1.1024	.3150	.3150	**SS3L01**	Slot On I.R. Face
WD3L01B	.4724	1.1024	.3150	.3150	**3L01**	HI-Temp Stabilized
WD3L01E	.4724	1.1024	.3150	.3150	**WD3L01**	Spec. Corner Form
773L01J	.4724	1.1024	.3150	.3150	**773L01**	Low Cost Features
773L01P	.4724	1.1024	.3150	.3150	**773L01**	Open Curvatures
Z998L01A	.4724	1.1024	.5900	.5900	**3L01**	Stabilized, Cartridge—Brg.
Z998L01R	.4724	1.1024	.5900	.5900	**Z998L01A**	Spec. Curvatures
R2AC	.1250	.5000	.1719	.1719	**R2A**	Ribbon Separator
SSR2AH	.1250	.3750	.1562	.1562	**SSR2**	Use SSR2
77R2BJ	.1250	.3750	.1562	.1562	**77R2**	Ribbon Ear Separator
SS77R2CD	.1250	.3750	.1562	.1562	**SS77R2**	Stabilized 400F
77R2E	.1250	.3750	.1562	.1562	**77R2**	Use 77R2
SS99R2AP	.1250	.3750	.1562	.1562	**SSR2**	Armalon Seals, Ribbon Separator
QJ0L02E	.5906	1.2598	.3543	.3543	**3L02**	Inner Ring Snap, Spec. Sep.
JL02K	.5906	1.2598	.3543	.3543	**J0L02C**	M50 Steel, Stabilized
J0L02C	.5906	1.2598	.3543	.3543		Stabilized, Spec. Sep.
Q0L02B	.5906	1.2598	.3543	.3543	**0L02**	Inner Ring Snap
Q0L02F	.5906	1.2598	.3543	.3543	**0L02**	Inner and Outer Ring Snap
J70L02A	.5906	1.2598	.3543	.3543	**73L02**	Stellite, Full Complement
3L02AE	.5906	1.2598	.3543	.3543	**3L02**	Spec. Bore, O.D. Corners
SS3L02AJ	.5906	1.2598	.3543	.3543	**SS3L02**	Slot on I.R. Face
SS3L02AP	.5906	1.2598	.3543	.3543	**SS3L02**	Plus I.R. Sleeve
3L02J	.5906	1.2598	.3463	.3463	**3L02**	CEVM Steel
3L02Q	.5906	1.2598	.3543	.3543	**3L02**	CEVM Steel
WD3L02AD	.5906	1.2598	.3543	.3543	**WD3L02**	Spec. Corner Radii
WC873L02A	.5906	1.2598	.5000	.5000		Replaces Norma 6015P
Z993L02AE	.5906	1.2598	.3543	.3543	**Z993L02**	Spec. Corner Form
Z993L02AR	.5906	1.2598	.5000	.3543	**Z993L02**	Width
R3A	.2031	.5000	.1562	.1562		Bore
R3AA	.1875	.5000	.1562	.1562	**R3**	HI Temp Stabilized
R3AB	.1875	.5000	.1960	.1960	**R3**	Less than ABEC1 Tolerance
SSR3BB	.1875	.5000	.1562	.1562	**SSR3**	HI Temp Stabilized 350
SSR3BJ	.1875	.5000	.1562	.1562	**SSR3**	HI Temp Stabilized 500

CONSULT SUPPLIER FOR AVAILABILITY.

SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
7R3K	.1875	.5000	.1960	.1960	**7R3**	HI Temp Stabilized 375
77R3AC	.1875	.5000	.1960	.1960	**77R3**	Open Ring Curvatures
77R3AR	.1875	.5000	.1960	.1960	**77R3**	.124 Groove on O.R.—O.D.
RS77R3DAH	.1875	.5000	.1960	.1960	**RS77R3D**	O Ring Groove on O.R.
SS77R3DAP	.1875	.5000	.1960	.1960	**SS77R3AC**	Teflon Coated Separator
77R3K	.1875	.5000	.1960	.1960	**77R3**	Hi Temp Stabilized
SSZ99R3AC	.1875	.5000	.1960	.1960	**R3D**	Viton Seals, Open Curvatures
99R3DAF	.1875	.5000	.1960	.1960	**R3D**	Plastic Seals, Open Curvatures
Q0LL03C	.6693	1.1811	.2756	.2756	**0LL03**	O.R. Controlled Sep.
0L03A	.6693	1.3780	.3937	.3937	**0L03**	Customer Assemblies Rings
Q0L03B	.6693	1.3780	.3937	.3937	**0L03**	Separable I.R.
Q0L03BP	.6693	1.3780	.3937	.3937	**Q0L03B**	Staggard Ball Pockets
Q0L03E	.6693	1.3780	.3937	.3937	**0L03**	Snap on Both Rings
VJL03F	.6693	1.3780	.3937	.3937		M50 Steel, Snap on I.R.
V3LL03	.6693	1.1811	.2756	.2756	**3LL03**	I.R. Controlled Bronze—Sep.
WD3LL03F	.6693	1.1811	.2756	.2756		Stabilized, CEVM Steel
3LL03J	.6693	1.1811	.2756	.2756	**3LL03**	M50 Steel except Silver—Plated Sep.
3LL03K	.6693	1.1811	.2756	.2756		HI Temp Stabilized
993LL03A	.6693	1.1811	.3937	.3937		Width
WD3L03AD	.6693	1.3780	.3937	.3937	**WD3L03**	Spec. Corners
SSWD3L03AP	.6693	1.3780	.3837	.3937	**3L03**	Stabilized, Spec. Sep.
3L03AU	.6693	1.3780	.3837	.3937		CEVM Steel, Spec. Corners
3L03B	.6693	1.3780	.3837	.3857		Spec. X Corner Control
SS3L03BA	.6693	1.3780	.3937	.3937	**SS3L03**	Slot on I.R. Face
V3L03BC	.6693	1.3780	.3937	.3937		Spec. Thru Out
3L03BD	.6693	1.3780	.3937	.3937	**3L03**	Hi Temp Stabilized
3L03C	.6693	1.3780	.3847	.3847	**3L03**	Width, CEVM Steel
3L03F	.6693	1.3780	.3937	.3937	**3L03**	Spec. X Corner Control
SSWD3L03G	.6693	1.3780	.3937	.3937	**3L03**	Stabilized, Spec. Sep.
WD3L03R	.6693	1.3780	.3937	.3937		Stabilized, CEVM Steel
SS73L03BB	.6693	1.3780	.3937	.3937		Stabilized, ½ Hole in Each O.R.
SS73L03U	.6693	1.3780	.3937	.3937	**SS73L03**	CEVM, Spec. Thru Out
Z993L03AA	.7250	1.3780	.3937	.3937	**Z993L03**	Bore, Spec. Bore Corner
SSR4AC	.2500	.7500	.2188	.2188	**SSR4A**	Open Curvature
R4CC	.2500	.6250	.1960	.1960	**R4**	CEVM Steel
R4J	.2500	.6250	.1960	.1960	**R4**	HI Temp Stabilized
SR77R4A	.2500	.7500	.2812	.2812	**77R4A**	S.S. Sep. and Shield
77R4BP	.2600	.6250	.1960	.1960	**77R4**	Bore
77R4CA	.2500	.6250	.1960	.1960	**77R4D**	Shield Notch on I.R.
77R4CJ	.2500	.6250	.2260	.1960	**77R4**	I.R. Width
SSRS77R4DAB	.2500	.6250	.1960	.1960	**SSRS77R4D**	O Ring Groove on O.R.
R77R4E	.2500	.6250	.1960	.1960	**77R4**	Relube Hole in Shield
77R4F	.2500	.6250	.3440	.3440	**77R4**	Width
Z99R4AF	.2500	.8750	.2812	.2812	**Z99R4A**	O.D.
Z995R4B	.2500	.6250	.5620	.5000		2 Seals Double Row
SSZ99R4CD	.2500	.6250	.1960	.1960		HI Temp Stabilized 400F
555R4B	.2500	.6250	.5620	.5000		2 Shields Double Row
555R4C	.2500	.7500	.5620	.5620	**555R4B**	3 Inch Crowned O.D.
H0LL04A	.7874	1.4567	.3543	.4020	**0LL04**	Spec. Material and Design
Q0L04A	.7874	1.6535	.4724	.4724	**Q0L04**	Type D Corner, X Corner Control
Q0L04B	.7874	1.6535	.4724	.4724	**0L04**	Separable I.R.
QH0L04B	.7874	1.6535	.4724	.4724	**Q0L04B**	25 Degree Contact
Q0L04P	.7874	1.6535	.4724	.4724	**0L04**	Snap On Both Rings
V0L04K	.7874	1.6535	.4634	.4514	**V0L04J**	Spec. Material and Design
3LL04C	.7874	1.4567	.3543	.3543	**3LL04**	Iron—Silic—Bronze Sep.
3LL04D	.7874	1.4567	.3543	.3543	**3LL04C**	CEVM Steel
3LL04E	.7874	1.4567	.3543	.3543		Spec. Material and Design

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
SS3LL04F	.7874	1.4567	.3543	.3543	**3LL04E**	Spec. Material and Design
3LL04H	.7874	1.4567	.3543	.3543	**3LL04**	Spec. Material and Design
3LL04J	.7874	1.4567	.3543	.3543	**3LL04H**	Spec. Material and Design
3LL04K	.7874	1.4567	.3543	.3543	**3LL04F**	CEVM—M2 Steel
SSV3L04AC	.7874	1.6535	.4724	.4724	**SS3L04**	Spec. Thru Out
Q3L04C	.7874	1.6535	.4620	.4724	**Q3L04**	Cone Width
3L04D	.7874	1.6535	.4624	.4644	**3L04**	D Corners, X Corner Control
3L04E	.7874	1.6535	.3543	.3543	**3L04**	9MM Width
WD3L04G	.7874	1.6535	.4724	.4724	**3L04**	Stabilized
3L04R	.7874	1.6535	.4724	.4724	**3L04**	Stabilized
SS3L04U	.7874	1.6535	.4724	.4724	**SS3L04**	Stabilized 600F
773L04R	.7874	1.6535	.4724	.4724	**773L04**	Stabilized
Z993L04AB	.7874	1.8500	.4724	.4724	**Z993L04**	Hycar—HI-Temp Seal
Q0L05B	.9843	1.8504	.4724	.4724	**Q0L05**	Separable I.R.
Q0L05BP	.9843	1.8504	.4724	.4724		Staggard Ball Pockets
Q0L05CDT	.9843	1.8504	.4724	.4724	**Q0L05**	Slotter I.R.—O.R. Faces
Q0L05E	.9843	1.8504	.4724	.4724	**Q0L05**	Spec. Corner Radius
Q0L05K	.9843	1.8504	.4724	.4724	**Q0L05**	Spec. Bore Tolerance
V3LL05D	.9843	1.6535	.3543	.3543	**V3LL05A**	Stabilized, Spec. Thru Out
3LL05J	.9843	1.6535	.3543	.3543	**3LL05**	Stabilized
SS3LL05K	.9843	1.6535	.3543	.3543	**3LL05**	M2 Steel
3L05AB	.9843	1.8504	.4724	.4724	**3L05**	Stabilized
3L05AC	.9843	1.8504	.4724	.4724		Stabilized
SS3L05AH	.9843	1.8504	.4724	.4724	**SS3L05**	Stabilized 600F
3L05C	.9843	1.8504	.4724	.4724	**3L05**	Stoned Corners
3L05H	.9843	1.8504	.4724	.4724	**3L05**	Stellite Full Complement
SSWD3L05J	.9843	1.8504	.4724	.4724	**SS3L05**	Stabilized, Spec. Sep.
Z993L05AB	.9843	1.8504	.4724	.4724	**Z993L05**	Stabilized, Low Torque Seals
F6AR	.3750	.8750	.2188	.2188		Cobalt Alloy, Cutaway I.R.
R6AB	.3750	.7500	.2188	.2188		O.D. & Ball Complement
R6AE	.3750	.8750	.2188	.2188	**R6**	Slot in O.R., O.D.
R6F	.3750	.8750	.2188	.2188	**R6**	HI Temp. Stabilized
7R6A	.3750	.8750	.2188	.2188	**7R6**	Sep. Protrudes Open Side
77R6AA	.3750	.8750	.2812	.2812	**77R6**	HI Temp. Stabilized
77R6B	.3750	.8750	.2812	.2812	**77R6**	Keyway in I.R. Face
77R6CE	.3937	.8750	.2812	.2812	**77R6**	Bore & I.R. Corner Radii
77R6P	.3750	.8750	.2812	.2812	**77R6**	CEVM Steel
SSZ99R6BB	.3750	.8750	.2812	.2812	**SSZ99R6**	HI Temp. Stabilized, Open Curvatures
Q0L06B	1.1811	2.1654	.5118	.5118	**0L06**	Separable, Snap On I.R.
Q0L06CDT	1.1811	2.1654	.5118	.5118	**Q0L06**	Faces Slotted, Snap On I.R. O.R.
3L06D	1.1811	2.1654	.5118	.5118	**3L06**	Stabilized
SSQ3L06AR	1.1811	2.1654	.5118	.5118	**3L06**	Split I.R. Gothic Arch
WD3L06AH	1.1811	2.1654	.5118	.5118	**3L06**	Stabilized
773L06D	1.1811	2.1654	.5118	.5118	**773L06**	Stabilized
73L06AP	1.1811	2.1654	.5118	.5118	**73L06**	U Type Sep.
995L06A	1.1811	2.1654	.9062	.9062	**995L06**	Seal Protrudes .040
Q0L07E	1.3780	2.4409	.5512	.5512	**0L07**	Separable I.R., Snap on I.R.
Q0L07F	1.3780	2.4409	.5512	.5512	**0L07**	Snap On I.R. Or, R.P. 0006-9
Q0L07HDT	1.3780	2.4409	.5512	.5512	**Q0L07**	Spec. Bore TOL, and Flushness
SS3LL07B	1.3780	2.1654	.3937	.3937	**3LL07**	Full Complement, Stabilized
SS3L07AA	1.3780	2.4409	.5512	.5512	**SS3L97**	600F Stabilized
WD3L07C	1.3780	2.4409	.5512	.5512	**WD3L07**	Stabilized
3L07H	1.3780	2.4409	.5512	.5512	**3L07**	Spec. Bore Corner
3L07K	1.3780	2.4409	.5512	.5512	**3L07**	Stabilized
73L07C	1.3780	2.4409	.5512	.5512	**73L07**	Stabilized
Z93L07F	1.3780	2.4419	.5522	.5522	**Z93L07**	Cad. Plated
773L07C	1.3780	2.4409	.5512	.5512	**773L07**	Stabilized

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
7F8F	.5000	1.1250	.3125	.3125	**77F8E**	Except—1—Shield
SSRS77F8A	.5000	1.1250	.3125	.3125	**SSRS77R8**	Full Ball Complement
77F8E	.5000	1.1250	.3125	.3125		Cobalt Material, Full Complement
NR8E	.5000	1.2500	.3125	.3125	**R8**	Flange on O.R.
R8F	.5000	1.1250	.2500	.2500	**R8**	Slot in O.R.—O.D.
SSQR8K	.5000	1.1250	.3125	.3125	**SSR8**	One Piece Non Metallic Retainer
SS7R8A	.5000	1.1250	.3125	.3125	**SS7R8**	HI Temp Stabilized
77R8AA	.5000	1.1250	.3075	.3075	**77R8**	Stellite Rings & Balls, Width
77R8AC	.5000	1.1250	.3075	.3075	**77R8AA**	Full Ball Complement
77R8D	.5000	1.1250	.3125	.3125		HI Temp Stabilized
Z99R8D	.5000	1.1250	.3125	.3125	**Z99R8**	HI Temp Stabilized
Q0LL08	1.5748	2.4409	.4724	.4724		I.R. Controlled Sep.
Q0L08BP	1.5748	2.6772	.5906	.5906	**Q0L08B**	Staggard Ball Pocket
Q0L08BDT	1.5748	2.6772	.5906	.5906	**Q0L08**	Separable I.R.
Q3LL08	1.5748	2.4409	.4724	.4724		I.R. Controlled Sep.
Z993LL08B	1.5748	2.4409	.5906	.5906	**3LL08**	Width
SSQ3LL08E	1.5748	2.4409	.4724	.4724	**SS3LL08**	Split I.R., Gothic Arch
3LL08R	1.5748	2.4409	.4724	.4724	**3LL08**	Low Cost Features
3L08D	1.5748	2.6772	.5906	.5906	**3L08**	Stabilized
3L08F	1.5748	2.6772	.5906	.5906	**3L08**	Spec. Bore, O.D. Corners
3L08P	1.5748	2.6772	.5906	.5906	**3L08**	Stabilized 350F
773L08D	1.5748	2.6772	.5609	.5609	**773L08**	Stabilized
Q0L09A	1.7717	2.9528	.6299	.6299	**0L09**	No I.R.
Q0L09B	1.7717	2.9528	.6299	.6299	**0L09**	2-Q0L09A Clamped Together
3L09A	1.7717	2.9528	.6299	.6299		Stabilized
SSQ3L09C	1.7717	2.9528	.6299	.6299	**SS3L09**	Split I.R.
77R10C	.7500	1.3750	.3438	.3438	**77R10**	Bore, Spec. Bore Corners
RS77R10F	.6250	1.3750	.3438	.3438	**RS77R10**	Open Curvatures
SSZ99R10A	.6250	1.3750	.3438	.3438		Very Open Curvatures
Q0L10B	1.9685	3.1496	.6299	.6299	**Q0L10**	5/16 W. Slot on Ring Faces
Q0L10C	1.9685	3.1496	.6299	.6299	**0L10**	Separable I.R.
Z993L10C	2.0000	3.1496	.6299	.6299	**Z993L10**	Bore
0L11B	2.1654	3.5433	.7087	.7087	**0L11**	Stabilized
3L11C	2.1654	3.5433	.7087	.7087	**3L11**	Spec. X Corner Limits
N-5L11-A	2.1654	3.5433	1.1811	1.1811		Flanged D. Row
F12A	.7500	1.6250	.3125	.3125	**R12**	Full Ball Complement
SRR12F	.7500	1.6250	.3125	.3125	**R12**	Stainless Separator
SSRS77R12D	.7500	1.6250	.3750	.3750	**SSRS77R12**	Special Width Tolerance
Z99R12E	.7500	1.6250				Adapter Type w/Collar
N-5L12-A	2.3622	3.7402	1.2598	1.2598		Flanged O.R.
Q0L13B	2.5591	3.9370	.7087	.7087	**Q0L13**	Spec. Internal Design
Q0L13BP	2.5591	3.9370	.7087	.7087	**Q0L13B**	Staggard Ball Pockets
SS3LL13A	2.5591	3.5433	.5118	.5118	**3LL13**	Full Complement, Stabilized
773L13A	2.5591	3.9370	.7087	.7087	**773L13**	1-Shld. Protrudes I.R. Face
7R14RU	.8750	1.8750	.5000	.5000	**7R14**	Use 7R14
Q0L14ADT	2.7559	4.3307	.7874	.7874	**Q0L14**	Ecc. Shown by Slots on Rings
Q0L14BDT	2.7559	4.3307	.7874	.7874	**Q0L14**	Ecc. Shown by Slots on Rings
Q0L14E	2.7559	4.3307	.7874	.7874	**Q0L14**	Spec. Sep., Spec. Comp.
773L14B	2.7559	4.3307	.7874	.7874	**773L14**	1-Shield Protrudes Ring Face
N-5L14-A	2.7559	4.3307	1.4173	1.4173		Flanged
Q0LL15	2.9528	4.1339	.6299	.6299		I.R. Controlled Sep.
QH0L15ADT	2.9528	4.5276	.7874	.7874	**QH0L15**	Ecc. shown by Slots on Rings
3L15A	2.9528	4.5276	.7874	.7874	**3L15**	Double X Corner Control
4773L158	2.9528	4.8000	.7874	.7874	**4773L15**	Spec. O.D. Spec. End Play
R16A	1.0000	2.0000	.5625	.5625	**R16**	Extra Tol. on Bore and O.D.
77R16RU	1.0000	2.0000	.5000	.5000	**77R16**	Use 77R16
0L16B98	3.8750	4.9213	.5000	.4800		Bore, Wire Loop Sep.

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
3L16D	3.2500	5.0000	.8661	.8661		Bore, O.D. Width
N-5L16-A	3.1496	4.9213	1.5748	1.5748		Flanged
Q0L17ADT	3.3465	5.1181	.8661	.8661	**Q0L17**	Slot Indicates High Points
Q0L17BDT	3.3465	5.1181	.8661	.8661	**0L17**	Slot Indicates High Point
Q0L17C	3.3465	5.1181	.8661	.8661	**0L17**	Separable I.R.
Q0L17CE	3.3465	5.1181	.8661	.8661	**Q0L17C**	Staggard Ball Pocket
3L17A	3.3465	5.1181	.8661	.8661	**3L17**	Stabilized
R18C	1.1250	2.1250	.3750	.3750	**R18**	Open Curvatures
77R18A	1.1250	2.1250	.5000	.5000	**77R18**	Unlapped Races Use 77R18
77R18B	1.1250	2.1250	.5000	.5000	**77R18A**	SS Shields, Cadmium Flash Coating
773L18A	3.5433	5.5118	.9449	.9449	**773L18**	4-Relube Holes in SNR Groove
N-5L18-A	3.5433	5.5118	1.7323	1.7323		Flanged
3L20A	3.9370	5.9055	.9449	.7874	**3L20**	Width
N-5L20-A	3.9370	5.9055	1.7323	1.7323		Flanged
773L21A	4.1339	6.2992	1.0236	1.0236	**773L21**	2-Oil Holes in O.R.
7R22RU	1.3750	2.5000	.5625	.5625	**7R22**	Use 7R22
Q3L22UA	4.3750	6.7987	1.0000	1.0000		Split I.R.
N-5L22-A	4.3307	6.6929	2.0472	2.0427		Flanged
Q0L24ADT	4.7244	7.0866	1.1024	1.1024	**Q0L24**	Slots Indicate High Point
Q0L24BDT	4.7244	7.0866	1.1024	1.1024	**Q0L24**	⅜ Slot Indicate High Point
3L24A	4.7244	7.0866	1.1024	.9055	**3L24**	O.R. Width
4L24A	4.7244	7.0866	.748	1.6562		Puller Notch on I.R.
4L24B	4.7244	7.0866	.748	1.7187		Puller Notch on I.R.
4L24E	4.7244	7.0866	.745	1.750		Puller Notch on I.R.
N-5L24-A	4.7244	7.0866	2.0472	2.0472		Flanged
H0L26A	5.1181	7.8740	1.2992	1.2992	**H0L26**	Full Complement
Q0L26B	5.1181	7.8740	1.2992	1.2992	**0L26**	Spec. Sep.
QH0L28BDT	5.5118	8.2677	1.2992	1.2992	**QH0L28DT**	Slots Indicate High Points
3L28A	5.5118	8.2677	1.2992	1.1024	**3L28**	Narrow O.R.
3L30A	5.9055	8.8583	1.3780	1.1811	**3L30**	Narrow O.R.
Q3LL32A	6.3600	8.8245	1.3900	1.2700		I.R. Controlled Sep.
3L36B	7.0866	M.M180	1.8110	1.8110	**3L36**	DT Mount, V etched on O.DS.
CF3-200B	.6280	2.0000	.5050	.5050	**CF3-200**	Crowned O.R. 4 Inch Radius
CF3-200C	.6280	2.0000	.5050	.5000	**CF3-200B**	Crowned O.R. 1 Inch Radius
CF3-200D	.6280	2.0000	.5906	.5000	**CF3-200B**	Crowned O.R. 4 Inch Radius
ND13-14	.5512	1.1811	.2756	.2756	**ND13**	w/14MM Bore
ND15F	.5906	1.3780	.3150	.3150	**ND15**	Separable I.R.
Q35H	.1969	.7480	.2362	.2362	**Q35**	I.R. Controlled Separator
35J	.1969	.7480	.2362	.4060	**35**	With WC88036 O.R.
G36	.2362	.8750	.2362	.2362	**36**	O.D.
Q36AA	.2362	.7480	.2362	.2362	**Q36**	I.R. Controlled Sep.
36P	.2362	.7480	.2362	.2362	**36**	Open Curvatures
S38	.3150	.8661	.2756	.2756	**38**	Coil Springs Sep.
39AC	.3543	1.0236	.3150	.3150	**39**	Spec. Internal Construction
Q38AB	.3150	.8661	.2756	.2756	**38**	I.R. Controlled Sep.
WD38AC	.3150	.8661	.2756	.2756	**WD38**	SNR Grooved O.R. Stabilized
38E	.3150	.8661	.2756	.2756	**38**	Grooved O.R.
J204A	.7874	1.8504	.5512	.5512	**J204**	M2 Steel
J204CR	.7874	1.8504	.5512	.5512	**3204AU**	M50 Steel Version of 3204AU
VJ205A	.9843	2.0472	.5906	.5906		Stabilized, I.R. Snap
E206	1.1811	2.4409	.7500	.7500		Narrow Double Row
E207	1.3780	2.8346	.8750	.8750		Narrow D. Row
F208	1.5748	3.1496	1.0000	1.0000		Narrow D. Row
QJ303	.6693	1.8504	.5512	.5512	**3303**	I.R. Snap
VJ305A	.9843	2.4409	.6693	.6693	**20305**	I.R. Snap, M50 Steel, Spec. Sep.
0108A	1.5748	3.1496	.7087	.7087	**0108**	15 Degree Contact
H0206	1.1811	2.4409	.5250	.4430	**0206**	60 Degree Contact Angle

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
N0224B288	5.5118	8.4646	1.6875	1.5000		Flanged, Bore
F1202	.5906	1.3780	.4331	.4331	**3202**	Full Type
1213A	2.3622	4.7244	.9055	.9055	**1213**	Bore
1217-75	2.9528	5.9055	1.1024	1.1024	**1217**	Bore
1219-85	3.3465	6.6929	1.2596	1.2598	**1219**	Bore
1222-100	3.9370	7.8740	1.4961	1.4961	**1222**	Bore
1304A19	.7500	2.0472	.5906	.5906	**1304**	Bore
N1311A	2.1654	4.7244	1.1417	1.1417	**1311**	Flanged O.R.
2608	1.5748	3.5433	.9055	.9055		D. Row, Self Aligning
3107	.3126	.8661	.2756	.2756	**38**	Bore
3109	.3750	1.0236	.3150	.3150	**39**	Bore
3111	.5000	1.2598	.3750	.3650		Ring Widths
3112A	1.1811	1.8750	.2187	.2187	**3112H**	Hardened Sep.
3112H	1.1811	1.8750	.2187	.2187		Bore, O.D., Width
3115	2.3750	3.7500	.6875	.6875		XLS 2⅜ Inches
SP3200	.3937	1.1811	.3543	.3543	**3200**	Bore .3942—Spec. Internally
WC3200-11	.4331	1.1811	.4800	.3540		WC8500 W/O Seal
3200BA	.3937	1.1811	.3543	.3543		Screw Assembled Sep.
V3200AA	.3937	1.1811	.3543	.3543	**3200**	Stabilized—Bronze—Sep.
Q3200B	.3937	1.1811	.3543	.3543		Separable I.R.
3201A13	.5000	1.2598	.3937	.3937	**3201**	Bore
SSWD3201AA	.4724	1.2598	.3937	.3937	**3201**	Stabilized 500F
3201AC	.4724	1.2598	.3937	.3937	**3201**	All Beryllium Copper
SS3201BA	.4724	1.2598	.3937	.3937	**SS3201**	Stabilized 600F
3201BB	.4724	1.2598	.3937	.3937	**3201**	HI-Temp. Stabilization
WD3201BG	.4724	1.2598	.3937	.3937	**WD3201**	Stabilized, Spec. Curvatures
WD3201E	.4724	1.2598	.3937	.3937	**WD3201**	Spec. Curvatures
SS3201P	.4724	1.4567	.4724	.4724	**SS3201**	O.D. Width
3202AR	.5906	1.3780	.4331	.4331	**3202**	Hi-Temp Stabilized
3202BB	.6253	1.3780	.4331	.4331	**3202**	Bore
SS3202BC	.5000	1.3780	.4331	.4331	**3202**	Bore, I.R. Face Finish
3202C16	.6253	1.3748	.4331	.4331	**3202**	Bore, O.D.
WD3202P	.5906	1.3780	.4331	.4331		HI-Temp Stabilized
3202H	.6250	1.3750	.4331	.4331	**3202**	Less than ABEC 1 Tolerances
3203AB	.6693	1.5748	.4724	.4724	**3203**	Notch on O.D. and Face
3203AC	.6280	1.5748	.7200	.4720	**Z99503U**	Agri., Tolerances
3203AE	.6693	1.5748	.6540	.4720	**3203**	Bore, Width, AG-Tolerances
3203AF	.5120	1.5748	.7200	.4720	**3203AC**	Bore, Corner Form
3203DG	.6693	1.5748	.4724	.4724	**3203**	Deep Groove
WD3203E	.6693	1.5748	.4724	.4724	**WD3203**	Stabilized, Phos-Brzn Sep.
3204AJ	.7874	1.8504	.6000	.6250	**WC8504**	Except Land Riding Seal
WD3204AP	.7874	1.8504	.5512	.5512	**3204**	Stabilized Spec. Sep.
3204AU	.7874	1.8504	.5512	.5512	**3204**	Stabilized, I.R. Snap, Spec. Internal
WD3204BJ	.7874	1.8504	.5512	.5512	**3204**	M50 Steel, Slotted—O.R. Face
WD3204CC	.6693	1.8504	.5512	.5512	**WD3204AP**	Except Bore
V3204CD	.7874	1.8504	.5482	.5482	**3204**	Offset Races, Spec. Sep.
WD3204DD	.7874	1.8504	.5512	.5512		WD3204BJ Special Sep. Design
3204E	.7874	1.8504	.5512	.5512	**3204**	Chamfer on Cone Bore
WD3204P	.7874	1.8504	.5512	.5512	**WD3204**	Stabilized
V3204Q	.7874	1.8504	.5512	.5512	**3204**	Special Separator
V3205AC	.9843	2.0472	.5906	.5906	**3205**	Spec. Sep.
3205AE	1.0236	2.0455	.5906	.5906	**3205**	Bore, O.D.
3205AJ	.9843	2.0472	.5906	.5906	**3205**	Spec. O.D. Corner
WD3205AP	.9843	2.0472	.5816	.5906	**WD3205**	Stabilized
V3205BG	.9843	2.0472	.5906	.5906	**V3205BN**	No Slot on O.R. Face
WD3205BK	.9843	2.0472	.5906	.5906	**WD3205K**	Slot on O.R. Face
V3205BN	.9843	2.0472	.5906	.5906	**3205**	Split I.R., Slotted O.R. Face

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
3205BR	.9513	2.0472	.5906	.5906	**3205**	Bore
V3205BU	.9843	2.0472	.5906	.5906	**V3205BN**	2 Slots on O.R. Face
3205CA	.9843	2.0472	.5906	.5906	**3205**	Ribbon Sep.
V3205H	.9843	2.0472	.5906	.5906	**3205**	Spec. Sep.
WD3205K	.9843	2.0472	.5906	.5906	**WD3205**	Stabilized
QB3206	1.1811	2.4409	.6299	.6299	**Q3206**	Use Q3206
3206AE	1.1811	2.4409	.6299	.6299	**3206**	Spec. Tol. of Assembly
Q3206C	1.1811	2.4409	.6299	.6299	**3206**	Spec. Cup Curvature
3207AE	1.3780	2.8346	.6693	.6693	**3207**	Spec. Width Tol.
SS3207AJ	1.3780	2.8346	.6693	.6693	**SS3207**	Slotted Ring Faces
3207BB	1.3780	2.8346	.6693	.6693	**3207**	CEVM Steel
3207E	1.3726	2.8346	.6693	.6693	**3207**	Bore 1.3726—1,3721
3207J	1.3780	2.8346	.6693	.6693	**3207**	Stabilized
Q3209C	1.7717	3.3465	.7480	.7480	**Q3209**	Slot in O.R. Face.
Q3209F	1.7717	3.3465	.7480	.7480	**Q3209**	.125 Wide Slot in O.R. Face
3212R	2.2500	4.3307	.8661	.8661	**3212**	Bore
3215B	2.9544	5.1181	.9843	.9843	**3215**	Bore
3301D	.4724	1.4567	.4724	.4724	**3301**	45 Chamfer on Bore
V3303B	.6693	1.8504	.5512	.5512	**3303**	Iron—Sil—Bronze—Sep.
V3303C	.6693	1.8504	.5512	.5512	**V3303B**	Spec. Flushness Control
V3303E	.6693	1.8504	.5512	.5512	**V3303B**	Silver Plated Sep.
3303F	.4724	1.8504	.5512	.5512		Bore
V3305P	.9843	2.4409	.6693	.6693	**V3305D**	Stabilized, Spec. Sep.
3309-8	1.5748	3.9370	.9843	.9843	**3309**	Bore
3311A	2.1654	4.7244	1.1417	1.1417	**3311**	Spec. Bore Corner
3318A	3.5277	7.4803	1.6929	1.6929	**3318**	Bore
V3318B	3.5433	7.4803	1.6929	1.6929		Split I.R.
Q3403A	.6693	2.4410	.6693	.6693	**3403**	Close Curvature
5201B	.4724	1.2598	.6250	.6250	**5201**	HI-Temp. Stabilization
Q5202J	.5906	1.3780	.6250	.6250	**5202**	Delrin Sep.
5203E	.6693	1.5748	.6875	.6875		N.L.G. Type, Spec.-Corners
5204A	.7874	1.8504	.8125	.8125	**5204**	Groove in O.R.
5204C	.7874	1.8504	.8125	.8125	**5204**	Corner to Clear .020 Fillet
5206B	1.1811	2.4310	.9375	.9375	**5206**	O.D.
5206D	1.1811	2.4409	.9375	.9375	**5206**	Spec. Bore Corners
N5208	1.5748	3.1496	1.1876	1.1875	**5208**	Flanged
N5216E	3.1496	5.5118	1.7500	1.7500	**5216**	Flanged
N5220E	3.9370	7.0866	2.3750	2.3750	**5220**	Flanged
5222WA	4.3307	7.8740	2.7500	2.7500	**5222W**	IVM 52100 Steel
5305A	.9843	2.4409	1.0000	1.0000		Spec. Corner Form
5310-45W	1.7717	4.3307	1.7500	1.7500	**5310W**	Bore
5310B	1.9685	4.3307	1.7500	1.7500	**5310**	L.G. Type, Marking Location
5310WA	1.9685	4.3307	1.8750	1.7500	**5310W**	Replaces H5310A
SS7034M	.1875	.6299	.1969	.1969	**7034**	Bore .1873 to .1875
SR7035	.1969	.7480	.2362	.2362	**7035**	S.S. Shield & Separator
7036AB	.2362	.7480	.2362	.2362	**7036P**	With Teflon Sep.
7036P	.2362	.7480	.2362	.2362	**7036**	Open Curvatures
7038A8	.3117	.8661	.2756	.2756	**7038**	Bore
Q7038M	.3150	.8661	.3150	.3150	**Q7038**	Width
7038Q	.3127	.8661	.2756	.2756	**7038**	Bore
7107B	.1971	.5779	.2362	.2362		Spec. Ring Curvatures
7108	.5118	1.2598	.3937	.3937	**7501**	Bore
7109	.5906	1.3780	.3543	.3543	**7502**	Width
7109A16	.6255	1.3780	.3540	.3540	**7502**	Bore
7109AD	.5906	2.0472	.3540	.4400	**7109**	Adapter Ring Staked on O.D.
7109B	.5906	1.3780	.3540	.3540	**7109**	Width
7109C	.5906	1.3780	.3543	.3543	**7109**	Ribbon Sep.

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
7110	.5000	1.2598	.3937	.3937	**7501**	Bore
7111	.2500	.7480	.2362	.2362	**7036**	Bore .2501 to .2498
7119	.4063	1.0236	.3150	.3150	**7039**	Bore
7120	.6248	1.3780	.4331	.4331	**7502**	Bore .6248 to .6244
7312B	2.3622	5.1181	1.2205	1.2205	**7312**	Shld. on L. Groove Side
7317A	3.3465	7.0866	1.6142	1.6142	**7317**	Spec. Bore Corner
7405A	.9843	3.1496	.8268	.8268	**7405**	.025 Cone Radius Shield Side
SS7501AR	.4724	1.2598	.3937	.3937	**SS7501**	Stabilized 550F
7501C	.4724	1.2598	.3937	.3937	**7501**	Shield Opposite Slotted Cup
7502-16	.6299	1.3780	.4331	.4331	**7502**	Bore
7502B16	.6299	1.4961	.4331	.4331	**7502**	Bore, O.D.
7504C22	.8553	1.8504	.5512	.5512	**7504**	Bore
7505CA	.9843	2.0472	.5906	.5906	**7505**	Riveted Ribbon Sep.
7504F	.7874	1.8504	.5512	.5512	**7504**	Spec. Ball Race Curvature
7504U	.7874	1.8504	.5512	.4262	**7504**	Flush Shield Side
7505A32	1.2500	2.0000	.3750	.3750		Bore, O.D.
7508RU	1.5748	3.1496	.7087	.7087	**7508**	Use 7508
7510RU	1.9685	3.5433	.7874	.7874	**7510**	Use 7510
7512RU	2.3622	4.3307	.8661	.8661	**7512**	Use 7512
7605H	.9843	2.4409	.6693	.6693	**7605**	Stabilized
8006A	.2362	.7480	.3010	.3010	**8006**	.3543 Overall Width
8008B10	.3752	.8749	.3860	.3150		Bore, OD, Slinger Seal
WC8008C	.3150	.9449	.3860	.4060	**WC8008**	Seal Omitted
RWC8013B	.5118	1.2598	.4800	.5000	**RWC8013**	Spec.—Curvatures
R8037R	.2756	.8661	.5880	.4060	**37**	Nylon Sep. Felt Omitted
8038B	.3150	.8661	.3860	.3150	**8038**	Close Curvatures
WC8038E	.3150	.8661	.3860	.4060	**WC8038**	Seal Omitted
R8038R	.3150	.8661	.5880	.4060	**38**	Nylon Sep. Felt Omltted
8115	.6245	1.3780	.4800	.4331	**8502**	Bore
8500P	.3937	1.1811	.4800	.3540	**8500**	CEVM Steel
C8500AB	.3937	1.1811	.4800	.3540		C8500 Stabilized
RWC8503H	.6693	1.5748	.5630	.5630	**RWC8503**	Open Curvature Textile
8504A16	.6290	1.8504	1.1250	.5512	**8504**	Bore, Armor Seal Side Extended
WC8504B	.7874	2.0472	.6000	.6100	**WC8504**	Widths
C8505R	.9843	2.0472	.6000	.5906	**C8505**	Stabilized
D8506AP	1.1811	2.4409	.9449	.6299	**88506**	L.R. Seal, Trash Gard
C8507B33	1.3130	2.8346	1.0625	.6693	**C8507A33**	Spec. Bore, Non-Slotted I.R.
8507D	1.4375	2.8346	.7874	.6693	**8507**	Bore
WC8512AB	2.3622	4.3307	1.1417	1.1417		Customer Installs—Seal
C8604H	.7874	2.0472	.7090	.5910	**C8604**	Stabilized
ZWC9011A	.4331	1.2598	.4800	.5000	**WC8011**	Except, Sentri-Seal
9026	1.0236	2.0472	.5906	.5906	**9505**	Bore
Z9109	.5906	1.3780	.3543	.3543	**7109**	Except Sentri Seal
ZWC9501BE	.4724	1.2598	.4800	.5000	**WC8501**	Except with Sentri-Seal
9502H	.6250	1.3750	.4331	.4331		Plastic Seal
Z9504B	.7505	1.7805	.6100	.6100		Plus Land Riding Seal, Black Coating
QZ9505CEDB	.9843	2.0472	.5906	.5906	**Z9505**	Packed w/I.R., O.R. Spacers
Z9505CJ	.9843	2.0472	.5906	.5906	**Z9505**	No Drag Seal Notch
Z9603AJ	.6693	1.8504	.5512	.5512	**Z9603**	Spec. Bore Corner
Z9605AE	.9843	2.4409	.6693	.6693	**Z9605**	Ground Seal Notch
Z9606K	1.1811	2.8346	.7480	.7480	**Z9606**	No Drag Seal Notch
Z9607H	1.3780	3.1496	.8268	.8268	**Z9607**	No Drag Seal Notch
Z9609C	1.7717	3.9370	.9843	.9843	**Z9609**	No Drag Seal Notch
Z9610C	1.9685	4.3307	1.0630	1.0630	**Z9610**	No Drag Seal Notch
Z9612B	2.3622	5.1181	1.2205	1.2205	**Z9612**	No Drag Seal Notch
Q20201A	.4724	1.2598	.3937	.3937	**20201**	Slotted-I.R.—Faces, Rulon-Sep.
Q20202C	.5906	1.3780	.4331	.4331	**20202**	Spec. Ball Complement

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
20202E	.5906	1.3780	.3540	.3540	**20202**	I.R. Snap, Rings Offset
Q20202K	.5906	1.3780	.4250	.3650		Ring Widths
20202R	.5906	1.3780	.3540	.3540	**20202E**	Spec. Bore Corners
Q20203DDT	.6693	1.5748	.4724	.4724	**20203**	Radial Play, Cutaway I.R.
Q20204F	.7874	1.8504	.5512	.5512	**Q20204**	Spec. Ball Complement
Q20204P	.7874	1.8504	.5512	.5512	**20204**	Snap on Both Rings
V20205D	.9843	2.0472	.5906	.5906	**20205**	Snap on I.R., Spec. Complement
20205DC	.9843	2.0472	.5906	.5906		Radial Play .0024 to .0028
Q20205F	.9843	2.0472	.5906	.5906		Snap on Both Rings, R.P. .0006-9
Q20206C	1.1811	2.4409	.6299	.6299		Stabilized, R.P. .0008-12
QH20206J	1.1811	2.4380	.6299	.6299	**QH20206**	Spec. Bore, O.D. Tolerances
Q20206K	1.1811	2.4409	.6299	.6299	**Q20206C**	Use Q20206C
Q20206RDT	1.1811	2.4409	.6299	.6299	**20206**	Snap on I.R., O.R., R.P. .0008-12
Q20207K	1.3780	2.8346	.6693	.6693	**20207**	Cutaway I.R., R.P. .0007-11
V20208ADT	1.5748	3.1496	.7087	.7087	**V20208**	Spec. Sep.
Q20208C	1.5745	3.1496	.7087	.7087	**Q20208**	Bore, Curvatures
QH20209FDT	1.7717	3.3465	.7480	.7480	**H20209**	R.P., .0029 to .0044
20210A	1.9685	3.5433	.7794	.7794	**20210**	Width, Spec. X Corner-Con.
Q20211FDT	2.1654	3.9370	.8268	.8268	**20211**	Cutaway I.R., R.P. .0010-14
Q20212B	2.3622	4.3307	1.2205	.8661	**Q20212**	I.R. Width
Q20213FDT	2.5591	4.7244	.9055	.9055	**Q20213**	Snap on IR, OR., R.P. .0010-15
20214C	2.7559	4.9213	.9048	.9048	**20214**	Overall Width .9449
E20216	3.1496	5.5118	1.5354	1.0236	**20216**	2-Key Slot on I.R. Face
20219A	3.7502	6.6929	1.2598	1.2598	**20219**	Bore
H20222A	4.3307	7.8740	1.4961	1.4961	**20222**	1/2 Keyway on I.R. Face
VH20304B	.7874	2.0472	.5906	.5906	**H20304**	Stabilized, Spec. Sep.
Q20308BDT	1.5748	3.5433	.9055	.9055	**Q20308**	4 Grooves on O.R. Face
Q20308CDT	1.6929	3.5433	1.8110	1.8110	**Q20308B**	Bore, Spec. Internal Design
Q20308E	1.5748	3.5433	.9055	.9055	**20308**	4 Slots on O.R. Front Face
H20315ADT	2.9528	6.2992	1.4567	1.4567	**H20315**	Spec. Duplex Width Tol.
30204B	.7874	1.8504	.5512	.5512	**30204A**	Spec. Chamfered—O.R.
30205B	1.0200	2.0472	.5906	.5906	**30205**	Spec. Tolerances
30205C	.9843	2.0472	.5906	.5906	**30205**	Stellite, Full Complement
30205FDT	.9843	2.0472	.5906	.5906	**30205**	.040 Radius Face Corner of O.R.
E30207	1.3780	2.8345	.6693	.6780	**30207**	Full Type
E30209A	1.7717	3.3465	.7570	.7570	**E30209**	Full Complement
E30210A	1.9685	3.5433	.7960	.7960	**302100**	Full Complement
E30213A	2.5591	4.7244	.9055	.9140	**E30213**	Full Complement
J30305B	.9843	2.4409	.6693	.6693	**30305**	Stabilized, Monel Sep.
Q30306D	1.1811	2.8310	.7480	.7480	**Q30306**	Spec. Contact Angle
Q30306J	1.1811	2.8346	.7480	.7480	**Q30306**	R.P. .0008-12
V30311A	2.1634	4.7244	1.1417	1.1417	**30311**	Bore, Stabilized
41306AV	1.1811	2.8346	.7480	.7480	**41306**	Spec. Bore Corners
41306VA	1.1811	2.8346	.7480	.7480	**41306**	Spec. Snap Ring
41307B	1.3780	3.1496	.6693	.6693	**41307**	Width
41311B	2.1654	4.7244	1.1417	1.1417		Spec. SNR Location
41312A	2.3622	5.1181	1.2205	1.2205	**41312**	No Shld. Grooves in I.R.
42306	1.1811	2.9528	.7480	.7480	**77606**	Spherical O.R., I.R. Drilled
43203AE	.6693	1.5748	.4720	.4720	**3203AC**	See 3203AE
43203DG	.6693	1.5748	.4724	.4724	**3203DG**	Deep Groove
43207C	1.3780	2.8346	.6693	.6693	**43207BA**	Spec. S.N.R.
43210D	1.9685	3.5433	.7874	.7874	**43210**	Spec. SNR, SNR Groove
V43218B	3.5433	6.2992	1.1811	1.1811	**43218**	Split I.R., Spec. Material
43219A	3.7402	6.6929	1.2598	1.2598	**43219**	Spec. SNR Location
43304A	.7874	2.0472	.5906	.5906	**43304**	Elliptical I.R.
43305C	.9843	2.4409	.6693	.6693	**43305**	Spec. SNR
43306U	1.1811	2.8346	.7480	.7480	**43306**	Spec. Bore Corners

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Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
43307P	1.3780	3.1496	.8268	.8268	**43307**	Spec. Bore Corner
43308AB	1.5748	3.5433	.9055	.9055	**43308**	B. Corner to Clear .030 Fil.
43308C	1.5748	3.5433	.7874	.7874	**43308**	Width. Spec. Bore Corner
43308H	1.5748	3.5433	.9055	.9055	**43308**	B. Corner to Clezr .016 Fil.
43309A41	1.6250	3.9370	.9843	.9843	**43309**	Bore
43312A	2.3622	5.1181	1.2205	1.2205	**43312**	No Shld. Grooves in I.R.
45214WC	2.7559	4.9213	1.5625	1.5625	**45214WA**	Double Row 2-Ball Complements
45503C	.7188	1.5748	.6875	.6875	**45503**	Bore
45503F	.6693	1.5748	.6875	.6875	**45503**	Spec. Bore Corner
47109BV	.5906	1.3780	.3540	.3540	**71098**	SNR on Shd. Side
47207BU	1.3780	2.8346	.6693	.6693	**47207**	Slinger Shields
47306RV	1.1811	2.8346	.7480	.7480	**47306V**	Slinger Shield, Spec. SNR.
47507BA	1.3780	2.8346	.6693	.6693	**47507**	Spec. S.N.R.
47507BU	1.3780	2.8346	.6693	.6693	**47507**	Slinger Shields
47507CH	1.1811	2.8346	.6693	.6693	**47507**	Bore, Spec. Bore Corner
47508-7	1.3780	3.1496	.7087	.7087	**47508**	Bore
47508C38	1.4860	3.1496	.7087	.7087	**47508**	Bore
47509A45	1.7717	3.3465	.6780	.7480	**47509**	Width, Spec. SNR
47510-2	1.9685	3.5433	.7874	.7874	**47510**	Spec., SNR, SNR Groove
47606RV	1.1811	2.8346	.7480	.7480	**47606V**	Slinger Shield
Z49504CB	.7505	1.7805	1.0000	1.0000	**Z9504B**	Width, Plus SNR
Z49606JV	1.1811	2.8346	.7480	.7480	**Z49606**	Stabilized
55501C	.4724	1.2598	.6250	.6250	**55501**	2.175 O.D. Flange, Holes, Grooves
55510B	1.9685	3.5433	1.1875	1.1875	**55510**	2 Holes in O.D.
55602A	.5906	1.7500	.7500	.7500	**55602**	O.D. has a Flat and a Taper
55606F	1.1811	2.8346	1.1875	1.1875	**55606**	Full Ball Complement
55608F	1.5748	3.5433	1.4375	1.4375	**55608**	Full Complement
77034J	.1575	.6299	.1969	.1969	**77034**	Open Ring Curvatures
77034K	.1575	.6299	.1969	.1969	**77034**	Bore Corner to Clear .005 Fillet
70036P	.2362	.7480	.2362	.2362	**77036**	Open Curvatures
77036R	.2362	.7480	.2362	.2362		.016 Radius Corners
77037G	.2756	.8661	.2756	.2756	**77037**	Open Curvatures
77038AA	.3150	.8661	.2756	.2756	**38**	HI-Temp Stabilized
77038AF	.3150	.8661	.2756	.2756	**77038**	.016 Radius Corners
77038AJ	.3150	.8661	.4060	.4060	**77038**	Width
Q77038AJ	.3150	.8661	.4060	.4060	**77038**	Nylon Seperator
77038J	.3150	.8661	.2756	.2756	**77038**	Open Curvatures
Q77038M	.3150	.8661	.3150	.3150	**Q77038**	Width
77038Q	.3127	.8661	.2756	.2756	**77038**	Bore
SS77039D	.3543	1.0236	.3150	.3150	**77039**	Stabilized 400F
77108	.5118	1.2598	.3937	.3937	**7108**	Bore
77110	.5000	1.2598	.3937	.3937	**7110**	Bore
77115A	.5000	1.9375	.5000	.4330	**77502**	Pulley Groove—IN—O.R.
77121	.3125	1.3750	.5000	.4330		Sash Pulley Grooved—O.R.
77123	.6693	1.8504	.5512	.5512	**77504**	Bore
77207AJ	1.3780	2.8450	.6693	.6693	**77207**	O.D.
77500E	.3937	1.2380	.3543	.3323	**77500**	Crowned O.D.
77500F	.3937	1.1811	.3543	.3543	**77500**	Rings & Balls Stabilized
SS77500J	.3937	1.1811	.3543	.3543	**3200**	Stabilized 400F
77501AC	.4724	1.2598	.3937	.3937	**3201AC**	All Beryllium Copper
77501AD	.4724	1.2598	.3937	.3937	**3201AC**	Shields Non-Magnetic—S.S.
77501H	.4724	1.2598	.3937	.3937	**77501**	HI-Temp. Stabilized
77502AP	.5906	1.3780	.4331	.4331		Shielded 99502H
77502RU	.5906	1.3780	.4331	.4331	**77502**	Use 77502
77502-16	.6299	1.3780	.4331	.4331	**77502**	Bore
77503AD	.6250	1.5748	.4724	.4724	**77503**	Bore
77503E	.6693	1.5748	.4724	.4724	**77503**	Stabilized

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
77503F	.6702	1.5742	.4724	.4724	**3203**	Bore, O.D.
77504CF	.7500	1.8504	.5512	.5512	**77504**	Bore
77504CJ	.8125	1.8504	.5512	.5512	**77504**	Spec. Tolerances
77505C25	.9964	2.0150	.5906	.5906	**77505**	Bore, O.D.
77506F	1.1811	2.4409	.6299	.6299	**77506**	Use 77506
77507AP	1.3780	2.8346	.6693	.6693	**77507**	Spec. Bore Corner
77507CJ	1.3780	2.8346	.6693	.6693		Slot on O.D.
77507CP	1.3780	2.8346	.6693	.6693		Brass Sep. 77507CJ
77508AE	1.5748	3.1496	.7087	.7087	**77508**	Bore Corner Clear .025 Fil.
77512D	2.3622	4.3307	.8661	.8661	**77512**	Stabilized
77512RU	2.3622	4.3307	.8661	.8661	**77512**	Use 77512
77515A	2.9528	5.1181	.9843	.9843	**77515**	Stabilized
77517B	3.3465	5.9055	1.1024	1.1024	**77517**	Stabilized
77508F	1.5748	3.5433	.9055	.9055	**77608**	Stabilized
77611B	2.1654	4.7244	1.1417	1.1417	**77611**	Stabilized
84208	1.5748	3.1496	1.1875	.8268	**1208**	Felt Seal on Extended I.R. Side
84123	2.5591	4.7244	1.0236	1.5000	**1213**	Extended I.R. Side Sealed
87008E	.3150	.9449	.3860	.3150	**87008**	2-Shields
WC87008F	.3125	.9449	.3860	.4060	**WC87008**	Bore
WC87008B	.3150	.9449	.4060	.4060	**WC87008**	No Seal Groove in I.R.
WC7036G	.2362	.7480	.4060	.4060	**WC87036**	Seal Omitted, Spec. Curvatures
WC87037-6	.2360	.8661	.3860	.4060	**WC87037**	Bore
C87039C10	.4063	1.0236	.4450	.3543	**C87039**	Bore
WC87039F	.3750	1.0236	.4060	.4060	**WC87039**	Bore
WC87115	.6245	1.3780	.4800	.5000	**WC87502**	Bore
QCWC87500	.3937	1.1811	.4800	.5000	**CWC87500**	O.R. Width
87504A16	.6290	1.8504	1.1250	.5512	**87504**	Bore, Armor Seal Side Extended
C87504AK	.7874	1.8504	.6250	.5512	**C87504**	Stabilized
87504G2	.7874	1.8504	.6000	.5512	**87504**	Garlock Seal
WC87504G2	.7874	1.8504	.6000	.6250	**87504G2**	WC—O.R.
87505B25	.9964	2.0150	.6000	.5906	**87505**	Bore, O.D.
87505CB	.9843	2.0472	.6000	.5906	**87505**	Armor-Gard Seal in Lieu of Felt
87506AG	1.1811	2.4409	.7480	.6299	**87506**	L.R. Seal Anti-Wind Gard
88013D	.5118	1.2606	.6063	.3937	**88013**	SS—Seals, Cadmium Bore
C88016B	.6299	1.3780	.5669	.4331	**C88016**	HI-Temp. Stabilized
QR88037H	.2756	.8661	.5880	.4060	**88037**	1—Seal Less Felt
QR88038H	.3150	.8661	.5880	.4060	**88038**	Felts Omitted
88100	.6263	1.3780	.8125	.4331	**88502**	I.R. Face Notched on Longest Side
88106	.8170	2.0472	1.6250	.5906	**88505**	Extended I.R. w/Hole
88120B	.7874	1.8504	.8200	.5510		Rubber Seal, Trash Gard
88121	1.3765	2.8346	.9843	.6693	**88507**	Bore
88123	1.0000	2.0472	.6594	.5906	**88505**	Bore
88125	.5000	1.2598	.6063	.3937	**88013**	Bore
88500K	.3937	1.1811	.6457	.3540	**88500**	Anti-Rotating Tang—IN—O.R.
88501A11	.4379	1.2598	.6063	.3937	**88011**	Bore
WC88502K	.5906	1.3780	.5669	.5000		Anti-Rotating Key in O.R.
88503BB	.6280	1.8504	.7200	.4720	**3203AC**	And Unlapped Races
88503C	.6693	1.5748	.6536	.4724	**88503**	Unlapped Raceways Use 88503
C88505CA	.9843	2.0472	.6594	.5906	**C88505**	Riveted Sep.
88505CF	1.0000	2.0472	1.0000	.5906	**3205BA**	Bore
C88505R	.9843	2.0472	.6594	.5906	**C88505**	Stabilized
XD88506A	1.1811	2.4409	.9449	.6299	**D88506**	Spec. Race Curvatures
YXD88506B	1.1811	2.4409	.9449	.6299	**88506**	Tin Plated Brass Sep.
D88506BB	.7530	2.4409	.9449	.6299	**D88506AP**	2-Spec. Rubber Seals, Spec. Corners
88506BD	1.1258	2.4409	.9449	.6299	**88506E**	Cyl. O.D. with Rounded O.D. Corners
88506BP	1.1811	2.4409	.9449	.6299	**XD88506CA**	Land Riding Seals
XD88506C	1.1811	2.4409	.9449	.6299	**D88506C**	Prop. Shaft Fit Up

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SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
XD88506C29	1.1250	2.4409	.9449	.6299	**XD88506**	Bore
XD88506CA	1.1811	2.4409	.9449	.6299	**D88506C**	I.R. Seals, Spec. Bore Corners
D88506CE	.8130	2.4409	.9449	.6299	**D88506BB**	Hex. Bore—¾ Inch Shft.
88506E	1.1258	2.4409	.9449	.6299	**88506**	Spherical O.D., Trash Gard Seals
XD88509J	1.7717	3.3465	1.0630	.8268	**XD88509**	With Armor Gard Seals
88512-55	2.1654	4.3307	1.2992	.9843	**88512**	Bore
88603D	.6693	1.8512	.7087	.5512	**88603**	S.S. Seals, Cad. Plated Except Bore
D88609	1.7717	3.9370	1.3779	.9840	**88609**	R.W. Seal
Z97501AU	.5118	1.2598	.3937	.3937	**Z97501**	Bore
Z97502-16	.6299	1.3780	.4331	.4331	**Z97502**	Bore
ZWC97502CA	.5906	1.3780	.4890	.5000	**WC87502**	Sentri-Seal in Lieu of Felt
Z97503J	.6693	1.5748	.4724	.4724	**Z97503**	Spec. Curvatures
Z97503P	.6693	1.5748	.4724	.4724	**Z97503**	Spec. Bore Corners
WC97504AJ	.7874	1.8504	.6000	.6250	**WC8504**	Shielded and Rubber Seal
V97805BP	.9843	2.0472	.8125	.8125	**97505**	Cartridge, Stabilized, Spec. Sep.
ZWC98013	.5118	1.2598	.4800	.5000	**WC87013**	Sentri—Seal in Lieu of Shield
T98507BE	1.2500	2.8346	1.0000	.6693	**3207**	Spherical O.D., 2—L.R. Seals
ZWC99009A	.3543	1.1811	.6457	.5000	**WC88009**	With Sentri-Seals
Z99013D	.5118	1.2598	.6063	.3937	**88013**	2—Sentri Seal Instead
Z99016C	.6299	1.3780	.4840	.5000	**WC87016**	With 2 Sentri Seals
SRZ99037G	.2756	.8661	.2756	.2756	**77037G**	S.S. Sep.
Z99038A	.3126	.8661	.2756	.2756		**Bore**
Z99038AM	.3150	.8661	.2756	.2756	**Z99038**	Spec. Bore Corners
Z99500E	.4365	1.1811	.3543	.3543		Bore
Z99501A13	.5000	1.2598	.3937	.3937	**Z99502**	Bore
Z99501K	.4724	1.2598	.3937	.3937		Spec. Seal Design
Z99502-16	.6299	1.3780	.4331	.4331	**Z99502**	Bore
99502AB	.5006	1.3750	.4331	.4331		Bore, O.D.—AG—Brg.
Z99502AC	.6250	1.3780	.4331	.4331	**99502H**	O.D., .4331 TO. 4325
Z99503AD	.6250	1.5748	.4724	.4724	**Z99503**	Bore
Z99502AG	.5906	1.3780	.4331	.4331		HI-Temp. Stabilized
Z99502AM	.6280	1.3750	.7200	.4331	**Z99502**	Bore, I.R. Width
T99502BA	.5006	1.3780	.4331	.4331	**99502**	Bore, Armor-Gard-Seal
99502BP	.6250	1.3750	.4331	.4331	**99502H**	With Spherical O.D.
ZWC99502BU	.5906	1.3780	.5000	.5000	**WC88502**	w/Low Torque Sentri-Seals
99502CC	.6250	1.3750	.4331	.4331	**99502H**	Rings Rust Proof Coated
Z99502CF	.5120	1.3750	.7200	.4331	**Z99502AM**	Except Bore
Z99502F16	.6250	1.3780	.4331	.4331	**Z99502**	Bore
99502J	.5625	1.3780	.4331	.4331	**99502**	Agri—Tolerances
Z99502R	.5906	1.3780	.5669	.4331	**88502**	With Sentri-Seals
T99502R	.5906	1.3780	.5669	.4331	**88502**	w/Armor-Grad Seals
T99502U	.5030	1.3750	.4331	.4331	**Z99502U**	Bore, AG Tolerances
T99503U	.6280	1.5748	.5050	.5050	**99503**	Agri. Tolerances
Z99503AR	.5006	1.5748	.4724	.4724	**Z99503**	Bore .5006 to .5000
Z99503AH	.6693	1.5748	.4724	.4724	**Z99503**	High Torque Seals
Z99503J	.6693	1.5748	.4724	.4724	**Z99503**	Deep Groove, Close Curvature
Z99504CH	.7491	1.8504	.5512	.5512	**Z99504**	Bore
Z99504R	.7874	1.8504	.6988	.5512	**Z99504**	Width
T99505BJ	.9843	2.0472	.5906	.5906	**99505**	Spherical O.D.
Z99505C25	.9964	2.0150	.5906	.5906	**Z99505**	Bore, O.D.
Z99505R	.9843	2.0472	.5906	.5906	**Z99505**	Stabilized, Hycar Seals
Z99505Q	.9843	2.0472	.5906	.5906	**Z99505**	Stabilized—94F to 265F
Z99506A	1.1811	2.4409	.6299	.6299	**Z99506**	Low Temp Stabilized
T99506BC	1.1811	2.4409	.6299	.6299	**Z99506**	O.D. Crowned
Z99506BC	1.1811	2.4409	.6299	.6299	**Z99506**	Spherical O.D.
	1.1811	2.9900	.6299	1.0000	**Z99506**	Crowned O.D.
Z99506J	1.1811	2.4409	.6299	.6299	**Z99506**	High Temp. Stabilized

CONSULT SUPPLIER FOR AVAILABILITY.

Delco New Departure—Hyatt
BALL BEARING DIMENSION DATA

SPECIAL COMMERCIAL BEARINGS—Continued

Bearing Number	Bore Inches	O.D. Inches	Inner Ring Width	Outer Ring Width	Basic Size	Description
Z99506P	1.1811	2.4409	.6299	.6299	**Z99506**	Spec. Seal Fit Up
QZ99506R	1.1811	2.4409	.6299	.6299	**Z99506**	Stabilized
Z99507AU	1.2489	2.8346	.6693	.6693	**Z99507**	Bore
Z99507AR	1.3780	2.8346	.6693	.6693		Spherical O.D.
Z99507BP	1.3780	3.2500	.9843	.9843	**Z99507BC**	Spherical O.D.
Z99507H	1.3780	3.1720	.6693	.4540	**Z99507**	O.R. Forms Chain Sprocket
Z99605CC	.9843	2.9700	.6693	1.0000	**Z99605J**	O.D. 2.970 to 2.965
99605F	.9843	2.4409	.6693	.6693	**99605**	Low Temp. Stabilization
Z99605J	.9843	3.0000	1.0000	1.0000	**99605**	Spec. Corner Form
Z99607B	1.3780	4.0000	.8268	1.1250	**Z99607**	Width, Spec. Corners
T99607C	1.3780	4.3430	.8268	1.1870	**Z99607**	Crowned O.D.
T99607R	1.3780	3.5060	.8268	1.2500	**Z99607**	Crowned O.D.
99608E	1.5748	4.0550	.9060	.5700	**99608**	Chain Sprocket O.D.
Z99609C	1.7717	3.9370	.9843	.9843	**Z99609**	No Drag Seal Notch
Z99612B	2.3622	5.1181	1.2205	1.2205	**Z9612B**	No Drag Seal Notches
Z99803	.6693	1.5748	.6875	.6875	**3203**	203 Cartridge Brg.
Z99805	.9843	2.0472	.8125	.8125	**Z99505**	Cartridge
Z99805A	.9843	2.0472	.8125	.8125	**Z99805**	Stabilized
Z99806A	1.1811	2.4409	.9375	.9375	**Z99806**	Low Temp Stabilized
420209	1.7717	3.3465	.7480	.7480	**20209**	SNR
H420209B	1.7717	3.3465	.9843	.7480	**H20209**	Width I.R.
H420310B	1.9685	4.3307	1.2205	1.0630	**H420310**	I.R. Width
477500AE	.3937	1.1890	.3543	.3543		O.D.
488016D	.6299	1.3780	.5669	.4331	**488016**	Except Rubber Seals Double O
499502AB	.5006	1.3750	.4331	.4331	**99502AB**	Bore
Z499502BE	.6250	1.3750	.4331	.4331	**Z99502AC**	2-Snap Rings in O.R.
Q720203	.6693	1.5748	.4724	.4724	**20203**	Shielded Q20203
QF720304	.7874	2.0472	.5906	.5906	**F20304**	Shielded, Full Complement
900537	.7530	2.0472	1.0530	.7000	**3204**	See Agri. Specials
900539	.7530	2.0472	.6400	.7000	**3204**	See Agri. Specials
904816	.7503	1.4400	.5000	.5000		D. Row Flanged, 2-RS Shields
904817	1.1876	1.6249	.4340	.4230		Double Row, Full Ball Comp.
905899	.7400	1.9069	.1010	.0900		D. Row, F-Comp. 4 Holes, 2 Grooves on I.
907163	.5118	1.2598	.3937	.3937	**77501**	Extra Quiet—77108
907194	.7503	2.6250	1.3650	1.3100		Flanged Sheave O.R., NO-Sep.
907228	.8732	2.0472	.5906	.5906	**3205**	Bore
907257	1.5748	2.4409	.8125	.8125		D. Row, 2 Sentri Seals
907325	.6200	1.1255	.6250	.5650		Nylafil Sep., 2-Sentri—Seals
907358	1.3700	1.8845	.6250	.5650		D. Row, 2-Sentri Seals
907395	.3750	.5625	.1720	.1720		No Sep., Spec. Internal Design
907400	.5906	1.3780	.4331	.4331		77502 w/Stud in Bore
907419	1.1876	1.6249	.4340	.4230	**904817**	Spec. Cleaning
907478	2.1654	3.5433	.6880	.6880	**3L18**	Cobalt Base, Full Complement
Z995202A	.5906	1.3780	.7188	.7188	**5202**	Width
Z995202B	.6470	1.3780	.7188	.7188	**Z995202A**	Bore
Z995202F	.6250	1.3750	1.0937	1.0937	**Z995202**	Extra Width
Z995204B	.6470	1.8504	.9375	.9375	**Z995204**	Bore
Z995206U	1.1811	2.4409	1.0625	1.0625	**5206**	Extra Wide Double Row
Z995208C	1.5748	4.0770	1.1875	1.7500	**Z99508**	Crowned O.D.
T99F5208E	1.5748	3.1496	1.2100	1.2100	**5208**	Full Complement

CONSULT SUPPLIER FOR AVAILABILITY.

How to Interpret New Departure Bearing Numbers

FOR EXAMPLE	BEARING NUMBER				
	TYPE		SERIES	BORE	
	5th Digit	4th Digit	3d Digit	2d Digit	1st Digit
Single Row—**Loading Groove**—Light Series—14 bore	–	**1**	**2**	1	4
Same, with **6** bore	–	1	2	0	**6**
Same, but **Medium Series**	–	1	**3**	0	6
Same, but **Heavy Series**	–	1	**4**	0	6
Single Row—**Non-Loading Groove** Extra Light Series	–	**3**	**L**	0	6
Same, but **Light Series**	–	3	**2**	0	6
Same, but **Medium Series**	–	3	**3**	0	6
Double Row—Light Series	–	**5**	**2**	0	6
Same, but **Medium Series**	–	5	**3**	0	6
Double Row—**One Shield**—Light Series	–	5	**5**	0	6
Same—Two Shields—**Medium Series**	**5**	5	**6**	0	6
Same—**Two Seals**—Light Series	**Z99**	5	**2**	0	6
Shielded—Light Series—Loading Groove	–	**7**	2	0	6
Same, with **Two Shields**—one on each side	**7**	**7**	2	0	6
Same, but **Medium Series**	7	7	**3**	0	6
Shielded—Light Series—**Non-Loading Groove**	–	**7**	**5**	0	6
Same, with **Two Shields**—one on each side	**7**	**7**	5	0	6
Same, but **Medium Series**	7	7	**6**	0	6
Sealed—Light Series—St'd. Single Row Width	–	**Z9**	5	0	6
Same, with **Two Sentri Seals**—one on each side	**Z9**	**9**	5	0	6
Sealed—Light Series—Two Seals—**Double Row Width**	Z9	9	**8**	0	6
ND Seal—Light Series—Non-Loading Groove	–	**8**	5	0	6
Same, with **Two Seals**—one on each side	**8**	**8**	5	0	6
Same, but **Medium Series**	8	8	**6**	0	6
Angular Contact—**Extra Light Series**—Light Series	–	**0**	**L**	0	6
Same, but **Light Series**	**2**	**0**	**2**	0	6
Same, but **Medium Series**	H2	0	**3**	0	6
Same, but **Heavy Series**	3	0	**4**	0	6
Snap Ring—Single Row—Light Series—**Loading Groove**	**4**	**1**	2	0	6
Snap Ring—Single Row—Light Series—**Non-Loading Groove**	4	**3**	2	0	6
Snap Ring—Single Row—**Medium Series**—Non-Loading Groove	4	3	**3**	0	6
Snap Ring—Single Row—Loading Groove—**Shielded**--Light	4	**7**	2	0	6
Snap Ring—Single Row—**Non-Loading Groove**—Light	4	7	**5**	0	6
Snap Ring—Single Row—Non-Loading Groove—**Medium**	4	7	**6**	0	6

The above table covers graphically the more common bearing types, illustrating the New Departure system for applying numerical designations to the various bearing characteristics.

PREFIXES AND SUFFIXES

Unless otherwise indicated, Prefixes and Suffixes are part of the bearing number.

Prefix	Suffix	INDICATES
	A	Immediately following basic bearing number—specialty letter. (Indicates some deviation from standard).
AB		Adapter bearing with wide inner ring, set screw locking type.
AE		Adapter bearing with wide inner ring, eccentric locking collar type.
AG		Agricultural Bearing with two piece flanged outer ring.
AP		Aircraft pulley bearing.
AS		Agricultural seal (usually multiple lip type).
	B	Specialty letter. Separable inner race used on some commercial and instrument bearings.
C		Steel Slinger-type Seal.
	C	Specialty letter. Cylindrical OD for Adapter bearings.
CB		Conveyor Roll Bearing.
CF		Cam follower bearing.
CS		Close wound coil spring stainless steel separator.
CT		Clutch Throwout Bearing.
CWC		Steel Slinger Seal, Wide Outer Ring.
D		Rear-Wheel-type seal. (Steel slinger and felt seal.)
	D	Specialty letter.
	DB	Duplex Bearing—Back to Back Mounting } Follows basic number and its prefixes &/or suffixes: Example: QN0207A DB L5 A
	DF	Duplex Bearing—Face to Face Mounting }
	DT	Duplex Bearing—Tandem Mounting }
	E	Specialty letter.
F		With Flush Type Angular Contact Bearing, single row end play. Inch Type, without separator.
FL		Pressed metal flange, used in pairs on a spherical O.D. bearing.
FT		Flat thrust bearings.
	F	Specialty letter.
H		With 0LL00, 0L00 and 20000 Series Angular Contact Bearing—25° Contact Angle.
	H	Specialty letter.
J		Angular contact bearing with snap on inner ring (counter bore).
	J	Specialty letter.
	K	Specialty letter.
	L	"Loose" Endplay (except Duplex Bearings)—follows basic bearing number and its suffixes: e.g. 5305 L1A, 5306 L.
	L	Duplex Bearings—Standard Fit-up (light pre-load)—follows "DB," "DF" or "DT": e.g. H20305DT L1A.
LC		Type AE Adapter Bearing Less Collar. Warehouse carries with collar.
	LR	Loose Radial Play.
M		With inch dimension bearings—Miniature stainless steel instrument bearings.
	MR	Minimum radial play.
N		Flanged Outer Race.
	N	With Single Row—Extra Loose End-Play (formerly "EL").
	NR	Radial play—Looser than LR.
ND		Magneto Series (separable).
NF		See individual descriptions of "N" and "F" prefixes.
PF		Agricultural idler unit for flat belts.
PV		Agricultural idler unit for V belt.
	P	Specialty letter.
Q		Non-metallic Separator.
R		With Sealed Bearings—Relubrication Feature. Inch type with separator.
RE		Adapter bearings having peripheral groove and 2 lube holes.
	R	Specialty letter. (When not preceded by X, L, M or N.)
RS		Removable Shields.
RW		Rear Wheel.
S		Open Wound Coil Spring Separator of Stainless Steel.
	S	Special Internal fit-up or preload.
SR		Stainless steel separator. If used in a bearing having shields or seals, the sheet metal closures are stainless steel.
SS		Stainless Steel.
T		Combined with another letter (TC, TM, TP, etc.) significes various textile bearing types.
T		Armor Gard seal (non removable).
TE		Agricultural adapter bearings using ARMOR GARD seals.
	T	Tight internal fit-up (except Duplex Bearings)—follows basis bearing number and its Suffixes: e.g. 5306T.
	T	Duplex Bearings—Heavy Pre-load—follows basic bearing number and its suffixes: e.g. Q20210DT T5A.
Type		Following suffix DT, DF, DB indicates one piece only of pair.
U		"Universal" single Angular Contact Bearing—ground for Duplex Back-to-Back, Face-to-Face or Tandem mounting. Example: Two U20200 L5 may be used as 20200 DB L5A, 20200 DF L5A or 20200 DTL5A. May also be used singly.
	U	Specialty letter.

Prefixes and Suffixes—Cont'd

Prefix	Suffix	INDICATES
V		Cast Bronze Machined Separator.
	V	Snap-ring on opposite side from standard (std. is on loading groove side, opposite shield or seal, as illustrated).
	W	With Double Row—Externally diverging contact angles—Reversed Contact Angle.
WC		Wide Cup Seal Bearing—Outer Ring extended so as to be flush with Inner Ring on one face.
WD		Two piece, cylindrical pocket, intregal saddle, outer ring controlled, pressed phosphor bronze separator.
WE		Adapter bearings with wide inner ring, land riding seals and seal guards.
X		With 88000 Seal Bearings—Free seal fit-up for Propeller Shaft Bearings.
	X	Standard Endplay & Noise Test (except on Single Angular Contact and Duplex Bearings). Usually omitted, thus 3205 X1A is simply shown as "3205."
	#	Angular Contact Bearings—Single Bearings Only—No preload (Do not use for Duplex Mounting). Omitted when Standard, thus H20305 #1 is simply shown as "H20305."
	X	Duplex Bearings—Medium preload. Follows "DB," "DF," or "DT" e.g. H20305 DT X1A.
	XR	Standard Radial Play.
	Y	Low Speed Noise Test.
Z		Removable molded synthetic rubber seal or shield.
	ZA	.0002 Maximum Radial Play.
	ZB	.0001—.0003 Radial Play.
	ZC	.0002—.0004 Radial Play.
	ZD	.0003—.0005 Radial Play.
	ZE	.0004—.0006 Radial Play.
	ZF	.0005—.0008 Radial Play.
	ZH	.0008—.0011 Radial Play.
1 Digit Figures		Immediately following Basic Bearing No. and End Play Symbol—Degree of Precision 1—ABEC1 3—ABEC3 5—ABEC5 7—ABEC7, New Departure Perfix. 9—New Departure Ultra Perfix.
4 Digit Figures		Immediately following Basic Bearing No. and End Play Symbol—Special Feature (See Sp. Specs. page 49).
Last Suffix Letter(s)		Type of Grease Packing—Examples: X1 A (A grease), XY1C (C grease), T3 CF (CF grease), DB L5A (A grease) etc. (See pages 50 and 51.)
1 Digit Figure		Following Grease Suffix letters indicates other than standard, volume or method of applying lubricant. (See page 51.)

SPECIAL SPECIFICATIONS

The most frequently used of many four digit specifications immediately following End-Play or Pre-Load Symbol. The first digit at left indicates grade. Thus "1213" indicates ABEC-1. The second digit changes to zero for higher grades. Thus "3013" indicates ABEC-3, and "5013" is ABEC-5. EXAMPLE: 41208 X1241 A indicates standard internal fit-up, without Snap Ring, A Grease.

Spec. No.	Indicates
1210	No shield groove in inner ring.
1212	Free running felts.
1213	Width of cup and cone +.000 −.002.
1214	End play or radial play symbol etched on bearing.
1217	Double row bearings. Special limits on bearing runouts.
1224	Special cleaning and noise test.
1225	Special noise test.
1227	Single row and single shielded. Matched DB on non-shielded and non-stamped side.
1228	Hand feel test.
1241	Ship without snap ring.
1245	High points of eccentricity marked on cup and cone.
1250	Special noise test and no snap ring.
1266	Air solvent cleaning.
1268	Use on "Z" type bearings PA21 high temperature seal material.
1270	Special noise test.
1272	Minimum seal drag.
1273	Etch specification on bearing.
1279	Etch grease code letter on bearing face.
1296	No AFBMA out-of-roundness tolerances on bore diameter.
1318	Special tolerances on Bore and O.D. permissible.
1376	Special end play, noise test and ship without snap rings.
1446	¼ full "C" grease. Special noise test and end play.
1460	Etch "RT" on bearing.
1466	Viton seals.
1581	Cone stickout beyond seal parts must be .005 minimum with end play taken up.
1681	Cone bore diameter must be within nominal tolerances, cone eccentricitiy .0002 maximum.
1730	Special width and special cone runout tolerance also extra quiet.
1754	High temperature low torque seals.
1773	Special end play—Special sound test.
1774	Radial play .0002 to .0005 hand feel test.
1796	Mark high points of eccentricity on cone.
1834	V grease 30% full air solvent cleaning.
1918	Special end play.
1961	Special sound test, special snap ring.
1978	"C" ¼ to ⅓ full special noise test.
2100	Obsolete specification. Replaced by "9" after grease letter.
3030	Runout of cup and cone held closer than ABEC 3.
3031	Same as 3030 except that bore and O.D. tolerance only marked on bearing.
3097	Special sound test.
3150	Special end play. "L" type separator. Air solvent cleaned. Etch bearings "S3150."
3160	Etch letters "RT" on bearing.
3165	End play letter and specification numeral etched on bearing.
3186	Special noise test PX balls.
3666	Special overall width.
3788	Eccentricity of cone .0002 maximum.
5038	Mark bore and O.D. tolerances and cup and cone eccentricities on bearings.
5106	Special noise test. Mark bore and O.D. tolerances and cup and cone eccentricities on bearings.

EXAMPLE: 47106 X1241 A is without Snap Ring—it is OK to substitute a standard 47106 if Snap Ring is removed and mechanic told to "Use Old Snap Ring." (Same true of "1250.")

SLUSH OR GREASE CODE

STANDARD LUBRICANTS and CORROSION PREVENTIVES used in each type and size range of New Departure Bearings. These code letters are the last letters in the bearing part number suffix, but, when standard, are omitted from catalogs, price lists, invoices and bearing boxes. Thus "3205" means "3205 X1 **A**," "7505" means X1 **C**," while "7506" means "7506 X1 **A**." Complete part number thru lubricant letter is used when other than standard lubricant is used, e.g., "7505 X1 **A**." A numeral or letter appearing after the lubricant letter indicates some variance from standard. (See bottom of page 54.)

Type of Bearings		Bore Number				Std Slush or Grease All Spec.	Std Grease Volume ± 5%
		Extra Light	Light	Medium	Heavy		
Single Row Radial (Not including R88000, R87000, RWC88000, and RWC87000) Single Row Ang. Contact (Includes 30 Series Instrument Bearings)	Open	All Sizes				A	
	Single Shield	Under 6	Under 6	Under 5		C	50%
		6 up	6 up	5 up	4 up	A	
	Single Seal	Under 10	Under 8	Under 7	Under 5	C	50%
		10 up	8 up	7 up	5 up	B	50%
	Double Shield Seal & Shield Double Seal	Under 10	Under 8	Under 7	Under 5	C	25%
		10 up	8 up	7 up	5 up	B	25%
Double Row	Same as above						50%
Inch Type (Includes miniature and inch type Instrument Bearings)	Open	All Sizes				A	
	Single Shield	Under 16				C	50%
		16 up				A	
	Double Shield	Under 6				C	40%
		6 up				C	25%
Single Row Radial R88000, R87000, RWC88000, RWC87000	Seal & Shield		Under 8			C	40%
	Double Seal		8			B	40%
Cartridge	Double Seal	Z99800—Z99900—All Sizes				C	50%
Adapter		Z99AB—All Sizes				Z	40%
		Z99AE—All Sizes				Z	40%
		R88A—All Sizes				Z	40%
Magneto	Open	All Sizes				A	
Front Wheel and Parts	Open	All Sizes				A	
Rear Wheel	Double Seal	RW500 Series All Others				Z BC	40% 40%
Propeller Shaft	Double Seal	All Sizes				C	40%
Aircraft Pulley Bearings						E	Full
Clutch Throwout	Open	4L24A, B, C and E				A	
	Single Shield	All Others				C	60%
Fan and Water Pump	Double Seal	All Sizes				Z	45%
Steering Arm	Double Seal	916				Z	75%
	Single Seal	924-924A				Z	100%
Roller Tooth	Open	All Sizes				A	
Textile		TC-2-504 All TM-505 Series TP-15-500, TP-23-500 TP-17-500 TP-20-500, TP-21-500 TP-30 TS-2				C C C A C C C	40% 40% 40% 75% 25% 100%
Conveyor	Seal & Shield	All Sizes				Z	75%
	Double Seal	All Sizes				Z	80%
Flat Thrust Bearings		FT17 and FT32A				C	60%
Agricultural	Double Seal	Cam followers (CF Series) Light Disc (Z99502U, Z99503U, 87504U, & 87504A16) Hay Rake bearings (900537 and 900539)				Z	75%
		Heavy Duty Disc Bearings (AS4500 Series)				Z	90%

Present	ND-H Codes	Preferred ND-H Code
MIL-L-644B	KA	KA
MIL-L-2104A(1)	FH	FH
*MIL-G-3278A	E,BV,HD	E
MIL-G-3545A	BC,KW,LD	
MIL-L-4343A(1)	CL,FZ	
MIL-L-6085A(2)	J,W,DO,CH	J
MIL-G-7187(1)	HN	HN
MIL-G-7421B(1)	BX	BX
MIL-G-7711A	T	T
MIL-L-7870A	U,KA,DN	KA
MIL-C-8188C	FT	FT
MIL-G-10924B	AX	AX
MIL-C-11796B Class 3	CO	CO
MIL-C-14201A Grade 2	HW	HW
MIL-L-15719A(3)	FX,BR	
*MIL-G-15793(2)	BV	BV
MIL-L-16958A(1)	CN	CN
MIL-L-17353A	CW	CW
MIL-G-18709A(2)	B,V	B
MIL-C-22235	KM	KM
MIL-G-23827	CJ,KZ	
MIL-G-25013C(1)	HU,KJ,LC	
MIL-G-25537(1)	HR	HR
MIL-G-25760A(3)	JT	
MIL-G-27343	HU,LC	

*Specification cancelled, requirements included in MIL-G23827.

Specifications	
Designation	Superseded By
2-106	MIL-G-10924
2-134	MIL-G-3278
14-G-8	MIL-G-15793
14-G-11	MIL-L-3545
14-L-3	MIL-G-18709
14-L-7	MIL-L-3545
14-L-15	MIL-L-16958
14-O-20	MIL-L-6085
AN-C-124	MIL-C-11796
AN-G-5	MIL-L-3545
AN-G-10	MIL-G-7118
AN-G-15	MIL-L-7711
AN-G-25	MIL-G-3278
AN-O-6	MIL-L-7870
AN-O-11	MIL-L-6085
AXS-781	MIL-G-10924
AXS-1169	MIL-G-10924
AXS-1767	MIL-L-644
JAN-L-644	MIL-L-644
MIL-L-7808B	MIL-L-7808
MIL-O-6084	MIL-L-644
MIL-O-6085	MIL-L-6085

See page 54 for description of ND grease and oil code letters.

STANDARD GREASES AND OILS

Ball bearings rely on lubricants principally to prevent metal to metal contact of components wherever it may occur. Proper separator function depends largely on efficient lubrication. In addition, lubricants conduct heat away from heavily loaded areas, and prevent corrosion of bearing parts. Coupled with efficient seals as in New Departure sealed-for-life bearings, lubricants must be long-lived to assure constant and adequate lubrication to the bearing.

ND Code	Lubricant	Temperature (°F)	Major Characteristics
A	Rust inhibitor	.....	Soft, semi-fluid oxidation inhibited rust preventive for general use.
B	Sodium soap-petroleum oil grease	− 25° to 250°	Noise reduction at light loads. Good rust prevention under humid conditions.
BC	Sodium soap-petroleum oil grease	− 25° to 300°	Heavy loads. High temperature.
BR	Lithium soap-silicone grease	− 35° to 400°	Light loads. Extra high temperature.
BX	Lithium soap-diester grease	−100° to 200°	Extra low temperature. Satisfactory with Buna N seals. Not to be used with (Hycar) PA21 or Neoprene seals
C	Sodium soap-petroleum oil grease	− 25° to 250°	General purpose. Combines good rust prevention under humid conditions with lubricating qualities covering a wide temperature range.
CJ	Microgel thickened diester grease	− 65° to 250°	Low temperature. Water resistant. Satisfactory with Buna N seals, not to be used with (Hycar) PA21 or Neoprene seals.
DU	Sodium soap polyester grease	− 50° to 350°	Moderate load and high temperature. Satisfactory with Buna N seals, not to be used with (Hycar) PA21 or Neoprene seals.
E	Lithium soap-diester grease	− 67° to 250°	Low temperature. Water resistant. Satisfactory with Buna N seals. Not to be used with (Hycar) PA21 or Neoprene seals
HU	Organic pigment thickened silicone grease	−100° to 450°	Light load. Used only where both extremely low and high temperatures are experienced.
HV	Organic pigment thickened silicone grease	− 40° to 450°	Light load and high temperatures.
J	Diester oil	− 67° to 250°	Instrument oil. Satisfactory with Buna N seals. Not to be used with (Hycar) PA21 or Neoprene seals
V	Sodium soap-petroleum oil grease	− 25° to 300°	High temperature.
Z	Lithium soap-petroleum oil grease	− 25° to 225°	Water resistant.

The following numbers (except 9) or a letter following the lubrication letter or letters indicate the oil or grease lubrication volume for volumes other than standard. Example: 7505X1C3 means ¼ full of C grease.

1. Indicates the low amount of specified oil applied by Oil Mist Spray process.
2. Indicates 1/6 to ⅛ full of grease specified.
3. Indicates ¼ full of grease specified.
4. Indicates 40% full of grease specified.
5. Indicates 50% full of grease specified.
6. Indicates 30% full of grease specified.
8. Indicates 75% full of grease specified.
9. Indicates special washing, rinsing and handling with clean gloves. (Details furnished on request.)

F Indicates 100% full of grease specified.

FRACTIONS OF AN INCH — DECIMAL EQUIVALENTS

fractions	decimals	fractions	decimals
1/64	.015625	33/64	.515625
1/32	.03125	17/32	.53125
3/64	.046875	35/64	.546875
1/16	.0625	9/16	.5625
5/64	.078125	37/64	.578125
3/32	.09375	19/32	.59375
7/64	.109375	39/64	.609375
1/8	.1250	5/8	.6250
9/64	.140625	41/64	.640625
5/32	.15625	21/32	.65625
11/64	.171875	43/64	.671875
3/16	.1875	11/16	.6875
13/64	.203125	45/64	.703125
7/32	.21875	23/32	.71875
15/64	.234375	47/64	.734375
1/4	.2500	3/4	.7500
17/64	.265625	49/64	.765625
9/32	.28125	25/32	.78125
19/64	.296875	51/64	.796875
5/16	.3125	13/16	.8125
21/64	.328125	53/64	.828125
11/32	.34375	27/32	.84375
23/64	.359375	55/64	.859375
3/8	.3750	7/8	.8750
25/64	.390625	57/64	.890625
13/32	.40625	29/32	.90625
27/64	.421875	59/64	.921875
7/16	.4375	15/16	.9375
29/64	.453125	61/64	.953125
15/32	.46875	31/32	.96875
31/64	.484375	63/64	.984375
1/2	.5000	1	1.0000

MILLIMETER TO INCH CONVERSION TABLE

mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
1	0.0394	51	2.0079	101	3.9764	151	5.9449	201	7.9134
2	0.0787	52	2.0472	102	4.0157	152	5.9843	202	7.9528
3	0.1181	53	2.0866	103	4.0551	153	6.0236	203	7.9921
4	0.1575	54	2.1260	104	4.0945	154	6.0630	204	8.0315
5	0.1969	55	2.1654	105	4.1339	155	6.1024	205	8.0709
6	0.2362	56	2.2047	106	4.1732	156	6.1417	206	8.1102
7	0.2756	57	2.2441	107	4.2126	157	6.1811	207	8.1496
8	0.3150	58	2.2835	108	4.2520	158	6.2205	208	8.1890
9	0.3543	59	2.3228	109	4.2913	159	6.2598	209	8.2283
10	0.3937	60	2.3622	110	4.3307	160	6.2992	210	8.2677
11	0.4331	61	2.4016	111	4.3701	161	6.3386	211	8.3071
12	0.4724	62	2.4409	112	4.4094	162	6.3780	212	8.3465
13	0.5118	63	2.4803	113	4.4488	163	6.4173	213	8.3858
14	0.5512	64	2.5197	114	4.4882	164	6.4567	214	8.4252
15	0.5906	65	2.5591	115	4.5276	165	6.4961	215	8.4646
16	0.6299	66	2.5984	116	4.5669	166	6.5354	216	8.5039
17	0.6693	67	2.6378	117	4.6063	167	6.5748	217	8.5433
18	0.7087	68	2.6772	118	4.6457	168	6.6142	218	8.5827
19	0.7480	69	2.7165	119	4.6850	169	6.6535	219	8.6220
20	0.7874	70	2.7559	120	4.7244	170	6.6929	220	8.6614
21	0.8268	71	2.7953	121	4.7638	171	6.7323	221	8.7008
22	0.8661	72	2.8346	122	4.8031	172	6.7717	222	8.7402
23	0.9055	73	2.8740	123	4.8425	173	6.8110	223	8.7795
24	0.9449	74	2.9134	124	4.8819	174	6.8504	224	8.8189
25	0.9843	75	2.9528	125	4.9213	175	6.8898	225	8.8583
26	1.0236	76	2.9921	126	4.9606	176	6.9291	226	8.8976
27	1.0630	77	3.0315	127	5.0000	177	6.9685	227	8.9370
28	1.1024	78	3.0709	128	5.0394	178	7.0079	228	8.9764
29	1.1417	79	3.1102	129	5.0787	179	7.0472	229	9.0157
30	1.1811	80	3.1496	130	5.1181	180	7.0866	230	9.0551
31	1.2205	81	3.1890	131	5.1575	181	7.1260	231	9.0945
32	1.2598	82	3.2283	132	5.1969	182	7.1654	232	9.1339
33	1.2992	83	3.2677	133	5.2362	183	7.2047	233	9.1732
34	1.3386	84	3.3071	134	5.2756	184	7.2441	234	9.2126
35	1.3780	85	3.3465	135	5.3150	185	7.2835	235	9.2520
36	1.4173	86	3.3858	136	5.3543	186	7.3228	236	9.2913
37	1.4567	87	3.4252	137	5.3937	187	7.3622	237	9.3307
38	1.4961	88	3.4646	138	5.4331	188	7.4016	238	9.3701
39	1.5354	89	3.5039	139	5.4724	189	7.4409	239	9.4094
40	1.5748	90	3.5433	140	5.5118	190	7.4803	240	9.4488
41	1.6142	91	3.5827	141	5.5512	191	7.5197	241	9.4882
42	1.6535	92	3.6220	142	5.5906	192	7.5591	242	9.5276
43	1.6929	93	3.6614	143	5.6299	193	7.5984	243	9.5669
44	1.7323	94	3.7008	144	5.6693	194	7.6378	244	9.6063
45	1.7717	95	3.7402	145	5.7087	195	7.6772	245	9.6457
46	1.8110	96	3.7795	146	5.7480	196	7.7165	246	9.6850
47	1.8504	97	3.8189	147	5.7874	197	7.7559	247	9.7244
48	1.8898	98	3.8583	148	5.8268	198	7.7953	248	9.7638
49	1.9291	99	3.8976	149	5.8661	199	7.8346	249	9.8031
50	1.9685	100	3.9370	150	5.9055	200	7.8740	250	9.8425

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BEARING SELECTION

Basis of Bearing Load Ratings

Fatigue in General

Establishment of the load capacity of a mechanical structure often requires determination only of that limiting load beyond which some permanent deformation or rupture of the material will occur.

However, if a load is applied repeatedly so as to cause a rapid alternation of stresses, a gradual deterioration of the material will take place, even though the stress range is well within the elastic limit. This deterioration or loss of molecular strength, called fatigue, does not in any way impair the usefulness or operation of the machine element until after a sufficient repetition of the stress, an actual breaking down of the material structure occurs. This is known as fatigue failure.

It is obvious, therefore, that determination of the load capacity of any mechanical device subject to fatigue must involve consideration not only of the load, but also of the length of service such a device may be expected to deliver before fatigue failure occurs.

Fatigue in Ball Bearings

Ball bearings do not suddenly break down for no apparent reason, nor do they wear out in the sense of loss of dimension and accurate positioning characteristics. In a ball bearing running under load the balls and raceways are subjected to a continuous repetition of stresses. After long and carefree service they may begin to show the effect of that fatigue common to all structural material subject to repeated stresses.

This is normal life. All other causes of failure are premature and can definitely be prevented by correct design, mounting and maintenance practice.

The principal factors affecting the length of time that a bearing will function normally, are, therefore: load, which determines the **magnitude** of stress, and speed, which determines **frequency** of stress repetition.

Various details of design also are important, their handling being correlative to the experience and judgment of the bearing manufacturer in achieving the most desirable balance between capacity, endurance and reliability. For instance, the magnitude of the stress is affected by ball diameter, number of balls and curvature of the raceways while frequency of the stress is affected by number and size of balls and the pitch circle. The thoroughly experienced manufacturer knows that extra ball size or number, if overemphasized, can result in weaknesses which may more than offset any apparent gain to the user.

Under a given load the life of a ball bearing is a certain number of revolutions or a certain number of stress cycles. Therefore, this life may be shortened or lengthened by increasing or decreasing the bearing speed.

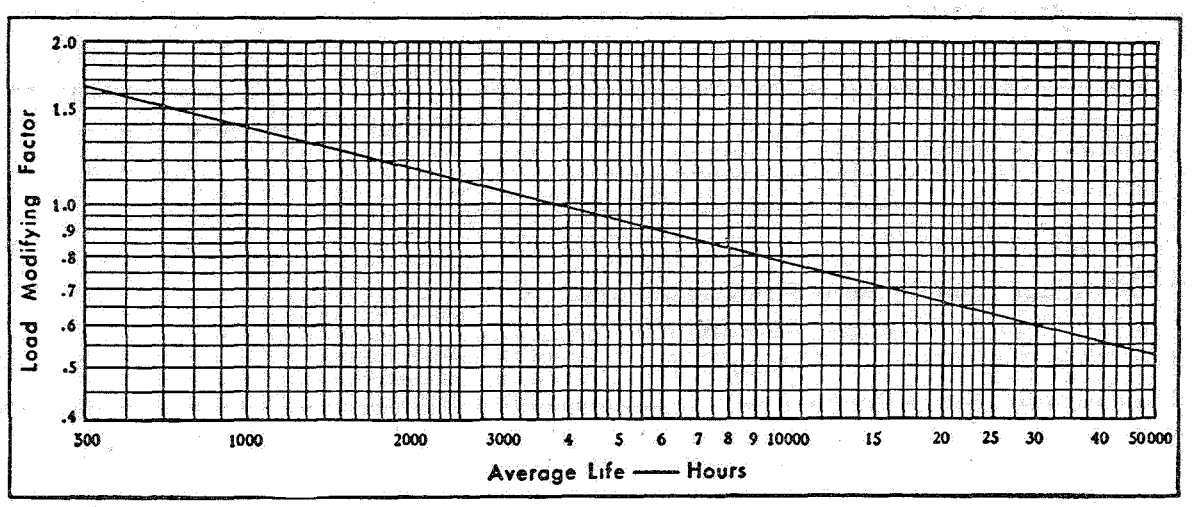
Long series of tests have shown that the fatigue life of a ball bearing varies inversely as the 4th power of the load and inversely as the speed. In other words, if the load is reduced by one-half with the speed unchanged, bearing life will be increased sixteen times. Also, if the load is unchanged but the speed is doubled, the life is reduced one-half.

Thus, it is evident that the load rating of a ball bearing must be stated in terms of load at speeds corresponding to a certain expected life.

Expected Life

No matter how much care is devoted to the selection of materials and their fabrication into a device, a certain variation in the lives of apparently identical individual items subjected to the same service, will inevitably occur.

No steel is more uniform than that used for ball bearings. No other commercial product is so uniformly accurate in dimension, yet this variation in inidividual bearings still occurs. The expected life of a ball bearing must, therefore, be the average life of identical bearings subjected to the same load and speed conditions. Sufficiently large groups of bearings must be considered in order to assure the reliability of this average life. It is clear that the constancy of the average is maintained by the uniformity which the manufacturer achieves in producing bearings of any type or size.



Graph Giving Load Modifying Factors for Desired Average Life in Hours.

BEARING SELECTION—Basis of Bearing Load Ratings—Continued

Uniformity of Life Distribution

Although the fatigue life of apparently identical bearings shows a variation, tests of sufficiently large groups of bearings of any type or size demonstrate a remarkable **uniformity of life distribution.** In other words, regardless of make, type or size, the number of fatigue failures that can be anticipated at any given percentage of the average life, has been shown to conform to a definite and uniform pattern. Thus, though a variation in the **average life** of different makes or sizes of bearings may be experienced, the **distribution** of fatigue failures from which each average is derived, remains characteristic for all groups.

This fact is of decided importance in the determination of a bearing size requirement. Considered alone, it would tend to induce the use of extravagantly large sizes, but an experienced bearing engineer, in arriving at his recommendation balances variation in life against continuity of loading and speed and variable mounting conditions, as dictated by his experience in similar cases.

Load Ratings

In developing a system of bearing ratings, New Departure has considered it most satisfactory to establish one basic load rating corresponding to a given average or expected life. Thus, the ratings tabulated in this and other New Departure catalogs correspond to an average bearing life of 3800 hours at the speeds listed. For a more complete listing of radial and thrust ratings see New Departure General Catalog.

If another average life is desired the catalog load ratings must be modified by multiplying with the corresponding factor found at the left in the graph shown on page 58.

Application

Ball bearing application engineering is a highly specialized field, demanding not only a broad and intimate knowledge of the many details involved in bearing design, manufacture and installation, but also of a great many other subjects, directly or indirectly associated.

New Departure Hyatt load ratings, with the constant life reference point for all bearing types, represent a vast amount of research work and mathematical analysis, with many years of endurance testing of bearings alone, reinforced by a very broad experience with field, as well as laboratory tests of bearings in actual installations.

The results from such involved programs of research are impressive, including as they do, investigation of the many variables, each of which must be considered in relation to others. However, it is realized that the presentation of data of such wide scope in the abbreviated form unavoidable in any book of this nature could be subject to serious misinterpretion through incompleteness.

For such reasons, it is believed that a statement of principles to act as a guide in the preliminary stages of design is more desirable than any attempt to present an extensive technical discussion which could be mistaken as a substitute for the services of a skilled bearing engineer.

Determination of Bearing Size or Expected Average Bearing Life

After the desired type of bearing is selected; i.e., single row, type 3000, double row, type 5000, etc., it is necessary to determine the proper size to give the required life or, if size is dictated by other considerations, to calculate the expected average life.

In most applications, ball bearings are subjected to some combination of thrust and radial loads.

If combined loads exist it becomes necessary to convert them to a radial equivalent.

Use of Combined Load Factors F_C, page 61, makes it possible to convert computed radial and thrust load components to an "equivalent radial load." This "equivalent load" is that radial load which would result in the same average bearing life as the actual loads. Thus this "equivalent" load allows use of the radial load ratings for all cases where bearings are subject to combined radial and thrust loads.

Examples following illustrate typical problems and procedure for solution:

Symbols

- R = Radial load or radial load component
- T = Thrust load or thrust load component
- S = Effective operating speed in RPM (subject 2, page 60)
- R_E = Equivalent radial load
- F_C = Combined load factor (table, page 61)
- F_L = Life modifying factor (graph, page 60)
- F_S = Speed factor (table, page 62)
- R_R = Radial rating at RPM as in catalog or radial rating required at a given speed
- R_T = Thrust rating at RPM as in catalog or thrust rating required at a given speed
- L = Expected average bearing life

Example I

Given: Bearing type = 3000 series
Radial load R = 800 lbs.
Thrust load T = 1000 lbs.
Effective operating speed S = 2000 RPM

Problem. Select proper size to give expected average bearing life, L of 18,000 hours.

Solution: In this case the radial rating required to give the desired life is:

$$R_{R\ (at\ 2000\ RPM)} = R_E \times F_L = R \times F_C \times F_L$$

Since $\frac{T}{R} = \frac{1000}{800} = 1.25$, $F_C = 2.02$ (column A, page 61)

$F_L = 1.475$ (graph, page 60)

Therefore, $R_{R\ (at\ 2000\ RPM)} = 800 \times 2.02 \times 1.475 = 2384$ lbs.

Since ratings are not listed for 2000 RPM it is necessary to convert to a speed for which ratings are given. For convenience, 1000 RPM is normally selected.

$$R_{R\ (at\ 1000\ RPM)} = \frac{R_{R\ (at\ 2000\ RPM)}}{F_S}$$

$F_S = .8409$ (table, page 58)

$$\text{Therefore, } R_{R\ (at\ 1000\ RPM)} = \frac{2384}{.8409} = 2835 \text{ lbs.}$$

The radial load rating tables may now be entered at 1000 RPM and it will be found that the ratings of the 3213 or 3310 bearing (pages 5 and 6) most nearly equal 2835 lbs. Either of these bearings then, should operate at the assumed loads and speeds for an expected average life L of 18,000 hours.

Note: If radial load only exists:

$$R_E = R$$

Example II

Given: Bearing type = 3000 series
Radial load R = 10 lbs.
Thrust load T = 500 lbs.
Effective operating speed S = 1000 RPM

Problem: Select proper size to give expected average life, L of 12,000 hours.

Solution: If $\frac{T}{R}$ is above 10, the radial component may be neglected. Therefore, since $\frac{T}{R} = \frac{500}{10} = 50$, assume a pure thrust load of 500 lbs. only and the load rating required to give 12,000 hours average life is:

$R_T = T \times F_L = 500 \times 1.33 = 666$ lbs., $F_L = 1.33$ (graph, page 60)

The radial load tables (radial and thrust capacities for type 3000 being equal) may now be entered at 1000 rpm and it will be found that the radial or thrust ratings of the 3205 or 3303 bearing (pages 5 and 6) most nearly equal 666 lbs. The 3303 bearing, however, should never be loaded by a thrust load of greater than 440 lbs. Since the actual thrust load is 500 lbs.

— Continued next page

BEARING SELECTION—Basis of Bearing Load Ratings—Continued

Example II—Cont'd.
this bearing should not be used. The 3205 bearing is satisfactory and should operate at the assumed loads and speeds for an expected average life L of 12,000 hours.

Example III

Given: Bearing type = number 3204
Radial load R = 200 lbs.
Thrust load T = 50 lbs.
Effective operating speed S = 3500 RPM

Problem: Determine expected average life L under load and speed conditions given.

$$\text{Solution: } L = 3800 \left(\frac{R_{R\,(3500)}}{R_E}\right)^4$$

R_E in this case is the catalog radial load rating for 3204 size bearing at 3500 RPM. Since ratings are not listed for this speed it is calculated as follows:

$$R_{E\,(at\ 3500\ RPM)} = R_{E\,(at\ 1000\ RPM)} \times F_S = 635 \times .7311 = 464 \text{ lbs.}$$
$$R_E = R \times F_C$$

$$\text{Since } \frac{T}{R} = \frac{50}{200} = .25,\ F_C = 1.09 \text{ (column A, page 61)}$$

Therefore, $R_E = 200 \times 1.09 = 218$ lbs.

$$\text{and } L = 3800 \left(\frac{464}{218}\right)^4 = 78{,}000 \text{ hours}$$

Note: If only thrust load exists, or if $\frac{T}{R}$ is above 10,

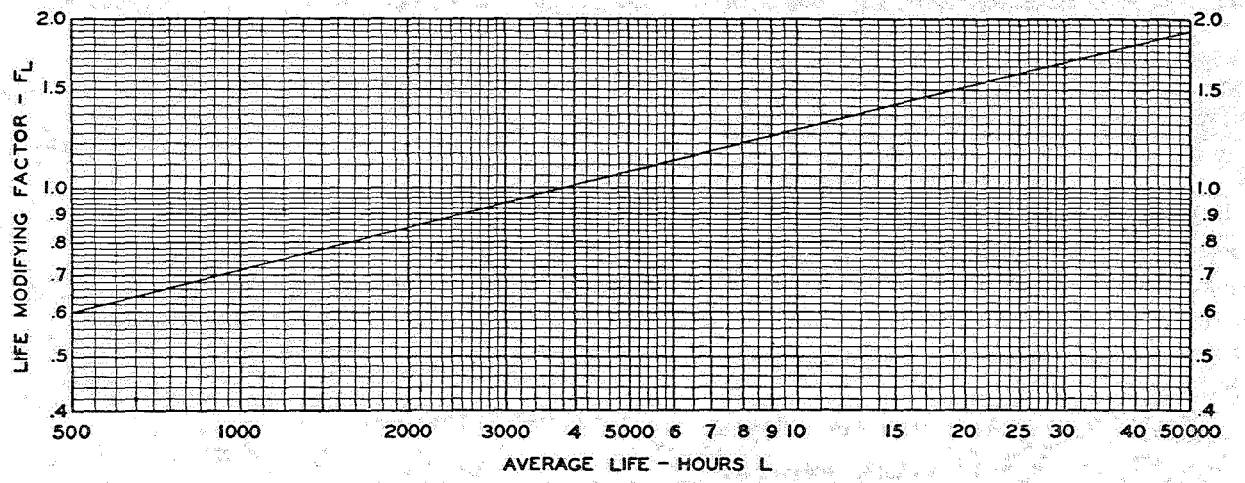
$$L = 3800 \left(\frac{R_T}{T}\right)^4$$

If only radial load exists $R_E = R$

Radial and Thrust Ratings of Duplex Bearings

The radial load rating of a duplex set of single row angular contact bearings (two single bearings as a pair, DF, DB or DT) at any speed, is 1.62 times the rating of one bearing.

The thrust rating for DF and DB sets is the same as for a single bearing since only one bearing carries all the thrust load in this combination. The thrust rating of a DT set of two bearings is 1.62 times the rating of one bearing. If more than two bearings are mounted in tandem or if DT sets are subjected to combinations of thrust and radial loads below $\frac{T}{R} = 10$, the New Departure Hyatt Bearings Representative should be consulted.



Graph For Selection of Life Modifying Factors F_L

Determination of Effective Operating Speed—S

When the direction of the load is stationary the effective operating speed S is the inner or outer ring RPM when only one is rotating. In cases where both rotate in the same direction,

S = difference in RPM of inner and outer rings

In cases where both rotate but in opposite directions,

S = sum of RPM of inner and outer rings

No decrease in capacity for outer ring rotating is necessary, when shaft is stationary and load rotates with outer ring. When shaft and load are both stationary (or rotate together) the equivalent radial load is increased by 10% to compensate for the fact that the more highly stressed inner race is always loaded in the same sector.

Quiet Running Limiting Loads

Limiting load ratings for bearings when not rotating must be based upon criteria entirely different from those used for rotating bearings.

Limiting radial ratings are defined as those which, if exceeded to any extent on a non-rotating bearing produce very small brinell marks in the races causing the bearing to become noisy when subsequently rotated under lighter loads. Radial loads up to approximately three times the limiting radial ratings may be applied to bearings when not rotating if a subsequent increase in noise level is not objectionable.

Radial loads up to approximately three times the limiting radial ratings may also be applied to rotating bearings without expecting an increase in noise level, provided the bearing makes several complete revolutions under the maximum load. The usual relations between life and load apply if proper lubrication is used to take care of the higher friction torque produced by the heavy loads.

Limiting thrust ratings are defined as those which result in contact ellipse stresses high enough to produce very small brinell marks in the races or to bring the contact ellipse to the edge of the race. In most bearings, the ellipse will reach the edge of the race before stresses become large enough to produce minute brinell marks.

Thrust loads greater than limiting thrust ratings should not be imposed on rotating bearings, but when not rotating, thrust loads in excess of limiting thrust ratings may be sometimes imposed. In instances where thrust loads exceed limiting ratings the New Departure Hyatt Bearings representative should be consulted.

Abnormal Conditions

Applications are sometimes found in which abnormal conditions exist. These conditions include vibratory, rotating or oscillatory loads or motions, very high or low operating speeds and temperatures (or a great range of speed or temperatures), excessive humidity or contaminated atmospheres, and cyclic variations of load and speed. Success of any installation depends on serious consideration of these factors. If such conditions exist the New Departure Hyatt Bearings representative should be consulted.

BEARING SELECTION—Load Conversion Factors

Combined Load Factors F_c for Conversion to Equivalent Radial Load

Bearing Type	Combined Load Factor F_c
Single Row Radial Bearings, Types 1000 Open or Shielded (Not recommended for pure thrust)	COLUMN A. For $\frac{T}{R}$ values above .6, consult N. D. Sales Eng.
Single Row Radial Bearings, Types 30, 3L00, 3000 Open or Shielded, ND-Seal Brgs., Inch Series Type R, and Rear Wheel Bearings	COLUMN A
One Row Angular Contact Types 0L00 and 20000	COLUMN B
One Row Angular Contact Type H20000	COLUMN C
One Row Angular Contact Type 30000	COLUMN D
Duplex Brgs., Types 0L00 DF and DB, 20000 DF and DB. (Radial Ratings for a Pair of Bearings Must Be Used — See Page 10.)	COLUMN E
Duplex Bearings, Types H20000 DF and DB. (Radial Ratings for a Pair of Bearings Must Be Used), Double Row Bearings, Type 5000 Open or Shielded.	COLUMN F
Duplex Bearings, Type 30000 DF and DB. (Radial Ratings for a Pair of Bearings Must Be Used.) Also 5307WM.	COLUMN G
Duplex Bearings, Type 0L00 DT, 20000 DT, H20000 DT, 30000 DT and Front Wheel Brgs.	Consult New Departure Sales Engineer

$\frac{T}{R}$	A	B	C	D	E	F	G
.05	1.01	1.00	1.00	1.00	1.04	1.03	1.01
.10	1.02	1.00	1.00	1.00	1.09	1.07	1.02
.15	1.04	1.00	1.00	1.00	1.14	1.10	1.04
.20	1.06	1.00	1.00	1.00	1.19	1.14	1.06
.25	1.09	1.00	1.00	1.00	1.24	1.17	1.09
.30	1.12	1.00	1.00	1.00	1.30	1.21	1.12
.35	1.16	1.00	1.00	1.00	1.37	1.25	1.16
.40	1.20	1.01	1.00	1.00	1.44	1.29	1.20
.45	1.24	1.01	1.00	1.00	1.51	1.33	1.24
.50	1.28	1.02	1.01	1.00	1.58	1.37	1.28
.60	1.37	1.02	1.02	1.00	1.73	1.46	1.34
.70	1.46	1.07	1.03	1.01	1.88	1.55	1.42
.80	1.56	1.15	1.05	1.01	2.02	1.64	1.50
.90	1.67	1.22	1.08	1.02	2.16	1.74	1.57
1.00	1.77	1.30	1.13	1.02	2.30	1.83	1.63
1.25	2.02	1.50	1.22	1.06	2.68	2.07	1.82
1.50	2.27	1.70	1.31	1.15	3.03	2.31	2.00
1.75	2.52	1.92	1.48	1.23	3.38	2.56	2.20
2.00	2.77	2.14	1.63	1.32	3.77	2.83	2.38
3.00	3.77	3.05	2.27	1.75	5.39	3.91	3.12
4.00	4.76	3.98	2.93	2.22	7.01	5.03	3.88
5.00	5.77	4.92	3.62	2.70	8.64	6.17	4.68
7.50	8.27	7.29	5.33	3.96	12.70	9.02	6.79
10.00	10.77	9.67	7.07	5.23	16.73	11.90	8.92

Where $\frac{T}{R}$ is above 10, neglect radial load and use pure thrust ratings.

See New Departure Vol. I Handbook.

BEARING SELECTION—Factors for Speeds Not Tabulated

RADIAL OR THRUST RATINGS AT SPEEDS NOT IN LOAD RATING TABLES

To obtain bearing ratings (either radial or thrust) at speeds other than those given in load rating tables:

Select the speed from the table below and multiply load rating at 1000 RPM given in load rating tables by factor F_S for the selected speed. Interpolation may be used with sufficient accuracy.

Thus: $R_{R\ (any\ RPM)} = R_{R\ (1000\ RPM)} \times F_S$

or $R_{T\ (any\ RPM)} = R_{T\ (1000\ RPM)} \times F_S$

For thrust ratings at 1000 RPM not shown in this publication see New Departure Catalog.

For speeds below 10 RPM use factor F_S for 10 RPM. For speeds above 10,000 RPM consult New Departure Hyatt Bearings representative.

Speed Factors F_S

RPM	F_S	RPM	F_S	RPM	F_S	RPM	F_S	RPM	F_S	RPM	F_S	RPM	F_S
		270	1.387	825	1.049	1725	.8726	3250	.7448	5100	.6654	8700	.5823
10	3.162	280	1.375	850	1.041	1750	.8695	3300	.7419	5200	.6622	8800	.5806
15	2.858	290	1.363	875	1.034	1775	.8664	3350	.7392	5300	.6591	8900	.5790
20	2.659	300	1.351	900	1.027	1800	.8633	3400	.7364	5400	.6560	9000	.5774
25	2.515	310	1.340	925	1.020	1825	.8604	3450	.7337	5500	.6530	9100	.5758
30	2.403	320	1.330	950	1.013	1850	.8575	3500	.7311	5600	.6501	9200	.5742
35	2.312	330	1.320	975	1.006	1875	.8546	3550	.7285	5700	.6472	9300	.5726
40	2.236	340	1.310	1000	1.000	1900	.8518	3600	.7260	5800	.6444	9400	.5711
45	2.171	350	1.300	1025	.9938	1925	.8490	3650	.7235	5900	.6416	9500	.5696
50	2.115	360	1.291	1050	.9878	1950	.8462	3700	.7210	6000	.6389	9600	.5681
55	2.065	370	1.282	1075	.9821	1975	.8436	3750	.7186	6100	.6363	9700	.5666
60	2.021	380	1.274	1100	.9765	2000	.8409	3800	.7162	6200	.6337	9800	.5652
65	1.981	390	1.265	1125	.9710	2050	.8357	3850	.7139	6300	.6312	9900	.5637
70	1.944	400	1.257	1150	.9657	2100	.8307	3900	.7116	6400	.6287	10000	.5624
75	1.911	410	1.250	1175	.9605	2150	.8258	3950	.7093	6500	.6263		
80	1.880	420	1.242	1200	.9554	2200	.8211	4000	.7071	6600	.6239		
85	1.852	430	1.235	1225	.9506	2250	.8165	4050	.7049	6700	.6215		
90	1.826	440	1.228	1250	.9457	2300	.8120	4100	.7027	6800	.6193		
95	1.801	450	1.221	1275	.9411	2350	.8077	4150	.7006	6900	.6170		
100	1.778	460	1.214	1300	.9365	2400	.8034	4200	.6985	7000	.6148		
110	1.736	470	1.208	1325	.9321	2450	.7993	4250	.6965	7100	.6126		
120	1.699	480	1.201	1350	.9277	2500	.7953	4300	.6944	7200	.6105		
130	1.665	490	1.195	1375	.9235	2550	.7914	4350	.6924	7300	.6084		
140	1.635	500	1.189	1400	.9193	2600	.7875	4400	.6905	7400	.6063		
150	1.607	525	1.175	1425	.9153	2650	.7838	4450	.6885	7500	.6043		
160	1.581	550	1.161	1450	.9113	2700	.7801	4500	.6866	7600	.6023		
170	1.557	575	1.149	1475	.9074	2750	.7765	4550	.6847	7700	.6003		
180	1.535	600	1.136	1500	.9036	2800	.7731	4600	.6828	7800	.5984		
190	1.515	625	1.125	1525	.8999	2850	.7696	4650	.6810	7900	.5965		
200	1.495	650	1.114	1550	.8962	2900	.7663	4700	.6792	8000	.5946		
210	1.477	675	1.103	1575	.8926	2950	.7630	4750	.6774	8100	.5928		
220	1.460	700	1.093	1600	.8891	3000	.7598	4800	.6756	8200	.5910		
230	1.444	725	1.084	1625	.8857	3050	.7567	4850	.6738	8300	.5892		
240	1.429	750	1.075	1650	.8823	3100	.7536	4900	.6721	8400	.5874		
250	1.414	775	1.066	1675	.8790	3150	.7506	4950	.6704	8500	.5856		
260	1.400	800	1.057	1700	.8758	3200	.7477	5000	.6687	8600	.5840		

BEARING TOLERANCES

New Departure employs bearing tolerances which are within the limits standardized in the ball bearing industry by the Anti-Friction Bearing Manufacturers Association through their Annular Bearing Engineers Committee (ABEC).

For general usage, bearings built to ABEC-1 standards are adequate. ABEC-3 and ABEC-5 grades are employed where smaller tolerances are required to give desired mounting and running characteristics. ABEC-7 and ABEC-9 grades are available for applications which require extreme accuracy such as certain machine tools and instruments.

The ABEC has established an allowance for bore and outside diameter to provide for out-of-roundness and taper conditions. These allowances apply only to ABEC-1 and ABEC-3 grade bearings and are expressed as $d_{min.}$ and $d_{max.}$ diameters. For a particular bearing,

$$d_m = \frac{d_{min.} + d_{max.}}{2}$$

where d_m is within the bore or O.D. tolerance range shown in the tabulation which follows.

In general, plain Single Row Radial and Angular Contact bearings are available in all the high (ABEC-5, -7 and -9) specification grades. For availability of a high specification on bearings having closures, snap rings, loading grooves, flanges or other specialties, consult your New Departure-Hyatt Sales Engineer.

Due to the nearly universal use of inch gauge blocks by American industry, the standard 4-Place Decimal Inch Conversion Table (based upon 1″ = 25.4 mm) is taken as the ruling nominal dimension. All tolerances are measured from this nominal 4-place decimal inch value and are given in decimal inches. The reference metric dimension may differ from the basic nominal inch dimension by as much as .00005″.

TOLERANCES ON INNER RING

Bore Number	Bore Diameter (+.0000″ to value below) A.B.E.C. Specification No. 1	3	5	7	9	Max. Radial Runout (Inches) A.B.E.C. Specification No. 1	3	5	7	9
0— 3	−.0003	−.0002	−.0002	−.00015	−.00010	.0004	.0003	.0002	.00010	.00005
4— 6	−.0004	−.0002	−.0002	−.00015	−.00010	.0005	.0003	.0002	.00015	.00010
7—10	−.0005	−.0003	−.0002	−.00020	−.00010	.0006	.0004	.0002	.00015	.00010
11—16	−.0006	−.0004	−.0003	−.00020	−.00015	.0008	.0004	.0002	.00015	.00010
17—24	−.0008	−.0005	−.0003	−.00025	−.00020	.0010	.0005	.0003	.00020	.00010
26—30	−.0010	−.0006	−.0004	−.00030	−.00025	.0012	.0006	.0003	.00030	.00010
32—36	−.0010	−.0006	−.0004	−.00030	−.00025	.0012	.0006	.0003	.00030	.00020
Bearing Number										
34—39	−.0003	−.0002	−.0002			.0003	.0002	.0002		
8006—09	−.0003					.0003				
8011—16	−.0003					.0004				
8026	−.0004					.0005				
R2—R4A	−.0003	−.0002	−.0002			.0003	.0002	.0002		
R2—R10	−.0003	−.0002	−.0002			.0004	.0003	.0002		
R12—R18	−.0004	−.0002	−.0002			.0005	.0003	.0002		
R20—R24	−.0005	−.0003	−.0002			.0006	.0004	.0002		

TOLERANCES ON OUTER RING

Bore Number			Outside Diameter (+.0000″ to value below) A.B.E.C. Specification No. 1	3	5	7	9	Max. Radial Runout (Inches) A.B.E.C. Specification No. 1	3	5	7	9
Extra Light	Light	Medium										
0— 1	0		−.0004	−.0003	−.0002	−.0002	−.00015	.0006	.0004	.0002	.0002	.00010
2— 5	1— 4	0— 3	−.0005	−.0003	−.0002	−.0002	−.00015	.0008	.0004	.0002	.0002	.00010
6—10	5— 8	4— 7	−.0005	−.0004	−.0003	−.0002	−.00015	.0010	.0005	.0003	.0002	.00015
11—15	9—13	8—11	−.0006	−.0004	−.0003	−.0003	−.00020	.0014	.0007	.0004	.0002	.00020
16—20	14—17	12—14	−.0008	−.0005	−.0004	−.0004	−.00020	.0016	.0008	.0004	.0003	.00020
21—24	18—20	15—17	−.0010	−.0006	−.0005	−.0004	−.00025	.0018	.0009	.0005	.0003	.00020
26—32	21—28	18—22	−.0012	−.0007	−.0005	−.0004	−.00030	.0020	.0010	.0005	.0004	.00025
Bearing Number												
34—39			−.0004	−.0003	−.0002			.0006	.0004	.0002		
8006—09			−.0004					.0006				
8011—16			−.0005					.0008				
8026			−.0005					.0010				
R2—R8			−.0004	−.0003	−.0002			.0006	.0004	.0002		
R10—R14			−.0005	−.0003	−.0002			.0008	.0004	.0002		
R16—R24			−.0005	−.0004	−.0003			.0010	.0005	.0003		

WIDTH TOLERANCES

Single Inner and Outer Rings	+.000 to −.005
Rings 10 mm and smaller, ABEC-7 and -9	+.000 to −.001
Double Ring Width on Duplex Bearings (0-16 Bore)	+.000 to −.020
Double Ring Width on Duplex Bearings (17-36 Bore)	+.000 to −.030

BEARING MOUNTING FITS

Explanation of Fits

Shaft and Housing Fits

In the majority of ball bearing applications, the shaft rotates and the housing is stationary. In some instances, however, such as various pulley and wheel mountings, the shaft is the stationary member. The following rule covers the fits to be used for both cases.

In general, ball bearings should be applied with the rotating ring a firm press or interference fit, and stationary ring a close push fit, the degree of tightness or looseness depending upon the service for which the bearings are intended. This rule is founded upon the following essential facts:

1. Under normal load conditions, a press-fitted ring will not slip or turn on or in a rotating shaft or housing, and wear in the latter parts is thereby avoided.

2. A bearing having one ring push-fitted and not clamped can move axially so as to avoid the imposition of excessive thrust loads, such as might be caused by changes in shaft length due to expansion.

3. General machine assembly may be accomplished with greater ease where one of the bearing rings is a push fit.

The above rule is general and cannot apply exactly to all conditions. Thus, for very heavy, vibratory or rotating loads, mounting fits for **both** shaft and housing would be made tighter. Also, for many precision applications the stationary ring would require closer than a push fit, not only to avoid radial looseness and excessive deflection under load, but to reduce or prevent creep, which in time might result in increased looseness of housing fit.

In the case of single row angular contact bearings to be applied opposed under a definite preload, either spaced apart or abutted as in duplex mountings, the fits frequently depart somewhat from the general rule for the following reason:

When these bearings are preloaded, a slight expansion occurs in the outer ring, which results in a tightening of the housing fit. Thus, in the case of medium size bearings, the housing may be finished to give a very snug push fit for assembly, but when the bearings are preloaded (always after assembly) the ultimate fit may be on the order of .0001″ tight. Because of this, adequate rigidity is obtained, yet assembly operations are facilitated.

"Expected" and "Theoretical" Fits

In the tables of bearing mounting fits given in this book, it will be noticed that the "theoretical fits" listed represent the maximum of either tightness or looseness that could be obtained in practice were the bearings, housings and shafts to vary the full limits of their respective tolerances.

Actually, investigation has proved that practically all applications result in fits that are very much more uniform and less extreme than the indicated **possible** in the tables. Where "expected fits" are given, they list, therefore, the results that will normally be obtained in good shop practice. The reason for this uniformity in actual results may best be explained by an example:

For a 7 bore bearing, the standard bore tolerance is + .0000″ −.0005″, giving limits of 1.3780″ −1.3775″. The shaft limits for this size bearing are 1.3784″ −1.3779″; therefore, if bearing and shaft both ran to the extreme limits, it would be possible to obtain fits either .0009″ tight or .0001″ loose.

With modern precision grinding machines, which very nearly eliminate the human element, bearing bores are held uniformly close, in the case of a standard New Departure 7 bore bearing, averaging within 1.3778″ −1.3776.″

In grinding a shaft, the operator normally stops as soon as the diameter comes to or just within the shaft high limit, averaging for the seat to take a 7 bore bearing, 1.3783″ −1.3779″. With these averages uniformly maintained in good practice, the actual fits obtained for A.B.E.C.-1 or New Departure Hyatt standard specification bearings would be from .0001″ to .0007″ tight.

Tight and Loose Bearings

When a bearing is mounted on a shaft with a press fit, the inner ring expands a certain amount, depending upon the tightness of the fit. As a result, the bearing has less end play or internal looseness after mounting.

For average conditions New Departure Hyatt bearings are supplied with sufficient internal looseness so that, using the recommended press fit, the correct bearing operating fit-up will be uniformly obtained.

There are various applications, however, where ball bearings are required to be either tighter or looser than ordinarily supplied. In such cases it is very undesirable to attempt to achieve this difference by mounting the bearing tighter or looser on the shaft. To do so would, in many instances, result in mounting fits which would adversely affect bearing performance. Therefore, in ordering bearings where greater than normal tightness or looseness is indicated, complete details of the application should be stated so that bearings of suitable internal characteristics may be furnished.

SHAFT MOUNTING FITS—For A.B.E.C.—1 Tolerances

ABEC-1

Single Row Radial, Single Row Angular Contact, Double Row and N-D Seal Bearings

(Except Type 30, and ND-Seal bearings not to standard single row widths. See page 73.)

The fits given in this table are satisfactory for nearly all general or average bearing applications. However, for some mounting conditions, certain modifications of these fits may be required.

In general, soft shafts; those not having smoothly ground bearing seats, and those subject to very heavy or vibratory loads, need tighter than average fits. Correct fits for any special conditions will be supplied by the New Departure Hyatt Bearings representative.

For explanation of "Expected Fits" listed below, see page 64.

Bearing Bore Numbers	BEARING BORE		SHAFT REVOLVING						SHAFT STATIONARY					
	Diameters		Diameters		Expected Fit		Theoret. Fit		Diameters		Expected Fit		Theoret. Fit	
	Max.	Min.	Max.	Min.	Loose or Tight	Tight	Loose	Tight	Max.	Min.	Max. Loose	Min. Loose	Loose	Tight
0	.3937	.3934	.3939	.3936					.3935	.3932				
1	.4724	.4721	.4726	.4723	.0000L	.0004	.0001	.0005	.4722	.4719	.0004	.0000	.0005	.0001
2	.5906	.5903	.5908	.5905					.5904	.5901				
3	.6693	.6690	.6695	.6692	.0000L	.0004	.0001	.0005	.6691	.6688	.0004	.0000	.0005	.0001
4	.7874	.7870	.7877	.7873	.0000L	.0006	.0001	.0007	.7871	.7867	.0006	.0000	.0007	.0001
5	.9843	.9839	.9846	.9842	.0000L	.0006	.0001	.0007	.9840	.9836	.0006	.0000	.0007	.0001
6	1.1811	1.1807	1.1814	1.1810	.0000L	.0006	.0001	.0007	1.1808	1.1804	.0006	.0000	.0007	.0001
7	1.3780	1.3775	1.3784	1.3779	.0001T	.0007	.0001	.0009	1.3776	1.3771	.0007	.0001	.0009	.0001
8	1.5748	1.5743	1.5752	1.5747	.0001T	.0007	.0001	.0009	1.5744	1.5739	.0007	.0001	.0009	.0001
9	1.7717	1.7712	1.7721	1.7716	.0001T	.0007	.0001	.0009	1.7713	1.7708	.0007	.0001	.0009	.0001
10	1.9685	1.9680	1.9689	1.9684	.0001T	.0007	.0001	.0009	1.9681	1.9676	.0007	.0001	.0009	.0001
11	2.1654	2.1648	2.1659	2.1653	.0001T	.0009	.0001	.0011	2.1649	2.1643	.0009	.0001	.0011	.0001
12	2.3622	2.3616	2.3627	2.3621					2.3617	2.3611				
13	2.5591	2.5585	2.5596	2.5590	.0001T	.0009	.0001	.0011	2.5586	2.5580	.0009	.0001	.0011	.0001
14	2.7559	2.7553	2.7564	2.7558					2.7554	2.7548				
15	2.9528	2.9522	2.9533	2.9527	.0001T	.0009	.0001	.0011	2.9523	2.9517	.0009	.0001	.0011	.0001
16	3.1496	3.1490	3.1501	3.1495	.0001T	.0009	.0001	.0011	3.1491	3.1485	.0009	.0001	.0011	.0001
17	3.3465	3.3457	3.3471	3.3464	.0002T	.0012	.0001	.0014	3.3458	3.3451	.0012	.0002	.0014	.0001
18	3.5433	3.5425	3.5439	3.5432					3.5426	3.5419				
19	3.7402	3.7394	3.7408	3.7401	.0002T	.0012	.0001	.0014	3.7395	3.7388	.0012	.0002	.0014	.0001
20	3.9370	3.9362	3.9376	3.9369					3.9363	3.9356				
21	4.1339	4.1331	4.1345	4.1338					4.1332	4.1325				
22	4.3307	4.3299	4.3313	4.3306	.0002T	.0012	.0001	.0014	4.3300	4.3293	.0012	.0002	.0014	.0001
24	4.7244	4.7236	4.7250	4.7243					4.7237	4.7230				
26	5.1181	5.1171	5.1188	5.1179					5.1173	5.1164				
28	5.5118	5.5108	5.5125	5.5116	.0002T	.0014	.0002	.0017	5.5110	5.5101	.0014	.0002	.0017	.0002
30	5.9055	5.9045	5.9062	5.9053					5.9047	5.9038				
32	6.2992	6.2982	6.2999	6.2990					6.2984	6.2975				
34	6.6929	6.6919	6.6936	6.6927	.0002T	.0014	.0002	.0017	6.6921	6.6912	.0014	.0002	.0017	.0002
36	7.0866	7.0856	7.0873	7.0864					7.0858	7.0849				

ABEC-1

HOUSING MOUNTING FITS—For A.B.E.C.—1 Tolerances

Single Row Radial, Single Row Angular Contact, Double Row and N-D Seal Bearings

(Except Type 30 and ND-Seal bearings not to standard single row widths. See page 73.)

The fits given in this table are satisfactory for nearly all general or average bearing applications. However, for some mounting conditions, certain modification of these fits may be required.

In general, soft metal housings, particularly when revolving, and those subject to heavy or vibratory loads, need tighter than average fits. For best results, housings should have a smooth finish such as produced by grinding or reaming.

In practice the actual fits obtained will be closer than those listed under "Theoretical Fits" below. See page 64.

Bearing Bore Numbers			BEARING OUTER DIAM.		HOUSING STATIONARY				HOUSING REVOLVING			
Series			Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
E.L.	L.	M.	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
0			1.0236	1.0232	1.0240	1.0235			1.0236	1.0231		
1			1.1024	1.1020	1.1028	1.1023	.0001	.0008	1.1024	1.1019	.0005	.0004
	0		1.1811	1.1807	1.1815	1.1810			1.1811	1.1806		
2	1		1.2598	1.2593	1.2603	1.2597			1.2598	1.2592		
3	2	0	1.3780	1.3775	1.3785	1.3779	.0001	.0010	1.3780	1.3774	.0006	.0005
		1	1.4567	1.4562	1.4572	1.4566			1.4567	1.4561		
	3		1.5748	1.5743	1.5753	1.5747			1.5748	1.5742		
4		2	1.6535	1.6530	1.6540	1.6534	.0001	.0010	1.6535	1.6529	.0006	.0005
5	4	3	1.8504	1.8499	1.8509	1.8503			1.8504	1.8498		
	5	4	2.0472	2.0467	2.0477	2.0471			2.0472	2.0466		
6			2.1654	2.1649	2.1659	2.1653	.0001	.0010	2.1654	2.1648	.0006	.0005
7	6	5	2.4409	2.4404	2.4414	2.4408			2.4409	2.4403		
8			2.6772	2.6767	2.6777	2.6771			2.6772	2.6766		
	7	6	2.8346	2.8341	2.8351	2.8345	.0001	.0010	2.8346	2.8340	.0006	.0005
9			2.9528	2.9523	2.9533	2.9527			2.9528	2.9522		
10	8	7	3.1496	3.1491	3.1501	3.1495	.0001	.0010	3.1496	3.1490	.0006	.0005
	9		3.3465	3.3459	3.3472	3.3464	.0001	.0013	3.3466	3.3458	.0007	.0007
11	10	8	3.5433	3.5427	3.5440	3.5432	.0001	.0013	3.5434	3.5426	.0007	.0007
12			3.7402	3.7396	3.7409	3.7401			3.7403	3.7395		
13	11	9	3.9370	3.9364	3.9377	3.9369	.0001	.0013	3.9371	3.9363	.0007	.0007
14	12	10	4.3307	4.3301	4.3314	4.3306			4.3308	4.3300		
15			4.5276	4.5270	4.5283	4.5275	.0001	.0013	4.5277	4.5269	.0007	.0007
	13	11	4.7244	4.7238	4.7251	4.7243	.0001	.0013	4.7245	4.7237	.0007	.0007
16	14		4.9213	4.9205	4.9221	4.9211	.0002	.0016	4.9214	4.9204	.0009	.0009
17	15	12	5.1181	5.1173	5.1189	5.1179			5.1182	5.1172		
18	16	13	5.5118	5.5110	5.5126	5.5116	.0002	.0016	5.5119	5.5109	.0009	.0009
19			5.7087	5.7079	5.7095	5.7085			5.7088	5.7078		
20	17	14	5.9055	5.9047	5.9063	5.9053	.0002	.0016	5.9056	5.9046	.0009	.0009
21	18	15	6.2992	6.2982	6.3002	6.2990	.0002	.0020	6.2993	6.2981	.0011	.0011
22	19	16	6.6929	6.6919	6.6939	6.6927	.0002	.0020	6.6930	6.6918	.0011	.0011
24	20	17	7.0866	7.0856	7.0876	7.0864	.0002	.0020	7.0867	7.0855	.0011	.0011
	21	18	7.4803	7.4791	7.4815	7.4801	.0002	.0024	7.4805	7.4791	.0012	.0014
26	22	19	7.8740	7.8728	7.8752	7.8738	.0002	.0024	7.8742	7.8728	.0012	.0014
28			8.2677	8.2665	8.2689	8.2675			8.2679	8.2665		
	24	20	8.4646	8.4634	8.4658	8.4644	.0002	.0024	8.4648	8.4634	.0012	.0014
30		21	8.8583	8.8571	8.8595	8.8581			8.8585	8.8571		
	26		9.0551	9.0539	9.0563	9.0549			9.0553	9.0539		
32		22	9.4488	9.4476	9.4500	9.4486	.0002	.0024	9.4490	9.4476	.0012	.0014
	28		9.8425	9.8413	9.8437	9.8423			9.8427	9.8413		
34		24	10.2362	10.2348	10.2375	10.2359			10.2364	10.2348		
	30		10.6299	10.6285	10.6312	10.6296	.0003	.0027	10.6301	10.6285	.0014	.0016
36		26	11.0236	11.0222	11.0249	11.0233			11.0238	11.0222		

SHAFT MOUNTING FITS—For A.B.E.C.—3 Tolerances

ABEC-3

Single Row Radial, Single Row Angular Contact, Double Row and N-D Seal Bearings

(Except Type 30 and ND-Seal bearings not to standard single row widths. See page 74.)

The fits given in this table are intended for applications requiring greater accuracy in certain respects than for general use.

Modification for some mounting conditions may be required, such as for very heavy or vibratory loads where somewhat tighter fits are desired.

Correct fits for any special conditions will be supplied by the New Departure Hyatt Bearings representative.

Actually, with these limits, closer fits will be obtained than listed under "Theoretical Fits." See page 64.

Bearing Bore Numbers	BEARING BORE		SHAFT REVOLVING				SHAFT STATIONARY			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
0	.3937	.3935	.3939	.3936			.3936	.3933		
1	.4724	.4722	.4726	.4723	.0004	.0001	.4723	.4720	.0001	.0004
2	.5906	.5904	.5908	.5905			.5905	.5902		
3	.6693	.6691	.6695	.6692			.6692	.6689		
4	.7874	.7872	.7876	.7873	.0004	.0001	.7873	.7870	.0001	.0004
5	.9843	.9841	.9845	.9842			.9842	.9839		
6	1.1811	1.1809	1.1813	1.1810	.0004	.0001	1.1810	1.1807	.0001	.0004
7	1.3780	1.3777	1.3783	1.3779	.0006	.0001	1.3778	1.3774	.0001	.0006
8	1.5748	1.5745	1.5751	1.5747	.0006	.0001	1.5746	1.5742	.0001	.0006
9	1.7717	1.7714	1.7720	1.7716	.0006	.0001	1.7715	1.7711	.0001	.0006
10	1.9685	1.9682	1.9688	1.9684	.0006	.0001	1.9683	1.9679	.0001	.0006
11	2.1654	2.1650	2.1657	2.1653	.0007	.0001	2.1651	2.1647	.0001	.0007
12	2.3622	2.3618	2.3625	2.3621			2.3619	2.3615		
13	2.5591	2.5587	2.5594	2.5590	.0007	.0001	2.5588	2.5584	.0001	.0007
14	2.7559	2.7555	2.7562	2.7558			2.7556	2.7552		
15	2.9528	2.9524	2.9531	2.9527	.0007	.0001	2.9525	2.9521	.0001	.0007
16	3.1496	3.1492	3.1499	3.1495	.0007	.0001	3.1493	3.1489	.0001	.0007
17	3.3465	3.3460	3.3469	3.3464	.0009	.0001	3.3461	3.3456	.0001	.0009
18	3.5433	3.5428	3.5437	3.5432			3.5429	3.5424		
19	3.7402	3.7397	3.7406	3.7401	.0009	.0001	3.7398	3.7393	.0001	.0009
20	3.9370	3.9365	3.9374	3.9369			3.9366	3.9361		
21	4.1339	4.1334	4.1343	4.1338			4.1335	4.1330		
22	4.3307	4.3302	4.3311	4.3306	.0009	.0001	4.3303	4.3298	.0001	.0009
24	4.7244	4.7239	4.7248	4.7243			4.7240	4.7235		
26	5.1181	5.1175	5.1185	5.1179			5.1177	5.1171		
28	5.5118	5.5112	5.5122	5.5116	.0010	.0002	5.5114	5.5108	.0002	.0010
30	5.9055	5.9049	5.9059	5.9053			5.9051	5.9045		
32	6.2992	6.2986	6.2996	6.2990			6.2988	6.2982		
34	6.6929	6.6923	6.6933	6.6927	.0010	.0002	6.6925	6.6919	.0002	.0010
36	7.0866	7.0860	7.0870	7.0864			7.0862	7.0856		

ABEC-3

HOUSING MOUNTING FITS—For A.B.E.C.—3 Tolerances

Single Row Radial, Single Row Angular Contact Double Row and N-D Seal Bearings

(Except Type 30 and ND-Seal bearings not to standard single row widths. See page 74.)

The fits given in this table are intended for applications requiring greater accuracy in certain respects than for general use.

Modification for some conditions may be required, such as for soft metal housings, particularly when revolving, or those subject to heavy or vibratory loads, where somewhat tighter fits are necessary. Housings should be smoothly finished as by grinding or reaming.

Actual fits with these limits will be closer than listed under "Theoretical Fits" below. See page 64.

Bearing Bore Numbers			BEARING OUTER DIAM.		HOUSING STATIONARY				HOUSING REVOLVING			
Series			Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
E.L.	L.	M.	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
0			1.0236	1.0233	1.0239	1.0235			1.0236	1.0232		
1			1.1024	1.1021	1.1027	1.1023	.0001	.0006	1.1024	1.1020	.0004	.0003
	0		1.1811	1.1808	1.1814	1.1810			1.1811	1.1807		
2	1		1.2598	1.2595	1.2601	1.2597			1.2598	1.2594		
3	2	0	1.3780	1.3777	1.3783	1.3779	.0001	.0006	1.3780	1.3776	.0004	.0003
		1	1.4567	1.4564	1.4570	1.4566			1.4567	1.4563		
	3		1.5748	1.5745	1.5751	1.5747			1.5748	1.5744		
4		2	1.6535	1.6532	1.6538	1.6534	.0001	.0006	1.6535	1.6531	.0004	.0003
5	4	3	1.8504	1.8501	1.8507	1.8503			1.8504	1.8500		
	5	4	2.0472	2.0468	2.0476	2.0471			2.0472	2.0467		
6			2.1654	2.1650	2.1658	2.1653	.0001	.0008	2.1654	2.1649	.0005	.0004
7	6	5	2.4409	2.4405	2.4413	2.4408			2.4409	2.4404		
8			2.6772	2.6768	2.6776	2.6771			2.6772	2.6767		
	7	6	2.8346	2.8342	2.8350	2.8345	.0001	.0008	2.8346	2.8341	.0005	.0004
9			2.9528	2.9524	2.9532	2.9527			2.9528	2.9523		
10	8	7	3.1496	3.1492	3.1500	3.1495	.0001	.0008	3.1496	3.1491	.0005	.0004
	9		3.3465	3.3461	3.3470	3.3464	.0001	.0009	3.3466	3.3460	.0005	.0005
11	10	8	3.5433	3.5429	3.5438	3.5432	.0001	.0009	3.5434	3.5428	.0005	.0005
12			3.7402	3.7398	3.7407	3.7401			3.7403	3.7397		
13	11	9	3.9370	3.9366	3.9375	3.9369	.0001	.0009	3.9371	3.9365	.0005	.0005
14	12	10	4.3307	4.3303	4.3312	4.3306			4.3308	4.3302		
15			4.5276	4.5272	4.5281	4.5275	.0001	.0009	4.5277	4.5271	.0005	.0005
	13	11	4.7244	4.7240	4.7249	4.7243	.0001	.0009	4.7245	4.7239	.0005	.0005
16	14		4.9213	4.9208	4.9218	4.9211	.0002	.0010	4.9214	4.9207	.0006	.0006
17	15	12	5.1181	5.1176	5.1186	5.1179			5.1182	5.1175		
18	16	13	5.5118	5.5113	5.5123	5.5116	.0002	.0010	5.5119	5.5112	.0006	.0006
19			5.7087	5.7082	5.7092	5.7085			5.7088	5.7081		
20	17	14	5.9055	5.9050	5.9060	5.9053	.0002	.0010	5.9056	5.9048	.0006	.0006
21	18	15	6.2992	6.2986	6.2998	6.2990	.0002	.0012	6.2993	6.2985	.0007	.0007
22	19	16	6.6929	6.6923	6.6935	6.6927	.0002	.0012	6.6930	6.6922	.0007	.0007
24	20	17	7.0866	7.0860	7.0872	7.0864	.0002	.0012	7.0867	7.0859	.0007	.0007
	21	18	7.4803	7.4796	7.4810	7.4801	.0002	.0014	7.4805	7.4796	.0007	.0009
26	22	19	7.8740	7.8733	7.8747	7.8738	.0002	.0014	7.8742	7.8733	.0007	.0009
28			8.2677	8.2670	8.2684	8.2675			8.2679	8.2670		
	24	20	8.4646	8.4639	8.4653	8.4644	.0002	.0014	8.4648	8.4639	.0007	.0009
30		21	8.8583	8.8576	8.8590	8.8581			8.8585	8.8576		
	26		9.0551	9.0544	9.0558	9.0549			9.0553	9.0544		
32		22	9.4488	9.4481	9.4495	9.4486	.0002	.0014	9.4490	9.4481	.0007	.0009
	28		9.8425	9.8418	9.8432	9.8423			9.8427	9.8418		
34		24	10.2362	10.2354	10.2369	10.2359			10.2364	10.2354		
	30		10.6299	10.6291	10.6306	10.6296	.0003	.0015	10.6301	10.6291	.0008	.0010
36		26	11.0236	11.0228	11.0243	11.0233			11.0238	11.0228		

SHAFT MOUNTING FITS—For A.B.E.C.—5 Tolerances

ABEC-5

Single Row Radial, Single Row Angular Contact, and Double Row Bearings

(Except Type 30. See page 75.)

These fits are intended for spindles and other applications requiring considerable rigidity and accuracy.

Obviously these cannot cover all mounting conditions, and where unusual circumstances such as heavy vibratory loads or special preloading, etc., are involved, modified fits should be obtained from the New Departure Hyatt Bearings representative.

Actually, with the limits given, closer fits will be obtained than indicated under "Theoretical Fits" in the table. See page 64.

Bearing Bore Numbers	BEARING BORE		SHAFT REVOLVING				SHAFT STATIONARY			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
0	.3937	.3935	.3938	.3936			.3936	.3934		
1	.4724	.4722	.4725	.4723	.0003	.0001	.4723	.4721	.0001	.0003
2	.5906	.5904	.5907	.5905			.5905	.5903		
3	.6693	.6691	.6694	.6692			.6692	.6690		
4	.7874	.7872	.7875	.7873	.0003	.0001	.7873	.7871	.0001	.0003
5	.9843	.9841	.9844	.9842			.9842	.9840		
6	1.1811	1.1809	1.1812	1.1810	.0003	.0001	1.1810	1.1808	.0001	.0003
7	1.3780	1.3778	1.3782	1.3779	.0004	.0001	1.3779	1.3776	.0001	.0004
8	1.5748	1.5746	1.5750	1.5747	.0004	.0001	1.5747	1.5744	.0001	.0004
9	1.7717	1.7715	1.7719	1.7716	.0004	.0001	1.7716	1.7713	.0001	.0004
10	1.9685	1.9683	1.9687	1.9684	.0004	.0001	1.9684	1.9681	.0001	.0004
11	2.1654	2.1651	2.1656	2.1653	.0005	.0001	2.1652	2.1649	.0001	.0005
12	2.3622	2.3619	2.3624	2.3621			2.3620	2.3617		
13	2.5591	2.5588	2.5593	2.5590	.0005	.0001	2.5589	2.5586	.0001	.0005
14	2.7559	2.7556	2.7561	2.7558			2.7557	2.7554		
15	2.9528	2.9525	2.9530	2.9527			2.9526	2.9523		
16	3.1496	3.1493	3.1498	3.1495	.0005	.0001	3.1494	3.1491	.0001	.0005
17	3.3465	3.3462	3.3467	3.3464			3.3463	3.3460		
18	3.5433	3.5430	3.5435	3.5432			3.5431	3.5428		
19	3.7402	3.7399	3.7404	3.7401	.0005	.0001	3.7400	3.7397	.0001	.0005
20	3.9370	3.9367	3.9372	3.9369			3.9368	3.9365		
21	4.1339	4.1336	4.1341	4.1338			4.1337	4.1334		
22	4.3307	4.3304	4.3309	4.3306	.0005	.0001	4.3305	4.3302	.0001	.0005
24	4.7244	4.7241	4.7246	4.7243			4.7242	4.7239		
26	5.1181	5.1177	5.1183	5.1179			5.1179	5.1175		
28	5.5118	5.5114	5.5120	5.5116	.0006	.0002	5.5116	5.5112	.0002	.0006
30	5.9055	5.9051	5.9057	5.9053			5.9053	5.9049		
32	6.2992	6.2988	6.2994	6.2990			6.2990	6.2986		
34	6.6929	6.6925	6.6931	6.6927	.0006	.0002	6.6927	6.6923	.0002	.0006
36	7.0866	7.0862	7.0868	7.0864			7.0864	7.0860		

ABEC-5

HOUSING MOUNTING FITS—For A.B.E.C.—5 Tolerances

Single Row Radial, Single Row Angular Contact and Double Row Bearings

(Except Type 30. See page 75.)

The fits in this table are for applications requiring considerable rigidity and accuracy and housing bores should be smoothly finished, as by grinding or reaming. Where conditions exist which require variation in the fits, such as the use of soft metal housings, heavy or vibratory loads, or special preloading, recommendations may be obtained from the New Departure Hyatt Bearings representative.

The actual fits obtained with the limits given will average closer than those listed under "Theoretical Fits" below. See page 64.

Bearing Bore Numbers			BEARING OUTER DIAM.		HOUSING STATIONARY				HOUSING REVOLVING			
Series			Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
E.L.	L.	M.	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
0			1.0236	1.0234	1.0239	1.0236			1.0236	1.0233		
1			1.1024	1.1022	1.1027	1.1024	.0000	.0005	1.1024	1.1021	.0003	.0002
	0		1.1811	1.1809	1.1814	1:1811			1.1811	1.1808		
2	1		1.2598	1.2596	1.2601	1.2598			1.2598	1.2595		
3	2	0	1.3780	1.3778	1.3783	1.3780	.0000	.0005	1.3780	1.3777	.0003	.0002
		1	1.4567	1.4565	1.4570	1.4567			1.4567	1.4564		
	3		1.5748	1.5746	1.5751	1.5748			1.5748	1.5745		
4		2	1.6535	1.6533	1.6538	1.6535	.0000	.0005	1.6535	1.6532	.0003	.0002
5	4	3	1.8504	1.8502	1.8507	1.8504			1.8504	1.8501		
	5	4	2.0472	2.0469	2.0475	2.0472			2.0472	2.0469		
6			2.1654	2.1651	2.1657	2.1654	.0000	.0006	2.1654	2.1651	.0003	.0003
7	6	5	2.4409	2.4406	2.4412	2.4409			2.4409	2.4406		
8			2.6772	2.6769	2.6775	2.6772			2.6772	2.6769		
	7	6	2.8346	2.8343	2.8349	2.8346	.0000	.0006	2.8346	2.8343	.0003	.0003
9			2.9528	2.9525	2.9531	2.9528			2.9528	2.9525		
10	8	7	3.1496	3.1493	3.1499	3.1496	.0000	.0006	3.1496	3.1493	.0003	.0003
	9		3.3465	3.3462	3.3468	3.3464	.0001	.0006	3.3465	3.3461	.0004	.0003
11	10	8	3.5433	3.5430	3.5436	3.5432	.0001	.0006	3.5433	3.5429	.0004	.0003
12			3.7402	3.7399	3.7405	3.7401			3.7402	3.7398		
13	11	9	3.9370	3.9367	3.9373	3.9369	.0001	.0006	3.9370	3.9366	.0004	.0003
14	12	10	4.3307	4.3304	4.3310	4.3306			4.3307	4.3303		
15			4.5276	4.5273	4.5279	4.5275	.0001	.0006	4.5276	4.5272	.0004	.0003
	13	11	4.7244	4.7241	4.7247	4.7243	.0001	.0006	4.7244	4.7240	.0004	.0003
16	14		4.9213	4.9209	4.9217	4.9212	.0001	.0008	4.9213	4.9208	.0005	.0004
17	15	12	5.1181	5.1177	5.1185	5.1180			5.1181	5.1176		
18	16	13	5.5118	5.5114	5.5122	5.5117	.0001	.0008	5.5118	5.5113	.0005	.0004
19			5.7087	5.7083	5.7091	5.7086			5.7087	5.7082		
20	17	14	5.9055	5.9051	5.9059	5.9054	.0001	.0008	5.9055	5.9050	.0005	.0004
21	18	15	6.2992	6.2987	6.2997	6.2991	.0001	.0010	6.2992	6.2986	.0006	.0005
22	19	16	6.6929	6.6924	6.6934	6.6928	.0001	.0010	6.6929	6.6923	.0006	.0005
24	20	17	7.0866	7.0861	7.0871	7.0865			7.0866	7.0860	.0006	.0005
	21	18	7.4803	7.4798	7.4808	7.4802	.0001	.0010	7.4804	7.4797	.0006	.0006
26	22	19	7.8740	7.8735	7.8745	7.8739			7.8741	7.8734	.0006	.0006
28			8.2677	8.2672	8.2682	8.2676			8.2678	8.2671		
	24	20	8.4646	8.4641	8.4651	8.4645	.0001	.0010	8.4647	8.4640	.0006	.0006
30		21	8.8583	8.8578	8.8588	8.8582			8.8584	8.8577		
	26		9.0551	9.0546	9.0556	9.0550			9.0552	9.0545		
32		22	9.4488	9.4483	9.4493	9.4487	.0001	.0010	9.4489	9.4482	.0006	.0006
	28		9.8425	9.8420	9.8430	9.8424			9.8426	9.8419		
34		24	10.2362	10.2357	10.2367	10.2360			10.2364	10.2356		
	30		10.6299	10.6294	10.6304	10.6297	.0002	.0010	10.6301	10.6293	.0006	.0007
36		26	11.0236	11.0231	11.0241	11.0234			11.0238	11.0230		

SHAFT MOUNTING FITS—For A.B.E.C.—7 Tolerances

ABEC-7

Single Row Radial and Single Row Angular Contact Bearings

Fits obtained from this table are for precision spindles and other similar parts requiring exceptional accuracy and rigidity in mounting. Bearing seats on shafts must be very accurately and smoothly finished. Where conditions such as heavy or vibratory loads, or special preloading are to be in effect, correct modifications of these fits may be obtained from the New Departure Hyatt Bearings representative.

The fits actually obtained from the limits given will average materially closer than those listed below under "Theoretical Fits." See page 64.

Bearing Bore Numbers	BEARING BORE		SHAFT REVOLVING				SHAFT STATIONARY			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
0	.3937	.39355	.39375	.3936			.39365	.3935		
1	.4724	.47225	.47245	.4723	.0002	.0001	.47235	.4722	.0001	.0002
2	.5906	.59045	.59065	.5905			.59055	.5904		
3	.6693	.66915	.66935	.6692			.66925	.6691		
4	.7874	.78725	.78745	.7873	.0002	.0001	.78735	.7872	.0001	.0002
5	.9843	.98415	.98435	.9842			.98425	.9841		
6	1.1811	1.18095	1.18115	1.1810	.0002	.0001	1.18105	1.1809	.0001	.0002
7	1.3780	1.3778	1.3781	1.3779	.0003	.0001	1.3779	1.3777	.0001	.0003
8	1.5748	1.5746	1.5749	1.5747	.0003	.0001	1.5747	1.5745	.0001	.0003
9	1.7717	1.7715	1.7718	1.7716	.0003	.0001	1.7716	1.7714	.0001	.0003
10	1.9685	1.9683	1.9686	1.9684	.0003	.0001	1.9684	1.9682	.0001	.0003
11	2.1654	2.1652	2.1656	2.1653	.0004	.0001	2.1653	2.1650	.0001	.0004
12	2.3622	2.3620	2.3624	2.3621			2.3621	2.3618		
13	2.5591	2.5589	2.5593	2.5590	.0004	.0001	2.5590	2.5587	.0001	.0004
14	2.7559	2.7557	2.7561	2.7558			2.7558	2.7555		
15	2.9528	2.9526	2.9530	2.9527			2.9527	2.9524		
16	3.1496	3.1494	3.1498	3.1495	.0004	.0001	3.1495	3.1492	.0001	.0004
17	3.3465	3.34625	3.34665	3.3464			3.34635	3.3461		
18	3.5433	3.54305	3.54345	3.5432			3.54315	3.5429		
19	3.7402	3.73995	3.74035	3.7401	.0004	.0001	3.74005	3.7398	.0001	.0004
20	3.9370	3.93675	3.93715	3.9369			3.93685	3.9366		
21	4.1339	4.13365	4.13405	4.1338			4.13375	4.1335		
22	4.3307	4.33045	4.33085	4.3306	.0004	.0001	4.33055	4.3303	.0001	.0004
24	4.7244	4.72415	4.72455	4.7243			4.72425	4.7240		
26	5.1181	5.1178	5.1182	5.1179			5.1180	5.1177		
28	5.5118	5.5115	5.5119	5.5116	.0004	.0002	5.5117	5.5114	.0002	.0004
30	5.9055	5.9052	5.9056	5.9053			5.9054	5.9051		
32	6.2992	6.2989	6.2993	6.2990			6.2991	6.2988		
34	6.6929	6.6926	6.6930	6.6927	.0004	.0002	6.6928	6.6925	.0002	.0004
36	7.0866	7.0863	7.0867	7.0864			7.0865	7.0862		

ABEC-7 HOUSING MOUNTING FITS—For A.B.E.C.—7 Tolerances

Single Row Radial and Single Row Angular Contact Bearings

These housing fits are for precision spindles and other parts requiring exceptional accuracy and rigidity of support. Housing bores must be straight and brought to size by grinding or other methods capable of a quality of finish equal to the bearing bore and O.D.

Where soft housings, vibratory loads, or special preloads require modification of these fits, they may be obtained from the New Departure Hyatt Bearings representative.

In practice, fits from the limits listed will average closer than those given under "Theoretical Fits" below. Refer to page 64.

Bearing Bore Numbers			BEARING OUTER DIAM.		HOUSING STATIONARY				HOUSING REVOLVING			
Series			Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
E.L.	L.	M.	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
0			1.0236	1.0234	1.0238	1.0236			1.02355	1.02335		
1			1.1024	1.1022	1.1026	1.1024	.0000	.0004	1.10235	1.10215	.00025	.00015
	0		1.1811	1.1809	1.1813	1.1811			1.18105	1.18085		
2	1		1.2598	1.2596	1.2600	1.2598			1.25975	1.25955		
3	2	0	1.3780	1.3778	1.3782	1.3780	.0000	.0004	1.37795	1.37775	.00025	.00015
		1	1.4567	1.4565	1.4569	1.4567			1.45665	1.45645		
	3		1.5748	1.5746	1.5750	1.5748			1.57475	1.57455		
4		2	1.6535	1.6533	1.6537	1.6535	.0000	.0004	1.65345	1.65325	.00025	.00015
5	4	3	1.8504	1.8502	1.8506	1.8504			1.85035	1.85015		
	5	4	2.0472	2.0470	2.0474	2.0472			2.04715	2.04695		
6			2.1654	2.1652	2.1656	2.1654	.0000	.0004	2.16535	2.16515	.00025	.00015
7	6	5	2.4409	2.4407	2.4411	2.4409			2.44085	2.44065		
8			2.6772	2.6770	2.6774	2.6772			2.67715	2.67695		
	7	6	2.8346	2.8344	2.8348	2.8346	.0000	.0004	2.83455	2.83435	.00025	.00015
9			2.9528	2.9526	2.9530	2.9528			2.95275	2.95255		
10	8	7	3.1496	3.1494	3.1498	3.1496	.0000	.0004	3.14955	3.14935	.00025	.00015
	9		3.3465	3.3462	3.3467	3.3464	.0001	.0005	3.3465	3.3462	.0003	.0003
11	10	8	3.5433	3.5430	3.5435	3.5432			3.5433	3.5430		
12			3.7402	3.7399	3.7404	3.7401			3.7402	3.7399		
13	11	9	3.9370	3.9367	3.9372	3.9369	.0001	.0005	3.9370	3.9367	.0003	.0003
14	12	10	4.3307	4.3304	4.3309	4.3306			4.3307	4.3304		
15			4.5276	4.5273	4.5278	4.5275	.0001	.0005	4.5276	4.5273	.0003	.0003
	13	11	4.7244	4.7241	4.7246	4.7243	.0001	.0005	4.7244	4.7241	.0003	.0003
16	14		4.9213	4.9209	4.9216	4.9212	.0001	.0007	4.9213	4.9209	.0004	.0004
17	15	12	5.1181	5.1177	5.1184	5.1180			5.1181	5.1177		
18	16	13	5.5118	5.5114	5.5121	5.5117	.0001	.0007	5.5118	5.5114	.0004	.0004
19			5.7087	5.7083	5.7090	5.7086			5.7087	5.7083		
20	17	14	5.9055	5.9051	5.9058	5.9054			5.9055	5.9051		
21	18	15	6.2992	6.2988	6.2995	6.2991	.0001	.0007	6.2992	6.2988	.0004	.0004
22	19	16	6.6929	6.6925	6.6932	6.6928			6.6929	6.6925		
24	20	17	7.0866	7.0862	7.0869	7.0865			7.0866	7.0862		
	21	18	7.4803	7.4799	7.4806	7.4802	.0001	.0007	7.4803	7.4799	.0004	.0004
26	22	19	7.8740	7.8736	7.8743	7.8739			7.8740	7.8736		
28			8.2677	8.2673	8.2680	8.2676			8.2677	8.2673		
	24	20	8.4646	8.4642	8.4649	8.4645	.0001	.0007	8.4646	8.4642	.0004	.0004
30		21	8.8583	8.8579	8.8586	8.8582			8.8583	8.8579		
	26		9.0551	9.0547	9.0554	9.0550			9.0551	9.0547		
32		22	9.4488	9.4484	9.4491	9.4487	.0001	.0007	9.4488	9.4484	.0004	.0004
	28		9.8425	9.8421	9.8428	9.8424			9.8425	9.8421		
34		24	10.2362	10.2357	10.2365	10.2360			10.2363	10.2357		
	30		10.6299	10.6294	10.6302	10.6297	.0002	.0008	10.6300	10.6294	.0005	.0006
36		26	11.0236	11.0231	11.0239	11.0234			11.0237	11.0231		

SHAFT MOUNTING FITS—For A.B.E.C.—1 Tolerances

ABEC-1

Single Row Type 30. N-D Seal Bearings not to Standard Single Row Widths

The fits given in this table are satisfactory for nearly all general or average bearing applications. However, for some mounting conditions, certain modifications of these fits may be required.

In general, soft shafts; those not having smoothly ground bearing seats, and those subject to very heavy or vibratory loads, need tighter than average fits. Correct fits for any special conditions will be supplied by the New Departure Hyatt Bearings representative.

For explanation of "Expected Fits" listed below, see page 64.

Bearing Numbers	BEARING BORE Diameters		SHAFT REVOLVING Diameters		Expected Fit		Theoret. Fit		SHAFT STATIONARY Diameters		Expected Fit		Theoret. Fit	
	Max.	Min.	Max.	Min.	Loose or Tight	Tight	Loose	Tight	Max.	Min.	Max. Loose	Min. Loose	Loose	Tight
34	.1575	.1572	.1576	.1573					.1574	.1571				
35	.1969	.1966	.1970	.1967	.0001L	.0003	.0002	.0004	.1968	.1965	.0003	.0001T	.0004	.0002
36	.2362	.2359	.2363	.2360					.2361	.2358				
37	.2756	.2753	.2757	.2754					.2755	.2752				
38	.3150	.3147	.3151	.3148	.0001L	.0003	.0002	.0004	.3149	.3146	.0003	.0001T	.0004	.0002
39	.3543	.3540	.3544	.3541					.3542	.3539				
8006	.2362	.2359	.2363	.2360					.2361	.2358				
8007, 8037	.2756	.2753	.2757	.2754	.0001L	.0003	.0002	.0004	.2755	.2752	.0003	.0001T	.0004	.0002
8008, 8038	.3150	.3147	.3151	.3148					.3149	.3146				
8009, 8039	.3543	.3540	.3544	.3541	.0001L	.0003	.0002	.0004	.3542	.3539	.0003	.0001T	.0004	.0002
8011	.4331	.4328	.4333	.4330	.0000L	.0004	.0001	.0005	.4329	.4326	.0004	.0000	.0005	.0001
8013	.5118	.5115	.5120	.5117	.0000L	.0004	.0001	.0005	.5116	.5113	.0004	.0000	.0005	.0001
8014	.5512	.5509	.5514	.5511	.0000L	.0004	.0001	.0005	.5510	.5507	.0004	.0000	.0005	.0001
8016	.6299	.6296	.6301	.6298	.0000L	.0004	.0001	.0005	.6297	.6294	.0004	.0000	.0005	.0001
8026	1.0236	1.0232	1.0239	1.0235	.0000L	.0006	.0001	.0007	1.0233	1.0229	.0006	.0000	.0007	.0001

HOUSING MOUNTING FITS—For A.B.E.C.—1 Tolerances

Single Row Type 30. N-D Seal Bearings not to Standard Single Row Widths

The fits given in this table are satisfactory for nearly all general or average bearing applications. However, for some mounting conditions, certain modification of these fits may be required.

In general, soft metal housings, particularly when revolving, and those subject to heavy or vibratory loads, need tighter than average fits. For best results, housings should have a smooth finish such as produced by grinding or reaming.

Correct fits for any special conditions will be supplied by the New Departure Hyatt Bearings representative.

In practice the actual fits obtained will be closer than those listed under "Theoretical Fits" below. See page 64.

Bearing Numbers	BEARING OUTER DIAM. Diameters		HOUSING STATIONARY Diameters		Theoret. Fit		HOUSING REVOLVING Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
34	.6299	.6295	.6303	.6298			.6299	.6294		
35, 36	.7480	.7476	.7484	.7479	.0001	.0008	.7480	.7475	.0005	.0004
37, 38	.8661	.8657	.8665	.8660			.8661	.8656		
39, 8039	1.0236	1.0232	1.0240	1.0235			1.0236	1.0231		
8037, 8038	.8661	.8657	.8665	.8660			.8661	.8656		
8006, 7 & 8	.9449	.9445	.9453	.9448	.0001	.0008	.9449	.9444	.0005	.0004
8009	1.1811	1.1807	1.1815	1.1810			1.1811	1.1806		
8011, 8013	1.2598	1.2593	1.2603	1.2597			1.2598	1.2592		
8014, 8016	1.3780	1.3775	1.3785	1.3779	.0001	.0010	1.3780	1.3774	.0006	.0005
8026	2.0472	2.0467	2.0477	2.0471			2.0472	2.0466		

ABEC-3 SHAFT MOUNTING FITS—For A.B.E.C.—3 Tolerances

Single Row Type 30. N-D Seal Bearings not to Standard Single Row Widths

The fits given in this table are intended for applications requiring greater accuracy in certain respects than for general use.

Modification for some mounting conditions may be required, such as for very heavy or vibratory loads where somewhat tighter fits are desired.

Correct fits for any special conditions will be supplied by the New Departure Hyatt Bearings representative.

Actually, with these limits, closer fits will be obtained than listed under "Theoretical Fits." See page 64.

Bearing Numbers	BEARING BORE Diameters		SHAFT REVOLVING Diameters		SHAFT REVOLVING Theoret. Fit		SHAFT STATIONARY Diameters		SHAFT STATIONARY Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
34	.1575	.1573	.1576	.1573			.1575	.1572		
35	.1969	.1967	.1970	.1967	.0003	.0002	.1969	.1966	.0002	.0003
36	.2362	.2360	.2363	.2360			.2362	.2359		
37	.2756	.2754	.2757	.2754			.2756	.2753		
38	.3150	.3148	.3151	.3148	.0003	.0002	.3150	.3147	.0002	.0003
39	.3543	.3541	.3544	.3541			.3543	.3540		
8006	.2362	.2360	.2363	.2360			.2362	.2359		
8007, 8037	.2756	.2754	.2757	.2754	.0003	.0002	.2756	.2753	.0002	.0003
8008, 8038	.3150	.3148	.3151	.3148			.3150	.3147		
8009, 8039	.3543	.3541	.3544	.3541	.0003	.0002	.3543	.3540	.0002	.0003
8011	.4331	.4329	.4333	.4330	.0004	.0001	.4330	.4327	.0001	.0004
8013	.5118	.5116	.5120	.5117	.0004	.0001	.5117	.5114	.0001	.0004
8014	.5512	.5510	.5514	.5511			.5511	.5508		
8016	.6299	.6297	.6301	.6298	.0004	.0001	.6298	.6295	.0001	.0004
8026	1.0236	1.0234	1.0238	1.0235			1.0235	1.0232		

HOUSING MOUNTING FITS—For A.B.E.C.—3 Tolerances

Single Row Type 30. N-D Seal Bearings not to Standard Single Row Widths

The fits given in this table are intended for applications requiring greater accuracy in certain respects than for general use.

Modification for some conditions may be required, such as for soft metal housings, particularly when revolving, or those subject to heavy or vibratory loads, where somewhat tighter fits are necessary. Housings should be smoothly finished as by grinding or reaming.

Fits for any special conditions will be supplied by New Departure Hyatt Bearings representative.

Actual fits with these limits will be closer than listed under "Theoretical Fits" below. See page 64.

Bearing Numbers	BEARING OUTER DIAM. Diameters		HOUSING STATIONARY Diameters		HOUSING STATIONARY Theoret. Fit		HOUSING REVOLVING Diameters		HOUSING REVOLVING Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
34	.6299	.6296	.6302	.6298			.6299	.6295		
35, 36	.7480	.7477	.7483	.7479	.0001	.0006	.7480	.7476	.0004	.0003
37, 38	.8661	.8658	.8664	.8660			.8661	.8657		
39, 8039	1.0236	1.0233	1.0239	1.0235			1.0236	1.0232		
8037, 8038	.8661	.8658	.8664	.8660						
8006, 7 & 8	.9449	.9446	.9452	.9448	.0001	.0006				
8009	1.1811	1.1808	1.1814	1.1810						
8011, 8013	1.2598	1.2595	1.2602	1.2597	.0001	.0007				
8014, 8016	1.3780	1.3777	1.3784	1.3779	.0001	.0007				
8026	2.0472	2.0468	2.0476	2.0471	.0001	.0008				

ABEC-5

SHAFT AND HOUSING MOUNTING FITS—For A.B.E.C.—5 Tolerances

Single Row Type 30

The fits given in these tables are for parts requiring considerable accuracy and rigidity in mounting. Shaft seats and housing bores should be smoothly ground or brought to size by method giving a quality of finish equal to the bearing bore and O.D.

Some conditions, such as soft shafts or soft alloy housings, heavy or vibratory loads or special preloads, may require modification of these fits. Proper fits for any special conditions will be furnished by the New Departure Hyatt Bearings representative.

Actual fits obtained from the limits listed will be closer than given under "Theoretical Fits" below. See page 64.

Shaft

Bearing Numbers	BEARING BORE		SHAFT REVOLVING				SHAFT STATIONARY			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
34	.1575	.1573	.1575	.1573			.1575	.1573		
35	.1969	.1967	.1969	.1967	.0002	.0002	.1969	.1967	.0002	.0002
36	.2362	.2360	.2362	.2360			.2362	.2360		
37	.2756	.2754	.2756	.2754			.2756	.2754		
38	.3150	.3148	.3150	.3148	.0002	.0002	.3150	.3148	.0002	.0002
39	.3543	.3541	.3543	.3541			.3543	.3541		

Housing

Bearing Numbers	BEARING OUTER DIAM.		HOUSING STATIONARY				HOUSING REVOLVING			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
34	.6299	.6297	.6302	.6299			.6299	.6296		
35, 36	.7480	.7478	.7483	.7480	.0000	.0005	.7480	.7477	.0003	.0002
37, 38	.8661	.8659	.8664	.8661			.8661	.8658		
39	1.0236	1.0234	1.0239	1.0236			1.0236	1.0233		

ABEC-1

SHAFT AND HOUSING MOUNTING FITS—For A.B.E.C.—1 Tolerances

Inch Series Bearings

These fits are intended for all general or average bearing applications. In some instances, conditions such as soft shafts, soft alloy housings, heavy or vibratory loads, etc., may require modification of the fits. Correct fits for such circumstances may be obtained from the New Departure Hyatt Bearings representative.

Actual fits obtained with the limits given will be closer than listed under "Theoretical Fits" below. See page 64 for explanation of "Expected," and "Theoretical" fits.

Shaft

Bearing Numbers	BEARING BORE		SHAFT REVOLVING						SHAFT STATIONARY					
	Diameters		Diameters		Expected Fit		Theoret. Fit		Diameters		Expected Fit		Theoret. Fit	
	Max.	Min.	Max.	Min.	Loose or Tight	Tight	Loose	Tight	Max.	Min.	Max. Loose	Min. Loose	Loose	Tight
R-2	.1250	.1247	.1251	.1248					.1249	.1246				
R-2-A	.1250	.1247	.1251	.1248	.0001L	.0003	.0002	.0004	.1249	.1246	.0003	.0001T	.0004	.0002
R-3	.1875	.1872	.1876	.1873					.1874	.1871				
R-4	.2500	.2497	.2501	.2498					.2499	.2496				
R-4-A	.2500	.2497	.2501	.2498	.0001L	.0003	.0002	.0004	.2499	.2496	.0003	.0001T	.0004	.0002
R-6	.3750	.3747	.3751	.3748					.3749	.3746				
R-8	.5000	.4997	.5002	.4999	.0000L	.0004	.0001	.0005	.4998	.4995	.0004	.0000	.0005	.0001
R-10	.6250	.6247	.6252	.6249	.0000L	.0004	.0001	.0005	.6248	.6245	.0004	.0000	.0005	.0001
R-12	.7500	.7496	.7503	.7499	.0000L	.0006	.0001	.0007	.7497	.7493	.0006	.0000	.0007	.0001
R-14	.8750	.8746	.8753	.8749					.8747	.8743				
R-16	1.0000	.9996	1.0003	.9999	.0000L	.0006	.0001	.0007	.9997	.9993	.0006	.0000	.0007	.0001
R-18	1.1250	1.1246	1.1253	1.1249					1.1247	1.1243				
R-20	1.2500	1.2495	1.2504	1.2499					1.2496	1.2491				
R-22	1.3750	1.3745	1.3754	1.3749	.0001T	.0007	.0001	.0009	1.3746	1.3741	.0007	.0001	.0009	.0001
R-24	1.5000	1.4995	1.5004	1.4999					1.4996	1.4991				

Housing

Bearing Numbers	BEARING OUTER DIAM.		HOUSING STATIONARY				HOUSING REVOLVING			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
R-2	.3750	.3746	.3754	.3749			.3750	.3745		
R-2-A	.5000	.4996	.5004	.4999	.0001	.0008	.5000	.4995	.0005	.0004
R-3	.5000	.4996	.5004	.4999			.5000	.4995		
R-4	.6250	.6246	.6254	.6249			.6250	.6245		
R-4-A	.7500	.7496	.7504	.7499	.0001	.0008	.7500	.7495	.0005	.0004
R-6	.8750	.8746	.8754	.8749			.8750	.8745		
R-8	1.1250	1.1246	1.1254	1.1249	.0001	.0008	1.1250	1.1245	.0005	.0004
R-10	1.3750	1.3745	1.3755	1.3749	.0001	.0010	1.3750	1.3744	.0006	.0005
R-12	1.6250	1.6245	1.6255	1.6249	.0001	.0010	1.6250	1.6244	.0006	.0005
R-14	1.8750	1.8745	1.8755	1.8749			1.8750	1.8744		
R-16	2.0000	1.9995	2.0005	1.9999	.0001	.0010	2.0000	1.9994	.0006	.0005
R-18	2.1250	2.1245	2.1255	2.1249			2.1250	2.1244		
R-20	2.2500	2.2495	2.2505	2.2499			2.2500	2.2494		
R-22	2.5000	2.4995	2.5005	2.4999	.0001	.0010	2.5000	2.4994	.0006	.0005
R-24	2.6250	2.6245	2.6255	2.6249			2.6250	2.6244		

ABEC-3

SHAFT AND HOUSING MOUNTING FITS—For A.B.E.C.—3 Tolerances

Inch Series Bearings

These fits are intended for applications requiring greater accuracy in certain respects than for general use. In some instances, conditions such as the use of soft alloy housings, heavy or vibratory loads, etc., may require modification of the fits. Correct fits for such circumstances may be obtained from the New Departure Hyatt Bearings representative.

Actual fits obtained with the limits given will be closer than listed under "Theoretical Fits" below. See page 64 for explanation of "Expected," and "Theoretical" fits.

Shaft

Bearing Numbers	BEARING BORE		SHAFT REVOLVING				SHAFT STATIONARY			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
R-2	.1250	.1248	.1251	.1248			.1250	.1247		
R-2-A	.1250	.1248	.1251	.1248	.0003	.0002	.1250	.1247	.0002	.0003
R-3	.1875	.1873	.1876	.1873			.1875	.1872		
R-4	.2500	.2498	.2501	.2498			.2500	.2497		
R-4-A	.2500	.2498	.2501	.2498	.0003	.0002	.2500	.2497	.0002	.0003
R-6	.3750	.3748	.3751	.3748			.3750	.3747		
R-8	.5000	.4998	.5002	.4999			.4999	.4996		
R-10	.6250	.6248	.6252	.6249	.0004	.0001	.6249	.6246	.0001	.0004
R-12	.7500	.7498	.7502	.7499			.7499	.7496		
R-14	.8750	.8748	.8752	.8749			.8749	.8746		
R-16	1.0000	.9998	1.0002	.9999	.0004	.0001	.9999	.9996	.0001	.0004
R-18	1.1250	1.1248	1.1252	1.1249			1.1249	1.1246		
R-20	1.2500	1.2497	1.2503	1.2499			1.2498	1.2494		
R-22	1.3750	1.3747	1.3753	1.3749	.0006	.0001	1.3748	1.3744	.0001	.0006
R-24	1.5000	1.4997	1.5003	1.4999			1.4998	1.4994		

Housing

Bearing Numbers	BEARING OUTER DIAM.		HOUSING STATIONARY				HOUSING REVOLVING			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
R-2	.3750	.3747	.3753	.3749			.3750	.3746		
R-2-A	.5000	.4997	.5003	.4999	.0001	.0006	.5000	.4996	.0004	.0003
R-3	.5000	.4997	.5003	.4999			.5000	.4996		
R-4	.6250	.6247	.6253	.6249			.6250	.6246		
R-4-A	.7500	.7497	.7503	.7499	.0001	.0006	.7500	.7496	.0004	.0003
R-6	.8750	.8747	.8753	.8749			.8750	.8746		
R-8	1.1250	1.1247	1.1253	1.1249			1.1250	1.1246		
R-10	1.3750	1.3747	1.3753	1.3749	.0001	.0006	1.3750	1.3746	.0004	.0003
R-12	1.6250	1.6247	1.6253	1.6249			1.6250	1.6246		
R-14	1.8750	1.8747	1.8753	1.8749	.0001	.0006	1.8750	1.8746	.0004	.0003
R-16	2.0000	1.9996	2.0004	1.9999	.0001	.0008	2.0000	1.9995	.0005	.0004
R-18	2.1250	2.1246	2.1254	2.1249	.0001	.0008	2.1250	2.1245	.0005	.0004
R-20	2.2500	2.2496	2.2504	2.2499			2.2500	2.2495		
R-22	2.5000	2.4996	2.5004	2.4999	.0001	.0008	2.5000	2.4995	.0005	.0004
R-24	2.6250	2.6246	2.6254	2.6249			2.6250	2.6245		

ABEC-5

SHAFT AND HOUSING MOUNTING FITS—For A.B.E.C.—5 Tolerances

Inch Series Bearings

The fits given in these tables are for parts requiring considerable accuracy and rigidity in mounting. Shaft seats and housing bores should be smoothly ground or brought to size by methods giving a quality of finish equal to the bearing bore and O.D.

Some conditions, such as soft shafts or soft alloy housings, heavy or vibratory loads or special preloads, may require modification of these fits. Proper fits for any special conditions will be furnished by the New Departure Hyatt Bearings representative.

Actual fits obtained from the limits listed will be closer than given under "Theoretical Fits" below. See page 64.

Shaft

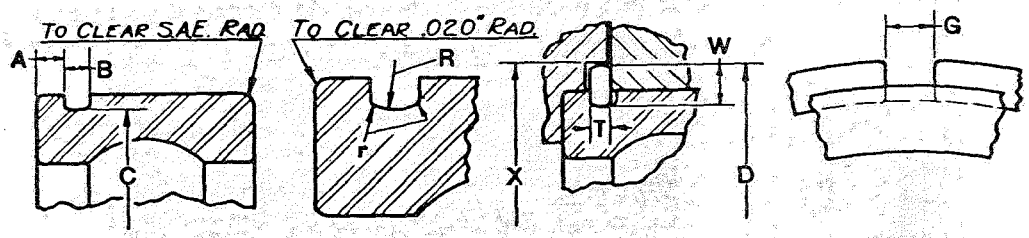
Bearing Numbers	BEARING BORE		SHAFT REVOLVING				SHAFT STATIONARY			
	Diameters		Diameters		Theoret. Fit.		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
R-2	.1250	.1248	.1250	.1248			.1250	.1248		
R-2-A	.1250	.1248	.1250	.1248	.0002	.0002	.1250	.1248	.0002	.0002
R-3	.1875	.1873	.1875	.1873			.1875	.1873		
R-4	.2500	.2498	.2500	.2498			.2500	.2498		
R-4-A	.2500	.2498	.2500	.2498	.0002	.0002	.2500	.2498	.0002	.0002
R-6	.3750	.3748	.3750	.3748			.3750	.3748		
R-8	.5000	.4998	.5001	.4999			.4999	.4997		
R-10	.6250	.6248	.6251	.6249	.0003	.0001	.6249	.6247	.0001	.0003
R-12	.7500	.7498	.7501	.7499			.7499	.7497		
R-14	.8750	.8748	.8751	.8749			.8749	.8747		
R-16	1.0000	.9998	1.0001	.9999	.0003	.0001	.9999	.9997	.0001	.0003
R-18	1.1250	1.1248	1.1251	1.1249			1.1249	1.1247		
R-20	1.2500	1.2498	1.2502	1.2499			1.2499	1.2496		
R-22	1.3750	1.3748	1.3752	1.3749	.0004	.0001	1.3749	1.3746	.0001	.0004
R-24	1.5000	1.4998	1.5002	1.4999			1.4999	1.4996		

Housing

Bearing Numbers	BEARING OUTER DIAM.		HOUSING STATIONARY				HOUSING REVOLVING			
	Diameters		Diameters		Theoret. Fit		Diameters		Theoret. Fit	
	Max.	Min.	Max.	Min.	Tight	Loose	Max.	Min.	Tight	Loose
R-2	.3750	.3748	.3753	.3750			.3750	.3747		
R-2-A	.5000	.4998	.5003	.5000	.0000	.0005	.5000	.4997	.0003	.0002
R-3	.5000	.4998	.5003	.5000			.5000	.4997		
R-4	.6250	.6248	.6253	.6250			.6250	.6247		
R-4-A	.7500	.7498	.7503	.7500	.0000	.0005	.7500	.7497	.0003	.0002
R-6	.8750	.8748	.8753	.8750			.8750	.8747		
R-8	1.1250	1.1248	1.1253	1.1250			1.1250	1.1247		
R-10	1.3750	1.3748	1.3753	1.3750	.0000	.0005	1.3750	1.3747	.0003	.0002
R-12	1.6250	1.6248	1.6253	1.6250			1.6250	1.6247		
R-14	1.8750	1.8748	1.8753	1.8750	.0000	.0005	1.8750	1.8747	.0003	.0002
R-16	2.0000	1.9997	2.0003	2.0000	.0000	.0006	2.0000	1.9997	.0003	.0003
R-18	2.1250	2.1247	2.1253	2.1250	.0000	.0006	2.1250	2.1247	.0003	.0003
R-20	2.2500	2.2497	2.2503	2.2500			2.2500	2.2497		
R-22	2.5000	2.4997	2.5003	2.5000	.0000	.0006	2.5000	2.4997	.0003	.0003
R-24	2.6250	2.6247	2.6253	2.6250			2.6250	2.6247		

SNAP RINGS

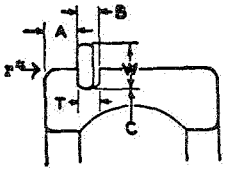
Snap rings are available for the bearings so indicated in the preceding sections (ABEC spec. 1 & 3) and the detailed dimensions are shown below.



Bearing Number				A L00 Series	A 2, 3, 400 Series	B Width	C Dia.	R Rad.	r Rad.	D Dia.	T Thick	W Width	G Gap	X C'Bore Min.
Extra Light	Lt.	Med.	Hvy.											
L00														
L01														
	200				.078	.056	1.109	.040	.010	1 23/64	.042	.125	1/8	1 25/64
L02	201			.078	.078	.056	1.187	.040	.010	1 7/16	.042	.125	1/8	1 15/32
L03	202	300		.078	.078	.056	1.306	.040	.010	1 35/64	.042	.125	1/8	1 37/64
		301			.078	.056	1.369	.040	.010	1 39/64	.042	.125	1/8	1 41/64
	203				.078	.056	1.500	.040	.010	1 3/4	.042	.125	1/8	1 25/32
L04		302		.078	.078	.056	1.565	.040	.010	1 13/16	.042	.125	1/8	1 27/32
L05	204	303		.078	.094	.056	1.756	.040	.010	2 1/16	.042	.156	1/8	2 3/32
	205	304			.094	.056	1.958	.040	.010	2 17/64	.042	.156	3/16	2 19/64
L06				.078		.056	2.071	.040	.010	2 3/8	.042	.156	3/16	2 13/32
L07	206	305	403	.078	.125	.078	2.347	.060	.015	2 31/32	.065	.156	3/16	2 11/16
L08				.094		.078	2.552	.060	.015	2 59/64	.065	.188	3/16	2 63/64
	207	306	404		.125	.078	2.709	.060	.015	3 5/64	.065	.188	3/16	3 9/64
L09				.094		.078	2.828	.060	.015	3 13/64	.065	.188	3/16	3 17/64
L10	208	307	405	.094	.125	.078	3.024	.060	.015	3 13/32	.065	.188	3/16	3 15/32
	209				.125	.078	3.221	.060	.015	3 19/32	.065	.188	3/16	3 21/32
L11	210	308	406	.109	.125	.109	3.417	.080	.020	3 51/64	.095	.188	3/16	3 55/64
L12				.109		.109	3.615	.080	.020	3 63/64	.095	.188	3/16	4 3/64
L13	211	309	407	.109	.125	.109	3.811	.080	.020	4 3/16	.095	.188	3/16	4 1/4
L14	212	310	408	.109	.125	.109	4.205	.080	.020	4 37/64	.095	.188	3/16	4 41/64
L15				.109		.109	4.402	.080	.020	4 25/32	.095	.188	3/16	4 27/32
	213	311	409		.156	.125	4.536	.090	.020	5 3/32	.109	.281	9/32	5 5/32
L16	214			.109	.156	.125	4.733	.090	.020	5 19/64	.109	.281	9/32	5 23/64
L17	215	312	410	.109	.156	.125	4.930	.090	.020	5 1/2	.109	.281	9/32	5 9/16
L18	216	313	411	.141	.188	.125	5.324	.090	.020	5 57/64	.109	.281	9/32	5 61/64
L19				.141		.125	5.521	.090	.020	6 5/64	.109	.281	9/32	6 9/64
L20	217	314	412	.141	.188	.125	5.718	.090	.020	6 9/32	.109	.281	9/32	6 11/32
L21	218	315	413	.141	.188	.125	6.111	.090	.020	6 43/64	.109	.281	9/32	6 47/64
L22	219	316		.141	.219	.141	6.443	.100	.020	7 3/16	.120	.375	3/8	7 1/4
L24	220	317	414	.141	.219	.141	6.837	.100	.020	7 19/32	.120	.375	3/8	7 21/32
	221	318	415		.219	.141	7.230	.100	.020	7 63/64	.120	.375	3/8	8 3/64
L26	222	319	416	.219	.219	.141	7.624	.100	.020	8 3/8	.120	.375	3/8	8 7/16
L28			417	.219	.219	.141	8.018	.100	.020	8 49/64	.120	.375	3/8	8 53/64
	224	320			.219	.141	8.215	.100	.020	8 31/32	.120	.375	3/8	9 1/32
L30		321	418	.219	.219	.141	8.608	.100	.020	9 23/64	.120	.375	3/8	9 27/64
	226				.219	.141	8.805	.100	.020	9 9/16	.120	.375	3/8	9 5/8
L32		322		.219	.219	.141	9.199	.100	.020	9 61/64	.120	.375	3/8	10 1/64

Snap Ring and Groove Tolerances

AFBMA and ND Standards



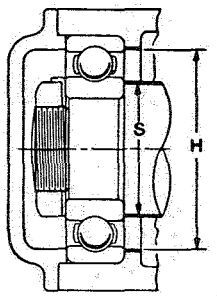
B = ± .003
T = ± .002
W = ± .003

Bore Numbers				A	C
Extra Light	Light	Medium	Heavy		
1-5	0-5	0-4		± .003	+.000 −.010
6				± .004	+.000 −.010
7-17	6-15	5-12	3-10	± .004	+.000 −.020
18-32	16-26	13-22	11-18	± .005	± .000 −.020

*On snap ring side of all snap ring bearings; r to clear .020" radius.

SHAFT AND HOUSING SHOULDERS

Single Row Radial, Ex.-Light, Light & Medium Series—Single Row Ang. Contact Extra-Light Series



"Recommended" shaft and housing shoulder diameters should be used whenever possible to assure adequate support of bearing under all load conditions. These shoulders will resist the maximum thrust which may be safely applied to bearing without developing stresses detrimental to any of the metals used for shafts or housings, including aluminum. Little is gained by shaft or housing shoulders greater than recommended. Larger shoulders may interfere with closures of sealed or shielded bearings. In general, "recommended" diameters expose enough inner ring face to allow removal without damage to sealed or shielded bearings.

"Minimum" shaft and "maximum" housing shoulder diameters are those considered necessary to align bearings properly and to provide ample resistance to light thrust loads.

Bearing Bore No.	EXTRA-LIGHT SERIES 3L00, 0L00 and H0L00 Shoulder Diameter				LIGHT SERIES 1200 and *3200 Shoulder Diameter				MEDIUM SERIES 1300 and *3300 Shoulder Diameter			
	S		H		S		H		S		H	
	Rec.	Min.	Rec.	Max.	Rec.	Min.	Rec.	Max.	Rec.	Min.	Rec.	Max.
0	.500		.920		.494		1.05		.494		1.23	
1	.570		1.000		.572		1.12		.632		1.26	
2	.690		1.15		.691		1.23		.750		1.44	
3	.780		1.27		.769		1.37		.829		1.62	
4	.940		1.50		1.000	.947	1.64		1.000	.947	1.78	1.85
5	1.14		1.69		1.20	1.14	1.84		1.24	1.14	2.16	2.24
6	1.37		1.94		1.40	1.34	2.18	2.24	1.44	1.34	2.55	2.64
7	1.58		2.21		1.63	1.54	2.56	2.64	1.70	1.62	2.77	2.85
8	1.78	1.74	2.44	2.48	1.82	1.73	2.85	2.95	1.92	1.82	3.15	3.24
9	2.00	1.93	2.70	2.75	2.05	1.93	3.05	3.15	2.14	2.01	3.50	3.64
10	2.19	2.13	2.90	2.95	2.21	2.13	3.24	3.34	2.44	2.29	3.80	3.93
11	2.43	2.32	3.27	3.34	2.48	2.40	3.55	3.64	2.75	2.48	4.18	4.32
12	2.63	2.52	3.46	3.54	2.74	2.60	3.91	4.03	2.97	2.68	4.55	4.72
13	2.83	2.72	3.65	3.74	2.90	2.80	4.28	4.42	3.20	2.88	4.92	5.11
14	3.06	2.92	4.02	4.13	3.11	3.00	4.49	4.62	3.42	3.08	5.29	5.51
15	3.24	3.11	4.22	4.33	3.39	3.19	4.68	4.82	3.65	3.27	5.66	5.90
16	3.47	3.31	4.58	4.72	3.67	3.47	4.99	5.11	3.88	3.47	6.02	6.29
17	3.67	3.51	4.78	4.92	3.90	3.67	5.34	5.50	4.16	3.75	6.33	6.59
18	3.92	3.78	5.08	5.21	4.11	3.86	5.73	5.90	4.38	3.94	6.70	6.98
19	4.11	3.98	5.28	5.41	4.34	4.06	6.10	6.29	4.62	4.14	7.06	7.37
20	4.31	4.18	5.48	5.61	4.57	4.26	6.46	6.69	4.84	4.34	7.64	7.96
21	4.57	4.45	5.78	5.90	4.80	4.45	6.83	7.08	5.07	4.53	8.01	8.36
22	4.83	4.65	6.16	6.29	5.03	4.65	7.19	7.47	5.29	4.73	8.59	8.95
24	5.22	5.04	6.56	6.69	5.44	5.04	7.76	8.06				
26	5.66	5.44	7.30	7.47	5.90	5.52	8.27	8.56				
28	6.05	5.83	7.69	7.87	6.36	5.91	9.00	9.34				
30	6.47	6.23	8.26	8.46								
36	7.75	7.41	10.30	10.62								

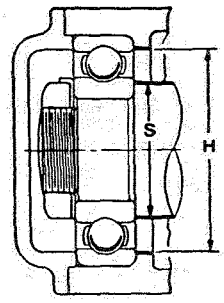
*Type **8000 and 9000** ND-Seal bearings based on type 3000 use same shoulders as Series 3200 and 3300 above.

SHAFT AND HOUSING SHOULDERS—Continued

Single Row Angular Contact—Light and Medium Series

"Recommended" shaft and housing shoulder diameters should be used whenever possible to assure adequate support of bearing under all load conditions. These shoulders will resist the maximum thrust which may be safely applied to bearing without developing stresses detrimental to any of the metals used for shafts or housings, including aluminum. Little is gained by shaft or housing shoulders greater than recommended. Larger shoulders may interfere with closures of sealed or shielded bearings. In general, "recommended" diameters expose enough inner ring face to allow removal without damage to sealed or shielded bearings.

"Minimum" shaft and "maximum" housing shoulder diameters are those considered necessary to align bearings properly and to provide ample resistance to light thrust loads.



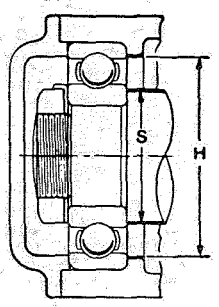
Bearing Bore No.	LIGHT SERIES 20,200, H20,200 and 30,200				MEDIUM SERIES 20,300, H20,300 and 30,300			
	Shoulder Diameter				Shoulder Diameter			
	S		H		S		H	
	Rec.	Min.	Rec.	Max.	Rec.	Min.	Rec.	Max.
0	.545	.494	1.05		.584	.494	1.23	
1	.636	.572	1.12		.698	.632	1.26	
2	.748	.691	1.23		.835	.751	1.44	
3	.880	.829	1.37		.927	.829	1.62	
4	1.02	.947	1.64		1.09	.947	1.78	1.85
5	1.20	1.14	1.84		1.30	1.14	2.16	2.24
6	1.45	1.34	2.18	2.24	1.51	1.34	2.55	2.64
7	1.67	1.54	2.56	2.64	1.78	1.62	2.77	2.85
8	1.89	1.74	2.85	2.95	2.00	1.82	3.15	3.24
9	2.08	1.93	3.05	3.15	2.25	2.01	3.50	3.64
10	2.27	2.13	3.24	3.34	2.53	2.29	3.80	3.93
11	2.56	2.40	3.55	3.64	2.75	2.48	4.18	4.32
12	2.78	2.60	3.91	4.03	2.97	2.68	4.55	4.72
13	3.01	2.80	4.28	4.42	3.20	2.88	4.92	5.11
14	3.19	3.00	4.49	4.62	3.42	3.08	5.29	5.51
15	3.39	3.19	4.68	4.82	3.65	3.27	5.66	5.90
16	3.67	3.47	4.99	5.11	3.88	3.47	6.02	6.29
17	3.90	3.67	5.34	5.50	4.16	3.75	6.33	6.59
18	4.11	3.86	5.73	5.90	4.38	3.94	6.70	6.98
19	4.34	4.06	6.10	6.29	4.62	4.14	7.06	7.37
20	4.57	4.26	6.46	6.69	4.84	4.34	7.64	7.96
21	4.80	4.45	6.83	7.08	5.07	4.53	8.01	8.36
22	5.03	4.65	7.19	7.47	5.29	4.73	8.59	8.95
24	5.44	5.04	7.76	8.06	5.80	5.12	9.28	9.74
26	5.90	5.52	8.27	8.56	6.30	5.60	9.96	10.42
28	6.36	5.91	9.00	9.34	6.75	5.99	10.70	11.21
30	6.81	6.31	9.75	10.13	7.21	6.39	11.43	12.00

SHAFT AND HOUSING SHOULDERS—Continued

Extra Small Single Row and ND-Seal

"Recommended" shaft and housing shoulder diameters should be used whenever possible to assure adequate support of bearing under all load conditions. These shoulders will resist the maximum thrust which may be safely applied to bearing without developing stresses detrimental to any of the metals used for shafts or housings, including aluminum. Little is gained by shaft or housing shoulders greater than recommended. Larger shoulders may interfere with closures of sealed or shielded bearings. In general, "recommended" diameters expose enough inner ring face to allow removal without damage to sealed or shielded bearings.

"Minimum" shaft and "maximum" housing shoulder diameters are those considered necessary to align bearings properly and to provide ample resistance to light thrust loads.



INCH SERIES TYPE R				
Bearing No.	Shoulder Diameter			
	S		H	
	Rec.	Min.	Rec.	Max.
R2	.173		.315	
R2A	.173		.440	
R3	.236		.440	
R4	.298		.565	
R4A	.314		.670	
R6	.439		.795	
R8	.612	.564	1.04	
R10	.780	.749	1.22	
R12	.927	.874	1.47	
R14	1.05	1.000	1.72	
R16	1.17	1.12	1.84	
R18	1.31	1.25	1.97	

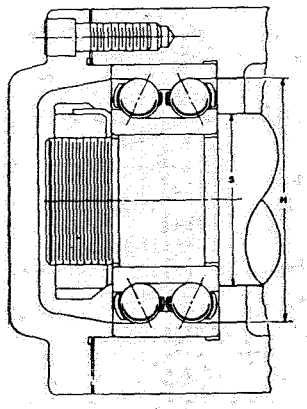
ND SEAL				
Bearing No.	Shoulder Diameter			
	S		H	
	Rec.	Min.	Rec.	Max.
8006	.300		.865	
8007	.341		.865	
8008	.379		.865	
8009	.494		1.05	
8011	.572		1.12	
8013	.612		1.12	
8014	.691		1.23	
8016	.730		1.23	
8026	1.20		1.84	

EXTRA-SMALL TYPE *30				
34	.222		.550	
35	.261		.668	
36	.300		.668	
37	.341		.786	
38	.379		.786	
39	.454		.899	

**ND-Seal bearings 8035 to 8039, based on extra small 30 bearings use same shoulders as type 30.*

SHAFT AND HOUSING SHOULDERS—Continued

Double Row, Types 5000 and 5000W—Light and Medium Series



"Recommended" shaft and housing shoulder diameters should be used whenever possible to assure adequate support of bearing under all load conditions. These shoulders will resist the maximum thrust which may be safely applied to bearing without developing stresses detrimental to any of the metals used for shafts or housings, including aluminum. Little is gained by shaft or housing shoulders greater than recommended. Larger shoulders may interfere with closures of sealed or shielded bearings. In general "recommended" diameters expose enough inner ring face to allow removal without damage to sealed or shielded bearings.

"Minimum" shaft and "maximum" housing shoulder diameters are those considered necessary to align bearings properly and to provide ample resistance to light thrust loads.

Bearing Bore No.	LIGHT SERIES 5200				MEDIUM SERIES 5300				LIGHT SERIES 5200W				Bearing Bore No.	MEDIUM SERIES 5300W			
	Shoulder Diameter				Shoulder Diameter				Shoulder Diameter					Shoulder Diameter			
	S		H		S		H		S		H			S		H	
	Rec.	Min.	Rec.	Max.	Rec.	Min.	Rec.	Max.	Rec.	Min.	Rec.	Max.		Rec.	Min.	Rec.	Max.
0	.546	.494	1.06		.656	.494	1.24						6	1.54	1.34	2.54	2.64
1	.638	.572	1.13		.724	.632	1.26						7	1.80	1.62	2.77	2.85
2	.750	.691	1.25		.811	.751	1.45										
													9	2.25	2.01	3.52	3.64
3	.903	.829	1.37		1.02	.829	1.61	1.65					10	2.45	2.29	3.82	3.93
4	1.09	.947	1.62		1.13	.947	1.81	1.85					11	2.65	2.48	4.18	4.32
5	1.27	1.14	1.82		1.38	1.14	2.21	2.24	1.21	1.14	1.84						
													12	2.88	2.68	4.53	4.72
6	1.53	1.34	2.18	2.24	1.64	1.34	2.60	2.64					14	3.10	2.88	4.90	5.11
7	1.75	1.54	2.56	2.64	1.84	1.62	2.80	2.85	1.70	1.54	2.55	2.64					
8	2.00	1.74	2.84	2.95	2.12	1.82	3.18	3.24									
													20	4.70	4.34	7.80	7.96
9	2.19	1.93	3.03	3.15	2.40	2.01	3.55	3.64									
10	2.38	2.13	3.23	3.34	2.59	2.29	3.86	3.93	2.28	2.13	3.25	3.34					
11	2.68	2.40	3.53	3.64	2.83	2.48	4.23	4.32	2.57	2.40	3.55	3.64					
12	2.89	2.60	3.92	4.03	3.14	2.68	4.55	4.72	2.78	2.60	3.94	4.03					
13	3.12	2.80	4.29	4.42	3.37	2.88	4.92	5.11	3.00	2.80	4.31	4.42					
14	3.34	3.00	4.47	4.62	3.61	3.08	5.30	5.51									
15	3.55	3.19	4.65	4.82	3.81	3.27	5.69	5.90	3.41	3.19	4.67	4.82					
16	3.83	3.47	4.96	5.11	4.04	3.47	6.06	6.29	3.68	3.47	4.99	5.11					
17	4.08	3.67	5.32	5.50	4.33	3.75	6.37	6.59									
18	4.33	3.86	5.68	5.90	4.55	3.94	6.76	6.98	4.15	3.86	5.71	5.90					
19	4.58	4.06	6.04	6.29													
20	4.83	4.26	6.40	6.69													
21																	
22	5.50	4.65	7.19	7.47					4.92	4.65	7.32	7.47					
24																	

DECIMAL EQUIVALENTS

1-64	.0156	33-64	.5156
1-32	.0313	17-32	.5313
3-64	.0469	35-64	.5469
1-16	.0625	9-16	.5625
5-64	.0781	37-64	.5781
3-32	.0938	19-32	.5938
7-64	.1094	39-64	.6094
1-8	.125	5-8	.625
9-64	.1406	41-64	.6406
5-32	.1563	21-32	.6563
11-64	.1719	43-64	.6719
3-16	.1875	11-16	.6875
13-64	.2031	45-64	.7031
7-32	.2188	23-32	.7188
15-64	.2344	47-64	.7344
1-4	.250	3-4	.750
17-64	.2656	49-64	.7656
9-32	.2813	25-32	.7813
19-64	.2969	51-64	.7969
5-16	.3125	13-16	.8125
21-64	.3281	53-64	.8281
11-32	.3438	27-32	.8438
23-64	.3594	55-64	.8594
3-8	.375	7-8	.875
25-64	.3906	57-64	.8906
13-32	.4063	29-32	.9063
27-64	.4219	59-64	.9219
7-16	.4375	15-16	.9375
29-64	.4531	61-64	.9531
15-32	.4688	31-32	.9688
31-64	.4844	63-64	.9844
1-2	.500	1″	1.0000

Millimeters	Inches	Millimeters	Inches	Millimeters	Inches	Millimeters	Inches
1	0.0394	26	1.0236	51	2.0079	76	2.9921
2	0.0787	27	1.0630	52	2.0472	77	3.0315
3	0.1181	28	1.1024	53	2.0866	78	3.0709
4	0.1575	29	1.1417	54	2.1260	79	3.1102
5	0.1969	30	1.1811	55	2.1654	80	3.1496
6	0.2362	31	1.2205	56	2.2047	81	3.1890
7	0.2756	32	1.2598	57	2.2441	82	3.2283
8	0.3150	33	1.2992	58	2.2835	83	3.2677
9	0.3543	34	1.3386	59	2.3228	84	3.3071
10	0.3937	35	1.3780	60	2.3622	85	3.3465
11	0.4331	36	1.4173	61	2.4016	86	3.3858
12	0.4724	37	1.4567	62	2.4409	87	3.4252
13	0.5118	38	1.4961	63	2.4803	88	3.4646
14	0.5512	39	1.5354	64	2.5197	89	3.5039
15	0.5906	40	1.5748	65	2.5591	90	3.5433
16	0.6299	41	1.6142	66	2.5984	91	3.5827
17	0.6693	42	1.6535	67	2.6378	92	3.6220
18	0.7087	43	1.6929	68	2.6772	93	3.6614
19	0.7480	44	1.7323	69	2.7165	94	3.7008
20	0.7874	45	1.7717	70	2.7559	95	3.7402
21	0.8268	46	1.8110	71	2.7953	96	3.7795
22	0.8661	47	1.8504	72	2.8346	97	3.8189
23	0.9055	48	1.8898	73	2.8740	98	3.8583
24	0.9449	49	1.9291	74	2.9134	99	3.8976
25	0.9843	50	1.9685	75	2.9528	100	3.9370

NOTE: While every care has been used in compiling this catalog it is impossible to guarantee completeness and accuracy of data.

keep bearings clean

WHEN HANDLING BEARINGS

DO

1. Remove all outside dirt from housing before exposing bearing.
2. Treat a used bearing as carefully as you would a new one.
3. Work with clean tools in clean surroundings.
4. Handle with clean, dry hands, or better, clean canvas gloves.
5. Use clean solvents and flushing oils.
6. Lay bearings out on clean newspaper.
7. Protect dissassembled bearings from rust and dirt.
8. Use clean rags to wipe bearings.
9. Keep bearings wrapped in oilproof paper when not in use.
10. Clean inside of housing before replacing bearing.

DON'T

1. Don't work in dirty surroundings.
2. Don't use dirty, brittle or chipped tools.
3. Don't use wooden mallets or work on wooden bench tops.
4. Don't handle with dirty, moist hands.
5. Don't use gasolines containing tetraethyl lead, as they may be injurious to health.
6. Don't spin uncleaned bearings.
7. Don't spin bearings with compressed air.
8. Don't use cotton waste or dirty cloths to wipe bearings.
9. Don't expose bearings to rust or dirt.
10. Don't scratch or nick bearing surfaces.

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