



BEARING REFERENCE GUIDE



ABOUT BARTLETT BEARING COMPANY, INC

Bartlett Bearing is a family-owned Authorized Distributor of bearings and related components for electro-mechanical facilities across the country. Since our establishment in 1951, we have dedicated ourselves to becoming the primary source for bearings, components, and accessories, carrying both premium brands and quality economic brands. We are committed to serving our customers with a dedicated staff at seven fully-stocked locations nationwide.

At Bartlett, we maintain an unparalleled on-the-shelf inventory that is consistently stocked with a diverse range of high-quality products. This enables us to promptly fulfill orders of any size, 24/7/365, and ship them on the same day to ensure your business operations remain uninterrupted. When you're looking for the right solution at the right time, Bartlett Bearing is committed to being your choice distributor.

EXPERIENCE

With over 70 years of experience, our highly knowledgeable staff strives to give every customer an unparalleled experience.

SUPPORT

We're willing to go the extra mile, making sure we provide the best quality products and service for our customers.

DEPENDABILITY

Available 24/7/365, our team is ready to answer your call with a full inventory and same-day shipping to keep your business running.

FORWARD

We are proud to be an Authorized Distributor for top manufacturers like SKF, JTEKT (Koyo), NTN, The Schaeffler Group, Timken, and more. Our line card at the back provides a complete overview of our brand offerings.

Inside this guide, you'll find important information such as speed ratings, mounting fits, sizing charts, and more. While this guide covers common inquiries, it's not a complete resource. If you have more specific questions about bearings or accessories, our Bartlett representatives are here to assist you.

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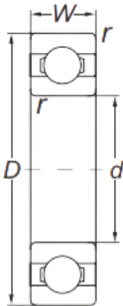
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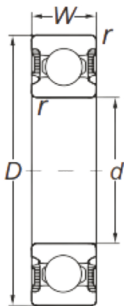
DESIGN TYPES

DEEP GROOVE BALL BEARING

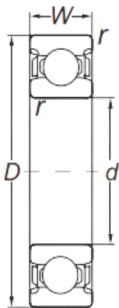
Deep groove radial ball bearings are the most popular type of bearings and are often referred to as a Conrad type. Deep groove ball bearings are designed to support radial loads and small amounts of axial loads in both directions. These bearings are suitable for operations at high speed, with low noise and low vibration. Deep groove ball bearings are available in open, shielded, and sealed designs.



OPEN



**DOUBLE
SEALED**



**DOUBLE
SHIELDED**

STANDARD DIMENSIONS

d = bore or inside diameter
 D - outside diameter
 r = chamfer dimensions
 W = width of the bearing

BASIC BEARING DIMENSIONS

6000 SERIES

Bearing	ID (mm)	OD (mm)	Width (mm)	ID (in)	OD (in)	Width (in)
6000	10	26	8	0.3937	1.0236	0.3150
6001	12	28	8	0.4724	1.1024	0.3150
6002	15	32	9	0.5906	1.2598	0.3543
6003	17	35	10	0.6693	1.3780	0.3937
6004	20	42	12	0.7874	1.6535	0.4724
6005	25	47	12	0.9843	1.8504	0.4724
6006	30	55	13	1.1811	2.1654	0.5118
6007	35	62	14	1.3780	2.4409	0.5512
6008	40	68	15	1.5748	2.6772	0.5906
6009	45	75	16	1.7717	2.9528	0.6299
6010	50	80	16	1.9685	3.1496	0.6299
6011	55	90	18	2.1654	3.5433	0.7087
6012	60	95	18	2.3622	3.7402	0.7087
6013	65	100	18	2.5591	3.9370	0.7087
6014	70	110	20	2.7559	4.3307	0.7874
6015	75	115	20	2.9528	4.5276	0.7874
6016	80	125	22	3.1496	4.9213	0.8661
6017	85	130	22	3.3465	5.1181	0.8661
6018	90	140	24	3.5433	5.5118	0.9449
6019	95	145	24	3.7402	5.7087	0.9449
6020	100	150	24	3.9370	5.9055	0.9449
6021	105	160	26	4.1339	6.2992	1.0236
6022	110	170	28	4.3307	6.6929	1.1024
6024	120	180	28	4.7244	7.0866	1.1024
6026	130	200	33	5.1181	7.8740	1.2992
6028	140	210	33	5.5118	8.2677	1.2992
6030	150	225	35	5.9055	8.8583	1.3780



BASIC BEARING DIMENSIONS

6200 SERIES

Bearing	ID (mm)	OD (mm)	Width (mm)	ID (in)	OD (in)	Width (in)
6200	10	30	9	0.3937	1.1811	0.3543
6201	12	32	10	0.4724	1.2598	0.3937
6202	15	35	11	0.5906	1.3780	0.4331
6203	17	40	12	0.6693	1.5748	0.4724
6204	20	47	14	0.7874	1.8504	0.5512
6205	25	52	15	0.9843	2.0472	0.5906
6206	30	62	16	1.1811	2.4409	0.6299
6207	35	72	17	1.3780	2.8346	0.6693
6208	40	80	18	1.5748	3.1496	0.7087
6209	45	85	19	1.7717	3.3465	0.7480
6210	50	90	20	1.9685	3.5433	0.7874
6211	55	100	21	2.1654	3.9370	0.8268
6212	60	110	22	2.3622	4.3307	0.8661
6213	65	120	23	2.5591	4.7244	0.9055
6214	70	125	24	2.7559	4.9213	0.9449
6215	75	130	25	2.9528	5.1181	0.9843
6216	80	140	26	3.1496	5.5118	1.0236
6217	85	150	28	3.3465	5.9055	1.1024
6218	90	160	30	3.5433	6.2992	1.1811
6219	95	170	32	3.7402	6.6929	1.2598
6220	100	180	34	3.9370	7.0866	1.3386
6221	105	190	36	4.1339	7.4803	1.4173
6222	110	200	38	4.3307	7.8740	1.4961
6224	120	215	40	4.7244	8.4646	1.5748
6226	130	230	40	5.1181	9.0551	1.5748
6228	140	250	42	5.5118	9.8425	1.6535
6230	150	270	45	5.9055	10.6299	1.7717



BASIC BEARING DIMENSIONS

6300 SERIES

Bearing	ID (mm)	OD (mm)	Width (mm)	ID (in)	OD (in)	Width (in)
6300	10	35	11	0.3937	1.3780	0.4331
6301	12	37	12	0.4724	1.4567	0.4724
6302	15	42	13	0.5906	1.6535	0.5118
6303	17	47	14	0.6693	1.8504	0.5512
6304	20	52	15	0.7874	2.0472	0.5906
6305	25	62	17	0.9843	2.4409	0.6693
6306	30	72	19	1.1811	2.8346	0.7480
6307	35	80	21	1.3780	3.1496	0.8268
6308	40	90	23	1.5748	3.5433	0.9055
6309	45	100	25	1.7717	3.9370	0.9843
6310	50	110	27	1.9685	4.3307	1.0630
6311	55	120	29	2.1654	4.7244	1.1417
6312	60	130	31	2.3622	5.1181	1.2205
6313	65	140	33	2.5591	5.5118	1.2992
6314	70	150	35	2.7559	5.9055	1.3780
6315	75	160	37	2.9528	6.2992	1.4567
6316	80	170	39	3.1496	6.6929	1.5354
6317	85	180	41	3.3465	7.0866	1.6141
6318	90	190	43	3.5433	7.4803	1.6929
6319	95	200	45	3.7402	7.8740	1.7717
6320	100	215	47	3.9370	8.4646	1.8504
6321	105	225	49	4.1339	8.8583	1.9291
6322	110	240	50	4.3307	9.4488	1.9685
6324	120	260	55	4.7244	10.2362	2.1654
6326	130	280	58	5.1181	11.0236	2.2835
6328	140	300	62	5.5118	11.8110	2.4409
6330	150	320	65	5.9055	12.5984	2.5591



BEARING MOUNTING FITS

6200-6300 SERIES

Housing Seat Diameter (in) 6200 - 6300						Shaft Seat Diameter (in) 6200 - 6300		
Bearing	Max	Min	Bearing	Max	Min	Bearing	Max	Min
200	1.1816	1.1811	300	1.3786	1.3780	6200 - 6300	0.3939	0.3936
201	1.2604	1.2598	301	1.4573	1.4567	6201 - 6301	0.4726	0.4723
202	1.3786	1.3780	302	1.6541	1.6535	6202 - 6302	0.5908	0.5905
203	1.5754	1.5748	303	1.8510	1.8504	6203 - 6303	0.6695	0.6692
204	1.8510	1.8504	304	2.0479	2.0472	6204 - 6304	0.7878	0.7875
205	2.0479	2.0472	305	2.4416	2.4409	6205 - 6305	0.9847	0.9844
206	2.4416	2.4409	306	2.8353	2.8346	6206 - 6306	1.1815	1.1812
207	2.8353	2.8346	307	3.1503	3.1496	6207 - 6307	1.3785	1.3780
208	3.1503	3.1496	308	3.5442	3.5433	6208 - 6308	1.5753	1.5749
209	3.3474	3.3465	309	3.9379	3.9370	6209 - 6309	1.7722	1.7718
210	3.5442	3.5433	310	4.3316	4.3307	6210 - 6310	1.9690	1.9686
211	3.9379	3.9370	311	4.7253	4.7244	6211 - 6311	2.1660	2.1655
212	4.3316	4.3307	312	5.1191	5.1181	6212 - 6312	2.3628	2.3623
213	4.7253	4.7244	313	5.5128	5.5118	6213 - 6313	2.5597	2.5592
214	4.9223	4.9213	314	5.9065	5.9055	6214 - 6314	2.7565	2.7560
215	5.1191	5.1181	315	6.3002	6.2992	6215 - 6315	2.9534	2.9529
216	5.5128	5.5118	316	6.6939	6.6929	6216 - 6316	3.1502	3.1497
217	5.9065	5.9055	317	7.0876	7.0866	6217 - 6317	3.3472	3.3466
218	6.3002	6.2992	318	7.4814	7.4803	6218 - 6318	3.5440	3.5434
219	6.6939	6.6929	319	7.8751	7.8740	6219 - 6319	3.7409	3.7403
220	7.0876	7.0866	320	8.4657	8.4646	6220 - 6320	3.9377	3.9371
221	7.4814	7.4803	321	8.8594	8.8583	6221 - 6321	4.1350	4.1344
222	7.8751	7.8740	322	9.4499	9.4488	6222 - 6322	4.3318	4.3312
224	8.4657	8.4646	324	10.2375	10.2360	6224 - 6324	4.7255	4.7249
226	9.0562	9.0551	326	11.0249	11.0236	6226 - 6326	5.1194	5.1187
228	9.8436	9.8424	328	11.8123	11.8110	6228 - 6328	5.5131	5.5124
230	10.6312	10.6299	330	12.5998	12.5984	6230 - 6330	5.9071	5.9061



SPEED RATINGS

6200 SERIES

Bearing	Open, Shields & Non-Contact Seals (r/min)*	Light Contact Seals (r/min)*	Sealed (r/min)*	Oil Lube (r/min)
6200	24000	22000	16000	29000
6201	22000	20000	15000	27000
6202	20000	18000	13000	24000
6203	17000	15000	12000	21000
6204	15000	14000	9700	17000
6205	13000	12000	8400	15000
6206	11000	9900	7000	13000
6207	9200	8300	6000	11000
6208	8300	7500	5400	10000
6209	7700	6900	5100	9200
6210	7100	6400	4600	8500
6211	6300	5700	4100	7600
6212	5700	5100	3700	6900
6213	5400		3500	6400
6214	5100		3300	6100
6215	4800		3100	5800
6216	4500		2900	5400
6217	4200		2700	5000
6218	3900		2600	4700
6219	3700		2400	4400
6220	3500		2300	4200
6221	3300		2200	3900
6222	3100		2000	3700
6224	2900		1900	3400
6226	2700		1800	3200
6228	2400		1600	2900
6230	2200			2700
6232	2100			2500
6234	1900			2300
6236	1800			2200
6238	1700			2000
6240	1600			1900

Note: Speed ratings data courtesy of JTEKT (formerly Koyo).

*Indicates limiting speeds grease lubricated.



SPEED RATINGS

6300 SERIES

Bearing	Open, Shields & Non-Contact Seals (r/min)*	Light Contact Seals (r/min)*	Sealed (r/min)*	Oil Lube (r/min)
6300	22000	20000	16000	27000
6301	20000	18000	15000	25000
6302	17000	15000	12000	20000
6303	15000	14000	10000	18000
6304	14000	13000	9500	17000
6305	11000	9900	7500	13000
6306	9600	8600	6400	12000
6307	8500	7700	5700	10000
6308	7700	6900	5100	9200
6309	6800	6100	4500	8100
6310	6100	5500	4100	7300
6311	5600		3700	6700
6312	5200		3500	6200
6313	4800		3200	5800
6314	4500		3000	5400
6315	4200		2800	5000
6316	3900		2700	4700
6317	3700		2500	4400
6318	3500		2400	4200
6319	3300		2200	4000
6320	3000		2100	3600
6321	2900		2000	3500
6322	2700		1900	3200
6324	2500			3000
6326	2300			2700
6328	2100			2500
6330	1900			2300
6332	1800			2200
6334	1700			2000
6336	1600			1900
6338	1500			1800
6340	1300			1600

Note: Speed ratings data courtesy of JTEKT (formerly Koyo).
*Indicates limiting speeds grease lubricated.



INTERNAL CLEARANCES

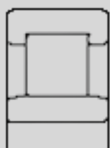
DEEP GROOVE BALL BEARINGS - CYLINDRICAL BORE

Bore Diameter (mm)		Radial Internal Clearance (in)							
		C2		CO Standard		C3		C4	
Over	Incl	Min	Max	Min	Max	Min	Max	Min	Max
2.5	6	0.00000	0.00030	0.0001	0.0005	0.0003	0.0009	0.0005	0.0012
6	10	0.00000	0.00030	0.0001	0.0005	0.0003	0.0009	0.0005	0.0012
10	18	0.00000	0.00035	0.0001	0.0007	0.0004	0.0010	0.0007	0.0013
18	24	0.00000	0.00040	0.0002	0.0008	0.0005	0.0011	0.0008	0.0014
24	30	0.00005	0.00045	0.0002	0.0008	0.0005	0.0011	0.0009	0.0016
30	40	0.00005	0.00045	0.0002	0.0009	0.0006	0.0013	0.0011	0.0018
40	50	0.00005	0.00045	0.0002	0.0009	0.0007	0.0014	0.0012	0.0020
50	65	0.00005	0.00060	0.0003	0.0011	0.0009	0.0017	0.0015	0.0024
65	80	0.00005	0.00060	0.0004	0.0012	0.0010	0.0020	0.0018	0.0028
80	100	0.00005	0.00070	0.0005	0.0014	0.0012	0.0023	0.0021	0.0033
100	120	0.00010	0.00080	0.0006	0.0016	0.0014	0.0026	0.0024	0.0038
120	140	0.00010	0.00090	0.0007	0.0019	0.0016	0.0032	0.0028	0.0045
140	160	0.00010	0.00090	0.0007	0.0021	0.0018	0.0036	0.0032	0.0051
160	180	0.00010	0.00100	0.0008	0.0024	0.0021	0.0040	0.0036	0.0058
180	200	0.00010	0.00120	0.0010	0.0028	0.0025	0.0046	0.0042	0.0064

DESIGN TYPES

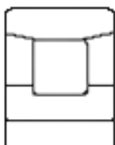
CYLINDRICAL ROLLER BEARING

NU



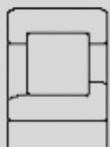
Two machined flanges on the outer ring and no flanges on the inner ring. The rollers and cages are assembled in the outer ring. Because there are no flanges in the inner ring, this bearing cannot carry a thrust load.

N



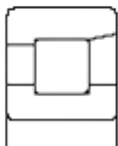
Two machined flanges on the inner ring and no flanges on the outer ring, with rollers and cage on the inner ring. Like the NU type the N has no thrust load carrying capability.

NJ



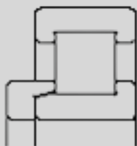
Two machined flanges on the outer ring and a machined flange on one side of the inner ring. The roller and cage assembly is in the outer ring. An integral flange on the inner ring allows this bearing to carry a light axial load.

NF



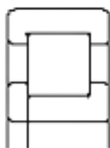
Two machined flanges on the inner ring and one flange on the outer ring, with roller and cage on the inner ring. Like the NJ bearing, NF types have light thrust-load capability.

NH



Two machined flanges on the outer ring and a machined flange on one side of the inner ring. A special design inner ring allows use of a side plate on the non-flange side. As a result the bearing can carry light axial loads in both directions. The roller and cage assembly is retained with the outer ring.

NUP



Similar to the NJ, this bearing comes with a speed ring often called a thrust plate. Mounted on the non-flange side of the inner ring, the thrust plates allow the bearing to carry an axial load in both directions. The thrust plate extends out of the bearing on one side, so the dimension across the inner ring is slightly greater than that of the outer ring.

BEARING MOUNTING FITS

N, NJ, NU 200 SERIES

Bearing	Bore (mm)	Shaft Seat Diameter (r/min)		OD (mm)	Housing Seat Diameter (r/min)	
		Max (in)	Min (in)		Max (in)	Min (in)
202	15	0.5911	0.5906	35	1.3786	1.3780
203	17	0.6698	0.6693	40	1.5754	1.5748
204	20	0.7880	0.7875	47	1.8510	1.8504
205	25	0.9849	0.9844	52	2.0479	2.0472
206	30	1.1817	1.1812	62	2.4416	2.4409
207	35	1.3788	1.3784	72	2.8353	2.8346
208	40	1.5756	1.5752	80	3.1503	3.1496
209	45	1.7725	1.7721	85	3.3474	3.3465
210	50	1.9693	1.9689	90	3.5442	3.5433
211	55	2.1667	2.1662	100	3.9379	3.9370
212	60	2.3635	2.3630	110	4.3316	4.3307
213	65	2.5604	2.5599	120	4.7253	4.7244
214	70	2.7574	2.7567	125	4.9223	4.9213
215	75	2.9543	2.9536	130	5.1191	5.1181
216	80	3.1511	3.1504	140	5.5128	5.5118
217	85	3.3483	3.3474	150	5.9065	5.9055
218	90	3.5451	3.5442	160	6.3002	6.2992
219	95	3.7420	3.7411	170	6.6939	6.6929
220	100	3.9388	3.9379	180	7.0876	7.0866
221	105	4.1362	4.1354	190	7.4814	7.4803
222	110	4.3330	4.3322	200	7.8751	7.8740
224	120	4.7267	4.7259	215	8.4657	8.4646
226	130	5.1208	5.1198	230	9.0562	9.0551
228	140	5.5145	5.5135	250	9.8436	9.8425
230	150	5.9082	5.9072	270	10.6312	10.6299
232	160	6.3019	6.3009	290	11.4186	11.4173
234	170	6.6956	6.6946	310	12.2060	12.2047
236	180	7.0893	7.0883	320	12.5998	12.5984
238	190	7.4834	7.4823	340	13.3872	13.3858
240	200	7.8771	7.8760	360	14.1746	14.1732

Note: Call for EMR shaker duty mounting fits.



BEARING MOUNTING FITS

N, NJ, NU 300 SERIES

Bearing	Bore (mm)	Shaft Seat Diameter (r/min)		OD (mm)	Housing Seat Diameter (r/min)	
		Max (in)	Min (in)		Max (in)	Min (in)
303	17	0.6698	0.6693	47	1.8510	1.8504
304	20	0.7880	0.7875	52	2.0479	2.0472
305	25	0.9849	0.9844	62	2.4416	2.4409
306	30	1.1817	1.1812	72	2.8353	2.8346
307	35	1.3788	1.3784	80	3.1503	3.1496
308	40	1.5756	1.5752	90	3.5442	3.5433
309	45	1.7725	1.7721	100	3.9379	3.9370
310	50	1.9693	1.9689	110	4.3316	4.3307
311	55	2.1667	2.1662	120	4.7253	4.7244
312	60	2.3635	2.3630	130	5.1191	5.1181
313	65	2.5604	2.5599	140	5.5128	5.5118
314	70	2.7574	2.7567	150	5.9065	5.9055
315	75	2.9543	2.9536	160	6.3002	6.2992
316	80	3.1511	3.1504	170	6.6939	6.6929
317	85	3.3483	3.3474	180	7.0876	7.0866
318	90	3.5451	3.5442	190	7.4814	7.4803
319	95	3.7420	3.7411	200	7.8751	7.8740
320	100	3.9388	3.9379	215	8.4657	8.4646
321	105	4.1362	4.1354	225	8.8594	8.8583
322	110	4.3330	4.3322	240	9.4499	9.4488
324	120	4.7267	4.7259	260	10.2375	10.2362
326	130	5.1208	5.1198	280	11.0249	11.0236
328	140	5.5145	5.5135	300	11.8123	11.8110
330	150	5.9082	5.9072	320	12.5998	12.5984
332	160	6.3019	6.3009	340	13.3872	13.3858
334	170	6.6956	6.6946	360	14.1746	14.1732
336	180	7.0893	7.0883	380	14.9620	14.9606
338	190	7.4834	7.4823	400	15.7494	15.7480
340	200	7.8771	7.8760	420	16.5370	16.5354

Note: Call for EMR shaker duty mounting fits.



SPEED RATINGS

NJ, NU 200-300 SERIES

Bearing	Grease Lubrication (r/min)	Oil Lubrication (r/min)	Bearing	Grease Lubrication (r/min)	Oil Lubrication (r/min)
204	15000	18000	304	12000	16000
205	13000	15000	305	10000	14000
206	11000	13000	306	8700	12000
207	9300	11000	307	7700	10000
208	8300	9900	308	6800	9100
209	7600	9200	309	6100	8200
210	7100	8500	310	5500	7400
211	6400	7700	311	5100	6700
212	5800	6900	312	4600	6200
213	5300	6400	313	4300	5700
214	5000	6000	314	4000	5300
215	4800	5700	315	3700	5000
216	4400	5300	316	3500	4700
217	4200	5000	317	3300	4400
218	3900	4700	318	3100	4100
219	3700	4400	319	2900	3900
220	3500	4200	320	2700	3600
222	3100	3700	322	2400	3200
224	2800	3400	324	2200	3000
226	2600	3200	326	2000	2700
228	2400	2900	328	1900	2500
230	2200	2600	330	1700	2300
232	2000	2400	332	1600	2100
234	1900	2200	334	1500	2000
236	1800	2100	336	1400	1900
238	1700	2000	338	1300	1800
240	1600	1900	340	1200	1700

Note: Speed ratings data courtesy of JTEKT (formerly Koyo).



MINIMUM RADIAL LOAD REQUIREMENTS

N, NJ, NU 200 SERIES

Minimum radial load required at

Bearing	900 rpm (lb)	1800 rpm (lb)	3600 rpm (lb)
202	13	14	15
203	17	18	19
204	24	25	26
205	32	33	35
206	45	47	51
207	62	65	71
208	78	83	92
209	92	97	109
210	107	114	128
211	132	141	161
212	160	173	199
213	190	207	240
214	212	231	270
215	236	259	304
216	273	301	356
217	315	350	420
218	359	401	485
219	405	455	554
220	457	516	635
221	510	580	719
222	568	649	811
224	668	769	969
226	779	902	1148
228	935	1100	1429
230	1099	1305	1716
232	1281	1537	2049
234	1484	1802	2437
236	1610	1955	2645
238	1848	2274	
240	2088	2589	



MINIMUM RADIAL LOAD REQUIREMENTS

N, NJ, NU 300 SERIES

Bearing	Minimum radial load required at		
	900 rpm (lb)	1800 rpm (lb)	3600 rpm (lb)
303	22	23	24
304	28	29	31
305	41	43	46
306	56	59	65
307	72	76	84
308	92	99	112
309	115	124	141
310	142	153	176
311	171	186	217
312	203	222	261
313	237	261	309
314	276	307	368
315	317	354	429
316	361	405	493
317	409	462	569
318	460	522	648
319	514	587	734
320	597	691	879
321	655	758	964
322	744	868	1116
324	887	1044	1357
326	1063	1276	1701
328	1225	1469	1959
330	1423	1727	2337
332	1644	2024	2783
334	1923	2424	
336	2182	2776	
338	2466	3170	
340	2778	3611	

INTERNAL CLEARANCES

CYLINDRICAL ROLLER BEARINGS - CYLINDRICAL BORE

Bore Diameter (mm)		Radial Internal Clearance (in)							
		C2		CO Standard		C3		C4	
Over	Incl	Min	Max	Min	Max	Min	Max	Min	Max
0	24	0.0000	0.0009	0.0008	0.0017	0.0013	0.0024	0.0020	0.0030
24	30	0.0000	0.0009	0.0008	0.0017	0.0013	0.0024	0.0020	0.0030
30	40	0.0002	0.0012	0.0010	0.0020	0.0018	0.0027	0.0022	0.0033
40	50	0.0002	0.0014	0.0012	0.0023	0.0020	0.0031	0.0026	0.0039
50	65	0.0004	0.0016	0.0016	0.0027	0.0022	0.0035	0.0030	0.0042
65	80	0.0004	0.0018	0.0016	0.0030	0.0025	0.0039	0.0035	0.0049
80	100	0.0006	0.0020	0.0020	0.0033	0.0029	0.0043	0.0041	0.0055
100	120	0.0006	0.0021	0.0020	0.0035	0.0033	0.0049	0.0049	0.0064
120	140	0.0006	0.0024	0.0024	0.0041	0.0039	0.0057	0.0057	0.0074
140	160	0.0008	0.0027	0.0027	0.0047	0.0045	0.0064	0.0064	0.0084
160	180	0.0010	0.0030	0.0030	0.0049	0.0047	0.0067	0.0067	0.0087
180	200	0.0014	0.0035	0.0035	0.0057	0.0055	0.0077	0.0077	0.0099

GREASE COMPATIBILITY CHART

 Compatible
 Incompatible

	Aluminum Complex	Barium	Calcium	Calcium 12-Hydroxy	Calcium Complex	Clay	Lithium	Lithium 12-Hydroxy	Lithium Complex	Urea	Sodium
Aluminum Complex		Incompatible	Incompatible	Compatible	Incompatible	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Incompatible
Barium	Incompatible		Incompatible	Compatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible
Calcium	Incompatible	Incompatible		Compatible	Incompatible	Compatible	Compatible	Incompatible	Compatible	Incompatible	Incompatible
Calcium 12-Hydroxy	Compatible	Compatible	Compatible		Incompatible	Compatible	Compatible	Compatible	Compatible	Incompatible	Incompatible
Calcium Complex	Incompatible	Incompatible	Incompatible	Incompatible		Incompatible	Incompatible	Incompatible	Compatible	Compatible	Incompatible
Clay	Incompatible	Incompatible	Compatible	Compatible	Incompatible		Incompatible	Incompatible	Incompatible	Incompatible	Incompatible
Lithium	Incompatible	Incompatible	Compatible	Compatible	Incompatible	Incompatible		Compatible	Compatible	Incompatible	Incompatible
Lithium 12-Hydroxy	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Incompatible	Compatible		Compatible	Incompatible	Incompatible
Lithium Complex	Compatible	Incompatible	Compatible	Compatible	Compatible	Incompatible	Compatible	Compatible		Incompatible	Incompatible
Urea	Incompatible	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Incompatible	Incompatible	Incompatible		Incompatible
Sodium	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	

GREASE RELUBE RECOMMENDATIONS

6200 SERIES

Bearing	Quantity (oz)	Interval at		
		900 rpm (hr)	1800 rpm (hr)	3600 rpm (hr)
6200	0.04	27100	24500	20000
6201	0.07	26800	24000	19200
6202	0.07	26400	23200	18000
6203	0.07	26000	22500	16900
6204	0.11	25300	21400	15200
6205	0.14	24600	20200	13600
6206	0.18	23800	18800	11800
6207	0.21	22900	17500	10200
6208	0.25	22100	16300	8910
6209	0.28	21600	15500	8050
6210	0.32	21100	14800	7280
6211	0.35	20300	13700	6250
6212	0.42	19500	12700	5370
6213	0.49	18800	11700	4590
6214	0.53	18300	11200	4170
6215	0.56	17900	10600	3770
6216	0.63	17100	9690	3130
6217	0.74	16500	9090	2760
6218	0.85	15900	8450	2380
6219	0.95	15300	7850	2060
6220	1.09	14800	7280	

Note: The relubrication intervals shown are based on a good quality grease at a maximum temperature of 160° F. Reduce the interval by half for each 27° F above 160° F, and/or for vertical applications.



GREASE RELUBE RECOMMENDATIONS

6300 SERIES

Bearing	Quantity (oz)	Interval at		
		900 rpm (hr)	1800 rpm (hr)	3600 rpm (hr)
6300	0.07	26800	24000	19100
6301	0.07	26500	23400	18300
6302	0.11	25900	22400	16800
6303	0.11	25500	21700	15700
6304	0.14	25000	20800	14500
6305	0.18	24100	19300	12400
6306	0.25	23100	17700	10500
6307	0.28	22400	16800	9370
6308	0.35	21600	15500	8050
6309	0.42	20800	14400	6920
6310	0.53	20000	13400	5950
6311	0.60	19300	12400	5110
6312	0.71	18600	11500	4390
6313	0.81	17900	10600	3770
6314	0.92	17200	9860	3240
6315	1.06	16600	9140	2780
6316	1.16	15900	8470	2390
6317	1.31	15300	7850	2060
6318	1.45	14800	7280	
6319	1.59	14200	6750	
6320	1.80	13500	6100	

Note: The relubrication intervals shown are based on a good quality grease at a maximum temperature of 160° F. Reduce the interval by half for each 27° F above 160° F, and/or for vertical applications.

GREASE RELUBE RECOMMENDATIONS

N, NJ, NU 200 SERIES

Bearing	Quantity (oz)	Interval at		
		900 rpm (hr)	1800 rpm (hr)	3600 rpm (hr)
202	0.07	24900	20600	14100
203	0.07	24100	19400	12600
204	0.11	23200	17900	10700
205	0.14	22400	16700	9300
206	0.18	21200	14900	7400
207	0.21	19900	13200	5870
208	0.25	19000	12100	4900
209	0.28	18300	11200	4200
210	0.32	17600	10400	3600
211	0.39	16700	9300	2900
212	0.42	15700	8300	2300
213	0.49	14900	7400	1800
214	0.53	14300	6800	1600
215	0.56	13800	6300	1300
216	0.63	13000	5700	1100
217	0.74	12300	5000	800
218	0.85	11600	4500	700
219	0.95	11000	4000	
220	1.09	10400	3600	

Note: The relubrication intervals shown are based on a good quality grease at a maximum temperature of 160° F. Reduce the interval by half for each 27° F above 160° F, and/or for vertical applications.

GREASE RELUBE RECOMMENDATIONS

N, NJ, NU 300 SERIES

Bearing	Quantity (oz)	Interval at		
		900 rpm (hr)	1800 rpm (hr)	3600 rpm (hr)
303	0.11	23500	18500	11400
304	0.14	22800	17400	10100
305	0.18	21600	15500	8000
306	0.25	20400	13800	6400
307	0.28	19400	12500	5200
308	0.35	18300	11200	4200
309	0.46	17300	10000	3300
310	0.53	16400	8900	2600
311	0.60	15400	8000	2100
312	0.71	14600	7100	1700
313	0.81	13800	6300	1300
314	0.92	13000	5700	1100
315	1.06	12300	5000	800
316	1.16	11600	4500	700
317	1.31	11000	4000	
318	1.45	10400	3600	
319	1.59	9800	3200	
320	1.80	9100	2700	

Note: The relubrication intervals shown are based on a good quality grease at a maximum temperature of 160° F. Reduce the interval by half for each 27° F above 160° F, and/or for vertical applications.

BEARING ACCESSORIES

Bearing #	Shaft Rings	Housing Rings	Loading Springs	Locknut	Lockwasher
6200	1400-39	1300-118	S-10	N-00	W-00
6201	1400-46	1300-125	S-12	N-01	W-01
6202	1400-59	1300-137	S-15	N-02	W-02
6203	1400-66	1300-156	S-17	N-03	W-03
6204	1400-78	1300-187	S-20	N-04	W-04
6205	1400-98	1300-206	S-25	N-05	W-05
6206	1400-118	1300-244	S-62	N-06	W-06
6207	1400-137	1300-281	S-72	N-07	W-07
6208	1400-156	1300-315	S-80	N-08	W-08
6209	1400-177	1300-334	S-85	N-09	W-09
6210	1400-196	1300-354	S-90	N-10	W-10
6211	1400-215	1300-393	S-100	N-11	W-11
6212	1400-237	1300-433	S-110	N-12	W-12
6213	1400-255	1300-475	S-120	N-13	W-13
6214	1400-275	Size on Request	S-125	N-14	W-14
6215	1400-293	Size on Request	S-130	AN-15	W-15
6216	1400-315	Size on Request	S-140	AN-16	W-16
6217	1400-334	Size on Request	S-150	AN-17	W-17
6218	1400-354	Size on Request	S-160	AN-18	W-18
6219	1400-375	Size on Request	S-170	AN-19	W-19
6220	1400-393	Size on Request	S-180	AN-20	W-20
6300	1400-39	1300-137	S-15	N-00	W-00
6301	1400-46	1300-145		N-01	W-01
6302	1400-59	1300-165		N-02	W-02
6303	1400-66	1300-185	S-20	N-03	W-03
6304	1400-78	1300-206	S-25	N-04	W-04
6305	1400-98	1300-244	S-62	N-05	W-05
6306	1400-118	1300-281	S-72	N-06	W-06
6307	1400-137	1300-315	S-80	N-07	W-07
6308	1400-156	1300-354	S-90	N-08	W-08
6309	1400-177	1300-393	S-100	N-09	W-09
6310	1400-196	1300-433	S-110	N-10	W-10
6311	1400-215	1300-475	S-120	N-11	W-11
6312	1400-237	Size on Request	S-130	N-12	W-12
6313	1400-255	Size on Request	S-140	N-13	W-13
6314	1400-275	Size on Request	S-150	N-14	W-14
6315	1400-293	Size on Request	S-160	AN-15	W-15
6316	1400-315	Size on Request	S-170	AN-16	W-16
6317	1400-334	Size on Request	S-180	AN-17	W-17
6318	1400-354	Size on Request	S-190	AN-18	W-18
6319	1400-375	Size on Request	S-200	AN-19	W-19
6320	1400-393	Size on Request	S-215	AN-20	W-20

Note: Metric sizes available on request.



INTERNAL CLEARANCE VS TOLERANCE

All figures shown in the example below are in reference to a 6205 ball bearing.

UNMOUNTED RADIAL INTERNAL CLEARANCE FOR 6205

Deep Groove Ball Bearing - 25mm bore

C2	0.00005	-	0.00045
CO*	0.0002	-	0.0008
C3	0.0005	-	0.0011
C4	0.0009	-	0.0016
C5	0.0012	-	0.0021

*Standard

ABEC BEARING TOLERANCE FOR 6205

Deep Groove Ball Bearing - 25mm bore

	MAX	MIN	SHAFT TOLERANCE (EMR)
ABEC 1	0.9843	0.9839	0.9847 - 0.9844
ABEC 3	0.9843	0.9841	Call for tolerance
ABEC 5	0.9843	0.9841	Call for tolerance
ABEC 7	0.9843	0.98415	Call for tolerance

ABEC BEARING TOLERANCE FOR 6205

Deep Groove Ball Bearing - 52mm outside diameter

	MAX	MIN	HOUSING TOLERANCE (EMR)
ABEC 1	2.0472	2.0467	2.0479 - 2.0472
ABEC 3	2.0472	2.0468	Call for tolerance
ABEC 5	2.0472	2.0469	Call for tolerance
ABEC 7	2.0472	2.0470	Call for tolerance

UNDERSTANDING INTERNAL CLEARANCE

UNDERSTANDING INTERNAL CLEARANCE

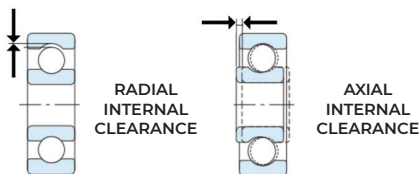
Bearings are designed with a specific internal clearance that measures the space between the rings and the rolling elements. This clearance enables smooth rotation of the rolling elements, compensates for thermal expansion, and ensures optimal load distribution.

It is crucial to choose the correct internal clearance as it directly influences noise, vibration, heat, and fatigue life, while factors such as impact loads, severe vibration, and ring fit also affect the internal clearance. Achieving the ideal internal clearance for a specific application requires a careful balance of these parameters.

DIFFERENCES BETWEEN RADIAL AND AXIAL INTERNAL CLEARANCE

Internal clearance in bearings can be classified into two types: radial and axial clearances. Radial clearance is determined by the difference between the diameter of the ball or roller and the space between the inner and outer rings. It is measured perpendicular to the shaft and changes as the bearing rings expand or contract.

Axial clearance, on the other hand, refers to the total displacement that can occur between the rings in an axial direction. As the radial clearance increases, so does the axial clearance. A larger radial clearance means there is more room between the balls and rings, allowing greater freedom of movement for the individual elements in relation to each other.



CHOOSING THE RIGHT SPECIFICATION FOR THE JOB

Internal clearances are categorized using a scale from C1 (tightest) to C5 (loosest) or even larger. As the numerical value increases, the radial clearance also increases. Greater clearance allows for better tolerance to external heat. Conversely, lower clearances are required when minimizing noise and vibration is important. The ideal internal clearance depends on the specific application and the prevailing operating conditions.

"STANDARD" AND "NORMAL" INTERNAL CLEARANCE FOR ELECTRIC MOTORS

It is crucial to differentiate between "normal" and "standard" clearances, especially as new standards emerge for modern electric motors that operate at higher temperatures and speeds. In the case of electric motors, the commonly specified clearances are C2 for situations where noise control is of utmost importance, and either C3 or C4 when exposed to elevated ambient temperatures. The term "normal clearance" is also interchangeably referred to as C, CO, or "standard" clearance.

Key takeaway: The ideal internal clearance depends on the specific application and operating conditions. If you're unsure of which clearance number to use, contact your Bartlett representative and a member of our highly knowledgeable team will be able to troubleshoot with you.

Protect Your Electric Motors from Bearing Damage



A solution that works

The team at Bartlett Bearings are experts in all things motors. They recommend AEGIS® Shaft Grounding Rings to prevent bearing failures in your motors driven by VFDs.

Bartlett Bearings provides AEGIS® rings as a part of their commitment to providing customers with the expertise, support, and dependability they deserve. As specialists in shaft grounding, their team is trained in the identification and mitigation of VFD induced bearing damage and the installation of our shaft grounding rings.

To learn more about how AEGIS can keep your bearings safe talk to your representative at Bartlett Bearing or visit us at www.est-aegis.com

Solid uKITS	Split Ring	Motor Shaft Diameter	NEMA Frame Sizes
SGR-0.625-UKIT	SGR-0.625-UKIT-1A4	0.625"	56
SGR-0.875-UKIT	SGR-0.875-UKIT-1A4	0.875"	56HZ, 143T, 145T
SGR-1.125-UKIT	SGR-1.125-UKIT-1A4	1.125"	182T, 184T
SGR-1.375-UKIT	SGR-1.375-UKIT-1A4	1.375"	213T, 215T
SGR-1.625-UKIT	SGR-1.625-UKIT-1A4	1.625"	254T, 256T, 284TS, 286TS
SGR-1.875-UKIT	SGR-1.875-UKIT-1A4	1.875"	284T, 286T, 324TS, 326TS, 364TS, 365TS
SGR-2.125-UKIT	SGR-2.125-UKIT-1A4	2.125"	324T, 326T, 404TS, 405TS
SGR-2.375-UKIT	SGR-2.375-UKIT-1A4	2.375"	364T, 365T, 444TS, 445TS, 447TS, 449TS
SGR-2.875-UKIT	SGR-2.875-UKIT-1A4	2.875"	404T, 405T
SGR-3.375-UKIT	SGR-3.375-UKIT-1A4	3.375"	444T, 445T, 447T, 449T
SGR-3.625-UKIT	SGR-3.625-UKIT-1A4	3.625"	
SGR-3.875-UKIT	SGR-3.875-UKIT-1A4	3.875"	
SGR-4.375-UKIT	SGR-4.375-UKIT-1A4	4.375"	
SGR-4.875-UKIT	SGR-4.875-UKIT-1A4	4.875"	

Includes four mounting bracket styles and hardware to adapt the AEGIS ring to virtually any end bracket.



ABMA NOMENCLATURE

90	BC	03	J	PP	N	3	0	X	
1	2	3	4	5	6	7	8	9	10

Symbols	ABMA	Industry Standard	Description
1 Bore Diameter	90	XX18	ABMA/5 exc. 17 = XX03 15 = XX02 12 = XX01 10 = XX00
2 Bearing Type	BC BL BT RU RN RJ	6XXX XXX 7XXX B NU XXX N XXX NJ XXX	Conrad DGBB max capacity DGBB angular contact (40 degrees) cylindrical roller cylindrical roller cylindrical roller
3 Dimensional Series	00 02 03 04	X0XX X2XX X3XX X4XX	extra light light medium heavy
4 Cage Type	X J Y, K M	- J Y M, FY	any type pressed steel pressed brass machined brass
5 Seals/Shields or Duplex Mounting	X P E RR UU TT	- Z RS, RS, L, RD DB DF DT	character separator (PP, ZZ, two shields) or ZZ (EE, 2RS, two seals) or LL, 2RD duplex back-to-back duplex face-to-face duplex tandem

ABMA NOMENCLATURE

6	3	18	ZZ	NR			C3		GXM
2	3	1	5	6	4	8	7	10	9

Symbols	ABMA	Industry Standard	Description
6 Snap Ring and Groove	N	N	groove without snap ring
	A	NB	groove without ring on same side as seal/shield
	G	NR	groove with snap ring
	C	NBR	groove without snap ring on same side as seal/shield
7 Radial Clearance/Preload	0	-	normal clearance
	1	C1	tighter than C2
	2	C2	tighter than normal
	3	C3	looser than normal
	4	C4	looser than C3
8 Tolerance Class	5	C5	looser than C4
	0	-	normal, ABEC1, ISO P7
	6	P6	ABEC 3, ISO P6
	5	P5	ABEC 5, ISO P5
	4	P4	ABEC 7, ISO P4
9 Lubricant	2	P9A	ABEC 9
	X	-	any slush or grease
	A	-	refer to manufacturer
10 Special Features	X26	-	Consult Bartlett
	X27	S0	heat stabilized at 150° C
	X28	S1	heat stabilized to 200° C

EM QUIK SLEEVES

If the bearing housing has been worn down for quite some time then a full replacement with a new component may be your only option. Since it is considered a major operation due to the location of the bearing housing it is very expensive and time consuming. However, if you catch the poor machine performance in time, bearing housing repair is possible. EM-Quik Sleeves supplied by Bartlett Bearing Company, Inc. are guaranteed to be of the highest quality and exceed industry standards. Issues within your machine's delicate housing system should be properly fixed in a timely manner.

Available in SAE 1026 steel, class 35-40 grey iron, insulated, thin wall and oversized.

Scan the QR code below for a complete look at our housing repair solutions.



DECIMAL EQUIVALENTS

FRACTIONAL INCHES

Fractional Inches	Decimal	Fractional Inches	Decimal
1/64	0.0156	33/64	0.5156
1/32	0.0313	17/32	0.5313
3/64	0.0469	35/64	0.5469
1/16	0.0625	9/16	0.5625
5/64	0.0781	37/64	0.5781
3/32	0.0938	19/32	0.5938
7/64	0.1094	39/64	0.6094
1/8	0.1250	5/8	0.6250
9/64	0.1406	41/64	0.6406
5/32	0.1563	21/32	0.6563
11/64	0.1719	43/64	0.6719
3/16	0.1875	11/16	0.6875
13/64	0.2031	45/64	0.7031
7/32	0.2188	23/32	0.7188
15/64	0.2344	47/64	0.7344
1/4	0.2500	3/4	0.7500
17/64	0.2656	49/64	0.7656
9/32	0.2813	25/32	0.7813
19/64	0.2969	51/64	0.7969
5/16	0.3125	13/16	0.8125
21/64	0.3281	53/64	0.8281
11/32	0.3438	27/32	0.8438
23/64	0.3594	55/64	0.8594
3/8	0.3750	7/8	0.8750
25/64	0.3906	57/64	0.8906
13/32	0.4063	29/32	0.9063
27/64	0.4219	59/64	0.9219
7/16	0.4375	15/16	0.9375
29/64	0.4531	61/64	0.9531
15/32	0.4688	31/32	0.9688
31/64	0.4844	63/64	0.9844
1/2	0.5000	1	1.0000



DECIMAL EQUIVALENTS

MM - INCHES

mm	Inches	mm	Inches	mm	Inches	mm	Inches
1	0.0394	33	1.2992	65	2.5591	97	3.8189
2	0.0787	34	1.3386	66	2.5984	98	3.8583
3	0.1181	35	1.3780	67	2.6378	99	3.8976
4	0.1575	36	1.4173	68	2.6772	100	3.9370
5	0.1969	37	1.4567	69	2.7165	101	3.9764
6	0.2362	38	1.4961	70	2.7559	102	4.0158
7	0.2756	39	1.5354	71	2.7953	103	4.0551
8	0.3150	40	1.5748	72	2.8347	104	4.0945
9	0.3543	41	1.6142	73	2.8740	105	4.1339
10	0.3937	42	1.6535	74	2.9134	106	4.1732
11	0.4331	43	1.6929	75	2.9528	107	4.2126
12	0.4724	44	1.7323	76	2.9921	108	4.2520
13	0.5118	45	1.7717	77	3.0315	109	4.2913
14	0.5512	46	1.8110	78	3.0709	110	4.3307
15	0.5906	47	1.8504	79	3.1102	111	4.3701
16	0.6299	48	1.8898	80	3.1496	112	4.4095
17	0.6693	49	1.9291	81	3.1890	113	4.4488
18	0.7087	50	1.9685	82	3.2284	114	4.4882
19	0.7480	51	2.0079	83	3.2677	115	4.5276
20	0.7874	52	2.0472	84	3.3071	116	4.5669
21	0.8268	53	2.0866	85	3.3465	117	4.6063
22	0.8661	54	2.1260	86	3.3858	118	4.6457
23	0.9055	55	2.1654	87	3.4252	119	4.6850
24	0.9449	56	2.2047	88	3.4646	120	4.7244
25	0.9843	57	2.2441	89	3.5039	121	4.7638
26	1.0236	58	2.2835	90	3.5433	122	4.8032
27	1.0630	59	2.3228	91	3.5827	123	4.8425
28	1.1024	60	2.3622	92	3.6221	124	4.8819
29	1.1417	61	2.4016	93	3.6614	125	4.9213
30	1.1811	62	2.4409	94	3.7008	126	4.9606
31	1.2205	63	2.4803	95	3.7402	127	5.0000
32	1.2598	64	2.5197	96	3.7795	128	5.0394

DECIMAL EQUIVALENTS

MM - INCHES

mm	Inches	mm	Inches	mm	Inches	mm	Inches
129	5.0787	161	6.3386	193	7.5984	225	8.8583
130	5.1181	162	6.3780	194	7.6378	226	8.8976
131	5.1575	163	6.4173	195	7.6772	227	8.9370
132	5.1969	164	6.4567	196	7.7165	228	8.9764
133	5.2362	165	6.4961	197	7.7559	229	9.0158
134	5.2756	166	6.5354	198	7.7953	230	9.0551
135	5.3150	167	6.5748	199	7.8347	231	9.0945
136	5.3543	168	6.6142	200	7.8740	232	9.1339
137	5.3937	169	6.6535	201	7.9134	233	9.1732
138	5.4331	170	6.6929	202	7.9528	234	9.2126
139	5.4724	171	6.7323	203	7.9921	235	9.2520
140	5.5118	172	6.7717	204	8.0315	236	9.2913
141	5.5512	173	6.8110	205	8.0709	237	9.3307
142	5.5906	174	6.8504	206	8.1102	238	9.3701
143	5.6299	175	6.8898	207	8.1496	239	9.4095
144	5.6693	176	6.9291	208	8.1890	240	9.4488
145	5.7087	177	6.9685	209	8.2284	241	9.4882
146	5.7480	178	7.0079	210	8.2677	242	9.5276
147	5.7874	179	7.0472	211	8.3071	243	9.5669
148	5.8268	180	7.0866	212	8.3465	244	9.6063
149	5.8661	181	7.1260	213	8.3858	245	9.6457
150	5.9055	182	7.1654	214	8.4252	246	9.6850
151	5.9449	183	7.2047	215	8.4646	247	9.7244
152	5.9843	184	7.2441	216	8.5039	248	9.7638
153	6.0236	185	7.2835	217	8.5433	249	9.8032
154	6.0630	186	7.3228	218	8.5827	250	9.8425
155	6.1024	187	7.3622	219	8.6221	251	9.8819
156	6.1417	188	7.4016	220	8.6614	252	9.9213
157	6.1811	189	7.4409	221	8.7008	253	9.9606
158	6.2205	190	7.4803	222	8.7402	254	10.0000
159	6.2598	191	7.5197	223	8.7795	255	10.0394
160	6.2992	192	7.5591	224	8.8189	256	10.0787



DECIMAL EQUIVALENTS

MM - INCHES

mm	Inches	mm	Inches	mm	Inches	mm	Inches
257	10.1181	271	10.6693	285	11.2205	299	11.7717
258	10.1575	272	10.7087	286	11.2598	300	11.8110
259	10.1969	273	10.7480	287	11.2992		
260	10.2362	274	10.7874	288	11.3386		
261	10.2756	275	10.8268	289	11.3780		
262	10.3150	276	10.8661	290	11.4173		
263	10.3543	277	10.9055	291	11.4567		
264	10.3937	278	10.9449	292	11.4961		
265	10.4331	279	10.9843	293	11.5354		
266	10.4724	280	11.0236	294	11.5748		
267	10.5118	281	11.0630	295	11.6142		
268	10.5512	282	11.1024	296	11.6535		
269	10.5906	283	11.1417	297	11.6929		
270	10.6299	284	11.1811	298	11.7323		

GENERAL CONVERSION FACTORS

To convert:	to:	Multiply by:
Inches	Millimeters	25.400
Millimeters	Inches	0.03937
Microns	Inches	0.0000394
Kilograms	Pounds	2.2046
Pounds	Kilograms	0.4536
Kilonewtons	Pounds force	224.81
Newtons	Pounds force	0.22481



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HARWAL

Couplings

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