

SELECTION

Setscrew Ball Bearings

DODGE mounted ball bearings are primarily designed for radial loading. However, they have the capacity to carry thrust loads and combined radial/thrust loads. The maximum recommended load which can be applied is limited by various components in the system, such as bearing, housing, shaft attachments, speed and life requirements. DODGE mounted ball bearings have been applied successfully when these limits have been exceeded under controlled operating conditions. Contact DODGE Engineering for applications which exceed these recommendations.

Select a bearing from the Selection Chart that has a radial load rating at the operating speed equal to or greater than the calculated Equivalent Radial load for a desired L_{10} life. This simple method is all that is required for the majority of general applications and provides for occasional average shock loads.

L_{10} Hours Life—is the life which may be expected for at least 90% of a given group of bearings operating under identical conditions.

For an L_{10} hours life other than those listed in the Selection Chart, multiply the equivalent Radial load by one of the following factors. For 50,000 L_{10} hours life, use a factor of 1.18 and for 80,000, use 1.39. Then select a bearing from the bold face (30,000) L_{10} ratings only in the Selection Chart that has a rating equal to or greater than this value.

Heavy Service—For heavy shock loads, frequent shock loads or severe vibrations, add up to 50% (according to severity of conditions) to the Equivalent Radial Load to obtain a Modified Equivalent Radial Load. Consult Application Engineering for additional selection assistance.

A thrust load value of $C/10$ is recommended as a guide for general applications and will give adequate L_{10} life. Where substantial radial load pulls the housing away from the mounting base, both the hold-down bolts and housing must be of adequate strength. Auxiliary load carrying devices, such as sheer bars, are advisable for side or end-loading of pillow blocks and radial loads for flange units.

To determine the L_{10} hours life for loads and RPM's not listed use the following equation:

$$L_{10} = \left(\frac{C}{P}\right)^3 \times \frac{16667}{\text{RPM}}$$

Where:

L_{10} = Life, hours

C = Dynamic Capacity, lbs. or N

P = Equivalent Radial Load, lbs. or N

When the load on a ball bearing is solely a radial load with no thrust (axial) load, the Equivalent Radial Load (P) is equal to the actual radial load. However, when a thrust (axial) load is applied, the radial and thrust loads applied must be converted into an Equivalent Radial Load. The use of the X (radial factor) and Y (thrust factor) from Table 1 convert the actual applied thrust and radial loads to an Equivalent Radial Load which has the same effect on the life of a bearing as a radial load of this magnitude.

$$P = (X \times F_R) + (Y \times F_A)$$

Where:

P = Equivalent Radial Load, lbs.

F_R = Radial load, lbs.

F_A = Thrust load, lbs.

e = Thrust load to radial load factor (Table 1)

X = Radial load factor (Table 1)

Y = Thrust Factor (Table 1)

C_0 = Basic static capacity

To find X and Y, first calculate F_A/C_0 to determine e. Calculate F_A/F_R and compare to e to determine the X and Y factors to use from Table 1.

Substitute all known values into the Equivalent Radial Load equation. The Equivalent Radial loads (P) thus determined can be used in the L_{10} life formula or compared to the allowable Equivalent Radial Load rating desired in the expanded rating chart to select a bearing (Table 2).

If calculated value of P is less than F_R , use $P=F_R$.

Table 1

$\frac{F_A}{C_0}$	e	Radial/Thrust Factors			
		If F_A/F_R is equal to or less than e		If F_A/F_R is greater than e	
		$F_A/F_R \leq e$		$F_A/F_R > e$	
		X	Y	X	Y
.014	.19	1	0	.56	2.30
.021	.21	1	0	.56	2.15
.028	.22	1	0	.56	1.99
.042	.24	1	0	.56	1.85
.056	.26	1	0	.56	1.71
.070	.27	1	0	.56	1.63
.084	.28	1	0	.56	1.55
.110	.30	1	0	.56	1.45
.170	.34	1	0	.56	1.31
.280	.38	1	0	.56	1.15
.420	.42	1	0	.56	1.04
.560	.44	1	0	.56	1.00

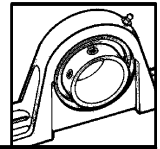
Lubrication—DODGE Ball Bearings are lubricated at the factory and are ready to run. The bearings are initially lubricated with Shell Alvania #2 and should be relubricated with the same or some equivalent. For high speeds, high loads, extreme temperatures and other abnormal operating conditions, special greases may be required. Contact DODGE Application Engineering for recommendations on these types of applications.

Misalignment—DODGE Ball Bearings are designed to allow a maximum of $\pm 2^\circ$ static misalignment. These bearings are not suitable for dynamic misalignment. To ensure good alignment, mounting surfaces must be checked for flatness and must lie in the same plane. When tightening base bolts, each bolt should be alternately tightened in incremental torque values until full torque is achieved to prevent the angular shifting of the pillow block that occurs when one bolt is tightened to its full torque. Shimming may be required to minimize misalignment.

Shaft Tolerances		
Normal Shaft Size Inches	Commercial Shaft Tolerances Inches	Recommended Shaft Tolerances Set Screw Ball Bearings Inches
Up to 1-1/2"	+0.000 -0.002	+0.0000 -0.0005
Over 1-1/2" to 2-1/2"	+0.000 -0.003	+0.0000 -0.0010
Over 2-1/2" to 4"	+0.000 -0.004	+0.0000 -0.0010

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SELECTION



Setscrew Ball Bearings - Inch

TABLE 2 –EASY SELECTION TABLE FOR BALL BEARING MOUNTED UNITS

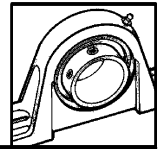
RING SIZE	SHAFT SIZE		DYMANIC CAPACITY C, Lbs.	STATIC CAPACITY Co, Lbs.	L10 LIFE HOURS	ALLOWABLE EQUIVALENT RADIAL LOAD RATING (LBS.) AT VARIOUS RPM*								
	SC, VSC, SL, CC	SCM				50	150	250	500	750	1000	1500	1750	2000
203	1/2 5/8		2158	1000	20000	550	380	320	255	225	205	175	170	160
					30000	480	335	280	225	195	175	155	145	140
					40000	440	305	255	205	175	160	140	135	130
					60000	380	265	225	175	155	140	125	115	110
					100000	320	225	190	150	130	120	105	100	95
204	1/2 5/8 3/4 13/16		2899	1390	20000	740	515	435	345	300	275	240	225	215
					30000	645	450	380	300	260	240	210	200	190
					40000	590	410	345	275	240	215	190	180	170
					60000	515	355	300	240	210	190	165	155	150
					100000	435	300	255	200	175	160	140	130	125
205	7/8 15/16 1		3146	1565	20000	805	560	470	375	325	295	260	245	235
					30000	705	485	410	325	285	260	225	215	205
					40000	640	445	375	295	260	235	205	195	185
					60000	560	385	325	260	225	205	180	170	165
					100000	470	325	275	220	190	175	150	145	135
206	1-1/16 1-1/8 1-3/16 1-1/4	1	4368	2250	20000	1115	775	655	520	455	410	360	340	325
					30000	975	675	570	455	395	360	315	300	285
					40000	885	615	520	410	360	325	285	270	260
					60000	775	535	455	360	315	285	250	235	225
					100000	655	455	380	305	265	240	210	200	190
207	1-1/4 1-5/16 1-3/8 1-7/16	1-3/16 1-1/4	5759	3065	20000	1475	1020	860	685	595	545	475	450	430
					30000	1285	890	755	595	520	475	415	395	375
					40000	1170	810	685	545	475	430	375	355	340
					60000	1020	710	595	475	415	375	330	310	300
					100000	860	595	505	400	350	315	275	265	250
208	1-1/2 1-5/8	1-7/16 1-1/2**	7332	4005	20000	1875	1300	1095	870	760	690	605	575	550
					30000	1640	1135	960	760	665	605	525	500	480
					40000	1490	1030	870	690	605	550	480	455	435
					60000	1300	900	760	605	525	480	420	400	380
					100000	1095	760	640	510	445	405	355	335	320
209	1-5/8 1-11/16 1-3/4	1-1/2	7891	4450	20000	2020	1400	1180	935	820	745	650	615	590
					30000	1765	1225	1030	820	715	650	570	540	515
					40000	1600	1110	935	745	650	590	515	490	470
					60000	1400	970	820	650	570	515	450	430	410
					100000	1180	820	690	550	480	435	380	360	345
210	1-15/16 2	1-11/16 1-3/4	7891	4450	20000	2020	1400	1180	935	820	745	650	615	590
					30000	1765	1225	1030	820	715	650	570	540	515
					40000	1600	1110	935	745	650	590	515	490	470
					60000	1400	970	820	650	570	515	450	430	410
					100000	1180	820	690	550	480	435	380	360	345
211	2 2-3/16 2-1/4	1-15/16 2	9755	5630	20000	2491	1727	1457	1156	1010	918	802	761	729
					30000	2176	1509	1272	1010	882	802	700	665	636
					40000	1977	1371	1156	918	802	728	636	604	578
					60000	1727	1197	1010	802	700	636	556	528	505
					100000	1457	1010	852	676	591	537	469	445	426
212	2-1/4 2-7/16	2-3/16 2-1/4	11791	6955	20000	3015	2090	1765	1400	1225	1110	970	925	880
					30000	2635	1825	1540	1225	1070	970	880	805	770
					40000	2395	1660	1400	1110	970	880	770	730	700
					60000	2090	1450	1225	970	850	770	675	640	610
					100000	1765	1225	1030	820	715	650	570	540	515
214	2 11/16	2-7/16 2-1/2	13995	8410	20000	3580	2480	2095	1660	1450	1320	1155	1095	1045
					30000	3125	2170	1830	1450	1270	1155	1005	955	915
					40000	2840	1970	1660	1320	1155	1045	915	870	830
					60000	2480	1720	1450	1155	1005	915	800	760	725
					100000	2095	1450	1225	970	850	770	675	640	615
215	2-15/16	2-11/16	14872	9255	20000	3805	2640	2225	1765	1545	1400	1225	1165	1115
					30000	3325	2305	1945	1545	1350	1225	1070	1015	975
					40000	3020	2095	1765	1400	1225	1115	975	925	885
					60000	2640	1830	1545	1225	1070	975	850	805	770
					100000	2225	1545	1300	1035	905	820	715	680	650
216		2-15/16 3	17407	11015	20000	4450	3085	2605	2065	1805	1640	1435	1360	1300
					30000	3890	2695	2275	1805	1580	1435	1250	1190	1140
					40000	3535	2450	2065	1640	1435	1300	1140	1080	1035
					60000	3085	2140	1805	1435	1250	1140	995	945	905
					100000	2605	1805	1525	1210	1055	960	840	795	760
218		3-7/16 3-1/2	21451	13940	20000	5485	3805	3210	2550	2225	2025	1765	1680	1605
					30000	4795	3325	2805	2225	1945	1765	1545	1465	1405
					40000	4355	3020	2550	2025	1765	1605	1405	1335	1276
					60000	3805	2640	2225	1765	1545	1405	1225	1165	1115
					100000	3210	2225	1880	1490	1300	1185	1035	980	940

* Slight interference fit required when operating on the right of the heavy line or in the shaded area.

** Piloted flange only.

FEATURE/BENEFITS SETSCREW BALL BEARINGS PAGE B2-2	HOW TO ORDER/ NOMENCLATURE PAGE B2-4	SELECTION ECCENTRIC COLLAR BALL BEARINGS PAGE B3-1	SELECTION D-LOK BALL BEARINGS PAGE B4-5
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SELECTION



Setscrew Ball Bearings - Inch

TABLE 2 (continued) — EASY SELECTION TABLE FOR BALL BEARING MOUNTED UNITS

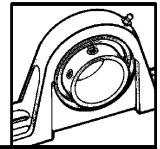
RING SIZE	SHAFT SIZE		DYMANIC CAPACITY C, Lbs.	STATIC CAPACITY Co, Lbs.	L10 LIFE HOURS	ALLOWABLE EQUIVALENT RADIAL LOAD RATING (LBS.) AT VARIOUS RPM*									
	SC, VSC,SL, CC	SCM				2500	3000	3500	4000	4500	5000	5500	6500	7500	
203	1/2 5/8		2158	1000	20000	150	140	135	130	125	120	115	110	105	
					30000	130	125	115	110	105	105	100	95	90	
					40000	120	110	105	100	95	95	90	85	80	
					60000	105	95	95	90	85	80	80	75	70	
					100000	85	80	80	75	70	70	65	65	60	
204	1/2 5/8 3/4 13/16		2899	1390	20000	200	190	180	170	165	160	155	150	145	
					30000	175	165	155	150	145	140	135	130	125	
					40000	160	150	145	135	130	125	125	115	110	
					60000	140	130	125	120	115	110	105	100	95	
					100000	115	110	105	100	90	95	90	85	80	
205	7/8 15/16 1		3146	1565	20000	220	205	195	185	180	175	170	160	150	
					30000	190	180	170	165	155	150	145	140	130	
					40000	175	165	155	150	140	135	135	125	120	
					60000	150	140	135	130	125	120	115	110	105	
					100000	125	120	115	110	105	100	100	95	90	
206	1-1/16 1-1/8 1-3/16 1-1/4	1	4368	2250	20000	305	285	270	260	250	240	235	200		
					30000	265	250	235	225	220	210	205	195		
					40000	240	225	215	205	200	190	185	175		
					60000	210	200	190	180	175	165	160	155		
					100000	175	165	160	150	145	140	135	130		
207	1-1/4 1-5/16 1-3/8 1-7/16	1-3/16 1-1/4	5759	3065	20000	400	375	355	340	330	315	305			
					30000	350	330	310	300	285	275	270			
					40000	315	300	285	270	260	250	245			
					60000	275	260	250	235	230	220	225			
					100000	235	220	210	200	190	185	180			
208	1-1/2 1-5/8	1-7/16 1-1/2**	7332	4005	20000	510	480	455	435	420	405				
					30000	445	420	400	380	365	355				
					40000	405	380	360	345	330	320				
					60000	355	330	315	300	290	280				
					100000	300	280	265	255	245	235				
209	1-5/8 1-11/16 1-3/4	1-1/2	7891	4450	20000	550	515	490	470	450	435				
					30000	480	450	430	410	395	380				
					40000	435	410	390	370	360	345				
					60000	380	360	340	325	310	300				
					100000	320	300	285	275	265	255				
210	1-15/16 2	1-11/16 1-3/4	7891	4450	20000	550	515	490	470	450					
					30000	480	450	430	410	395					
					40000	435	410	390	370	360					
					60000	380	360	340	325	310					
					100000	320	300	285	275	265					
211	2 2-3/16 2-1/4	1-15/16 2	9755	5630	20000	676	636	604	578						
					30000	591	556	528	505						
					40000	537	505	480	459						
					60000	469	441	419	401						
					100000	395	372	353	338						
212	2-1/4 2-7/16	2-3/16 2-1/4	11791	6955	20000	820	770	730							
					30000	715	675	640							
					40000	650	610	580							
					60000	570	535	510							
					100000	480	450	430							
214	2 11/16	2-7/16 2-1/2	13995	8410	20000	970	915								
					30000	850	800								
					40000	770	725								
					60000	675	635								
					100000	570	535								
215	2-15/16	2-11/16	14872	9255	20000	1035	975								
					30000	905	850								
					40000	820	770								
					60000	715	675								
					100000	605	570								
216		2-15/16 3	17407	11015	20000	1210									
					30000	1055									
					40000	960									
					60000	840									
					100000	705									
218		3-7/16 3-1/2	21451	13940	20000										
					30000										
					40000										
					60000										
					100000										

* Slight interference fit required when operating on the right of the heavy line.

** Piloted flange only.

DIMENSIONS PAGE B2-10	MODIFICATIONS PAGE B2-119	RELATED PRODUCTS PAGE B2-43	
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SELECTION



Setscrew Ball Bearings - Metric

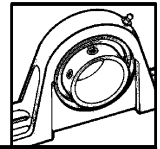
TABLE 2 - EASY SELECTION TABLE FOR BALL BEARING MOUNTED UNITS

RING SIZE	SHAFT SIZE		DYMANIC CAPACITY C, N.	STATIC CAPACITY Co, N.	L10 LIFE HOURS	ALLOWABLE EQUIVALENT RADIAL LOAD RATING (N.) AT VARIOUS RPM*									
	SC, VSC,SL, CC	SCM				50	150	250	500	750	1000	1500	1750	2000	
203	17mm		9600	4450	20000	2446	1690	1423	1134	1001	912	778	756	712	
					30000	2135	1490	1245	1001	867	778	689	645	623	
					40000	1957	1357	1134	912	778	712	623	600	578	
					60000	1690	1179	1001	778	689	623	556	512	489	
					100000	1423	1001	845	667	578	534	467	445	423	
204	20mm		12895	6185	20000	3292	2291	1935	1535	1334	1223	1068	1001	956	
					30000	2869	2002	1690	1334	1156	1068	934	890	845	
					40000	2624	1824	1535	1223	1068	956	845	801	756	
					60000	2291	1579	1334	1068	934	845	734	689	667	
					100000	1935	1334	1134	890	778	712	623	578	556	
205	25mm		13995	6964	20000	3581	2491	2091	1668	1446	1312	1156	1090	1045	
					30000	3136	2157	1824	1446	1268	1156	1001	956	912	
					40000	2847	1979	1668	1312	1156	1045	912	867	823	
					60000	2491	1712	1446	1156	1001	912	801	756	734	
					100000	2091	1446	1223	979	845	778	667	645	600	
206	30mm	25mm	18993	10013	20000	4960	3447	2913	2313	2024	1824	1601	1512	1446	
					30000	4337	3002	2535	2024	1757	1601	1401	1334	1268	
					40000	3936	2736	2313	1824	1601	1446	1268	1201	1156	
					60000	3447	2380	2024	1601	1401	1268	1112	1045	1001	
					100000	2913	2024	1690	1357	1179	1068	934	890	845	
207	35mm	30mm	25628	13639	20000	6561	4537	3825	3047	2647	2424	2113	2002	1913	
					30000	5716	3959	3358	2674	2313	2113	1846	1757	1668	
					40000	5204	3603	3047	2424	2113	1913	1668	1579	1512	
					60000	4537	3158	2647	2113	1846	1669	1468	1379	1334	
					100000	3825	2647	2246	1779	1557	1401	1223	1179	1112	
208	40mm	35mm	32627	17822	20000	8340	5782	4871	3870	3380	3069	2691	2558	2446	
					30000	7295	5048	4270	3380	2958	2691	2335	2224	2135	
					40000	6628	4581	3870	3069	2691	2446	2135	2024	1935	
					60000	5782	4003	3380	2691	2335	2135	1868	1779	1690	
					100000	4871	3380	2847	2268	1979	1801	1579	1490	1423	
209	45mm	40mm	35115	19803	20000	8985	6227	5249	4159	3647	3314	2891	2736	2624	
					30000	7851	5449	4581	3649	3180	2891	2535	2402	2291	
					40000	7117	4937	4159	3314	2891	2624	2291	2180	2091	
					60000	6227	4315	3647	2891	2535	2291	2002	1913	1824	
					100000	5249	3647	3069	2446	2135	1935	1690	1601	1535	
210	50mm	45mm	35115	19803	20000	8985	6227	5249	4159	3647	3314	2891	2736	2624	
					30000	7851	5449	4581	3647	3180	2891	2535	2402	2291	
					40000	7117	4937	4159	3314	2891	2624	2291	2180	2091	
					60000	6227	4315	3647	2891	2535	2291	2002	1913	1824	
					100000	5249	3647	3069	2446	2135	1935	1690	1601	1535	
211	55mm	50mm	43394	25054	20000	11079	7682	6479	5142	4492	4082	3566	3387	3241	
					30000	9678	6711	5660	4492	3924	3566	3115	2959	2831	
					40000	8793	6097	5142	4082	3566	3240	2830	2688	2572	
					60000	7682	5326	4492	3566	3115	2830	2472	2348	2247	
					100000	6479	4492	3789	3007	2627	2387	2085	1981	1895	
212	60mm	55mm	52470	30950	20000	13411	9296	7851	6227	5449	4937	4315	4114	3914	
					30000	11720	8118	6850	5449	4759	4315	3914	3581	3425	
					40000	10653	7384	6227	4937	4315	3914	3425	3247	3114	
					60000	9296	6450	5449	4315	3781	3425	3002	2847	2713	
					100000	7851	5449	4581	3647	3180	2891	2535	2402	2291	
214	70mm	65mm	62278	37425	20000	15924	11031	9319	7384	6450	5871	5137	4871	4648	
					30000	13900	9672	8140	6450	5649	5137	4470	4248	4070	
					40000	12632	8763	7384	5871	5137	4648	4070	3870	3692	
					60000	11031	7651	6450	5137	4470	4070	3558	3380	3225	
					100000	9319	6450	5449	4315	3781	3425	3002	2847	2736	
215	75mm	70mm	66180	41185	20000	16925	11743	9897	7851	6872	6227	5449	5182	4960	
					30000	14790	10253	8651	6872	6005	5449	4759	4515	4337	
					40000	13433	9319	7851	6227	5449	4960	4337	4114	3936	
					60000	11743	8140	6872	5449	4759	4337	3781	3581	3425	
					100000	9897	6872	5782	4604	4025	3647	3180	3025	2891	
216	75mm		77426	49155	20000	19794	13722	11587	9185	8029	7295	6383	6049	5782	
					30000	17303	11987	10119	8029	7028	6383	5560	5293	5071	
					40000	15724	10898	9185	7295	6383	5782	5071	4804	4604	
					60000	13722	9519	8029	6393	5560	5071	4426	4203	4025	
					100000	11587	8029	6783	5382	4693	4270	3736	3536	3380	
218	85mm		95371	62005	20000	24397	16925	14278	11342	9897	9007	7851	7473	7139	
					30000	21328	14790	12477	9897	8651	7851	6872	6516	6249	
					40000	19371	13433	11342	9007	7851	7139	6249	5938	5676	
					60000	16925	11743	9897	7851	6872	6249	5449	5182	4960	
					100000	14278	9897	8362	6628	5782	5271	4604	4359	4181	

* Slight interference fit required when operating on the right of the heavy line or in the shaded area.

FEATURE/BENEFITS SETSCREW BALL BEARINGS PAGE B2-2	HOW TO ORDER/ NOMENCLATURE PAGE B2-4	SELECTION ECCENTRIC COLLAR BALL BEARINGS PAGE B3-1	SELECTION D-LOK BALL BEARINGS PAGE B4-5
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SELECTION



Setscrew Ball Bearings - Metric

TABLE 2 (continued) EASY SELECTION TABLE FOR BALL BEARING MOUNTED UNITS

RING SIZE	SHAFT SIZE		DYMANIC CAPACITY C, N.	STATIC CAPACITY Co, N.	L10 LIFE HOURS	ALLOWABLE EQUIVALENT RADIAL LOAD RATING (N.) AT VARIOUS RPM*									
	SC, VSC,SL, CC	SCM				2500	3000	3500	4000	4500	5000	5500	6500	7500	
203	17mm		9600	4450	20000	667	623	600	578	556	534	512	489	467	
					30000	578	556	512	489	467	445	423	400		
					40000	534	489	467	445	423	400	378	356		
					60000	467	423	423	400	378	356	334	311		
					100000	378	356	356	334	311	289	267			
204	20mm		12895	6185	20000	890	845	801	756	734	712	689	645	623	
					30000	778	724	689	667	645	623	600	578	534	
					40000	712	667	645	600	578	556	534	512	489	
					60000	623	578	556	534	512	489	467	445	423	
					100000	512	489	467	445	400	423	400	378	356	
205	25mm		13995	6964	20000	979	912	867	823	801	778	756	712	667	
					30000	845	801	756	734	689	667	645	623	600	
					40000	778	734	689	667	623	600	600	556	534	
					60000	667	623	600	578	556	534	512	489	467	
					100000	556	534	512	489	467	445	445	423	400	
206	30mm	25mm	18993	10013	20000	1357	1268	1201	1156	1112	1068	1045	979		
					30000	1179	1112	1045	1001	979	934	912	867		
					40000	1068	1001	958	912	890	845	823	778		
					60000	934	890	845	801	778	734	712	689		
					100000	778	734	712	667	645	623	600	578		
207	35mm	30mm	25628	13639	20000	1779	1668	1579	1512	1468	1401	1357			
					30000	1557	1468	1379	1134	1268	1223	1201			
					40000	1401	1334	1268	1201	1156	1112	1090			
					60000	1223	1156	1112	1045	1023	979	956			
					100000	1045	979	934	890	845	823	801			
208	40mm	35mm	32627	17822	20000	2268	2135	2024	1935	1868	1801				
					30000	1979	1868	1779	1690	1624	1579				
					40000	1801	1690	1601	1535	1468	1423				
					60000	1576	1468	1401	1334	1290	1245				
					100000	1334	1245	1179	1134	1090	1045				
209	45mm	40mm	35115	19803	20000	2446	2291	2180	2091	2002	1935				
					30000	2135	2002	1913	1824	1757	1690				
					40000	1935	1824	1735	1646	1601	1535				
					60000	1690	1601	1512	1446	1379	1334				
					100000	1423	1334	1268	1223	1179	1134				
210	50mm	45mm	35115	19803	20000	2446	2291	2180	2091	2002					
					30000	2135	2002	1913	1824	1757					
					40000	1935	1824	1735	1646	1601					
					60000	1690	1601	1512	1446	1379					
					100000	1423	1334	1268	1223	1179					
211	55mm	50mm	43394	25054	20000	3007	2830	2688	2571						
					30000	2627	2472	2348	2246						
					40000	2387	2246	2134	2041						
					60000	2085	1962	1864	1783						
					100000	1759	1655	1572	1504						
212	60mm	55mm	52470	30950	20000	3647	3425	3247							
					30000	3180	3002	2847							
					40000	2891	2713	2580							
					60000	2535	2380	2268							
					100000	2135	2002	1913							
214	70mm	65mm	62278	37425	20000	4315	4070								
					30000	3781	3558								
					40000	3425	3225								
					60000	3002	2824								
					100000	2535	2380								
215	75mm	70mm	66180	41185	20000	4604	4337								
					30000	4025	3781								
					40000	3647	3425								
					60000	3180	3002								
					100000	2691	2535								
216		75mm	77426	49155	20000	5382									
					30000	4693									
					40000	4270									
					60000	3736									
					100000	3136									
218		85mm	95371	62005	20000										
					30000										
					40000										
					60000										
					100000										

* Slight interference fit required when operating on the right of the heavy line or in the shaded area.

DIMENSIONS PAGE B2-10	MODIFICATIONS PAGE B2-119	RELATED PRODUCTS PAGE B2-43	
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