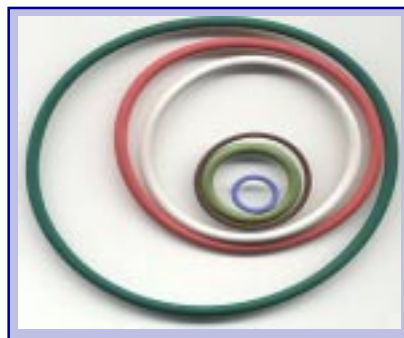


# Townsend Bearings



**O Rings**

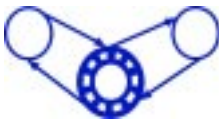


**Townsend  
Bearings**



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Cross Section	Groove Dimensions					Groove Radius R
	Dynamic Application			Static Application		
	Depth	Width		Flange Seal		
		Recip- rocating	Rotary	Groove Depth	Groove Width	
	+0,00 -0,05	+0,10 -0,00	+0,10 -0,00	+0,00 -0,05	+0,10 -0,00	
1,0 to 1,02 1,2 1,25 to 1,27 1,3 1,42 1,50 to 1,52	0,81 1,00 1,04 1,10 1,16 1,24	1,57 1,80 1,85 1,90 2,08 2,16	1,20 1,40 1,45 1,50 1,60 1,70	0,68 0,82 0,85 0,88 0,96 1,02	1,57 1,80 1,85 1,90 2,08 2,16	0,2
1,60 to 1,63 1,78 1,83 1,98 to 2,0 2,08 2,21 2,4 2,46 2,50 2,62 2,75 2,95 to 3,0 3,15	1,30 1,45 1,50 1,60 1,70 1,80 2,10 2,15 2,20 2,30 2,45 2,65 2,85	2,20 2,40 2,45 2,70 2,75 3,00 3,25 3,30 3,40 3,60 3,70 4,05 4,25	2,10 2,30 2,35 2,50 2,50 2,55 2,70 2,75 2,80 2,90 3,10 3,35 3,50	1,10 1,20 1,20 1,50 1,60 1,70 1,90 1,95 2,00 2,10 2,20 2,40 2,50	2,20 2,40 2,45 2,70 2,75 3,00 3,25 3,30 3,40 3,60 3,70 4,05 4,25	0,5
3,5 to 3,53 4,0 4,5 5,0 5,33 5,5 5,7 6,0 6,3 to 6,35	3,10 3,55 4,00 4,40 4,80 4,95 5,15 5,40 5,55	4,80 5,50 6,20 6,80 7,20 7,50 7,80 8,20 8,60	3,90 4,35 4,90 5,50 5,80 6,30 6,35 6,70 7,00	2,80 3,30 3,70 4,10 4,40 4,55 4,70 4,95 5,20	4,80 5,50 6,20 6,80 7,20 7,50 7,80 8,20 8,60	1,0
7,0 8,0 8,4 10,0 12,0	6,10 7,20 7,55 9,00 10,40	9,50 10,80 11,40 13,70 16,40	7,80 8,90 9,40 11,20 13,40	5,80 6,70 7,00 8,30 10,00	9,50 10,80 11,40 13,70 16,40	1,5

# O-Rings: Resistance Properties of various elastomers



# Townsend Bearings

We must emphasise that this chart should only be used as a guide. Final selection should be based on functional evaluations or experience under actual end use conditions.

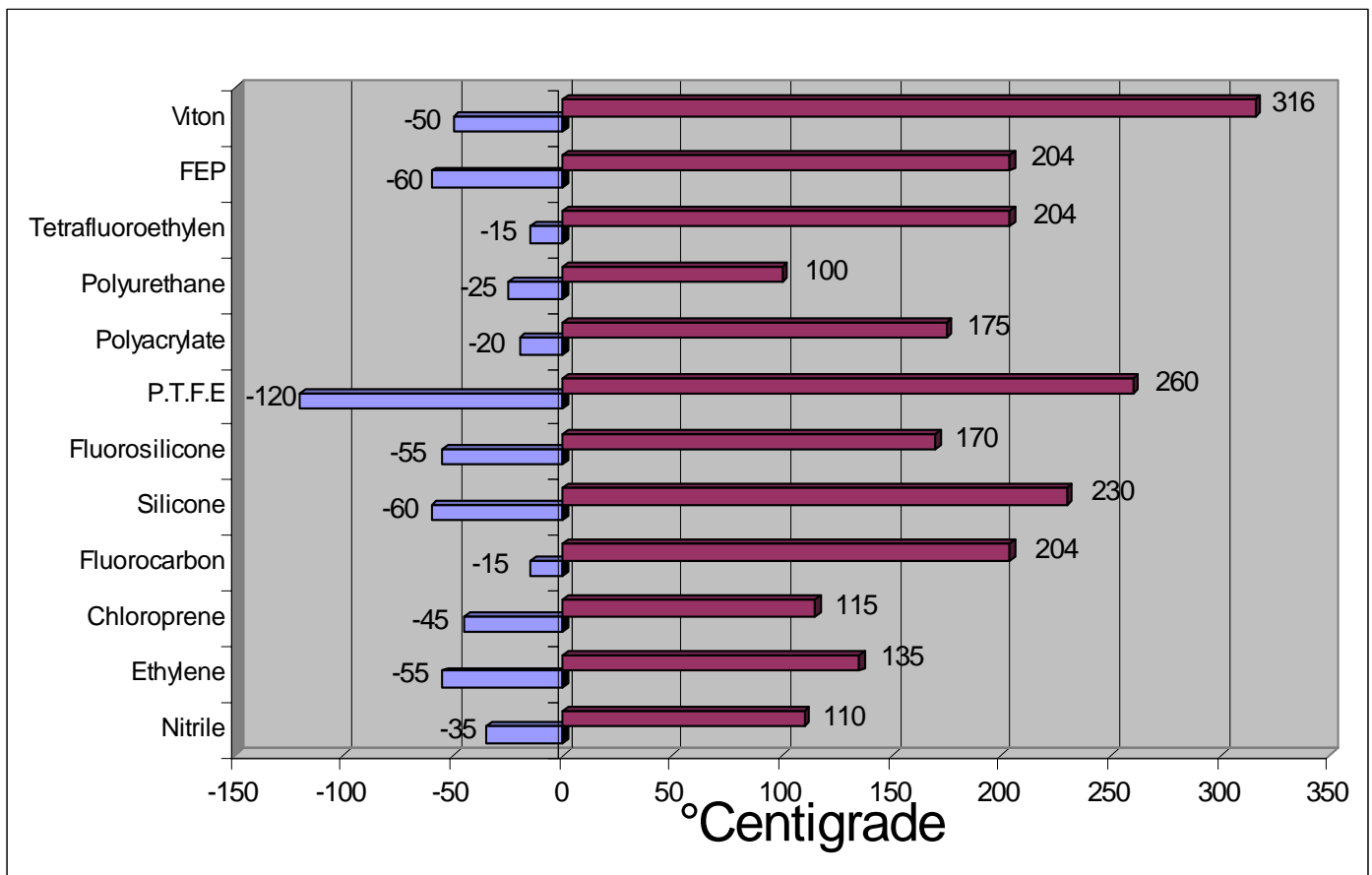
	Buna-N Nitrile	Ethylene Propylene	Neoprene	Urethane	Silicone	Fluoro-silicone	Fluoro-elastomer Viton	Poly-acrylate	Kalrez / Zalak Perfluor-elastomer	Teflex
ASTM CODE 1992	NBR	EPDM	CR	AU	VMQ	FVMQ	FKM	AC	FFKM	FEP
ISO code 1987	NBR	EPM	CR	EU	VMQ	FVMQ	FPM	ACM	FPM	FEP
Hardness Shore A	40-95	40-80	20-90	50-90	Oct-90	40-80	60-90	50-90	80-90	80-90
Tensile Strength (psi)	2500	2500	3000	5000	1400	900	2000	2000	2000	2000
Tearing Strength	G	G	VG	E	N	N	G	G	G	G
Wear Resistance	G	G	G	VG	N	N	G	VG	G	G
Fire-proof Hyd. Fluids	N	VG	R	N	G	VG	R-N	N	E	E
Lubricating Oils	G	N	G	VG	G	E	E	VG	E	E
Fuel Oils	G	N	G	VG	R	E	E	VG	E	E
Hydraulic Oils	E	N	G	VG	G	E	E	U	E	E
Vegetable Oils	E	R	G	VG	G	E	E	U	E	E
Animal Fats	E	R	G	VG	G	E	E	U	E	E
Petrol (Normal)	VG	N	R	VG	R	E	E	VG	E	E
Petrol (High Octane)	G	N	N	VG	N	E	E	G	E	E
Kerosene	VG	N	R	VG	R	E	E	VG	E	E
Aromatic Hydrocarbons	R	N	N	G	N	E	E	R	E	E
Aliphatic Hydrocarbons	VG	N	G	VG	R	E	E	VG	E	E
Water (< 80°C)	VG	E	R	R-N	E	E	E	N	E	E
Water (> 80°C)	R	E	N	N	E	VG	G	N	E	E
Alcohols	VG	E	N	N	E	VG	G	N	E	E
Ketones	N	G	N	N	G	N	N	N	E	E
Concentrated Acids	N	R	N	N	R	G	VG	N	E	E
Diluted Acids	R	G	G	N	G	VG	E	N	E	E
Alkalis	R	VG	G	N	G	R	G	N	E	E
Chlorinated Solvents	R	N	N	R-N	N	E	E	R	E	E
Ozone & Sunlight	R	E	VG	VG	E	E	E	VG	E	E
Max. temp at continuous service	110°C	135°C	105°C	80°C	230°C	205°C	205°C	175°C	E 250°C to 316°C	E 204°C to 260°C
Electrical Properties	N	E	VG	G	E	E	E	N	E	E
Compression Set	VG	G	VG	N	E	VG	R	G	G	G
Flame Resistant	No	No	Yes	No	No	No	Yes	No	Yes	Yes

E = Excellent; VG = Very Good; R = Reasonable; N = Not Recommended; U = Unsuitable



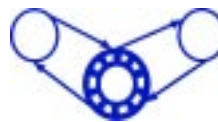
When considering a choice of compound, both high and low limits as well as operating temperature must be taken into consideration, together with the anticipated time element of each extreme. The parameters shown in the chart below are based upon average conditions for a period of approximately one thousand hours. Most base polymers will be capable of exceeding the recommended temperature guide for short intermittent periods.

Another important point to be considered in very critical conditions is the fact that rubber when exposed to extended periods of high temperature will expand, and therefore it may be necessary to increase the



area of the groove, and in opposing conditions rubber exposed to prolonged periods of low temperature will tend to contract and a reduction of groove size may be desirable, or alternatively a higher degree of squeeze should be allowed for during initial design.

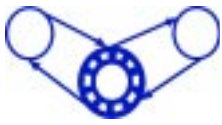
# O-Rings: Quick Reference Guide to Standard Inch Sizes



# Townsend Bearings

Size reference numbers quoted are in accordance with BS 1806:1989 and AS 568A:1984

Section					Section						Section				
I.D.	1/16	3/32	1/8	3/16	I.D.	1/16	3/32	1/8	3/16	1/4	I.D.	3/32	1/8	3/16	1/4
BS Number					BS Number						BS Number				
1/32	001				2 3/16		139				7	167	262	365	441
3/64	002				2 1/4	035	140	228	331		7 1/4	168	263	366	442
1/16	003	102			2 5/16		141				7 1/2	169	264	367	443
5/64	004				2 3/8	036	142	229	332		7 3/4	170	265	368	444
3/32	005	103			2 7/16		143				8	171	266	369	445
1/8	006	104			2 1/2	037	144	230	333		8 1/4	172	267	370	445A
5/32	007	105			2 9/16		145				8 1/2	173	268	371	446
3/16	008	106	201		2 5/8	038	146	231	334		8 3/4	174	269	372	446A
7/32	009	107			2 11/16		147				9	175	270	373	447
1/4	010	108	202		2 3/4	039	148	232	335		9 1/4	176	271	374	447A
5/16	011	109	203		2 13/16		149				9 1/2	177	272	375	448
3/8	012	110	204		2 7/8	040	150	233	336		9 3/4	178	273	376	448A
7/16	013	111	205	309	3	041	151	234	337		10		274	377	449
1/2	014	112	206	310	3 1/8			235	338		10 1/4				449A
9/16	015	113	207	311	3 1/4	042	152	236	339		10 1/2		275	378	450
5/8	016	114	208	312	3 3/8			237	340		10 3/4				450A
1 1/16	017	115	209	313	3 1/2	043	153	238	341		11		276	379	451
3/4	018	116	210	314	3 5/8			239	342		11 1/4				451A
13/16	019	117	211	315	3 3/4	044	154	240	343		11 1/2		277	380	452
7/8	020	118	212	316	3 7/8			241	344		11 3/4				452A
15/16	021	119	213	317	4	045	155	242	345		12		278	381	453
1	022	120	214	318	4 1/8			243	346		12 1/2				454
1 1/16	023	121	215	319	4 1/4	046	156	244	347		13		279	382	455
1 1/8	024	122	216	320	4 3/8			245	348		13 1/2				456
1 3/16	025	123	217	321	4 1/2	047	157	246	349	425	14		280	383	457
1 1/4	026	124	218	322	4 5/8			247	350	426	14 1/2				458
1 5/16	027	125	219	323	4 3/4	048	158	248	351	427	15		281	384	459
1 3/8	028	126	220	324	4 7/8			249	352	428	15 1/2				460
1 7/16		127	221		5	049	159	250	353	429	16		282	385	461
1 1/2	029	128	222	325	5 1/8			251	354	430	16 1/2		283	386	462
1 9/16		129			5 1/4	050	160	252	355	431	17		284	387	463
1 5/8	030	130	223	326	5 3/8			253	356	432	17 1/2				464
1 11/16		131			5 1/2		161	254	357	433	18			388	467
1 3/4	031	132	224	327	5 5/8			255	358	434	18 1/2				468
1 13/16		133			5 3/4		162	256	359	435	19			389	469
1 7/8	032	134	225	328	5 7/8			257	360	436	20			390	470
1 15/16		135			6		163	258	361	437	21			391	471
2	033	136	226	329	6 1/4		164	259	362	438	22			392	472
2 1/16		137			6 1/2		165	260	363	439	23			393	473
2 1/8	034	138	227	330	6 3/4		166	261	364	440	24			394	474
											25			395	475
											26				

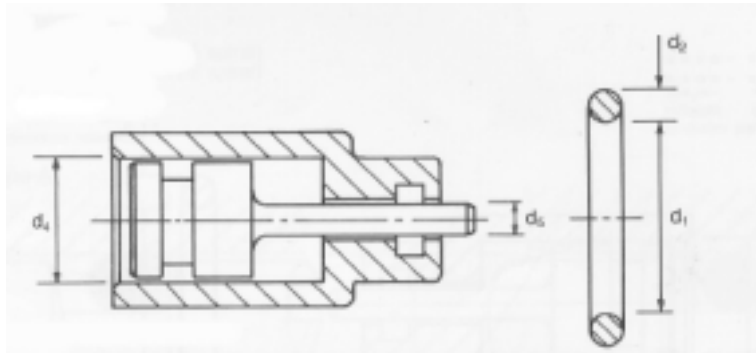


### Ordering Reference

Aerospace 102 - \*\*\* - \*\*\*\*

Industrial 202 - \*\*\* - \*\*\*\*

Size Material  
Ref Ref

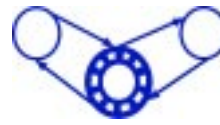


BS 4518 Ref. No	Size Ref.	d5	d4	d1	Tolerance on d1 +/-	d2	BS 4518 Ref. No	Size Ref.	d5	d4	d1	Tolerance on d1 +/-	d2
0031-16	505	3.5	6	3.1	0.15	1.6 +/- 0.08	0446-24	656	45	49	44.6	0.30	2.4 +/- 0.08
0041-16	506	4.5	7	4.1	0.15		0456-24	673	45	50	45.6	0.30	
0051-16	507	5.5	8	5.1	0.15		0476-24	657	48	52	47.6	0.30	
0061-16	508	6.5	9	6.1	0.15		0496-24	658	50	54	49.6	0.30	
0071-16	509	7.5	10	7.1	0.15		0516-24	659	52	56	51.6	0.40	
0081-16	510	8.5	11	8.1	0.15		0546-24	660	55	59	54.6	0.40	
0091-16	511	9.5	12	9.1	0.15		0556-24	674	56	60	55.6	0.40	
0101-16	512	10.5	13	10.1	0.20		0576-24	661	58	62	57.6	0.40	
0111-16	513	11.5	14	11.1	0.20		0586-24	675	59	63	58.6	0.40	
0121-16	514	12.5	15	12.1	0.20		0596-24	662	60	64	59.6	0.40	
0131-16	515	13.5	16	13.1	0.20	0616-24	663	62	66	61.6	0.40		
0141-16	516	14.5	17	14.1	0.20	0626-24	676	63	67	62.6	0.40		
0151-16	517	15.5	18	15.1	0.20	0646-24	664	65	69	64.6	0.40		
0161-16	518	16.5	19	16.1	0.20	0676-24	665	68	72	67.6	0.40		
0171-16	519	17.5	20	17.1	0.20	0696-24	666	70	74	69.6	0.40		
0181-16	520	18.5	21	18.1	0.25	0195-30*	771	20	25	19.5	0.25	3 +/- 0.1	
0191-16	521	19.5	22	19.1	0.25	0215-30*	772	22	27	21.5	0.25		
0221-16	524	22.5	25	22.1	0.25	0225-30*	773	23	28	22.5	0.25		
0251-16	525	25.5	28	25.1	0.25	0245-30*	774	25	30	24.5	0.25		
0271-16	526	27.5	30	27.1	0.25	0255-30*	775	26	31	25.5	0.25		
0291-16	527	29.5	32	29.1	0.25	0265-30*	776	27	32	26.5	0.25		
0321-16	528	32.5	35	32.1	0.30	0275-30*	777	28	33	27.5	0.25		
0351-16	529	35.5	38	35.1	0.30	0295-30*	778	30	35	29.5	0.25		
0371-16	530	37.5	40	37.1	0.30	0315-30*	779	32	37	31.5	0.30		
0036-24*	630	4	8	3.6	0.15	0325-30*	780	33	38	32.5	0.30		
0046-24*	631	5	9	4.6	0.15	0345-30*	781	35	40	34.5	0.30		
0056-24*	632	6	10	5.6	0.15	0355-30*	782	36	41	35.5	0.30		
0066-24*	633	7	11	6.6	0.15	0365-30*	783	37	42	36.5	0.30		
0076-24*	634	8	12	7.6	0.15	0375-30*	784	38	43	37.5	0.30		
0086-24*	635	9	13	8.6	0.15	0395-30*	785	40	45	39.5	0.30		
0096-24*	636	10	14	9.6	0.15	0415-30*	786	42	47	41.5	0.30		
0106-24*	637	11	15	10.6	0.20	0425-30*	787	43	48	42.5	0.30		
0116-24*	638	12	16	11.6	0.20	0445-30*	788	45	50	44.5	0.30		
0126-24*	639	13	17	12.6	0.20	0495-30*	729	50	55	49.5	0.30		
0136-24*	640	14	18	13.6	0.20	0545-30	731	55	60	54.5	0.40		
0146-24*	641	15	19	14.6	0.20	0555-30	790	56	61	55.5	0.40		
0156-24*	642	16	20	15.6	0.20	0575-30	791	58	63	57.5	0.40		
0166-24*	643	17	21	16.6	0.20	0595-30	735	60	65	59.5	0.40		
0176-24*	644	18	22	17.6	0.20	0625-30	792	63	68	62.5	0.40		
0186-24	645	19	23	18.6	0.25	0645-30	738	65	70	64.5	0.40		
0196-24	645	20	24	19.6	0.25	0695-30	739	70	75	69.5	0.40		
0206-24	646	21	25	20.6	0.25	0745-30	740	75	80	74.5	0.40		
0216-24	647	22	26	21.6	0.25	0795-30	741	80	85	79.5	0.40		
0246-24	648	25	29	24.6	0.25	0845-30	742	85	90	84.5	0.50		
0276-24	649	28	32	27.6	0.25	0895-30	743	90	95	89.5	0.50		
0296-24	650	30	34	29.6	0.25	0945-30	744	95	100	94.5	0.50		
0316-24	651	32	36	31.6	0.30	0995-30	745	100	105	99.5	0.50		
0346-24	652	35	39	34.6	0.30	1045-30	746	105	110	104.5	0.50		
0356-24	672	36	40	35.6	0.30	1095-30	747	110	115	109.5	0.50		
0376-24	653	38	42	37.6	0.30	1145-30	748	115	120	114.5	0.50		
0396-24	654	40	44	39.6	0.30	1195-30	749	120	125	119.5	0.50		
0416-24	655	42	46	41.6	0.30	1245-30	750	125	130	124.5	0.60		
						1295-30	751	130	135	129.5	0.60		
						1345-30	752	135	140	134.5	0.60		
						1395-30	753	140	145	139.5	0.60		

Items marked (\*\*\*) are suitable for dynamic applications



**O-Rings:**  
**British Metric Range to BS 4518 (cont.)**



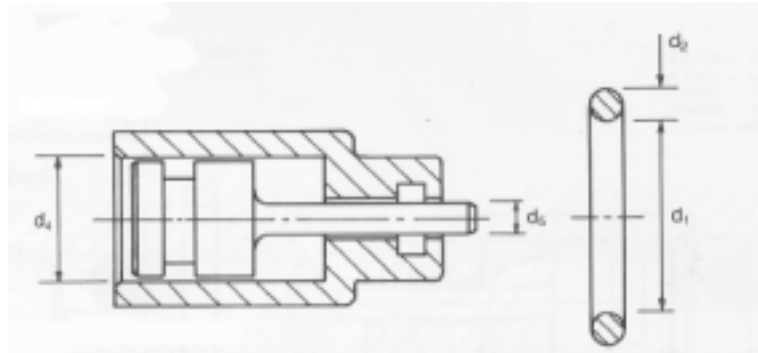
**Townsend Bearings**

**Ordering Reference**

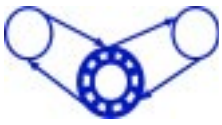
Aerospace 102 - \*\*\* - \*\*\*\*

Industrial 202 - \*\*\* - \*\*\*\*

Size Material  
 Ref Ref



BS 4518 Ref. No	Size Ref.	d5	d4	d1	Tolerance on d1 +/-	d2	BS 4518 Ref. No	Size Ref.	d5	d4	d1	Tolerance on d1 +/-	d2
1445-30	754	145	150	144.5	0.60	3 +/- 0.1	1993-57	857	200	210	199.3	0.80	5.7 +/- 0.12
1495-30	755	150	155	149.5	0.60		2093-57	859	210	220	209.3	0.80	
1545-30	756	155	160	154.5	0.60		2193-57	860	220	230	219.3	0.80	
1595-30	757	160	165	159.5	0.60		2293-57	861	230	240	229.3	0.80	
1645-30	758	165	170	164.5	0.60		2393-57	862	240	250	239.3	0.80	
1695-30	759	170	175	169.5	0.60		2493-57	863	250	260	249.3	0.80	
1745-30	760	175	180	174.5	0.60		2593-57	864	260	270	259.3	1.00	
1795-30	761	180	185	179.5	0.60		2693-57	865	270	280	269.3	1.00	
1845-30	762	185	190	184.5	0.80		2793-57	866	280	290	279.3	1.00	
1895-30	763	190	195	189.5	0.80		2893-57	867	290	300	289.3	1.00	
1945-30	764	195	200	194.5	0.80	5.7 +/- 0.12	2993-57	868	300	310	299.3	1.00	
1995-30	765	200	205	199.5	0.80		3093-57	890	310	320	309.3	1.50	
2095-30	789	210	215	209.5	0.80		3193-57	869	320	330	319.3	1.50	
2195-30	767	220	225	219.5	0.80		3393-57	870	340	350	339.3	1.50	
2295-30	768	230	235	229.5	0.80		3593-57	871	360	370	359.3	1.50	
2395-30	769	240	245	239.5	0.80		8.4 +/- 0.15	3793-57	872	380	390	379.3	1.50
2445-30	793	245	250	244.5	0.80			3893-57	891	390	400	389.3	1.50
2495-30	770	250	255	249.5	0.80			3993-57	873	400	410	399.3	1.50
0443-57*	810	45	55	44.3	0.30			4193-57	874	420	430	419.3	2.00
0453-57*	811	46	56	45.3	0.30			4393-57	875	440	450	439.3	2.00
0493-57*	813	50	60	49.3	0.30	8.4 +/- 0.15		4593-57	876	460	470	459.3	2.00
0523-57*	815	53	63	52.3	0.40			4793-57	877	480	490	479.3	2.00
0543-57*	816	55	65	54.3	0.40			4893-57	892	490	500	489.3	2.00
0553-57*	879	56	66	55.3	0.40			4993-57	878	500	510	499.3	2.00
0593-57*	818	60	70	59.3	0.40			1441-84*	905	145	160	144.1	0.60
0623-57*	820	63	73	62.3	0.40		1491-84*	906	150	165	149.1	0.60	
0643-57*	821	65	75	64.3	0.40		1541-84*	907	155	170	154.1	0.60	
0693-57*	823	70	80	69.3	0.40		1591-84*	908	160	175	159.1	0.60	
0743-57*	826	75	85	74.3	0.40		1641-84*	909	165	180	164.1	0.60	
0793-57*	828	80	90	79.3	0.40		8.4 +/- 0.15	1691-84*	910	170	185	169.1	0.60
0843-57*	831	85	95	84.3	0.50	1741-84*		911	175	190	174.1	0.60	
0893-57*	833	90	100	89.3	0.50	1791-84*		912	180	195	179.1	0.60	
0943-57*	835	95	105	94.3	0.50	1841-84*		913	185	200	184.1	0.80	
0993-57*	837	100	110	99.3	0.50	1891-84*		914	190	205	189.1	0.80	
1043-57*	838	105	115	104.3	0.50	5.7 +/- 0.12		1941-84*	915	195	210	194.1	0.80
1093-57*	839	110	120	109.3	0.50			1991-84*	916	200	215	199.1	0.80
1143-57*	840	115	125	114.3	0.50			2041-84*	922	204	220	204.1	0.80
1193-57*	841	120	130	119.3	0.50			2091-84*	917	210	225	209.1	0.80
1243-57*	842	125	135	124.3	0.60			2191-84*	918	220	235	219.1	0.80
1293-57*	843	130	140	129.3	0.60		8.4 +/- 0.15	2291-84*	919	230	245	229.1	0.80
1343-57*	844	135	145	134.3	0.60			2341-84*	923	235	250	234.1	0.80
1393-57*	845	140	150	139.3	0.60			2391-84*	920	240	255	239.1	0.80
1443-57*	846	145	155	144.3	0.60			2491-84*	921	250	265	249.1	0.80
1493-57	847	150	160	149.3	0.60			8.4 +/- 0.15	1693-57	851	170	180	169.3
1543-57	848	155	165	154.3	0.60	1743-57			852	175	185	174.3	0.60
1593-57	849	160	170	159.3	0.60	1793-57			853	180	190	179.3	0.80
1643-57	850	165	175	164.3	0.60	1843-57			854	185	195	184.3	0.80
1693-57	851	170	180	169.3	0.60	1893-57			855	190	200	189.3	0.80
1743-57	852	175	185	174.3	0.60	8.4 +/- 0.15			1943-57	856	195	205	194.3
1793-57	853	180	190	179.3	0.80		Items marked "*" are suitable for dynamic applications						
1843-57	854	185	195	184.3	0.80								
1893-57	855	190	200	189.3	0.80								
1943-57	856	195	205	194.3	0.80								



### Ordering Reference

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Size Material  
Ref Ref

Items marked (\*) are suitable for dynamic applications



Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2
206-003	3	0.15	1.5	206-058	58	0.40	1.5	204-013	13	0.20	2.0	204-068	68	0.40	2.0
206-004	4	0.15		206-059	59	0.40		204-014	14	0.20		204-069	69	0.40	
206-005	5	0.15		206-060	60	0.40		204-015	15	0.20		204-070	70	0.40	
206-006	6	0.15		206-061	61	0.40		204-016	16	0.20		204-071	71	0.40	
206-007	7	0.15		206-062	62	0.40		204-017	17	0.20		204-072	72	0.40	
206-008	8	0.15		206-063	63	0.40		204-018	18	0.20		204-073	73	0.40	
206-009	9	0.15		206-064	64	0.40		204-019	19	0.25		204-074	74	0.40	
206-010	10	0.20	206-065	65	0.40	204-020	20	0.25	204-075	75	0.40				
206-011	11	0.20	206-066	66	0.40	204-021	21	0.25	204-076	76	0.40				
206-012	12	0.20	206-067	67	0.40	204-022	22	0.25	204-077	77	0.40				
206-013	13	0.20	206-068	68	0.40	204-023	23	0.25	204-078	78	0.40				
206-014	14	0.20	206-069	69	0.40	204-024	24	0.25	204-079	79	0.40				
206-015	15	0.20	206-070	70	0.40	204-025	25	0.25	204-080	80	0.40				
206-016	16	0.20	206-071	71	0.40	204-026	26	0.25	204-081	81	0.50				
206-017	17	0.20	206-072	72	0.40	204-027	27	0.25	204-082	82	0.50				
206-018	18	0.20	206-073	73	0.40	204-028	28	0.25	204-083	83	0.50				
206-019	19	0.25	206-074	74	0.40	204-029	29	0.25	204-084	84	0.50				
206-020	20	0.25	206-075	75	0.40	204-030	30	0.25	204-085	85	0.50				
206-021	21	0.25	206-076	76	0.40	204-031	31	0.30	204-086	86	0.50				
206-022	22	0.25	206-077	77	0.40	204-032	32	0.30	204-087	87	0.50				
206-023	23	0.25	206-078	78	0.40	204-033	33	0.30	204-088	88	0.50				
206-024	24	0.25	206-079	79	0.40	204-034	34	0.30	204-089	89	0.50				
206-025	25	0.25	206-080	80	0.40	204-035	35	0.30	204-090	90	0.50				
206-026	26	0.25	206-081	81	0.50	204-036	36	0.30	204-091	91	0.50				
206-027	27	0.25	206-082	82	0.50	204-037	37	0.30	204-092	92	0.50				
206-028	28	0.25	206-083	83	0.50	204-038	38	0.30	204-093	93	0.50				
206-029	29	0.25	206-084	84	0.50	204-039	39	0.30	204-094	94	0.50				
206-030	30	0.25	206-085	85	0.50	204-040	40	0.30	204-095	95	0.50				
206-031	31	0.30	206-086	86	0.50	204-041	41	0.30	204-096	96	0.50				
206-032	32	0.30	206-087	87	0.50	204-042	42	0.30	204-097	97	0.50				
206-033	33	0.30	206-088	88	0.50	204-043	43	0.30	204-098	98	0.50				
206-034	34	0.30	206-089	89	0.50	204-044	44	0.30	204-099	99	0.50				
206-035	35	0.30	206-090	90	0.50	204-045	45	0.30	204-100	100	0.50				
206-036	36	0.30	206-091	91	0.50	204-046	46	0.30							
206-037	37	0.30	206-092	92	0.50	204-047	47	0.30							
206-038	38	0.30	206-093	93	0.50	204-048	48	0.30	206-104*	4	0.15				
206-039	39	0.30	206-094	94	0.50	204-049	49	0.30	206-105*	5	0.15				
206-040	40	0.30	206-095	95	0.50	204-050	50	0.30	206-106*	6	0.15				
206-041	41	0.30	206-096	96	0.50	204-051	51	0.40	206-107*	7	0.15				
206-042	42	0.30	206-097	97	0.50	204-052	52	0.40	206-108*	8	0.15				
206-043	43	0.30	206-098	98	0.50	204-053	53	0.40	206-109*	9	0.15				
206-044	44	0.30	206-099	99	0.50	204-054	54	0.40	206-110*	10	0.20				
206-045	45	0.30	206-100	100	0.50	204-055	55	0.40	206-111*	11	0.20				
206-046	46	0.30				204-056	56	0.40	206-112*	12	0.20				
206-047	47	0.30				204-057	57	0.40	206-113*	13	0.20				
206-048	48	0.30	204-003*	3	0.15	204-058	58	0.40	206-114*	14	0.20				
206-049	49	0.30	204-004*	4	0.15	204-059	59	0.40	206-115*	15	0.20				
206-050	50	0.30	204-005*	5	0.15	204-060	60	0.40	206-116*	16	0.20				
206-051	51	0.40	204-006*	6	0.15	204-061	61	0.40	206-117*	17	0.20				
206-052	52	0.40	204-007*	7	0.15	204-062	62	0.40	206-118*	18	0.20				
206-053	53	0.40	204-008*	8	0.15	204-063	63	0.40	206-119*	19	0.25				
206-054	54	0.40	204-009*	9	0.15	204-064	64	0.40	206-120*	20	0.25				
206-055	55	0.40	204-010*	10	0.20	204-065	65	0.40	206-121*	21	0.25				
206-056	56	0.40	204-011*	11	0.20	204-066	66	0.40	206-122*	22	0.25				
206-057	57	0.40	204-012*	12	0.20	204-067	67	0.40	206-123*	23	0.25				

# O-Rings: European (German) Metric Range (cont.)



# Townsend Bearings

## Ordering Reference

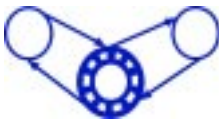
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Size Material  
Ref Ref

Items marked '\*' are suitable for  
dynamic applications



Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2
206-124*	24	0.25		206-179	79	0.40		206-234	134	0.60		206-339*	39	0.30	
206-125*	25	0.25		206-180	80	0.40		206-235	135	0.60		206-340*	40	0.30	
206-126	26	0.25		206-181	81	0.50		206-236	136	0.60		206-341*	41	0.30	
206-127	27	0.25		206-182	82	0.50		206-237	137	0.60		206-342*	42	0.30	
206-128	28	0.25	206-183	83	0.50	206-238	138	0.60	206-343*	43	0.30				
206-129	29	0.25	206-184	84	0.50	206-239	139	0.60	206-344*	44	0.30				
206-130	30	0.25	206-185	85	0.50	206-240	140	0.60	206-345*	45	0.30				
206-131	31	0.30	206-186	86	0.50	206-241	141	0.60	206-346	46	0.30				
206-132	32	0.30	206-187	87	0.50	206-242	142	0.60	2.5	206-347	47	0.30			
206-133	33	0.30	206-188	88	0.50	206-243	143	0.60	+/- 0.08	206-348	48	0.30			
206-134	34	0.30	206-189	89	0.50	206-244	144	0.60		206-349	49	0.30			
206-135	35	0.30	206-190	90	0.50	206-245	145	0.60		206-350	50	0.30			
206-136	36	0.30	206-191	91	0.50	206-246	146	0.60		206-351	51	0.40			
206-137	37	0.30	206-192	92	0.50	206-247	147	0.60		206-352	52	0.40			
206-138	38	0.30	206-193	93	0.50	206-248	148	0.60	206-353	53	0.40				
206-139	39	0.30	206-194	94	0.50	206-249	149	0.60		206-354	54	0.40			
206-140	40	0.30	206-195	95	0.50	206-250	150	0.60		206-355	55	0.40			
206-141	41	0.30	206-196	96	0.50	206-303*	3	0.15		206-356	56	0.40			
206-142	42	0.30	206-197	97	0.50		206-357	57		0.40					
206-143	43	0.30	206-198	98	0.50		206-304*	4	0.15	206-358	58	0.40			
206-144	44	0.30	206-199	99	0.50		206-305*	5	0.15	206-359	59	0.40			
206-145	45	0.30	206-200	100	0.50		206-306*	6	0.15	206-360	60	0.40			
206-146	46	0.30	206-201	101	0.50		206-307*	7	0.15	206-361	61	0.40			
206-147	47	0.30	206-202	102	0.50	206-308*	8	0.15	206-362	62	0.40				
206-148	48	0.30	206-203	103	0.50		206-309*	9	0.15	206-363	63	0.40			
206-149	49	0.30	206-204	104	0.50		206-310*	10	0.20	206-364	64	0.40			
206-150	50	0.30	206-205	105	0.50		206-311*	11	0.20	206-365	65	0.40			
206-151	51	0.40	206-206	106	0.50		2.5	206-312*	12	0.20	206-366	66	0.40		
206-152	52	0.40	206-207	107	0.50	+/- 0.08	206-313*	13	0.20	206-367	67	0.40			
206-153	53	0.40	206-208	108	0.50				206-368	68	0.40				
206-154	54	0.40	206-209	109	0.50				206-314*	14	0.20		206-369	69	0.40
206-155	55	0.40	206-210	110	0.50				206-315*	15	0.20		206-370	70	0.40
206-156	56	0.40	206-211	111	0.50				206-316*	16	0.20		206-371	71	0.40
206-157	57	0.40	206-212	112	0.50	206-317*	17	0.20	206-372	72	0.40				
206-158	58	0.40	206-213	113	0.50	206-318*	18	0.20	206-373	73	0.40				
206-159	59	0.40	206-214	114	0.50	206-319*	19	0.25		206-374	74	0.40			
206-160	60	0.40	206-215	115	0.50	206-320*	20	0.25		206-375	75	0.40			
206-161	61	0.40	206-216	116	0.50	206-321*	21	0.25		+/- 0.10	206-376	76	0.40		
206-162	62	0.40	206-217	117	0.50	206-322*	22	0.25		206-377	77	0.40			
206-163	63	0.40	206-218	118	0.50	206-323*	23	0.25	206-378	78	0.40				
206-164	64	0.40	206-219	119	0.50				206-379	79	0.40				
206-165	65	0.40	206-220	120	0.50				206-324*	24	0.25	206-380	80	0.40	
206-166	66	0.40	206-221	121	0.60				206-325*	25	0.25	206-381	81	0.50	
206-167	67	0.40	206-222	122	0.60				206-326*	26	0.25	206-382	82	0.50	
206-168	68	0.40	206-223	123	0.60	206-327*	27	0.25	206-383	83	0.50				
206-169	69	0.40	206-224	124	0.60	206-328*	28	0.25		206-384	84	0.50			
206-170	70	0.40	206-225	125	0.60	206-329*	29	0.25		206-385	85	0.50			
206-171	71	0.40	206-226	126	0.60	206-330*	30	0.25		206-386	86	0.50			
206-172	72	0.40	206-227	127	0.60	206-331*	31	0.30		206-387	87	0.50			
206-173	73	0.40	206-228	128	0.60	206-332*	32	0.30	206-388	88	0.50				
206-174	74	0.40	206-229	129	0.60	206-333*	33	0.30		206-389	89	0.50			
206-175	75	0.40	206-230	130	0.60	206-334*	34	0.30		206-390	90	0.50			
206-176	76	0.40	206-231	131	0.60	206-335*	35	0.30		206-391	91	0.50			
206-177	77	0.40	206-232	132	0.60	206-336*	36	0.30		206-392	92	0.50			
206-178	78	0.40	206-233	133	0.60	206-337*	37	0.30	206-393	93	0.50				
						206-338*	38	0.30							



### Ordering Reference

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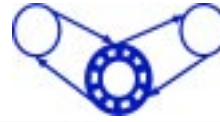
Size Material  
Ref Ref

Items marked '\*' are suitable for dynamic applications



Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2
206-394	94	0.50		206-449	149	0.60		206-504	204	0.80		206-564*	14	0.20	
206-395	95	0.50		206-450	150	0.60		206-505	205	0.80		206-565*	15	0.20	
206-396	96	0.50		206-451	151	0.60		206-506	206	0.80		206-566*	16	0.20	
206-397	97	0.50		206-452	152	0.60		206-507	207	0.80		206-567*	17	0.20	
206-398	98	0.50		206-453	153	0.60		206-508	208	0.80		206-568*	18	0.20	
206-399	99	0.50		206-454	154	0.60		206-509	209	0.80		206-569*	19	0.25	
206-400	100	0.50		206-455	155	0.60		206-510	210	0.80		206-570*	20	0.25	
206-401	101	0.50		206-456	156	0.60		206-511	211	0.80		206-571*	21	0.25	
206-402	102	0.50		206-457	157	0.60		206-512	212	0.80		206-572*	22	0.25	
206-403	103	0.50		206-458	158	0.60		206-513	213	0.80		206-573*	23	0.25	
206-404	104	0.50		206-459	159	0.60		206-514	214	0.80		206-574*	24	0.25	
206-405	105	0.50		206-460	160	0.60		206-515	215	0.80		206-575*	25	0.25	
206-406	106	0.50		206-461	161	0.60		206-516	216	0.80		206-576*	26	0.25	
206-407	107	0.50		206-462	162	0.60		206-517	217	0.80		206-577*	27	0.25	
206-408	108	0.50		206-463	163	0.60		206-518	218	0.80		206-578*	28	0.25	
206-409	109	0.50		206-464	164	0.60		206-519	219	0.80		206-579*	29	0.25	
206-410	110	0.50		206-465	165	0.60		206-520	220	0.80		206-580*	30	0.25	
206-411	111	0.50		206-466	166	0.60		206-521	221	0.80		206-581*	31	0.30	
206-412	112	0.50		206-467	167	0.60		206-522	222	0.80		206-582*	32	0.30	
206-413	113	0.50		206-468	168	0.60		206-523	223	0.80		206-583*	33	0.30	
206-414	114	0.50		206-469	169	0.60		206-524	224	0.80		206-584*	34	0.30	
206-415	115	0.50		206-470	170	0.60		206-525	225	0.80		206-585*	35	0.30	
206-416	116	0.50		206-471	171	0.60		206-526	226	0.80		206-586*	36	0.30	
206-417	117	0.50		206-472	172	0.60		206-527	227	0.80	3.0	206-587*	37	0.30	
206-418	118	0.50		206-473	173	0.60		206-528	228	0.80	+/- 0.10	206-588*	38	0.30	
206-419	119	0.50		206-474	174	0.60		206-529	229	0.80		206-589*	39	0.30	
206-420	120	0.50		206-475	175	0.60		206-530	230	0.80		206-590*	40	0.30	
206-421	121	0.60		206-476	176	0.60		206-531	231	0.80		206-591*	41	0.30	
206-422	122	0.60	3.0	206-477	177	0.60	3.0	206-532	232	0.80		206-592*	42	0.30	3.5
206-423	123	0.60	+/- 0.10	206-478	178	0.60	+/- 0.10	206-533	233	0.80		206-593*	43	0.30	+/- 0.10
206-424	124	0.60		206-479	179	0.60		206-534	234	0.80		206-594*	44	0.30	
206-425	125	0.60		206-480	180	0.60		206-535	235	0.80		206-595*	45	0.30	
206-426	126	0.60		206-481	181	0.80		206-536	236	0.80		206-596*	46	0.30	
206-427	127	0.60		206-482	182	0.80		206-537	237	0.80		206-597*	47	0.30	
206-428	128	0.60		206-483	183	0.80		206-538	238	0.80		206-598*	48	0.30	
206-429	129	0.60		206-484	184	0.80		206-539	239	0.80		206-599*	49	0.30	
206-430	130	0.60		206-485	185	0.80		206-540	240	0.80		206-600*	50	0.30	
206-431	131	0.60		206-486	186	0.80		206-541	241	0.80		206-601*	51	0.40	
206-432	132	0.60		206-487	187	0.80		206-542	242	0.80		206-602*	52	0.40	
206-433	133	0.60		206-488	188	0.80		206-543	243	0.80		206-603*	53	0.40	
206-434	134	0.60		206-489	189	0.80		206-544	244	0.80		206-604*	54	0.40	
206-435	135	0.60		206-490	190	0.80		206-545	245	0.80		206-605*	55	0.40	
206-436	136	0.60		206-491	191	0.80		206-546	246	0.80		206-606*	56	0.40	
206-437	137	0.60		206-492	192	0.80		206-547	247	0.80		206-607*	57	0.40	
206-438	138	0.60		206-493	193	0.80		206-548	248	0.80		206-608*	58	0.40	
206-439	139	0.60		206-494	194	0.80		206-549	249	0.80		206-609*	59	0.40	
206-440	140	0.60		206-495	195	0.80		206-550	250	0.80		206-610*	60	0.40	
206-441	141	0.60		206-496	196	0.80						206-611	61	0.40	
206-442	142	0.60		206-497	197	0.80						206-612	62	0.40	
206-443	143	0.60		206-498	198	0.80		206-558*	8	0.15		206-613	63	0.40	
206-444	144	0.60		206-499	199	0.80		206-559*	9	0.15	3.5	206-614	64	0.40	
206-445	145	0.60		206-500	200	0.80		206-560*	10	0.20	+/- 0.10	206-615	65	0.40	
206-446	146	0.60		206-501	201	0.80		206-561*	11	0.20		206-616	66	0.40	
206-447	147	0.60		206-502	202	0.80		206-562*	12	0.20		206-617	67	0.40	
206-448	148	0.60		206-503	203	0.80		206-563*	13	0.20		206-618	68	0.40	

**O-Rings:**  
**European (German) Metric Range (cont.)**



**Townsend Bearings**

**Ordering Reference**

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Size Material  
 Ref Ref

Items marked "\*" are suitable for dynamic applications



Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2
206-619	69	0.40		206-674	124	0.60		206-729	179	0.60		206-784	234	0.80	
206-620	70	0.40		206-675	125	0.60		206-730	180	0.60		206-785	235	0.80	
206-621	71	0.40		206-676	126	0.60		206-731	181	0.80		206-786	236	0.80	
206-622	72	0.40		206-677	127	0.60		206-732	182	0.80		206-787	237	0.80	
206-623	73	0.40		206-678	128	0.60		206-733	183	0.80		206-788	238	0.80	
206-624	74	0.40		206-679	129	0.60		206-734	184	0.80		206-789	239	0.80	
206-625	75	0.40		206-680	130	0.60		206-735	185	0.80		206-790	240	0.80	
206-626	76	0.40		206-681	131	0.60		206-736	186	0.80		206-791	241	0.80	
206-627	77	0.40		206-682	132	0.60		206-737	187	0.80		206-792	242	0.80	
206-628	78	0.40		206-683	133	0.60		206-738	188	0.80		206-793	243	0.80	
206-629	79	0.40	206-684	134	0.60	206-739	189	0.80	206-794	244	0.80				
206-630	80	0.40	206-685	135	0.60	206-740	190	0.80	206-795	245	0.80				
206-631	81	0.50	206-686	136	0.60	206-741	191	0.80	206-796	246	0.80				
206-632	82	0.50	206-687	137	0.60	206-742	192	0.80	206-797	247	0.80				
206-633	83	0.50	206-688	138	0.60	206-743	193	0.80	206-798	248	0.80				
206-634	84	0.50	206-689	139	0.60	206-744	194	0.80	206-799	249	0.80				
206-635	85	0.50	206-690	140	0.60	206-745	195	0.80	206-800	250	0.80				
206-636	86	0.50	206-691	141	0.60	206-746	196	0.80	206-801	251	1.00				
206-637	87	0.50	206-692	142	0.60	206-747	197	0.80	206-802	252	1.00				
206-638	88	0.50	206-693	143	0.60	206-748	198	0.80	206-803	253	1.00				
206-639	89	0.50	206-694	144	0.60	206-749	199	0.80	206-804	254	1.00				
206-640	90	0.50	206-695	145	0.60	206-750	200	0.80	206-805	255	1.00				
206-641	91	0.50	206-696	146	0.60	206-751	201	0.80	206-806	256	1.00				
206-642	92	0.50	206-697	147	0.60	206-752	202	0.80	206-807	257	1.00				
206-643	93	0.50	206-698	148	0.60	206-753	203	0.80	206-808	258	1.00				
206-644	94	0.50	206-699	149	0.60	206-754	204	0.80	206-809	259	1.00				
206-645	95	0.50	206-700	150	0.60	206-755	205	0.80	206-810	260	1.00				
206-646	96	0.50	206-701	151	0.60	206-756	206	0.80	206-811	261	1.00				
206-647	97	0.50	206-702	152	0.60	206-757	207	0.80	206-812	262	1.00				
206-648	98	0.50	206-703	153	0.60	206-758	208	0.80	206-813	263	1.00				
206-649	99	0.50	206-704	154	0.60	206-759	209	0.80	206-814	264	1.00				
206-650	100	0.50	206-705	155	0.60	206-760	210	0.80	206-815	265	1.00				
206-651	101	0.50	206-706	156	0.60	206-761	211	0.80	206-816	266	1.00				
206-652	102	0.50	206-707	157	0.60	206-762	212	0.80	206-817	267	1.00				
206-653	103	0.50	206-708	158	0.60	206-763	213	0.80	206-818	268	1.00				
206-654	104	0.50	206-709	159	0.60	206-764	214	0.80	206-819	269	1.00				
206-655	105	0.50	206-710	160	0.60	206-765	215	0.80	206-820	270	1.00				
206-656	106	0.50	206-711	161	0.60	206-766	216	0.80	206-821	271	1.00				
206-657	107	0.50	206-712	162	0.60	206-767	217	0.80	206-822	272	1.00				
206-658	108	0.50	206-713	163	0.60	206-768	218	0.80	206-823	273	1.00				
206-659	109	0.50	206-714	164	0.60	206-769	219	0.80	206-824	274	1.00				
206-660	110	0.50	206-715	165	0.60	206-770	220	0.80	206-825	275	1.00				
206-661	111	0.50	206-716	166	0.60	206-771	221	0.80	206-826	276	1.00				
206-662	112	0.50	206-717	167	0.60	206-772	222	0.80	206-827	277	1.00				
206-663	113	0.50	206-718	168	0.60	206-773	223	0.80	206-828	278	1.00				
206-664	114	0.50	206-719	169	0.60	206-774	224	0.80	206-829	279	1.00				
206-665	115	0.50	206-720	170	0.60	206-775	225	0.80	206-830	280	1.00				
206-666	116	0.50	206-721	171	0.60	206-776	226	0.80	206-831	281	1.00				
206-667	117	0.50	206-722	172	0.60	206-777	227	0.80	206-832	282	1.00				
206-668	118	0.50	206-723	173	0.60	206-778	228	0.80	206-833	283	1.00				
206-669	119	0.50	206-724	174	0.60	206-779	229	0.80	206-834	284	1.00				
206-670	120	0.50	206-725	175	0.60	206-780	230	0.80	206-835	285	1.00				
206-671	121	0.60	206-726	176	0.60	206-781	231	0.80	206-836	286	1.00				
206-672	122	0.60	206-727	177	0.60	206-782	232	0.80	206-837	287	1.00				
206-673	123	0.60	206-728	178	0.60	206-783	233	0.80	206-838	288	1.00				



### Ordering Reference

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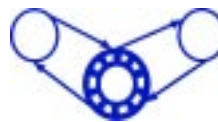
Size Material  
Ref Ref

Items marked “\*” are suitable for dynamic applications



Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2
206-839	289	1.00		206-894	344	1.50		206-949	399	1.50		204-115*	15	0.20	
206-840	290	1.00		206-895	345	1.50		206-950	400	1.50		204-116*	16	0.20	
206-841	291	1.00		206-896	346	1.50		206-951	401	2.00		204-117*	17	0.20	
206-842	292	1.00		206-897	347	1.50		206-952	402	2.00		204-118*	18	0.20	
206-843	293	1.00		206-898	348	1.50		206-953	403	2.00		204-119*	19	0.25	
206-844	294	1.00		206-899	349	1.50		206-954	404	2.00		204-120*	20	0.25	
206-845	295	1.00		206-900	350	1.50		206-955	405	2.00		204-121*	21	0.25	
206-846	296	1.00		206-901	351	1.50		206-956	406	2.00		204-122*	22	0.25	
206-847	297	1.00		206-902	352	1.50		206-957	407	2.00		204-123*	23	0.25	
206-848	298	1.00		206-903	353	1.50		206-958	408	2.00		204-124*	24	0.25	
206-849	299	1.00	206-904	354	1.50	206-959	409	2.00	204-125*	25	0.25				
206-850	300	1.00	206-905	355	1.50	206-960	410	2.00	204-126*	26	0.25				
206-851	301	1.50	206-906	356	1.50	206-961	411	2.00	204-127*	27	0.25				
206-852	302	1.50	206-907	357	1.50	206-962	412	2.00	204-128*	28	0.25				
206-853	303	1.50	206-908	358	1.50	206-963	413	2.00	204-129*	29	0.25				
206-854	304	1.50	206-909	359	1.50	206-964	414	2.00	204-130*	30	0.25				
206-855	305	1.50	206-910	360	1.50	206-965	415	2.00	204-131*	31	0.30				
206-856	306	1.50	206-911	361	1.50	206-966	416	2.00	204-132*	32	0.30				
206-857	307	1.50	206-912	362	1.50	206-967	417	2.00	204-133*	33	0.30				
206-858	308	1.50	206-913	363	1.50	206-968	418	2.00	204-134*	34	0.30				
206-859	309	1.50	206-914	364	1.50	206-969	419	2.00	204-135*	35	0.30				
206-860	310	1.50	206-915	365	1.50	206-970	420	2.00	204-136*	36	0.30				
206-861	311	1.50	206-916	366	1.50	206-971	421	2.00	204-137*	37	0.30				
206-862	312	1.50	206-917	367	1.50	206-972	422	2.00	204-138*	38	0.30				
206-863	313	1.50	206-918	368	1.50	206-973	423	2.00	204-139*	39	0.30				
206-864	314	1.50	206-919	369	1.50	206-974	424	2.00	204-140*	40	0.30				
206-865	315	1.50	206-920	370	1.50	206-975	425	2.00	204-141*	41	0.30				
206-866	316	1.50	206-921	371	1.50	206-976	426	2.00	204-142*	42	0.30				
206-867	317	1.50	206-922	372	1.50	206-977	427	2.00	204-143*	43	0.30				
206-868	318	1.50	206-923	373	1.50	206-978	428	2.00	204-144*	44	0.30				
206-869	319	1.50	206-924	374	1.50	206-979	429	2.00	204-145*	45	0.30				
206-870	320	1.50	206-925	375	1.50	206-980	430	2.00	204-146*	46	0.30				
206-871	321	1.50	206-926	376	1.50	206-981	431	2.00	204-147*	47	0.30				
206-872	322	1.50	206-927	377	1.50	206-982	432	2.00	204-148*	48	0.30				
206-873	323	1.50	206-928	378	1.50	206-983	433	2.00	204-149*	49	0.30				
206-874	324	1.50	206-929	379	1.50	206-984	434	2.00	204-150*	50	0.30				
206-875	325	1.50	206-930	380	1.50	206-985	435	2.00	204-151*	51	0.40				
206-876	326	1.50	206-931	381	1.50	206-986	436	2.00	204-152*	52	0.40				
206-877	327	1.50	206-932	382	1.50	206-987	437	2.00	204-153*	53	0.40				
206-878	328	1.50	206-933	383	1.50	206-988	438	2.00	204-154*	54	0.40				
206-879	329	1.50	206-934	384	1.50	206-989	439	2.00	204-155*	55	0.40				
206-880	330	1.50	206-935	385	1.50	206-990	440	2.00	204-156*	56	0.40				
206-881	331	1.50	206-936	386	1.50				204-157*	57	0.40				
206-882	332	1.50	206-937	387	1.50				204-158*	58	0.40				
206-883	333	1.50	206-938	388	1.50	204-104*	4	0.15	204-159*	59	0.40				
206-884	334	1.50	206-939	389	1.50	204-105*	5	0.15	204-160*	60	0.40				
206-885	335	1.50	206-940	390	1.50	204-106*	6	0.15	204-161*	61	0.40				
206-886	336	1.50	206-941	391	1.50	204-107*	7	0.15	204-162*	62	0.40				
206-887	337	1.50	206-942	392	1.50	204-108*	8	0.15	204-163*	63	0.40				
206-888	338	1.50	206-943	393	1.50	204-109*	9	0.15	204-164*	64	0.40				
206-889	339	1.50	206-944	394	1.50	204-110*	10	0.20	204-165*	65	0.40				
206-890	340	1.50	206-945	395	1.50	204-111*	11	0.20	204-166*	66	0.40				
206-891	341	1.50	206-946	396	1.50	204-112*	12	0.20	204-167*	67	0.40				
206-892	342	1.50	206-947	397	1.50	204-113*	13	0.20	204-168*	68	0.40				
206-893	343	1.50	206-948	398	1.50	204-114*	14	0.20	204-169*	69	0.40				

# O-Rings: European (German) Metric Range (cont.)



# Townsend Bearings

## Ordering Reference

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Size Material  
Ref Ref

Items marked '\*' are suitable for dynamic applications



Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2
204-170*	70	0.40		204-225	125	0.60		204-280	180	0.60		204-335	235	0.80	
204-171*	71	0.40		204-226	126	0.60		204-281	181	0.80		204-336	236	0.80	
204-172*	72	0.40		204-227	127	0.60		204-282	182	0.80		204-337	237	0.80	
204-173*	73	0.40		204-228	128	0.60		204-283	183	0.80		204-338	238	0.80	
204-174*	74	0.40		204-229	129	0.60		204-284	184	0.80		204-339	239	0.80	
204-175*	75	0.40		204-230	130	0.60		204-285	185	0.80		204-340	240	0.80	
204-176*	76	0.40		204-231	131	0.60		204-286	186	0.80		204-341	241	0.80	
204-177*	77	0.40		204-232	132	0.60		204-287	187	0.80		204-342	242	0.80	
204-178*	78	0.40		204-233	133	0.60		204-288	188	0.80		204-343	243	0.80	
204-179*	79	0.40		204-234	134	0.60		204-289	189	0.80		204-344	244	0.80	
204-180*	80	0.40		204-235	135	0.60		204-290	190	0.80		204-345	245	0.80	
204-181	81	0.50	204-236	136	0.60	204-291	191	0.80	204-346	246	0.80				
204-182	82	0.50	204-237	137	0.60	204-292	192	0.80	204-347	247	0.80				
204-183	83	0.50	204-238	138	0.60	204-293	193	0.80	204-348	248	0.80				
204-184	84	0.50	204-239	139	0.60	204-294	194	0.80	204-349	249	0.80				
204-185	85	0.50	204-240	140	0.60	204-295	195	0.80	204-350	250	0.80				
204-186	86	0.50	204-241	141	0.60	204-296	196	0.80	204-351	251	1.00				
204-187	87	0.50	204-242	142	0.60	204-297	197	0.80	204-352	252	1.00				
204-188	88	0.50	204-243	143	0.60	204-298	198	0.80	204-353	253	1.00				
204-189	89	0.50	204-244	144	0.60	204-299	199	0.80	204-354	254	1.00				
204-190	90	0.50	204-245	145	0.60	204-300	200	0.80	204-355	255	1.00				
204-191	91	0.50	204-246	146	0.60	204-301	201	0.80	204-356	256	1.00				
204-192	92	0.50	204-247	147	0.60	204-302	202	0.80	204-357	257	1.00				
204-193	93	0.50	204-248	148	0.60	204-303	203	0.80	204-358	258	1.00				
204-194	94	0.50	204-249	149	0.60	204-304	204	0.80	204-359	259	1.00				
204-195	95	0.50	204-250	150	0.60	204-305	205	0.80	204-360	260	1.00				
204-196	96	0.50	204-251	151	0.60	204-306	206	0.80	204-361	261	1.00				
204-197	97	0.50	204-252	152	0.60	204-307	207	0.80	204-362	262	1.00				
204-198	98	0.50	204-253	153	0.60	204-308	208	0.80	204-363	263	1.00				
204-199	99	0.50	204-254	154	0.60	204-309	209	0.80	204-364	264	1.00				
204-200	100	0.50	204-255	155	0.60	204-310	210	0.80	204-365	265	1.00				
204-201	101	0.50	204-256	156	0.60	204-311	211	0.80	204-366	266	1.00				
204-202	102	0.50	204-257	157	0.60	204-312	212	0.80	204-367	267	1.00				
204-203	103	0.50	204-258	158	0.60	204-313	213	0.80	204-368	268	1.00				
204-204	104	0.50	204-259	159	0.60	204-314	214	0.80	204-369	269	1.00				
204-205	105	0.50	204-260	160	0.60	204-315	215	0.80	204-370	270	1.00				
204-206	106	0.50	204-261	161	0.60	204-316	216	0.80	204-371	271	1.00				
204-207	107	0.50	204-262	162	0.60	204-317	217	0.80	204-372	272	1.00				
204-208	108	0.50	204-263	163	0.60	204-318	218	0.80	204-373	273	1.00				
204-209	109	0.50	204-264	164	0.60	204-319	219	0.80	204-374	274	1.00				
204-210	110	0.50	204-265	165	0.60	204-320	220	0.80	204-375	275	1.00				
204-211	111	0.50	204-266	166	0.60	204-321	221	0.80	204-376	276	1.00				
204-212	112	0.50	204-267	167	0.60	204-322	222	0.80	204-377	277	1.00				
204-213	113	0.50	204-268	168	0.60	204-323	223	0.80	204-378	278	1.00				
204-214	114	0.50	204-269	169	0.60	204-324	224	0.80	204-379	279	1.00				
204-215	115	0.50	204-270	170	0.60	204-325	225	0.80	204-380	280	1.00				
204-216	116	0.50	204-271	171	0.60	204-326	226	0.80	204-381	281	1.00				
204-217	117	0.50	204-272	172	0.60	204-327	227	0.80	204-382	282	1.00				
204-218	118	0.50	204-273	173	0.60	204-328	228	0.80	204-383	283	1.00				
204-219	119	0.50	204-274	174	0.60	204-329	229	0.80	204-384	284	1.00				
204-220	120	0.50	204-275	175	0.60	204-330	230	0.80	204-385	285	1.00				
204-221	121	0.60	204-276	176	0.60	204-331	231	0.80	204-386	286	1.00				
204-222	122	0.60	204-277	177	0.60	204-332	232	0.80	204-387	287	1.00				
204-223	123	0.60	204-278	178	0.60	204-333	233	0.80	204-388	288	1.00				
204-224	124	0.60	204-279	179	0.60	204-334	234	0.80	204-389	289	1.00				



### Ordering Reference

20\* - \*\*\* - \*\*\*\*

Size Material  
Ref Ref

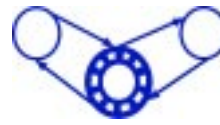
Items marked '\*' are suitable for dynamic applications



Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2		
204-390	290	1.00		204-445	345	1.50		204-500	400	1.50		204-555	455	2.00			
204-391	291	1.00		204-446	346	1.50		204-501	401	2.00		204-556	456	2.00			
204-392	292	1.00		204-447	347	1.50		204-502	402	2.00		204-557	457	2.00			
204-393	293	1.00		204-448	348	1.50		204-503	403	2.00		204-558	458	2.00			
204-394	294	1.00		204-449	349	1.50		204-504	404	2.00		204-559	459	2.00			
204-395	295	1.00		204-450	350	1.50		204-505	405	2.00		204-560	460	2.00			
204-396	296	1.00		204-451	351	1.50		204-506	406	2.00		204-561	461	2.00			
204-397	297	1.00		204-452	352	1.50		204-507	407	2.00		204-562	462	2.00			
204-398	298	1.00		204-453	353	1.50		204-508	408	2.00		204-563	463	2.00			
204-399	299	1.00		204-454	354	1.50		204-509	409	2.00		204-564	464	2.00			
204-400	300	1.00		204-455	355	1.50		204-510	410	2.00		204-565	465	2.00			
204-401	301	1.50		204-456	356	1.50		204-511	411	2.00		204-566	466	2.00			
204-402	301	1.50		204-457	357	1.50		204-512	412	2.00		204-567	467	2.00			
204-403	303	1.50		204-458	358	1.50		204-513	413	2.00		204-568	468	2.00			
204-404	304	1.50		204-459	359	1.50		204-514	414	2.00		204-569	469	2.00			
204-405	305	1.50		204-460	360	1.50		204-515	415	2.00		204-570	470	2.00			
204-406	306	1.50		204-461	361	1.50		204-516	416	2.00		204-571	471	2.00			
204-407	307	1.50		204-462	362	1.50		204-517	417	2.00		204-572	472	2.00			
204-408	308	1.50		204-463	363	1.50		204-518	418	2.00		204-573	473	2.00			
204-409	309	1.50		204-464	364	1.50		204-519	419	2.00		204-574	474	2.00			
204-410	310	1.50		204-465	365	1.50		204-520	420	2.00		204-575	475	2.00			
204-411	311	1.50		204-466	366	1.50		204-521	421	2.00		204-576	476	2.00			
204-412	312	1.50		204-467	367	1.50		204-522	422	2.00		204-577	477	2.00			
204-413	313	1.50		204-468	368	1.50		204-523	423	2.00		204-578	478	2.00			
204-414	314	1.50		204-469	369	1.50		204-524	424	2.00		204-579	479	2.00	4.0 +/- 0.12		
204-415	315	1.50	4.0 +/- 0.12	204-470	370	1.50	4.0 +/- 0.12	204-525	425	2.00	4.0 +/- 0.12	204-580	480	2.00			
204-416	316	1.50		204-471	371	1.50		204-526	426	2.00		204-581	481	2.00			
204-417	317	1.50		204-472	372	1.50		204-527	427	2.00		204-582	482	2.00			
204-418	318	1.50		204-473	373	1.50		204-528	428	2.00		204-583	483	2.00			
204-419	319	1.50		204-474	374	1.50		204-529	429	2.00		204-584	484	2.00			
204-420	320	1.50		204-475	375	1.50		204-530	430	2.00		204-585	485	2.00			
204-421	321	1.50		204-476	376	1.50		204-531	431	2.00		204-586	486	2.00			
204-422	322	1.50		204-477	377	1.50		204-532	432	2.00		204-587	487	2.00			
204-423	323	1.50		204-478	378	1.50		204-533	433	2.00		204-588	488	2.00			
204-424	324	1.50		204-479	379	1.50		204-534	434	2.00		204-589	489	2.00			
204-425	325	1.50		204-480	380	1.50		204-535	435	2.00		204-590	490	2.00			
204-426	326	1.50		204-481	381	1.50		204-536	436	2.00		204-591	491	2.00			
204-427	327	1.50		204-482	382	1.50		204-537	437	2.00		204-592	492	2.00			
204-428	328	1.50		204-483	383	1.50		204-538	438	2.00		204-593	493	2.00			
204-429	329	1.50		204-484	384	1.50		204-539	439	2.00		204-594	494	2.00			
204-430	330	1.50		204-485	385	1.00		204-540	440	2.00		204-595	495	2.00			
204-431	331	1.50		204-486	386	1.00		204-541	441	2.00		204-596	496	2.00			
204-432	332	1.50		204-487	387	1.00		204-542	442	2.00		204-597	497	2.00			
204-433	333	1.50		204-488	388	1.00		204-543	443	2.00		204-598	498	2.00			
204-434	334	1.50		204-489	389	1.00		204-544	444	2.00		204-599	499	2.00			
204-435	335	1.50		204-490	390	1.50		204-545	445	2.00		204-600	500	2.00			
204-436	336	1.50		204-491	391	1.50		204-546	446	2.00							
204-437	337	1.50		204-492	392	1.50		204-547	447	2.00							
204-438	338	1.50		204-493	393	1.50		204-548	448	2.00							
204-439	339	1.50		204-494	394	1.50		204-549	449	2.00		204-604*	4	0.15	5.0 +/- 0.12		
											204-605*	5	0.15				
											204-606*	6	0.15				
											204-607*	7	0.15				
204-440	340	1.50		204-495	395	1.50		204-550	450	2.00		204-608*	8	0.15			
204-441	341	1.50		204-496	396	1.50		204-551	451	2.00		204-609*	9	0.15			
204-442	342	1.50		204-497	397	1.50		204-552	452	2.00		204-610*	10	0.15			
204-443	343	1.50		204-498	398	1.50		204-553	453	2.00							
204-444	344	1.50		204-499	399	1.50		204-554	454	2.00							



**O-Rings:**  
**European (German) Metric Range (cont.)**



**Ordering Reference**  
 20\* - \*\*\* - \*\*\*\*

Size Material  
 Ref Ref

Items marked '\*' are suitable for  
 dynamic applications



Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2	Product ref and Size ref	d1	Tol on d1 +/-	d2
204-611*	11	0.20	5.0 +/- 0.12	204-666*	66	0.40	5.0 +/- 0.12	204-721	121	0.60	5.0 +/- 0.12	204-776	176	0.60	5.0 +/- 0.12
204-612*	12	0.20		204-667*	67	0.40		204-722	122	0.60		204-777	177	0.60	
204-613*	13	0.20		204-668*	68	0.40		204-723	123	0.60		204-778	178	0.60	
204-614*	14	0.20		204-669*	69	0.40		204-724	124	0.60		204-779	179	0.60	
204-615*	15	0.20		204-670*	70	0.40		204-725	125	0.60		204-780	180	0.60	
204-616*	16	0.20		204-671*	71	0.40		204-726	126	0.60		204-781	181	0.80	
204-617*	17	0.20		204-672*	72	0.40		204-727	127	0.60		204-782	182	0.80	
204-618*	18	0.20		204-673*	73	0.40		204-728	128	0.60		204-783	183	0.80	
204-619*	19	0.25		204-674*	74	0.40		204-729	129	0.60		204-784	184	0.80	
204-620*	20	0.25		204-675*	75	0.40		204-730	130	0.60		204-785	185	0.80	
204-621*	21	0.25		204-676*	76	0.40		204-731	131	0.60		204-786	186	0.80	
204-622*	22	0.25		204-677*	77	0.40		204-732	132	0.60		204-787	187	0.80	
204-623*	23	0.25		204-678*	78	0.40		204-733	133	0.60		204-788	188	0.80	
204-624*	24	0.25		204-679*	79	0.40		204-734	134	0.60		204-789	189	0.80	
204-625*	25	0.25		204-680*	80	0.40		204-735	135	0.60		204-790	190	0.80	
204-626*	26	0.25	204-681*	81	0.50	204-736	136	0.60	204-791	191	0.80				
204-627*	27	0.25	204-682*	82	0.50	204-737	137	0.60	204-792	192	0.80				
204-628*	28	0.25	204-683*	83	0.50	204-738	138	0.60	204-793	193	0.80				
204-629*	29	0.25	204-684*	84	0.50	204-739	139	0.60	204-794	194	0.80				
204-630*	30	0.25	204-685*	85	0.50	204-740	140	0.60	204-795	195	0.80				
204-631*	31	0.30	204-686*	86	0.50	204-741	141	0.60	204-796	196	0.80				
204-632*	32	0.30	204-687*	87	0.50	204-742	142	0.60	204-797	197	0.80				
204-633*	33	0.30	204-688*	88	0.50	204-743	143	0.60	204-798	198	0.80				
204-634*	34	0.30	204-689*	89	0.50	204-744	144	0.60	204-799	199	0.80				
204-635*	35	0.30	204-690*	90	0.50	204-745	145	0.60	204-800	200	0.80				
204-636*	36	0.30	204-691*	91	0.50	204-746	146	0.60	204-801	201	0.80				
204-637*	37	0.30	204-692*	92	0.50	204-747	147	0.60	204-802	202	0.80				
204-638*	38	0.30	204-693*	93	0.50	204-748	148	0.60	204-803	203	0.80				
204-639*	39	0.30	204-694*	94	0.50	204-749	149	0.60	204-804	204	0.80				
204-640*	40	0.30	204-695*	95	0.50	204-750	150	0.60	204-805	205	0.80				
204-641*	41	0.30	204-696*	96	0.50	204-751	151	0.60	204-806	206	0.80				
204-642*	42	0.30	204-697*	97	0.50	204-752	152	0.60	204-807	207	0.80				
204-643*	43	0.30	204-698*	98	0.50	204-753	153	0.60	204-808	208	0.80				
204-644*	44	0.30	204-699*	99	0.50	204-754	154	0.60	204-809	209	0.80				
204-645*	45	0.30	204-700*	100	0.50	204-755	155	0.60	204-810	210	0.80				
204-646*	46	0.30	204-701*	101	0.50	204-756	156	0.60	204-811	211	0.80				
204-647*	47	0.30	204-702*	102	0.50	204-757	157	0.60	204-812	212	0.80				
204-648*	48	0.30	204-703*	103	0.50	204-758	158	0.60	204-813	213	0.80				
204-649*	49	0.30	204-704*	104	0.50	204-759	159	0.60	204-814	214	0.80				
204-650*	50	0.30	204-705*	105	0.50	204-760	160	0.60	204-815	215	0.80				
204-651*	51	0.40	204-706*	106	0.50	204-761	161	0.60	204-816	216	0.80				
204-652*	52	0.40	204-707*	107	0.50	204-762	162	0.60	204-817	217	0.80				
204-653*	53	0.40	204-708*	108	0.50	204-763	163	0.60	204-818	218	0.80				
204-654*	54	0.40	204-709*	109	0.50	204-764	164	0.60	204-819	219	0.80				
204-655*	55	0.40	204-710*	110	0.50	204-765	165	0.60	204-820	220	0.80				
204-656*	56	0.40	204-711*	111	0.50	204-766	166	0.60	204-821	221	0.80				
204-657*	57	0.40	204-712*	112	0.50	204-767	167	0.60	204-822	222	0.80				
204-658*	58	0.40	204-713*	113	0.50	204-768	168	0.60	204-823	223	0.80				
204-659*	59	0.40	204-714*	114	0.50	204-769	169	0.60	204-824	224	0.80				
204-660*	60	0.40	204-715*	115	0.50	204-770	170	0.60	204-825	225	0.80				
204-661*	61	0.40	204-716*	116	0.50	204-771	171	0.60	204-826	226	0.80				
204-662*	62	0.40	204-717*	117	0.50	204-772	172	0.60	204-827	227	0.80				
204-663*	63	0.40	204-718*	118	0.50	204-773	173	0.60	204-828	228	0.80				
204-664*	64	0.40	204-719*	119	0.50	204-774	174	0.60	204-829	229	0.80				
204-665*	65	0.40	204-720*	120	0.50	204-775	175	0.60	204-830	230	0.80				





**Townsend  
Bearings**

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