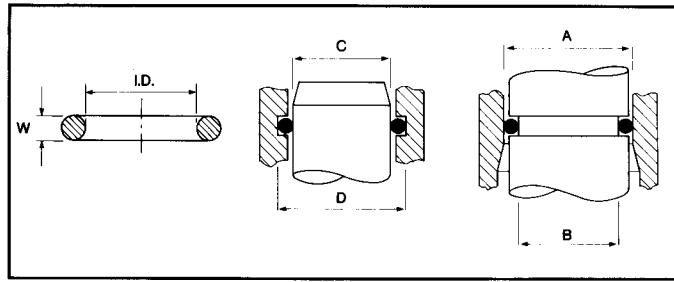


'O' Ring Size Chart and Design Data

Imperial Range - BS1806

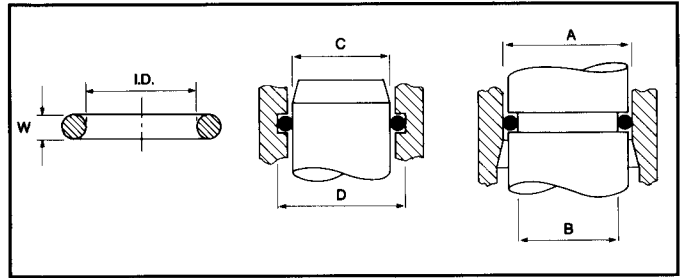


SECTION 1

PART No.	NOMINAL SIZE C x A x W	INSIDE DIAMETER				CROSS SECTION				BORE		PISTON GROOVE DIA B		GLAND GROOVE DIA D		ROD DIA C
		INCH	±	mm	±	INCH	±	mm	±	A	B		D			
											STAT	DYN	STAT	DYN		
001	1/32 x 3/32 x 1/32	.029		0.74		.040		1.02		.094	.036		.089		.031	
002	3/64 x 3/64 x 3/64	.042	.004	1.07	0.1	.050		1.27		.125	.053		.119		.047	
003	1/16 x 3/16 x 1/16	.056		1.42		.060		1.52		.156	.068		.150		.062	
606	5/64 x 13/64 x 1/16	.070		1.78		.040		1.02		.188	.084		.182		.078	
004		.070		1.78		.070		1.78								
607		.100		2.54		.040		1.02								
005	3/32 x 7/32 x 1/16	.101		2.57						.219	.117	.107	.211	.221	.109	
006		.114		2.90												
801		.125		3.17												
007	5/32 x 9/32 x 1/16	.145		3.68						.281	.179	.169	.258	.268	.156	
008		.176		4.47												
802		.187	.005	4.76	0.13											
009	7/32 x 11/32 x 1/16	.208		5.28						.344	.241	.231	.321	.331	.219	
010		.239		6.07												
803		.250		6.35												
610	5/16 x 7/16 x 1/16	.266		6.75						.437	.335	.325	.414	.424	.312	
011		.301		7.65												
804		.312		7.94												
611	11/32 x 15/32 x 1/16	.344		8.73						.500	.398	.388	.477	.487	.375	
012		.364		9.25												
013		.426		10.82												
806	1/2 x 5/8 x 1/16	.437	.005	11.11	0.13					.625	.525		.600		.500	
014		.489	.005	12.42	0.13											
015		.551	.007	14.00	0.18											
016	5/8 x 3/4 x 1/16	.614		15.60						.750	.650		.725		.625	
017		.676		17.17												
018		.739	.009	18.77	0.23											
019	13/16 x 15/16 x 1/16	.901		20.35						.937	.837		.912		.812	
020		.864		21.95												
021		.926		23.52												
022	1 x 1 1/8 x 1/16	.989	.010	25.12	0.25	.070	.003	1.78	0.08	1.125	1.025		1.100		1.000	
023	1 1/16 x 1 3/16 x 1/16	1.051	.010	26.70	0.25					1.188	1.088		1.162		1.062	
024	1 1/8 x 1 1/4 x 1/16	1.114	.010	28.30	0.25					1.250	1.150		1.225		1.125	
025	1 3/16 x 1 5/16 x 1/16	1.176	.011	29.87	0.28					1.312	1.212		1.288		1.188	
026		1.239	.011	31.47	0.28					1.375	1.275		1.350		1.250	
027		1.301	.011	33.05	0.28					1.437	1.337		1.412		1.312	
028	1 3/8 x 1 1/2 x 1/16	1.364	.013	34.65	0.33					1.500	1.400		1.475		1.375	
517	1 7/16 x 1 9/16 x 1/16	1.428	.015	36.27	0.38					1.625	1.525		1.600		1.500	
029	1 1/2 x 1 5/8 x 1/16	1.489	.010	37.82	0.33											
519	1 9/16 x 1 11/16 x 1/16	1.553	.015	39.45	0.38					1.750	1.650		1.725		1.625	
030		1.614	.013	41.00	0.33					1.875	1.775		1.850		1.750	
031		1.739	.015	44.17	0.38											
032	1 7/8 x 2 x 1/16	1.864	.015	47.35	0.38					2.000	1.900		1.975		1.875	
033	2 x 2 1/8 x 1/16	1.989	.018	50.52	0.46					2.125	2.025		2.100		2.000	
034	2 1/8 x 2 1/4 x 1/16	2.114	.018	53.70	0.46					2.250	2.150		2.225		2.125	
035	2 1/4 x 2 3/8 x 1/16	2.239	.018	56.87	0.46					2.375	2.275		2.350		2.250	
036	2 3/8 x 2 1/2 x 1/16	2.364	.018	60.05	0.46					2.500	2.400		2.475		2.375	
037	2 1/2 x 2 5/8 x 1/16	2.489	.018	63.22	0.46					2.625	2.525		2.600		2.500	
038	2 5/8 x 2 3/4 x 1/16	2.614	.020	66.40	0.51					2.750	2.650		2.725		2.625	
039	2 3/4 x 2 7/8 x 1/16	2.739	.020	69.57	0.51					2.875	2.775		2.850		2.750	
040	2 7/8 x 3 x 1/16	2.864	.020	72.75	0.51					3.000	2.900		2.975		2.875	
041	3 x 3 3/8 x 1/16	2.989	.024	75.92	0.61					3.125	3.025		3.100		3.000	
532	3 1/8 x 3 1/4 x 1/16	3.110	.020	79.00	0.51					3.375	3.275		3.350		3.250	
042	3 1/4 x 3 3/8 x 1/16	3.239	.024	82.27	0.61											

'O' Ring Size Chart and Design Data

Imperial Range - BS1806

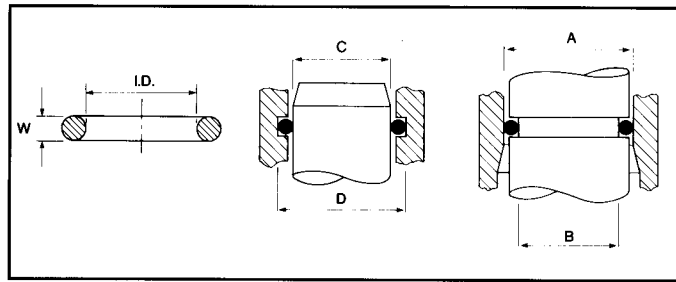


PART No.	NOMINAL SIZE C x A x W	INSIDE DIAMETER				CROSS SECTION				BORE A INCH	PISTON GROOVE DIA B		GLAND GROOVE DIA D		ROD DIA C								
		INCH	±	mm	±	INCH	±	mm	±		STAT	DYN	STAT	DYN									
																W							
534	3/8 x 3 1/2 x 1/16	3.380	.020	85.34	0.51	.070	.003	1.78	0.08	3.625	3.525	3.600	3.500										
043	3 1/2 x 3 5/8 x 1/16	3.489	.024	88.62	0.61																		
536	3/8 x 3 3/4 x 1/16	3.610	.020	91.70	0.51																		
044	3/4 x 3 7/8 x 1/16	3.739	.027	94.97	0.69																		
538	3/8 x 4 x 1/16	3.860	.020	98.05	0.51																		
045	4 x 4 1/8 x 1/16	3.989	.027	101.32	0.69																		
540	4 1/8 x 4 1/4 x 1/16	4.110	.020	104.4	0.51																		
046	4 1/4 x 4 3/8 x 1/16	4.239	.030	107.67	0.76																		
542	4 3/8 x 4 1/2 x 1/16	4.360	.020	110.74	0.51																		
047	4 1/2 x 4 5/8 x 1/16	4.489	.030	114.02	0.76																		
544	4 5/8 x 4 3/4 x 1/16	4.610	.020	117.10	0.51																		
048	4 3/4 x 4 7/8 x 1/16	4.739	.030	120.37	0.76																		
546	4 7/8 x 5 x 1/16	4.860	.020	123.44	0.51																		
049	5 x 5 1/8 x 1/16	4.989	.037	126.72	0.94																		
548	5 1/8 x 5 1/4 x 1/16	5.095	.028	129.4	0.71																		
050	5 1/4 x 5 3/8 x 1/16	5.239	.037	133.07	0.94																		
550	5 3/8 x 5 1/2 x 1/16	5.345	.028	135.76	0.71																		
551	5 1/2 x 5 5/8 x 1/16	5.470	.028	138.94	0.71																		
552	5 5/8 x 5 3/4 x 1/16	5.595	.028	142.11	0.71																		
553	5 3/4 x 5 7/8 x 1/16	5.720	.028	145.29	0.71																		
554	5 7/8 x 6 x 1/16	5.845	.028	148.46	0.71																		
555	6 x 6 1/8 x 1/16	5.970	.028	151.64	0.71																		
556	6 1/8 x 6 1/4 x 1/16	6.095	.028	154.81	0.71																		
557	6 1/4 x 6 3/8 x 1/16	6.220	.028	158.00	0.71																		
558	6 3/8 x 6 1/2 x 1/16	6.345	.028	161.16	0.71																		
559	6 1/2 x 6 5/8 x 1/16	6.470	.028	164.34	0.71																		
560	6 5/8 x 6 3/4 x 1/16	6.595	.028	167.51	0.71																		
561	6 3/4 x 6 7/8 x 1/16	6.720	.028	170.69	0.71																		
562	6 7/8 x 7 x 1/16	6.845	.028	173.87	0.71																		
102	1/16 x 1/4 x 3/32	.049	.005	1.24	0.13									.103	.003	2.62	0.08	.250	.090	.076	.222	.236	.062
103	3/32 x 9/32 x 3/32	.081	.005	2.06	0.13																		
104	1/8 x 5/16 x 3/32	.112	.005	2.84	0.13																		
105	5/32 x 1 1/32 x 3/32	.143	.005	3.63	0.13																		
106	3/16 x 3/8 x 3/32	.174	.005	4.42	0.13																		
107	7/32 x 1 3/32 x 3/32	.206	.005	5.23	0.13																		
108	1/4 x 7/16 x 3/32	.237	.005	6.02	0.13																		
109	5/16 x 1/2 x 3/32	.299	.005	7.59	0.13																		
110	3/8 x 9/16 x 3/32	.362	.005	9.19	0.13																		
613	25/64 x 37/64 x 3/32	.391	.005	9.92	0.13																		
111	7/16 x 5/8 x 3/32	.424	.005	10.77	0.13																		
614	1 5/32 x 2 1/32 x 3/32	.469	.005	11.91	0.13																		
112	1/2 x 1 1/16 x 3/32	.487	.005	12.37	0.13																		
807		.500	.005	12.70	0.13																		
615	3 3/64 x 4 5/64 x 3/32	.516	.005	13.10	0.13																		
113	9/16 x 3/4 x 3/32	.549	.007	13.94	0.18																		
616	1 9/32 x 2 5/32 x 3/32	.594	.005	15.08	0.13																		
114	5/8 x 1 3/16 x 3/32	.612	.009	15.54	0.23																		
809		.625	.005	15.88	0.13																		
115	1 1/16 x 7/8 x 3/32	.674	.009	17.12	0.23																		
810		.687	.005	17.46	0.13																		
617		.703	.005	17.86	0.13																		
116	3/4 x 1 5/16 x 3/32	.737	.009	18.72	0.23																		
117	1 3/16 x 1 x 3/32	.799	.010	20.29	0.25																		
812		.812	.006	20.64	0.15																		
										.937	.777	.763	.910	.924	.750								
										1.000	.840		.972		.812								

SECTION 1

'O' Ring Size Chart and Design Data

Imperial Range - BS1806

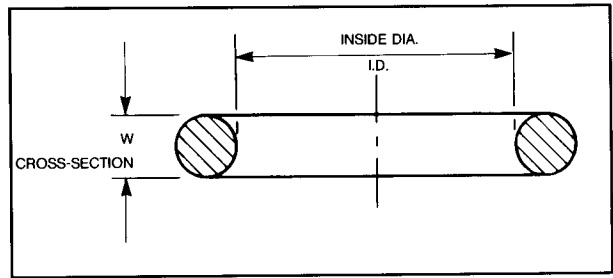


SECTION 1

PART No.	NOMINAL SIZE C x A x W	INSIDE DIAMETER				CROSS SECTION W				BORE A		PISTON GROOVE DIA B		GLAND GROOVE DIA D		ROD DIA C
		INCH	±	mm	±	INCH	±	mm	±	INCH	STAT	DYN	STAT	DYN		
118	7/8 x 1 1/16 x 3/32	.862	.010	21.89	0.25					1.062	.902		1.035	.875		
813		.875	.006	22.23	0.15											
119	1 5/16 x 1 1/8 x 3/32	.924	.010	23.47	0.25					1.125	.965		1.097	.937		
814		.937	.006	23.81	0.15											
120	1 x 1 3/16 x 3/32	.987	.010	25.07	0.25					1.187	1.027		1.160	1.000		
121	1 1/16 x 1 1/4 x 3/32	1.049	.010	26.64	0.25					1.250	1.090		1.222	1.062		
122	1 1/8 x 1 5/16 x 3/32	1.112	.010	28.24	0.25					1.312	1.152		1.285	1.125		
123	1 3/16 x 1 3/8 x 3/32	1.174	.012	29.82	0.30					1.375	1.215		1.348	1.188		
124	1 1/4 x 1 7/16 x 3/32	1.237	.012	31.42	0.30					1.437	1.277		1.410	1.260		
125	1 5/16 x 1 1/2 x 3/32	1.299	.012	32.99	0.30					1.500	1.340		1.472	1.312		
126	1 3/8 x 1 9/16 x 3/32	1.362	.012	34.59	0.30					1.562	1.402		1.535	1.375		
127	1 7/16 x 1 5/8 x 3/32	1.424	.012	36.17	0.30					1.625	1.465		1.597	1.437		
128	1 1/2 x 1 11/16 x 3/32	1.487	.012	37.77	0.30					1.687	1.527		1.660	1.500		
129	1 9/16 x 1 3/4 x 3/32	1.549	.015	39.34	0.38					1.750	1.590		1.722	1.562		
130	1 5/8 x 1 9/16 x 3/32	1.612	.015	40.94	0.38					1.812	1.652		1.785	1.625		
131	1 11/16 x 1 7/8 x 3/32	1.674	.015	42.52	0.38					1.875	1.715		1.848	1.688		
132	1 3/4 x 1 5/16 x 3/32	1.737	.015	44.12	0.38					1.937	1.777		1.910	1.750		
133	1 13/16 x 2 x 3/32	1.799	.015	45.69	0.38					2.000	1.840		1.972	1.812		
134	1 7/8 x 2 1/16 x 3/32	1.862	.017	47.29	0.43					2.062	1.902		2.035	1.875		
135	1 5/16 x 2 1/8 x 3/32	1.925	.017	48.90	0.43					2.125	1.965		2.097	1.937		
136	2 x 2 3/16 x 3/32	1.987	.017	50.47	0.43					2.187	2.027		2.160	2.000		
137	2 1/16 x 2 1/4 x 3/32	2.050	.017	52.07	0.43					2.250	2.090		2.222	2.062		
138	2 1/8 x 2 5/16 x 3/32	2.112	.017	53.64	0.43					2.312	2.152		2.285	2.125		
139	2 3/16 x 2 3/8 x 3/32	2.175	.017	55.25	0.43					2.375	2.215		2.348	2.188		
140	2 1/4 x 2 7/16 x 3/32	2.237	.017	56.82	0.43	.103	.003	2.62	0.08	2.437	2.277		2.410	2.250		
141	2 5/16 x 2 1/2 x 3/32	2.300	.020	58.42	0.51					2.500	2.340		2.472	2.312		
142	2 3/8 x 2 9/16 x 3/32	2.362	.020	59.99	0.51					2.562	2.402		2.535	2.375		
143	2 7/16 x 2 5/8 x 3/32	2.425	.020	61.60	0.51					2.625	2.465		2.597	2.437		
144	2 1/2 x 2 11/16 x 3/32	2.487	.020	63.17	0.51					2.687	2.527		2.660	2.500		
145	2 9/16 x 2 3/4 x 3/32	2.550	.020	64.77	0.51					2.750	2.590		2.722	2.562		
146	2 5/8 x 2 13/16 x 3/32	2.612	.020	66.34	0.51					2.812	2.652		2.785	2.625		
147	2 11/16 x 2 7/8 x 3/32	2.675	.022	67.95	0.56					2.875	2.715		2.848	2.688		
148	2 3/4 x 2 15/16 x 3/32	2.737	.022	69.52	0.56					2.937	2.777		2.910	2.750		
149	2 13/16 x 3 x 3/32	2.800	.022	71.12	0.56					3.000	2.840		2.972	2.812		
150	2 7/8 x 3 1/16 x 3/32	2.862	.022	72.69	0.56					3.062	2.902		3.035	2.875		
640	2 15/16 x 3 1/8 x 3/32	2.924	.015	74.30	0.38											
151	3 x 3 3/16 x 3/32	2.987	.024	75.87	0.61					3.187	3.027		3.160	3.000		
641	3 1/16 x 3 1/4 x 3/32	3.049	.015	77.50	0.38											
642	3 3/16 x 3 3/8 x 3/32	3.174	.015	80.60	0.38											
152	3 1/4 x 3 7/16 x 3/32	3.237	.024	82.22	0.61					3.437	3.277		3.410	3.250		
643	3 5/16 x 3 1/2 x 3/32	3.299	.015	83.80	0.38											
153	3 1/2 x 3 11/16 x 3/32	3.487	.024	88.57	0.61					3.687	3.527		3.660	3.500		
154	3 3/4 x 3 15/16 x 3/32	3.737	.028	94.92	0.71					3.937	3.777		3.910	3.750		
155	4 x 4 3/16 x 3/32	3.987	.028	101.27	0.71					4.187	4.027		4.160	4.000		
156	4 1/4 x 4 7/16 x 3/32	4.237	.030	107.62	0.76					4.437	4.277		4.410	4.250		
157	4 1/2 x 4 11/16 x 3/32	4.487	.030	113.97	0.76					4.687	4.527		4.660	4.500		
158	4 3/4 x 4 15/16 x 3/32	4.737	.030	120.32	0.76					4.937	4.777		4.910	4.750		
159	5 x 5 3/16 x 3/32	4.987	.035	126.67	0.89					5.187	5.027		5.160	5.000		
160	5 1/4 x 5 7/16 x 3/32	5.237	.035	133.02	0.89					5.437	5.277		5.410	5.250		
161	5 1/2 x 5 11/16 x 3/32	5.487	.035	139.37	0.89					5.687	5.527		5.660	5.500		
162	5 3/4 x 5 15/16 x 3/32	5.737	.035	145.72	0.89					5.937	5.777		5.910	5.750		
163	6 x 6 3/16 x 3/32	5.987	.035	152.07	0.89					6.187	6.027		6.160	6.000		
164	6 1/4 x 6 7/16 x 3/32	6.237	.040	158.42	1.02					6.437	6.277		6.410	6.250		
165	6 1/2 x 6 11/16 x 3/32	6.487	.040	164.77	1.02					6.687	6.527		6.660	6.500		

Standard Metric 'O' Ring range

Sizes to BS 4518



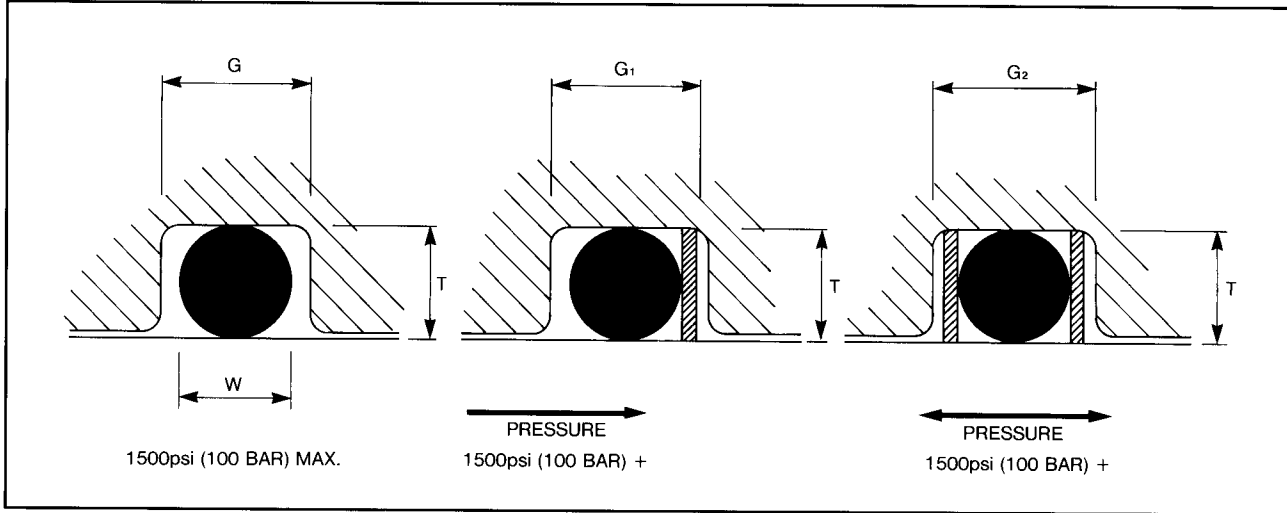
SECTION 3

PART No.	INTERNAL DIA		CROSS SECTION	
	ID	±	W	±
0031-16	3.1	0.15	1.6	0.08
0041-16	4.1			
0051-16	5.1			
0061-16	6.1			
0071-16	7.1			
0081-16	8.1			
0091-16	9.1			
0101-16	10.1	0.20		
0111-16	11.1			
0121-16	12.1			
0131-16	13.1			
0141-16	14.1			
0151-16	15.1			
0161-16	16.1			
0171-16	17.1	0.25		
0181-16	18.1			
0191-16	19.1			
0221-16	22.1			
0251-16	25.1			
0271-16	27.1			
0291-16	29.1			
0321-16	32.1	0.30		
0351-16	35.1			
0371-16	37.1			
0036-24	3.6	0.15	2.4	0.08
0046-24	4.6			
0056-24	5.6			
0066-24	6.6			
0076-24	7.6			
0086-24	8.6			
0096-24	9.6			
0106-24	10.6	0.20		
0116-24	11.6			
0126-24	12.6			
0136-24	13.6			
0146-24	14.6			
0156-24	15.6			
0166-24	16.6			
0176-24	17.6			

PART No.	INTERNAL DIA		CROSS SECTION	
	ID	±	W	±
0186-24	18.6	0.25	2.4	0.08
0196-24	19.6			
0216-24	21.6			
0246-24	24.6			
0276-24	27.6			
0296-24	29.6			
0316-24	31.6			
0346-24	34.6			
0376-24	37.6			
0396-24	39.6			
0416-24	41.6			
0446-24	44.6			
0476-24	47.6			
0496-24	49.6	0.40		
0516-24	51.6			
0546-24	54.6			
0576-24	57.6			
0596-24	59.6			
0616-24	61.6			
0646-24	64.6			
0676-24	67.6			
0696-24	69.6	0.25		
0195-30	19.5			
0215-30	21.5			
0225-30	22.5			
0245-30	24.5			
0255-30	25.5			
0265-30	26.5			
0275-30	27.5			
0295-30	29.5			
0315-30	31.5		0.3	
0325-30	32.5			
0345-30	34.5			
0355-30	35.5			
0365-30	36.5			
0375-30	37.5			
0395-30	39.5			
0415-30	41.5			
0425-30	42.5			

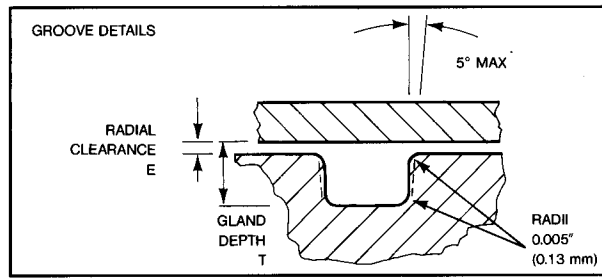
A Guide to Housing Details for Dynamic Sealing

See page 30 for back-up ring information



CROSS SECTION W		GLAND DEPTH T		GLAND WIDTH					
INCH	mm	INCH	mm	G No back-up rings		G1 One back-up ring		G2 Two back-up rings	
				INCH	mm	INCH	mm	INCH	mm
.070	1.78	.062/.060	1.57/1.52	.099/.089	2.5/2.3	.152/.147	3.9/3.8	.210/.205	5.4/5.3
.079	2.00	.070/.068	1.79/1.72	.106/.102	2.7/2.6	.165/.161	4.2/4.1	.224/.220	5.7/5.6
.094	2.40	.084/.081	2.09/1.97	.126/.121	3.4/3.2	.184/.179	4.8/4.6	.242/.237	6.2/6.0
.098	2.50	.089/.085	2.25/2.17	.138/.130	3.5/3.3	.193/.185	4.9/4.7	.248/.244	6.3/6.2
.103	2.62	.094/.091	2.39/2.31	.146/.136	3.7/3.5	.199/.194	5.1/5.0	.257/.252	6.6/6.5
.118	3.00	.104/.098	2.65/2.50	.165/.157	4.2/4.0	.220/.212	5.6/5.4	.268/.264	6.8/6.7
.139	3.53	.125/.122	3.18/3.10	.193/.185	4.9/4.7	.247/.240	6.4/6.2	.305/.299	7.9/7.7
.157	4.00	.143/.139	3.62/3.52	.209/.201	5.3/5.1	.268/.260	6.8/6.6	.327/.319	8.3/8.1
.197	5.00	.178/.174	4.52/4.42	.260/.252	6.6/6.4	.331/.323	8.4/8.2	.402/.394	10.2/10.0
.210	5.33	.188/.184	4.78/4.67	.286/.276	7.2/7.0	.355/.348	8.9/8.8	.427/.420	10.8/10.6
.224	5.70	.204/.195	5.18/4.95	.303/.295	7.7/7.5	.374/.366	9.5/9.3	.445/.437	11.3/11.1
.236	6.00	.215/.211	5.45/5.31	.315/.307	8.0/7.8	.366/.378	9.8/9.6	.457/.449	11.6/11.4
.275	6.99	.250/.245	6.35/6.22	.380/.370	9.6/9.4	.480/.472	12.2/12.0	.582/.574	14.8/14.6
.331	8.40	.305/.295	7.75/7.50	.441/.433	11.2/11.0	.543/.535	13.8/13.6	.646/.638	16.4/16.2

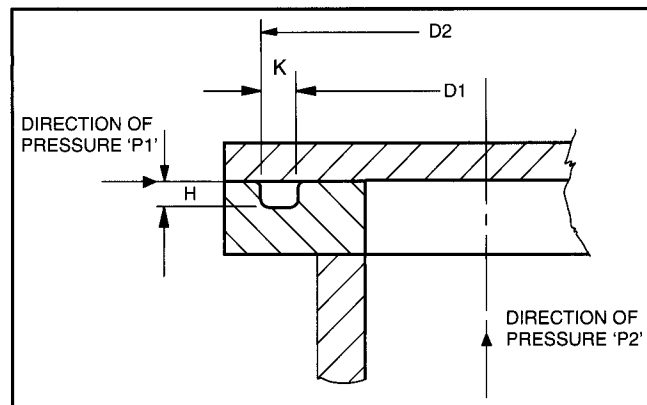
A Guide to Radial Clearance (E)



MAX PRESSURE PSI	'O' RING HARDNESS (SHORE A)									
	50°		60°		70°		80°		90°	
	INCH	mm	INCH	mm	INCH	mm	INCH	mm	INCH	mm
100	.008	0.20	.009	0.23	.010	0.25	.013	0.33	.016	0.41
250	.005	0.13	.008	0.20	.009	0.23	.012	0.30	.014	0.35
500	.003	0.08	.005	0.13	.008	0.20	.010	0.25	.012	0.30
1000	.001	0.03	.003	0.08	.005	0.13	.008	0.20	.010	0.25
1500	—	—	.001	0.03	.003	0.08	.005	0.13	.008	0.20
2000	—	—	—	—	.002	0.05	.004	0.10	.005	0.13
3000	—	—	—	—	—	—	.002	0.05	.003	0.08
4000	—	—	—	—	—	—	—	—	.001	0.03
5000	—	—	—	—	—	—	—	—	—	—

Clearances apply to dynamic applications with no back-up rings for .139 (3.53) sect. 'O' Rings and larger. Smaller sections are not suitable for such sealing.

A Guide to Housing Details for Static Sealing



Note: For "P1 Pressure", Dia. D1 should be toleranced to fit the 'O' Ring I.D. For "P2 Pressure", Dia. D2 should be toleranced to fit the 'O' Ring O.D.

CROSS SECTION W		GROOVE DEPTH H		GROOVE WIDTH K (min)	
INCH	mm	INCH ±.005	mm ±0.12	INCH	mm
.070	1.78	.056	1.42	.095	2.40
.079	2.00	.066	1.68	.105	2.66
.094	2.40	.079	2.00	.125	3.17
.098	2.50	.082	2.10	.130	3.30
.103	2.62	.086	2.18	.140	3.56
.118	3.00	.100	2.50	.160	4.06
.139	3.53	.115	2.92	.190	4.83
.157	4.00	.130	3.30	.210	5.33
.197	5.00	.165	4.20	.265	6.72
.210	5.33	.175	4.45	.280	7.10
.224	5.70	.188	4.77	.300	7.60
.236	6.00	.198	5.00	.320	8.12
.275	6.99	.236	6.00	.375	9.40
.331	8.40	.278	7.05	.445	11.30