


Please find below the details of preferred sizes from the accepted British, American, DIN and European Standards.

Recommended Housing Groove Sizes (BS1806, BS4518 apply)								
All dimensions are in millimeters	Dynamic Sealing Applications					Static Sealing Applications		
	Groove Width		Radial Depth		Max Clearance Gap	Groove Height		Radial Depth
	Min	Max	Max	Min		Min	Max	Min
1.00/1.02	1.50	1.60	0.81	0.86	0.11	0.70	0.80	1.80
1.27	1.80	1.90	1.06	1.11	0.11	0.90	1.00	2.10
1.5/1.52	2.10	2.20	1.26	1.32	0.12	1.10	1.20	2.40
1.6	2.30	2.50	1.18	1.25	0.12	1.20	1.30	2.40
1.78	2.30	2.50	1.52	1.57	0.13	1.30	1.50	2.40
2	2.60	2.70	1.72	1.79	0.12	1.60	1.70	2.80
2.4	3.20	3.40	1.97	2.09	0.14	1.70	1.80	3.70
2.5	3.20	3.30	2.17	2.25	0.13	2.00	2.10	3.40
2.62	3.50	3.70	2.31	2.39	0.13	2.10	2.30	3.60
3	4.00	4.20	2.50	2.65	0.15	2.20	2.30	4.50
3.5/3.53	4.70	4.90	3.10	3.18	0.15	2.80	3.00	4.80
4	5.10	5.30	3.52	3.62	0.15	3.20	3.40	5.50
4.1	5.50	5.70	3.50	3.67	0.16	3.10	3.20	6.00
4.5	5.80	6.00	3.96	4.07	0.16	3.70	3.90	6.00
5	6.40	6.60	4.42	4.54	0.16	4.10	4.30	6.70
5.33	7.00	7.20	4.67	4.78	0.18	4.30	4.50	7.10
5.7	7.50	7.70	4.95	5.18	0.18	4.40	4.50	8.10
6	7.80	8.00	5.31	5.45	0.18	5.00	5.20	7.90
6.99/7	9.40	9.60	6.22	6.35	0.20	5.90	6.10	9.40
8	10.70	10.90	7.09	7.27	0.20	6.70	6.90	10.60
8.4	11.00	11.20	7.50	7.75	0.20	6.60	6.70	12.00
9	12.30	12.50	7.97	8.17	0.21	7.50	7.70	12.10
9.5/9.53	13.10	13.30	8.43	8.64	0.22	8.00	8.20	12.70
10	13.80	14.00	8.89	9.10	0.23	8.40	8.60	13.30
12.5/12.7	18.50	18.80	11.13	11.39	0.26	10.50	10.80	17.40

Materials available	
Nitrile	NBR HNBR BS 2751 BS 3222
Viton	
Aflas	
Kalrez	
EPDM	BS 6014
Neoprene	BS 2752
Silicone	Food Grade Materials available
Natural	BS1154
PTFE	Solid and Encapsulated designs
Polyurethane	
All the above materials are available in a range of material hardness from 45-90 Shore IRHD	
Colour Coded 'O'-Rings are also available	

Notes.  
The above table indicates the recommended groove sizes for 'O'-Rings for Dynamic and Static sealing of pressure up to 100 Bar (1500 psi). Not all 'O'-Rings are recommended as suitable for dynamic sealing and consultation with Martin's Rubber should be sought prior to making commitment to a final design. In the specification of an 'O'-Ring for a particular application due consideration of the total operating parameters of the application should be made particularly with respect to operating temperature and fluid environment, again Martin's will offer in depth application consultation should this be required.

**Quality**  
All 'O'-Rings supplied are Quality assured according to BS6442:1982  
Certified and fully traceable 'O'-Rings with cure date are available.  
Martin's Rubber Co. operates a Quality System to ISO:9000 and is a BSI approved firm.





O-Ring			Back-Up Ring			O-Ring			Back-Up Ring			O-Ring			Back-Up Ring		
Æ	Section	B.S. Ref	Thk	ID	OD	Æ	Section	B.S. Ref	Thk	ID	OD	Æ	Section	B.S. Ref	Thk	ID	OD
0.74	x 1.02	001	N/A			7.10	x 1.60	071	1.4	7.50	10.00	13.00	x 1.00		N/A		
1.00	x 1.00		N/A			7.52	x 3.53	203	1.4	7.93	14.28	13.00	x 1.50		N/A		
1.07	x 1.27	002	N/A			7.60	x 2.40		1.4	8.00	12.00	13.00	x 2.00		1.4	13.30	16.70
1.24	x 2.62	102	1.4	1.57	6.33	7.60	x 2.62	109	1.4	7.93	12.69	13.00	x 2.50		1.4	13.40	17.60
1.42	x 1.52	003	N/A			7.65	x 1.63		1.4	8.05	10.30	13.00	x 4.00		1.4	13.60	20.60
1.78	x 1.02	606	N/A			7.66	x 1.78	011	1.4	7.94	11.11	13.00	x 5.00		1.8	13.60	22.80
1.78	x 1.78	004	N/A			7.94	x 1.78	804	1.4	8.22	11.39	13.10	x 1.60	131	1.4	13.50	16.00
												13.10	x 2.62	615	1.4	13.43	18.19
2.00	x 1.00		N/A			8.00	x 1.00		N/A			13.46	x 2.08		1.4	13.86	17.22
2.06	x 2.62	103	1.4	2.39	7.15	8.00	x 1.50		N/A			13.60	x 2.40		1.4	14.00	18.00
2.54	x 1.02	607	N/A			8.00	x 2.00		1.4	8.30	11.70	13.64	x 5.34	311	1.8	14.28	23.80
2.57	x 1.78	005	N/A			8.00	x 2.50		1.4	8.40	12.60	13.87	x 3.53	207	1.4	14.28	20.63
2.84	x 2.62	104	1.4	3.17	7.93	8.00	x 4.00		1.4	8.60	15.60	13.95	x 2.62	113	1.4	14.28	19.04
2.90	x 1.78	006	1.4	3.18	6.35	8.00	x 5.00		1.8	8.60	17.80						
						8.10	x 1.60	081	1.4	8.50	11.00	14.00	x 1.00		N/A		
						8.60	x 2.40		1.4	9.00	13.00	14.00	x 1.50		N/A		
3.00	x 1.00		N/A			8.73	x 1.78	611	1.4	9.01	12.18	14.00	x 1.78	015	1.4	14.28	17.45
3.00	x 1.50		N/A			8.90	x 1.83		1.4	9.20	12.36	14.00	x 2.00		1.4	14.30	17.70
3.00	x 2.00		1.4	3.30	6.70							14.00	x 2.50		1.4	14.40	18.60
3.10	x 1.60	031	1.4	3.50	6.00	9.00	x 1.00		N/A			14.00	x 4.00		1.4	14.40	18.60
3.17	x 1.78	801	1.4	3.45	6.62	9.00	x 1.50		N/A			14.00	x 5.00		1.8	14.60	23.80
3.60	x 2.40		1.4	4.00	8.00	9.00	x 2.00		1.4	9.30	12.70	14.10	x 1.60	141	1.4	14.50	17.00
3.63	x 2.62	105	1.4	3.96	8.72	9.00	x 2.50		1.4	9.40	13.60	14.60	x 2.40		1.4	15.00	19.00
3.69	x 1.78	007	1.4	3.97	7.14	9.00	x 4.00		1.4	9.60	16.60						
						9.00	x 5.00		1.8	9.60	18.80	15.00	x 1.00		N/A		
4.00	x 1.00		N/A			9.10	x 1.60	091	1.4	9.50	12.00	15.00	x 1.50		N/A		
4.00	x 1.50		N/A			9.12	x 3.53	204	1.4	9.53	15.88	15.00	x 2.00		1.4	15.30	18.70
4.00	x 2.00		1.4	4.30	7.70	9.19	x 2.62	110	1.4	9.52	14.28	15.00	x 2.50		1.4	15.40	19.60
4.00	x 2.50		1.4	4.40	8.60	9.25	x 1.78	012	1.4	9.53	12.70	15.00	x 4.00		1.4	15.60	22.60
4.00	x 4.00		1.4	4.60	11.60	9.60	x 2.40		1.4	10.00	14.00	15.00	x 5.00		1.8	15.60	24.80
4.00	x 5.00		1.8	4.60	13.80	9.92	x 2.62	613	1.4	10.25	15.01	15.08	x 2.62	616	1.4	15.41	20.17
4.10	x 1.60	041	1.4	4.50	7.00							15.10	x 1.60	151	1.4	15.50	18.00
4.34	x 3.53	201	1.4	4.75	11.10	10.00	x 1.00		N/A			15.24	x 5.34	312	1.8	15.88	25.40
4.42	x 2.62	106	1.4	4.75	9.51	10.00	x 1.50		N/A			15.47	x 3.53	208	1.4	15.88	22.23
4.47	x 1.78	008	1.4	4.75	7.92	10.00	x 2.00		1.4	10.30	13.70	15.54	x 2.62	114	1.4	15.87	20.63
4.60	x 2.40		1.4	5.00	9.00	10.00	x 2.50		1.4	10.40	14.60	15.60	x 1.78	016	1.4	15.88	19.05
4.70	x 1.42		N/A			10.00	x 4.00		1.4	10.60	17.60	15.60	x 2.40		1.4	16.00	20.00
4.76	x 1.78	802	1.4	5.04	8.21	10.00	x 5.00		1.8	10.60	19.80	15.88	x 2.62	809	1.4	16.21	20.97
						10.10	x 1.60	101	1.4	10.50	13.00						
5.00	x 1.00		N/A			10.46	x 5.34	309	1.8	11.10	20.62	16.00	x 1.00		N/A		
5.00	x 1.50		N/A			10.51	x 1.83		1.4	10.81	13.97	16.00	x 1.50		N/A		
5.00	x 2.00		1.4	5.30	8.70	10.60	x 2.40		1.4	11.00	15.00	16.00	x 2.00		1.4	16.30	19.70
5.00	x 2.50		1.4	5.40	9.60	10.69	x 3.53	205	1.4	11.10	17.45	16.00	x 2.50		1.4	16.40	20.60
5.00	x 4.00		1.4	5.60	12.60	10.78	x 2.62	111	1.4	11.11	15.87	16.00	x 4.00		1.4	16.60	23.60
5.00	x 5.00		1.8	5.60	14.80	10.82	x 1.78	013	1.4	11.10	14.27	16.00	x 5.00		1.8	16.60	25.80
5.10	x 1.60	051	1.4	5.50	8.00							16.10	x 1.60	161	1.4	16.50	19.00
5.23	x 2.62	107	1.4	5.56	10.32	11.00	x 1.00		N/A			16.36	x 2.20		1.4	16.76	20.12
5.28	x 1.78	009	1.4	5.56	8.73	11.00	x 1.50		N/A			16.60	x 2.40		1.4	17.00	21.00
5.60	x 2.40		1.4	6.00	10.00	11.00	x 2.00		1.4	11.30	14.70	16.81	x 5.34	313	1.4	17.45	26.97
5.94	x 3.53	202	1.4	6.35	12.70	11.00	x 2.50		1.4	11.40	15.60						
						11.00	x 4.00		1.4	11.60	18.60	17.00	x 1.00		N/A		
6.00	x 1.00		N/A			11.00	x 5.00		1.8	11.60	20.80	17.00	x 1.50		N/A		
6.00	x 1.50		N/A			11.10	x 1.60	111	1.4	11.50	14.00	17.00	x 2.00		1.4	17.30	20.70
6.00	x 2.00		1.4	6.30	9.70	11.11	x 1.78	806	1.4	11.39	14.56	17.00	x 2.50		1.4	17.40	21.60
6.00	x 2.50		1.4	6.40	10.60	11.60	x 2.40		1.4	12.00	16.00	17.00	x 4.00		1.4	17.60	24.60
6.00	x 4.00		1.4	6.60	13.60	11.90	x 1.98		1.4	12.30	15.66	17.00	x 5.00		1.8	17.60	26.80
6.00	x 5.00		1.8	6.60	15.80	11.91	x 2.62	614	1.4	12.24	17.00	17.04	x 3.53	209	1.4	17.45	23.80
6.02	x 2.62	108	1.4	6.35	11.11							17.10	x 1.60	171	1.4	17.50	20.00
6.07	x 1.63		1.4	6.50	9.00	12.00	x 1.00		N/A			17.13	x 2.62	115	1.4	17.46	22.22
6.07	x 1.78	010	1.4	6.35	9.52	12.00	x 1.50		N/A			17.16	x 1.78	017	1.4	17.44	20.61
6.10	x 1.60	061	1.4	6.50	9.00	12.00	x 2.00		1.4	12.30	15.70	17.46	x 2.62	810	1.4	17.79	22.55
6.35	x 1.78	803	1.4	6.63	9.80	12.00	x 2.50		1.4	12.40	16.60	17.60	x 2.40		1.4	18.00	22.00
6.60	x 2.40		1.4	7.00	11.00	12.00	x 4.00		1.4	12.60	19.60	17.86	x 2.62	617	1.4	18.19	22.95
6.75	x 1.78	610	1.4	7.03	10.20	12.00	x 5.00		1.8	12.60	21.80	17.93	x 2.46		1.4	18.33	22.33
						12.07	x 5.34	310	1.8	12.71	22.23						
7.00	x 1.00		N/A			12.10	x 1.60	121	1.4	12.50	15.00	18.00	x 1.00		N/A		
7.00	x 1.50		N/A			12.29	x 3.53	206	1.4	12.70	19.05	18.00	x 1.50		N/A		
7.00	x 2.00		1.4	7.30	10.70	12.37	x 2.62	112	1.4	12.70	17.46	18.00	x 2.00		1.4	18.30	21.70
7.00	x 2.50		1.4	7.40	11.60	12.42	x 1.78	014	1.4	12.70	15.87	18.00	x 2.50		1.4	18.40	22.60
7.00	x 4.00		1.4	7.60	14.60	12.60	x 2.40		1.4	13.00	17.00	18.00	x 4.00		1.4	18.60	25.60
7.00	x 5.00		1.8	7.60	16.80	12.70	x 2.62	807	1.4	13.03	17.79						

O-Ring			Back-Up Ring			O-Ring			Back-Up Ring			O-Ring			Back-Up Ring		
Æ	Section	B.S. Ref	Thk	ID	OD	Æ	Section	B.S. Ref	Thk	ID	OD	Æ	Section	B.S. Ref	Thk	ID	OD
8.00	x 5.00		1.8	18.60	27.80	24.00	x 1.50		N/A			30.00	x 2.00		1.4	30.30	33.70
8.10	x 1.60	181	1.4	18.50	21.00	24.00	x 2.00		1.4	24.30	27.70	30.00	x 2.50		1.4	30.40	34.60
8.42	x 5.34	314	1.8	19.06	28.58	24.00	x 2.50		1.4	24.40	28.60	30.00	x 4.00		1.4	30.60	37.60
8.60	x 2.40		1.4	19.00	23.00	24.00	x 4.00		1.4	24.60	31.60	30.00	x 5.00		1.8	30.60	39.80
8.64	x 3.53	210	1.4	19.05	25.40	24.00	x 5.00		1.8	24.60	33.80						
8.72	x 2.62	116	1.4	19.05	23.81	24.50	x 3.00		1.4	25.00	30.00	31.00	x 1.00		N/A		
8.77	x 1.78	018	1.4	19.05	22.22	24.60	x 2.40		1.4	25.00	29.00	31.00	x 1.50		N/A		
						24.77	x 5.34	318	1.8	25.41	34.93	31.00	x 2.00		1.4	31.30	34.70
9.00	x 1.00		N/A			25.00	x 1.00		N/A			31.00	x 2.50		1.4	31.40	35.60
9.00	x 1.50		N/A			25.00	x 1.50		N/A			31.00	x 4.00		1.4	31.60	38.60
9.00	x 2.00		1.4	19.30	22.70	25.00	x 2.00		1.4	25.30	28.70	31.00	x 5.00		1.8	31.60	40.80
9.00	x 2.50		1.4	19.40	23.60	25.00	x 2.50		1.4	25.40	29.60	31.12	x 5.34	322	1.8	31.76	41.28
9.00	x 4.00		1.4	19.60	26.60	25.00	x 3.53	214	1.4	25.41	31.76	31.34	x 3.53	218	1.4	31.75	38.10
9.00	x 5.00		1.8	19.60	28.80	25.00	x 4.00		1.4	25.60	32.60	31.42	x 2.62	124	1.4	31.75	36.51
9.10	x 1.60	191	1.4	19.50	22.00	25.00	x 5.00		1.4	25.60	32.60	31.47	x 1.78	026	1.4	31.75	34.92
9.18	x 2.46		1.4	19.58	23.58	25.00	x 5.00		1.8	25.60	34.80	31.50	x 3.00		1.4	32.00	37.00
9.50	x 3.00		1.4	20.00	25.00	25.04	x 2.95		1.4	25.54	30.44	31.60	x 2.40		1.4	32.00	36.00
9.60	x 2.40		1.4	20.00	24.00	25.07	x 2.62	120	1.4	25.40	30.16						
9.99	x 5.34	315	1.4	20.00	24.00	25.12	x 1.78	022	1.4	25.40	28.57	32.00	x 1.00		N/A		
			1.8	20.63	30.15	25.80	x 3.53	618	1.4	26.21	32.56	32.00	x 1.50		N/A		
20.00	x 1.00		N/A			26.00	x 1.00		N/A			32.00	x 2.00		1.4	32.30	35.70
20.00	x 1.50		N/A			26.00	x 1.50		N/A			32.00	x 2.50		1.4	32.40	36.60
20.00	x 2.00		1.4	20.30	23.70	26.00	x 2.00		1.4	26.30	29.70	32.00	x 4.00		1.4	32.60	39.60
20.00	x 2.50		1.4	20.40	24.60	26.00	x 2.50		1.4	26.40	30.60	32.00	x 5.00		1.8	32.60	41.80
20.00	x 4.00		1.4	20.60	27.60	26.00	x 4.00		1.4	26.40	30.60	32.10	x 1.60	321	1.4	32.50	35.00
20.00	x 5.00		1.8	20.60	29.80	26.00	x 5.00		1.4	26.60	33.60	32.50	x 3.00		1.4	33.00	38.00
20.22	x 3.53	211	1.4	20.63	26.98	26.00	x 5.00		1.8	26.60	35.80	32.69	x 5.34	323	1.8	33.33	42.85
20.29	x 2.62	117	1.4	20.62	25.38	26.34	x 5.34	319	1.8	26.98	36.50	32.93	x 3.53	219	1.4	33.34	39.69
20.35	x 1.78	019	1.4	20.63	23.80	26.50	x 3.00		1.4	27.00	32.00						
20.60	x 2.40		1.4	21.00	25.00	26.57	x 3.53	215	1.4	26.98	33.33	33.00	x 1.00		N/A		
20.64	x 2.62	812	1.4	20.97	25.73	26.62	x 2.95		1.4	27.12	32.02	33.00	x 1.50		N/A		
						26.65	x 2.62	121	1.4	26.98	31.74	33.00	x 2.00		1.4	33.30	36.70
21.00	x 1.00		N/A			26.70	x 1.78	023	1.4	26.98	30.15	33.00	x 2.50		1.4	33.40	37.60
21.00	x 1.50		N/A									33.00	x 2.62	125	1.4	33.33	38.09
21.00	x 2.00		1.4	21.30	24.70	27.00	x 1.00		N/A			33.00	x 4.00		1.4	33.60	40.60
21.00	x 2.50		1.4	21.40	25.60	27.00	x 1.50		N/A			33.00	x 5.00		1.8	33.60	42.80
21.00	x 4.00		1.4	21.60	28.60	27.00	x 2.00		1.4	27.30	30.70	33.05	x 1.78	027	1.4	33.33	36.50
21.00	x 5.00		1.8	21.60	30.80	27.00	x 2.50		1.4	27.40	31.60						
21.50	x 3.00		1.4	22.00	27.00	27.00	x 4.00		1.4	27.60	34.60	34.00	x 1.00		N/A		
21.59	x 5.34	316	1.8	22.23	31.75	27.00	x 5.00		1.8	27.60	36.80	34.00	x 1.50		N/A		
21.60	x 2.40		1.4	22.00	26.00	27.50	x 3.00		1.4	28.00	33.00	34.00	x 2.00		1.4	34.30	37.70
21.82	x 3.53	212	1.4	22.23	28.58	27.60	x 2.40		1.4	28.00	32.00	34.00	x 2.50		1.4	34.40	38.60
21.90	x 2.62	118	1.4	22.23	26.99	27.94	x 5.34	320	1.8	28.58	38.10	34.00	x 4.00		1.4	34.60	41.60
21.92	x 2.95		1.4	22.42	27.32							34.00	x 5.00		1.8	34.60	43.80
21.95	x 1.78	020	1.4	22.23	25.40	28.00	x 1.00		N/A			34.29	x 5.34	324	1.8	34.93	44.45
						28.00	x 1.50		N/A			34.42	x 2.95		1.4	34.92	39.82
22.00	x 1.00		N/A			28.00	x 2.00		1.4	28.30	31.70	34.50	x 3.00		1.4	35.00	40.00
22.00	x 1.50		N/A			28.00	x 2.50		1.4	28.40	32.60	34.52	x 3.53	220	1.4	34.93	41.28
22.00	x 2.00		1.4	22.30	25.70	28.00	x 4.00		1.4	28.60	35.60	34.60	x 2.40		1.4	35.00	39.00
22.00	x 2.50		1.4	22.40	26.60	28.00	x 5.00		1.8	28.60	37.80	34.60	x 2.62	126	1.4	34.93	39.69
22.00	x 4.00		1.4	22.60	29.60	28.17	x 3.53	216	1.4	28.58	34.93	34.65	x 1.78	028	1.4	34.93	38.10
22.00	x 5.00		1.8	22.60	31.80	28.25	x 2.62	122	1.4	28.58	33.34						
22.10	x 1.60	221	1.4	22.50	25.00	28.30	x 1.78	024	1.4	28.58	31.75	35.00	x 1.00		N/A		
22.23	x 2.62	813	1.4	22.56	27.32							35.00	x 1.50		N/A		
22.50	x 3.00		1.4	23.00	28.00	29.00	x 1.00		N/A			35.00	x 2.00		1.4	35.30	38.70
						29.00	x 1.50		N/A			35.00	x 2.50		1.4	35.40	39.60
23.00	x 1.00		N/A			29.00	x 2.00		1.4	29.30	32.70	35.00	x 4.00		1.4	35.60	42.60
23.00	x 1.50		N/A			29.00	x 2.50		1.4	29.40	33.60	35.00	x 5.00		1.8	35.60	44.80
23.00	x 2.00		1.4	23.30	26.70	29.00	x 4.00		1.4	29.60	36.60	35.10	x 1.60	351	1.4	35.50	38.00
23.00	x 2.50		1.4	23.40	27.60	29.00	x 5.00		1.8	29.60	38.80	35.50	x 3.00		1.4	36.00	41.00
23.00	x 4.00		1.4	23.60	30.60	29.10	x 1.60	291	1.4	29.50	32.00						
23.00	x 5.00		1.8	23.60	32.80	29.50	x 3.00		1.4	30.00	35.00	36.00	x 1.00		N/A		
23.16	x 5.34	317	1.8	23.80	33.32	29.51	x 5.34	321	1.8	30.15	39.67	36.00	x 1.50		N/A		
23.40	x 3.53	213	1.4	23.81	30.16	29.60	x 2.40		1.4	30.00	34.00	36.00	x 2.00		1.4	36.30	39.70
23.47	x 2.62	119	1.4	23.80	28.56	29.74	x 2.95		1.4	30.24	35.14	36.00	x 2.50		1.4	36.40	40.60
23.47	x 2.95		1.4	23.97	28.87	29.75	x 3.53	217	1.4	30.16	36.51	36.00	x 4.00		1.4	36.60	43.60
23.52	x 1.78	021	1.4	23.80	26.97	29.83	x 2.62	123	1.4	30.16	34.92	36.00	x 5.00		1.8	36.60	45.80
23.81	x 2.62	814	1.4	24.14	28.90	29.87	x 1.78	025	1.4	30.15	33.32	36.10	x 3.53	221	1.4	36.51	42.86
												36.17	x 2.62	127	1.4	36.50	41.26
24.00	x 1.00		N/A			30.00	x 1.00		N/A			36.27	x 1.78	517	1.4	36.55	39.72
						30.00	x 1.50		N/A			36.50	x 3.00		1.4	37.00	42.00



O-Ring			Back-Up Ring			O-Ring			Back-Up Ring			O-Ring			Back-Up Ring		
Æ	Section	B.S. Ref	Thk	ID	OD	Æ	Section	B.S. Ref	Thk	ID	OD	Æ	Section	B.S. Ref	Thk	ID	OD
57.00	x 1.00		N/A			64.00	x 1.00		N/A			71.00	x 1.00		N/A		
57.00	x 1.50		N/A			64.00	x 1.50		N/A			71.00	x 1.50		N/A		
57.00	x 2.00		1.4	57.30	60.70	64.00	x 2.00		1.4	64.30	67.70	71.00	x 2.00		1.4	71.30	74.70
57.00	x 2.50		1.4	57.40	61.60	64.00	x 2.50		1.4	64.40	68.60	71.00	x 2.50		1.4	71.40	75.60
57.00	x 4.00		1.4	57.60	64.60	64.00	x 4.00		1.4	64.60	71.60	71.00	x 4.00		1.4	71.60	78.60
57.00	x 5.00		1.8	57.60	66.80	64.00	x 5.00		1.8	64.60	73.80	71.12	x 2.62	149	1.8	71.60	80.80
57.15	x 3.53	835	1.4	57.56	63.91	64.30	x 5.70		1.8	65.00	75.00	71.44	x 3.53	844	1.4	71.45	76.21
57.60	x 2.40		1.4	58.00	62.00	64.50	x 3.00		1.4	65.00	70.00				1.4	71.85	78.20
						64.60	x 2.40		1.4	65.00	69.00	72.00	x 1.00		N/A		
58.00	x 1.00		N/A			64.77	x 2.62	145	1.4	65.10	69.86	72.00	x 1.50		N/A		
58.00	x 1.50		N/A									72.00	x 2.00		1.4	72.30	75.70
58.00	x 2.00		1.4	58.30	61.70	65.00	x 1.00		N/A			72.00	x 2.50		1.4	72.40	76.60
58.00	x 2.50		1.4	58.40	62.60	65.00	x 1.50		N/A			72.00	x 4.00		1.4	72.60	79.60
58.00	x 4.00		1.4	58.60	65.60	65.00	x 2.00		1.4	65.30	68.70	72.00	x 5.00		1.8	72.60	81.80
58.00	x 5.00		1.8	58.60	67.80	65.00	x 2.50		1.4	65.40	69.60	72.40	x 5.34	336	1.8	73.04	82.56
58.42	x 2.62	141	1.4	58.75	63.51	65.00	x 4.00		1.4	65.60	72.60	72.62	x 3.53	233	1.4	73.03	79.38
58.74	x 3.53	836	1.4	59.15	65.50	65.00	x 5.00		1.8	65.60	74.80	72.70	x 2.62	150	1.4	73.03	77.79
						65.10	x 3.53	840	1.4	65.51	71.86	72.76	x 1.78	040	1.4	73.04	76.21
59.00	x 1.00		N/A			66.00	x 1.00		N/A			73.00	x 1.00		N/A		
59.00	x 1.50		N/A			66.00	x 1.50		N/A			73.00	x 1.50		N/A		
59.00	x 2.00		1.4	59.30	62.70	66.00	x 2.00		1.4	66.30	69.70	73.00	x 2.00		1.4	73.30	76.70
59.00	x 2.50		1.4	59.40	63.60	66.00	x 2.50		1.4	66.40	70.60	73.00	x 2.50		1.4	73.40	77.60
59.00	x 4.00		1.4	59.60	66.60	66.00	x 4.00		1.4	66.60	73.60	73.00	x 4.00		1.4	73.60	80.60
59.00	x 5.00		1.8	59.60	68.80	66.00	x 5.00		1.8	66.60	75.80	73.00	x 5.00		1.8	73.60	82.80
59.30	x 5.70		1.8	60.00	70.00	66.04	x 5.34	334	1.8	66.68	76.20	73.02	x 3.53	845	1.4	73.43	79.78
59.36	x 3.00		1.4	59.86	64.86	66.27	x 3.53	231	1.4	66.68	73.03						
59.50	x 3.00		1.4	60.00	65.00	66.35	x 2.62	146	1.4	66.68	71.44	74.00	x 1.00		N/A		
59.60	x 2.40		1.4	60.00	64.00	66.40	x 1.78	038	1.4	66.68	69.85	74.00	x 1.50		N/A		
59.70	x 5.34	332	1.8	60.34	69.86	66.67	x 3.53	841	1.4	67.08	73.43	74.00	x 2.00		1.4	74.30	77.70
59.92	x 3.53	229	1.4	60.33	66.68							74.00	x 2.50		1.4	74.40	78.60
60.00	x 1.00		N/A			67.00	x 1.00		N/A			74.00	x 4.00		1.4	74.60	81.60
60.00	x 1.50		N/A			67.00	x 1.50		N/A			74.00	x 5.00		1.8	74.60	83.80
60.00	x 2.00		1.4	60.30	63.70	67.00	x 2.00		1.4	67.30	70.70	74.30	x 2.62	640	1.4	74.63	79.39
60.00	x 2.50		1.4	60.40	64.60	67.00	x 2.50		1.4	67.40	71.60	74.30	x 5.70		1.8	75.00	85.00
60.00	x 2.62	142	1.4	60.33	65.09	67.00	x 4.00		1.4	67.60	74.60	74.50	x 3.00		1.4	75.00	80.00
60.00	x 4.00		1.4	60.60	67.60	67.00	x 5.00		1.8	67.60	76.80	74.60	x 3.53	846	1.4	75.01	81.36
60.00	x 5.00		1.8	60.60	69.80	67.60	x 2.40		1.4	68.00	72.00	74.63	x 5.34	619	1.8	75.27	84.79
60.04	x 1.78	036	1.4	60.32	63.49	67.95	x 2.62	147	1.4	68.28	73.04						
60.32	x 3.53	837	1.4	60.73	67.08							75.00	x 1.00		N/A		
61.00	x 1.00		N/A			68.00	x 1.00		N/A			75.00	x 1.50		N/A		
61.00	x 1.50		N/A			68.00	x 1.50		N/A			75.00	x 2.00		1.4	75.30	78.70
61.00	x 2.00		1.4	61.30	64.70	68.00	x 2.00		1.4	68.30	71.70	75.00	x 2.50		1.4	75.40	79.60
61.00	x 2.50		1.4	61.40	65.60	68.00	x 2.50		1.4	68.40	72.60	75.00	x 4.00		1.4	75.60	82.60
61.00	x 4.00		1.4	61.60	68.60	68.00	x 4.00		1.4	68.60	75.60	75.00	x 5.00		1.8	75.60	84.80
61.00	x 5.00		1.8	61.60	70.80	68.00	x 5.00		1.8	68.60	77.80	75.57	x 5.34	337	1.8	76.21	85.73
61.60	x 2.40		1.4	62.00	66.00	68.26	x 3.53	842	1.4	68.67	75.02	75.80	x 3.53	234	1.4	76.21	82.56
61.60	x 2.62	143	1.4	61.93	66.69							75.88	x 2.62	151	1.4	76.21	80.97
61.90	x 3.53	838	1.4	62.31	68.66	69.00	x 1.00		N/A			75.94	x 1.78	041	1.4	76.22	79.39
						69.00	x 1.50		N/A								
62.00	x 1.00		N/A			69.00	x 2.00		1.4	69.30	72.70	76.00	x 1.00		N/A		
62.00	x 1.50		N/A			69.00	x 2.50		1.4	69.40	73.60	76.00	x 1.50		N/A		
62.00	x 2.00		1.4	62.30	65.70	69.00	x 4.00		1.4	69.60	76.60	76.00	x 2.00		1.4	76.30	79.70
62.00	x 2.50		1.4	62.40	66.60	69.00	x 5.00		1.8	69.60	78.80	76.00	x 2.50		1.4	76.40	80.60
62.00	x 4.00		1.4	62.60	69.60	69.22	x 5.34	335	1.8	69.86	79.38	76.00	x 4.00		1.4	76.60	83.60
62.00	x 5.00		1.8	62.60	71.80	69.30	x 5.70		1.8	70.00	80.00	76.00	x 5.00		1.8	76.60	85.80
62.30	x 5.70		1.8	63.00	73.00	69.44	x 3.53	232	1.4	69.85	76.20						
62.87	x 5.34	333	1.8	63.51	73.03	69.50	x 3.00		1.4	70.00	75.00	77.00	x 1.00		N/A		
						69.52	x 2.62	148	1.4	69.85	74.61	77.00	x 1.50		N/A		
63.00	x 1.00		N/A			69.57	x 1.78	039	1.4	69.85	73.02	77.00	x 2.00		1.4	77.30	80.70
63.00	x 1.50		N/A			69.60	x 2.40		1.4	70.00	74.00	77.00	x 2.50		1.4	77.40	81.60
63.00	x 2.00		1.4	63.30	66.70	69.85	x 3.53	843	1.4	70.26	76.61	77.00	x 4.00		1.4	77.60	84.60
63.00	x 2.50		1.4	63.40	67.60							77.00	x 5.00		1.8	77.60	86.80
63.00	x 4.00		1.4	63.60	70.60	70.00	x 1.00		N/A			77.50	x 2.62	641	1.4	77.83	82.59
63.00	x 5.00		1.8	63.60	72.80	70.00	x 1.50		N/A								
63.10	x 3.53	230	1.4	63.51	69.86	70.00	x 2.00		1.4	70.30	73.70	78.00	x 1.00		N/A		
63.17	x 2.62	144	1.4	63.50	68.26	70.00	x 2.50		1.4	70.40	74.60	78.00	x 1.50		N/A		
63.22	x 1.78	037	1.4	63.50	66.67	70.00	x 4.00		1.4	70.60	77.60	78.00	x 2.00		1.4	78.30	81.70
63.50	x 3.53	839	1.4	63.91	70.26	70.00	x 5.00		1.8	70.60	79.80	78.00	x 2.50		1.4	78.40	82.60
												78.00	x 4.00		1.4	78.60	85.60

O-Ring			Back-Up Ring			O-Ring			Back-Up Ring			O-Ring			Back-Up Ring		
Æ	Section	B.S. Ref	Thk	ID	OD	Æ	Section	B.S. Ref	Thk	ID	OD	Æ	Section	B.S. Ref	Thk	ID	OD
78.00	x 5.00		1.8	78.60	87.80	86.00	x 2.00		1.4	86.30	89.70	95.00	x 1.50		N/A		
78.74	x 5.34	338	1.8	79.38	88.90	86.00	x 2.50		1.4	86.40	90.60	95.00	x 1.78	044	1.4	95.28	98.45
78.97	x 3.53	235	1.4	79.38	85.73	86.00	x 4.00		1.4	86.60	93.60	95.00	x 2.00		1.4	95.30	98.70
						86.00	x 5.00		1.8	86.60	95.80	95.00	x 2.50		1.4	95.40	99.60
79.00	x 1.00		N/A			87.00	x 1.00		N/A			95.00	x 4.00		1.4	95.60	102.60
79.00	x 1.50		N/A			87.00	x 1.50		N/A			95.00	x 5.00		1.8	95.60	104.80
79.00	x 1.78	532	1.4	79.28	82.45	87.00	x 2.00		1.4	87.30	90.70				N/A		
79.00	x 2.00		1.4	79.30	82.70	87.00	x 2.50		1.4	87.40	91.60	96.00	x 1.50		1.4	96.30	99.70
79.00	x 2.50		1.4	79.40	83.60	87.00	x 4.00		1.4	87.60	94.60	96.00	x 2.00		1.4	96.40	100.60
79.00	x 4.00		1.4	79.60	86.60	87.00	x 5.00		1.8	87.60	96.80	96.00	x 2.50		1.4	96.40	100.60
79.00	x 5.00		1.8	79.60	88.80							96.00	x 4.00		1.4	96.60	103.60
79.30	x 5.70		1.8	80.00	90.00	88.00	x 1.00		N/A			96.00	x 5.00		1.8	96.60	105.80
79.50	x 3.00		1.4	80.00	85.00	88.00	x 1.50		N/A						N/A		
79.77	x 5.34	620	1.8	80.41	89.93	88.00	x 2.00		1.4	88.30	91.70	97.00	x 1.50		1.4	97.30	100.70
						88.00	x 2.50		1.4	88.40	92.60	97.00	x 2.00		1.4	97.40	101.60
80.00	x 1.00		N/A			88.00	x 4.00		1.4	88.60	95.60	97.00	x 2.50		1.4	97.60	104.60
80.00	x 1.50		N/A			88.00	x 5.00		1.8	88.60	97.80	97.00	x 4.00		1.8	97.60	106.80
80.00	x 2.00		1.4	80.30	83.70	88.27	x 5.34	341	1.8	88.91	98.43	97.00	x 5.00		1.8	97.60	106.80
80.00	x 2.50		1.4	80.40	84.60	88.50	x 3.53	238	1.4	88.91	95.26	97.80	x 5.34	344	1.8	98.44	107.96
80.00	x 4.00		1.4	80.60	87.60	88.58	x 2.62	153	1.4	88.91	93.67				N/A		
80.00	x 5.00		1.8	80.60	89.80	88.64	x 1.78	043	1.4	88.92	92.09	98.00	x 1.50		1.4	98.30	101.70
80.60	x 2.62	642	1.4	80.93	85.69							98.00	x 2.00		1.4	98.40	102.60
						89.00	x 1.00		N/A			98.00	x 2.50		1.4	98.40	102.60
81.00	x 1.00		N/A			89.00	x 1.50		N/A			98.00	x 4.00		1.4	98.60	105.60
81.00	x 1.50		N/A			89.00	x 2.00		1.4	89.30	92.70	98.00	x 5.00		1.8	98.60	107.80
81.00	x 2.00		1.4	81.30	84.70	89.00	x 2.50		1.4	89.40	93.60	98.02	x 3.53	241	1.4	98.43	104.78
81.00	x 2.50		1.4	81.40	85.60	89.00	x 4.00		1.4	89.60	96.60	98.05	x 1.78	538	1.4	98.33	101.50
81.00	x 4.00		1.4	81.60	88.60	89.00	x 5.00		1.8	89.60	98.80				N/A		
81.00	x 5.00		1.8	81.60	90.80	89.30	x 5.70		1.8	90.00	100.00	99.00	x 1.50		1.4	99.30	102.70
81.92	x 5.34	339	1.8	82.56	92.08	89.50	x 3.00		1.4	90.00	95.00	99.00	x 2.00		1.4	99.40	103.60
						89.69	x 5.34	621	1.8	90.33	99.85	99.00	x 2.50		1.4	99.40	103.60
82.00	x 1.00		N/A									99.00	x 4.00		1.4	99.60	106.60
82.00	x 1.50		N/A			90.00	x 1.00		N/A			99.00	x 5.00		1.8	99.60	108.80
82.00	x 2.00		1.4	82.30	85.70	90.00	x 1.50		N/A			99.30	x 5.70		1.8	100.00	110.00
82.00	x 2.50		1.4	82.40	86.60	90.00	x 2.00		1.4	90.30	93.70	99.50	x 3.00		1.4	100.00	105.00
82.00	x 4.00		1.4	82.60	89.60	90.00	x 2.50		1.4	90.40	94.60				N/A		
82.00	x 5.00		1.8	82.60	91.80	90.00	x 4.00		1.4	90.60	97.60	100.00	x 1.50		1.4	100.30	103.70
82.14	x 3.53	236	1.4	82.55	88.90	90.00	x 5.00		1.8	90.60	99.80	100.00	x 2.00		1.4	100.40	104.60
82.22	x 2.62	152	1.4	82.55	87.31							100.00	x 2.50		1.4	100.40	104.60
82.28	x 1.78	042	1.4	82.56	85.73	91.00	x 1.50		N/A			100.00	x 4.00		1.4	100.60	107.60
						91.00	x 2.00		1.4	91.30	94.70	100.00	x 5.00		1.8	100.60	109.80
83.00	x 1.00		N/A			91.00	x 2.50		1.4	91.40	95.60	100.00	x 5.34	622	1.8	100.64	110.16
83.00	x 1.50		N/A			91.00	x 4.00		1.4	91.60	98.60	100.97	x 5.34	345	1.8	101.61	111.13
83.00	x 2.00		1.4	83.30	86.70	91.00	x 5.00		1.8	91.60	100.80				N/A		
83.00	x 2.50		1.4	83.40	87.60	91.44	x 5.34	342	1.8	92.08	101.60	101.00	x 2.50		1.4	101.40	105.60
83.00	x 4.00		1.4	83.60	90.60	91.67	x 3.53	239	1.4	92.08	98.43	101.00	x 4.00		1.4	101.60	108.60
83.00	x 5.00		1.8	83.60	92.80	91.70	x 1.78	536	1.4	91.98	95.15	101.00	x 5.00		1.8	101.60	110.80
83.34	x 1.78	534	1.4	83.62	86.79							101.20	x 3.53	242	1.4	101.61	107.96
83.80	x 2.62	643	1.4	84.13	88.89	92.00	x 1.50		N/A			101.28	x 2.62	155	1.4	101.61	106.37
						92.00	x 2.00		1.4	92.30	95.70	101.34	x 1.78	045	1.4	101.62	104.79
84.00	x 1.00		N/A			92.00	x 2.50		1.4	92.40	96.60				N/A		
84.00	x 1.50		N/A			92.00	x 4.00		1.4	92.60	99.60	102.00	x 2.50		1.4	102.40	106.60
84.00	x 2.00		1.4	84.30	87.70	92.00	x 5.00		1.8	92.60	101.80	102.00	x 4.00		1.4	102.60	109.60
84.00	x 2.50		1.4	84.40	88.60							102.00	x 5.00		1.8	102.60	111.80
84.00	x 4.00		1.4	84.60	91.60	93.00	x 1.50		N/A						N/A		
84.00	x 5.00		1.8	84.60	93.80	93.00	x 2.00		1.4	93.30	96.70	103.00	x 2.50		1.4	103.40	107.60
84.30	x 5.70		1.8	85.00	95.00	93.00	x 2.50		1.4	93.40	97.60	103.00	x 4.00		1.4	103.60	110.60
84.50	x 3.00		1.4	85.00	90.00	93.00	x 4.00		1.4	93.60	100.60	103.00	x 5.00		1.8	103.60	112.80
						93.00	x 5.00		1.8	93.60	102.80				N/A		
85.00	x 1.00		N/A									104.00	x 2.50		1.4	104.40	108.60
85.00	x 1.50		N/A			94.00	x 1.50		N/A			104.00	x 4.00		1.4	104.60	111.60
85.00	x 2.00		1.4	85.30	88.70	94.00	x 2.00		1.4	94.30	97.70	104.00	x 5.00		1.8	104.60	113.80
85.00	x 2.50		1.4	85.40	89.60	94.00	x 2.50		1.4	94.40	98.60	104.14	x 5.34	346	1.8	104.78	114.30
85.00	x 4.00		1.4	85.60	92.60	94.00	x 4.00		1.4	94.60	101.60	104.30	x 5.70		1.8	105.00	115.00
85.00	x 5.00		1.8	85.60	94.80	94.00	x 5.00		1.8	94.60	103.80	104.37	x 3.53	243	1.4	104.78	111.13
85.10	x 5.34	340	1.8	85.74	95.26	94.30	x 5.70		1.8	95.00	105.00	104.40	x 1.78	540	1.4	104.68	107.85
85.32	x 3.53	237	1.4	85.73	92.08	94.50	x 3.00		1.4	95.00	100.00	104.50	x 3.00		1.4	105.00	110.00
						94.62	x 5.34	343	1.8	95.26	104.78				N/A		
86.00	x 1.00		N/A			94.84	x 3.53	240	1.4	95.25	101.60	105.00	x 2.50		1.4	105.40	109.60
86.00	x 1.50		N/A			94.93	x 2.62	154	1.4	95.26	100.02	105.00	x 4.00		1.4	105.60	112.60

O-Ring			Back-Up Ring			O-Ring			Back-Up Ring			O-Ring			Back-Up Ring					
Æ	Inner	Section	B.S. Ref	Thk	ID	OD	Æ	Inner	Section	B.S. Ref	Thk	ID	OD	Æ	Inner	Section	B.S. Ref	Thk	ID	OD
	05.00x	5.00		1.8	105.60	114.80		117.48x	5.34	860	1.8	118.12	127.64		129.40x	1.78	548	1.4	129.68	132.85
															129.50x	3.00		1.4	130.00	135.00
	06.00x	2.50		1.4	106.40	110.60		118.00x	2.50		1.4	118.40	122.60		129.54x	5.34	654	1.8	130.18	139.70
	06.00x	4.00		1.4	106.60	113.60		118.00x	4.00		1.4	118.60	125.60		129.54x	6.99	430	2.6	130.18	142.88
	06.00x	5.00		1.8	106.60	115.80		118.00x	5.00		1.8	118.60	127.80		129.77x	3.53	251	1.4	130.18	136.53
	07.00x	2.50		1.4	107.40	111.60		119.00x	2.50		1.4	119.40	123.60		130.00x	2.50		1.4	130.40	134.60
	07.00x	4.00		1.4	107.60	114.60		119.00x	4.00		1.4	119.60	126.60		130.00x	4.00		1.4	130.60	137.60
	07.00x	5.00		1.8	107.60	116.80		119.00x	5.00		1.8	119.60	128.80		130.00x	5.00		1.8	130.60	139.80
	07.32x	5.34	347	1.8	107.96	117.48		119.50x	3.00		1.4	120.00	125.00		130.18x	5.34	864	1.8	130.82	140.34
	07.54x	3.53	244	1.4	107.95	114.30					1.4	120.40	124.60		131.00x	2.50		1.4	131.40	135.60
	07.63x	2.62	156	1.4	107.96	112.72		120.00x	4.00		1.4	120.60	127.60		131.00x	4.00		1.4	131.60	138.60
	07.70x	1.78	046	1.4	107.98	111.15		120.00x	5.00		1.8	120.60	129.80		131.00x	5.00		1.8	131.60	140.80
	08.00x	2.50		1.4	108.40	112.60		120.02x	5.34	351	1.8	120.66	130.18					1.4	132.40	136.60
	08.00x	4.00		1.4	108.60	115.60		120.02x	6.99	427	2.6	120.66	133.36		132.00x	2.50		1.4	132.40	136.60
	08.00x	5.00		1.8	108.60	117.80		120.24x	3.53	248	1.4	120.65	127.00		132.00x	4.00		1.4	132.60	139.60
	09.00x	2.50		1.4	109.40	113.60		120.33x	2.62	158	1.4	120.66	125.42		132.00x	5.00		1.8	132.60	141.80
	09.00x	4.00		1.4	109.60	116.60		120.40x	1.78	048	1.4	120.68	123.85		132.72x	5.34	355	1.8	133.36	142.88
	09.00x	5.00		1.8	109.60	118.80		120.65x	5.34	861	1.8	121.29	130.81		132.72x	6.99	431	2.6	133.36	146.06
	09.30x	5.70		1.8	110.00	120.00		121.00x	2.50		1.4	121.40	125.60		132.94x	3.53	252	1.4	133.35	139.70
	09.50x	3.00		1.4	110.00	115.00		121.00x	4.00		1.4	121.60	128.60		133.00x	2.50		1.4	133.40	137.60
	09.54x	5.34	623	1.8	110.18	119.70		121.00x	5.00		1.8	121.60	130.80		133.00x	2.62	160	1.4	133.33	138.09
														133.00x	4.00			1.4	133.60	140.60
	10.00x	2.50		1.4	110.40	114.60		122.00x	2.50		1.4	122.40	126.60		133.00x	5.00		1.8	133.60	142.80
	10.00x	4.00		1.4	110.60	117.60		122.00x	4.00		1.4	122.60	129.60		133.10x	1.78	050	1.4	133.38	136.55
	10.00x	5.00		1.8	110.60	119.80		122.00x	5.00		1.8	122.60	131.80		133.35x	5.34	865	1.8	133.99	143.51
	10.50x	5.34	348	1.8	111.14	120.66														
	10.72x	3.53	245	1.4	111.13	117.48		123.00x	2.50		1.4	123.40	127.60		134.00x	2.50		1.4	134.40	138.60
	10.74x	1.78	542	1.4	111.02	114.19		123.00x	4.00		1.4	123.60	130.60		134.00x	4.00		1.4	134.60	141.60
								123.00x	5.00		1.8	123.60	132.80		134.00x	5.00		1.8	134.60	143.80
	11.00x	2.50		1.4	111.40	115.60		123.20x	5.34	352	1.8	123.84	133.36		134.30x	5.70		1.8	135.00	145.00
	11.00x	4.00		1.4	111.60	118.60		123.20x	6.99	428	2.6	123.84	136.54		134.50x	3.00		1.4	135.00	140.00
	11.00x	5.00		1.8	111.60	120.80		123.42x	3.53	249	1.4	123.83	130.18		134.50x	6.99	626	2.6	135.14	147.84
								123.44x	1.78	546	1.4	123.72	126.89							
	12.00x	2.50		1.4	112.40	116.60		123.83x	5.34	862	1.8	124.47	133.99		135.00x	2.50		1.4	135.40	139.60
	12.00x	4.00		1.4	112.60	119.60								135.00x	4.00			1.4	135.60	142.60
	12.00x	5.00		1.8	112.60	121.80		124.00x	2.50		1.4	124.40	128.60		135.00x	5.00		1.8	135.60	144.80
								124.00x	4.00		1.4	124.60	131.60		135.76x	1.78	550	1.4	136.04	139.21
	13.00x	2.50		1.4	113.40	117.60		124.00x	5.00		1.8	124.60	133.80		135.90x	5.34	356	1.8	136.54	146.06
	13.00x	4.00		1.4	113.60	120.60		124.30x	5.70		1.8	125.00	135.00		135.90x	6.99	432	2.6	136.54	149.24
	13.00x	5.00		1.8	113.60	122.80		124.50x	3.00		1.4	125.00	130.00		136.00x	2.50		1.4	136.40	140.60
	13.67x	5.34	349	1.8	114.31	123.83		124.60x	6.99	625	2.6	125.24	137.94		136.00x	4.00		1.4	136.60	143.60
	13.67x	6.99	425	2.6	114.31	127.01								136.00x	5.00			1.8	136.60	145.80
	13.90x	3.53	246	1.4	114.31	120.66		125.00x	2.50		1.4	125.40	129.60		136.12x	3.53	253	1.4	136.53	142.88
	13.98x	2.62	157	1.4	114.31	119.07		125.00x	4.00		1.4	125.60	132.60		136.53x	5.34	866	1.8	137.17	146.69
								125.00x	5.00		1.8	125.60	134.80							
	14.00x	1.78	047	1.4	114.28	117.45								137.00x	2.50			1.4	137.40	141.60
	14.00x	2.50		1.4	114.40	118.60		126.00x	2.50		1.4	126.40	130.60		137.00x	4.00		1.4	137.60	144.60
	14.00x	4.00		1.4	114.60	121.60		126.00x	4.00		1.4	126.60	133.60		137.00x	5.00		1.8	137.60	146.80
	14.00x	5.00		1.8	114.60	123.80		126.00x	5.00		1.8	126.60	135.80							
	14.30x	5.70		1.8	115.00	125.00		126.37x	5.34	353	1.8	127.01	136.53		138.00x	2.50		1.4	138.40	142.60
	14.50x	3.00		1.4	115.00	120.00		126.37x	6.99	429	2.6	127.01	139.71		138.00x	4.00		1.4	138.60	145.60
	14.70x	6.99	624	2.6	115.34	128.04		126.60x	3.53	250	1.4	127.01	133.36		138.00x	5.00		1.8	138.60	147.80
								126.67x	2.62	159	1.4	127.00	131.76		138.94x	1.78	551	1.4	139.22	142.39
	15.00x	2.50		1.4	115.40	119.60		126.76x	1.78	049	1.4	127.04	130.21							
	15.00x	4.00		1.4	115.60	122.60								139.00x	2.50			1.4	139.40	143.60
	15.00x	5.00		1.8	115.60	124.80		127.00x	2.50		1.4	127.40	131.60		139.00x	4.00		1.4	139.60	146.60
	16.00x	2.50		1.4	116.40	120.60		127.00x	4.00		1.4	127.60	134.60		139.00x	5.00		1.8	139.60	148.80
								127.00x	5.00		1.8	127.60	136.80		139.07x	5.34	357	1.8	139.71	149.23
	16.00x	4.00		1.4	116.60	123.60		127.00x	5.34	863	1.8	127.64	137.16		139.07x	6.99	433	2.6	139.71	152.41
	16.00x	5.00		1.8	116.60	125.80								139.30x	3.53	254		1.4	139.71	146.06
	16.84x	5.34	350	1.8	117.48	127.00		128.00x	2.50		1.4	128.40	132.60							





O-Ring			Back-Up Ring			O-Ring			Back-Up Ring			O-Ring			Back-Up Ring					
Æ	Inner	Section	B.S. Ref	Thk	ID	OD	Æ	Inner	Section	B.S. Ref	Thk	ID	OD	Æ	Inner	Section	B.S. Ref	Thk	ID	OD
239.10x	8.40			2.6	240.00	255.00	262.00x	5.00			1.8	262.60	271.80	290.00x	4.00			1.4	290.60	297.60
239.30x	5.70			1.8	240.00	250.00	263.00x	4.00			1.4	263.60	270.60	290.00x	5.00			1.8	290.60	299.80
239.50x	3.00			1.4	240.00	245.00	263.00x	5.00			1.8	263.60	272.80	291.00x	4.00			1.4	291.60	298.60
							264.00x	4.00			1.4	264.60	271.60	291.00x	5.00			1.8	291.60	300.80
							264.00x	5.00			1.8	264.60	273.80	291.47x	5.34	380		1.8	292.11	301.63
240.00x	4.00			1.4	240.60	247.60								291.47x	6.99	452		2.6	292.11	304.81
240.00x	5.00			1.8	240.60	249.80	265.00x	4.00			1.4	265.60	272.60	291.70x	3.53	277		1.4	292.11	298.46
240.67x	5.34	375		1.8	241.31	250.83	265.00x	5.00			1.8	265.60	274.80	292.00x	4.00			1.4	292.60	299.60
240.67x	6.99	448		2.6	241.31	254.01	266.00x	4.00			1.4	266.60	273.60	292.00x	5.00			1.8	292.60	301.80
240.90x	3.53	272		1.4	241.31	247.66	266.00x	5.00			1.8	266.60	275.80	293.00x	4.00			1.4	293.60	300.60
240.98x	2.62	177		1.4	241.31	246.07	266.07x	5.34	378		1.8	266.71	276.23	293.00x	5.00			1.8	293.60	302.80
241.00x	4.00			1.4	241.60	248.60	266.07x	6.99	450		2.6	266.71	279.41	294.00x	4.00			1.4	294.60	301.60
241.00x	5.00			1.8	241.60	250.80	266.30x	3.53	275		1.4	266.71	273.06	294.00x	5.00			1.8	294.60	303.80
242.00x	4.00			1.4	242.60	249.60	267.00x	4.00			1.4	267.60	274.60							
242.00x	5.00			1.8	242.60	251.80	267.00x	5.00			1.8	267.60	276.80							
243.00x	4.00			1.4	243.60	250.60	268.00x	4.00			1.4	268.60	275.60	295.00x	4.00			1.4	295.60	302.60
243.00x	5.00			1.8	243.60	252.80	268.00x	5.00			1.8	268.60	277.80	295.00x	5.00			1.8	295.60	304.80
244.00x	4.00			1.4	244.60	251.60	269.00x	4.00			1.4	269.60	276.60	296.00x	4.00			1.4	296.60	303.60
244.00x	5.00			1.8	244.60	253.80	269.00x	5.00			1.8	269.60	278.80	296.00x	5.00			1.8	296.60	305.80
							269.30x	5.70			1.8	270.00	280.00	297.00x	4.00			1.4	297.60	304.60
														297.00x	5.00			1.8	297.60	306.80
245.00x	4.00			1.4	245.60	252.60	270.00x	4.00			1.4	270.60	277.60	297.80x	6.99	688		2.6	298.44	311.14
245.00x	5.00			1.8	245.60	254.80	270.00x	5.00			1.8	270.60	279.80	298.00x	4.00			1.4	298.60	305.60
246.00x	4.00			1.4	246.60	253.60	271.00x	4.00			1.4	271.60	278.60	298.00x	5.00			1.8	298.60	307.80
246.00x	5.00			1.8	246.60	255.80	271.00x	5.00			1.8	271.60	280.80	299.00x	4.00			1.4	299.60	306.60
247.00x	4.00			1.4	247.60	254.60	271.00x	5.00			1.4	271.60	280.80	299.00x	5.00			1.8	299.60	308.80
247.00x	5.00			1.8	247.60	256.80	272.00x	4.00			1.4	272.60	279.60	299.30x	5.70			1.8	300.00	310.00
247.00x	6.99	680		2.6	247.64	260.34	272.00x	5.00			1.8	272.60	281.80							
247.02x	5.34	376		1.8	247.66	257.18	272.40x	6.99	684		2.6	273.04	285.74							
247.25x	3.53	273		1.4	247.66	254.01	273.00x	4.00			1.4	273.60	280.60	300.00x	4.00			1.4	300.60	307.60
247.33x	2.62	178		1.4	247.66	252.42	273.00x	5.00			1.8	273.60	282.80	300.00x	5.00			1.8	300.60	309.80
248.00x	4.00			1.4	248.60	255.60	274.00x	4.00			1.4	274.60	281.60	301.00x	4.00			1.4	301.60	308.60
248.00x	5.00			1.8	248.60	257.80	274.00x	5.00			1.8	274.60	283.80	301.00x	5.00			1.8	301.60	310.80
249.00x	4.00			1.4	249.60	256.60								302.00x	4.00			1.4	302.60	309.60
249.00x	5.00			1.8	249.60	258.80	275.00x	4.00			1.4	275.60	282.60	302.00x	5.00			1.8	302.60	311.80
249.10x	8.40			2.6	250.00	265.00	275.00x	5.00			1.8	275.60	284.80	303.00x	4.00			1.4	303.60	310.60
249.30x	5.70			1.8	250.00	260.00	276.00x	4.00			1.4	276.60	283.60	303.00x	5.00			1.8	303.60	312.80
249.50x	3.00			1.4	250.00	255.00	276.00x	5.00			1.8	276.60	285.80							
							277.00x	4.00			1.4	277.60	284.60	304.00x	4.00			1.4	304.60	311.60
250.00x	4.00			1.4	250.60	257.60	277.00x	5.00			1.8	277.60	286.80	304.00x	5.00			1.8	304.60	313.80
250.00x	5.00			1.8	250.60	259.80	278.00x	4.00			1.4	278.60	285.60	304.17x	5.34	381		1.8	304.81	314.33
251.00x	4.00			1.4	251.60	258.60	278.00x	5.00			1.8	278.60	287.80	304.17x	6.99	453		2.6	304.81	317.51
251.00x	5.00			1.8	251.60	260.80	278.77x	5.34	379		1.8	279.41	288.93	304.40x	3.53	278		1.4	304.81	311.16
252.00x	4.00			1.4	252.60	259.60	278.77x	6.99	451		2.6	279.41	292.11							
252.00x	5.00			1.8	252.60	261.80	279.00x	3.53	276		1.4	279.41	285.76	305.00x	4.00			1.4	305.60	312.60
							279.00x	4.00			1.4	279.60	286.60	305.00x	5.00			1.8	305.60	314.80
							279.00x	5.00			1.8	279.60	288.80	306.00x	4.00			1.4	306.60	313.60
253.00x	4.00			1.4	253.60	260.60	279.30x	5.70			1.8	280.00	290.00	306.00x	5.00			1.8	306.60	315.80
253.00x	5.00			1.8	253.60	262.80								307.00x	4.00			1.4	307.60	314.60
253.37x	5.34	377		1.8	254.01	263.53	280.00x	4.00			1.4	280.60	287.60	307.00x	5.00			1.8	307.60	316.80
253.57x	6.99	449		2.6	254.21	266.91	280.00x	5.00			1.8	280.60	289.80	308.00x	4.00			1.4	308.60	315.60
253.60x	3.53	274		1.4	254.01	260.36	281.00x	4.00			1.4	281.60	288.60	308.00x	5.00			1.8	308.60	317.80
							281.00x	5.00			1.8	281.60	290.80	309.00x	4.00			1.4	309.60	316.60
254.00x	4.00			1.4	254.60	261.60	282.00x	4.00			1.4	282.60	289.60	309.00x	5.00			1.8	309.60	318.80
254.00x	5.00			1.8	254.60	263.80	282.00x	5.00			1.8	282.60	291.80							
255.00x	4.00			1.4	255.60	262.60	283.00x	4.00			1.4	283.60	290.60	310.00x	4.00			1.4	310.60	317.60
255.00x	5.00			1.8	255.60	264.80	283.00x	5.00			1.8	283.60	292.80	310.00x	5.00			1.8	310.60	319.80
256.00x	4.00			1.4	256.60	263.60	284.00x	4.00			1.4	284.60	291.60	310.50x	6.99	648		2.6	311.14	323.84
256.00x	5.00			1.8	256.60	265.80	284.00x	5.00			1.8	284.60	293.80	311.00x	4.00			1.4	311.60	318.60
257.00x	4.00			1.4	257.60	264.60								311.00x	5.00			1.8	311.60	320.80
257.00x	5.00			1.8	257.60	266.80	285.00x	4.00			1.4	285.60	292.60	312.00x	4.00			1.4	312.60	319.60
258.00x	4.00			1.4	258.60	265.60	285.00x	5.00			1.8	285.60	294.80	312.00x	5.00			1.8	312.60	321.80
258.00x	5.00			1.8	258.60	267.80	285.10x	6.99	686		2.6	285.74	298.44	313.00x	4.00			1.4	313.60	320.60
259.00x	4.00			1.4	259.60	266.60	286.00x	4.00			1.4	286.60	293.60	313.00x	5.00			1.8	313.60	322.80
259.00x	5.00			1.8	259.60	268.80	286.00x	5.00			1.8	286.60	295.80	314.00x	4.00			1.4	314.60	321.60
259.30x	5.70			1.8	260.00	270.00	287.00x	4.00			1.4	287.60	294.60	314.00x	5.00			1.8	314.60	323.80
259.70x	6.99	682		2.6	260.34	273.04	287.00x	5.00			1.8	287.60	296.80							
							288.00x	4.00			1.4	288.60	295.60	315.00x	4.00			1.4	315.60	322.60
260.00x	4.00			1.4	260.60	267.60	288.00x	5.00			1.8	288.60	297.80	315						



