

PTFE Back-Up Rings

Design

This range of products is designed to overcome the problems of 'O'-Ring extrusion when the system pressures are greater than the sealing capabilities of an unsupported 'O'-Ring. The use of P.T.F.E. for anti-extrusion rings has many advantages over 'hard rubber' materials, particularly at high system pressures. The cold flow characteristics of PTFE are used to full advantage in reducing the extrusion gaps to a minimum and allowing automatic compensation for wear. The capability of specialist compounding to suit extremes of duty combined with a high resistance to virtually all chemicals, low friction and wear rates render PTFE as the ideal material for anti-extrusion devices.

Variations

Spiral



The spiral back up ring is the most common style in use being effectively self adjusting to diametral tolerances. Spiral back up rings are manufactured from virgin PTFE only.

Manufactured to suit O-Rings to BS1806, BS4518, JISB2401, JW17000, MS28782 standards

Order as part number shown on table.e.g. BS 210 or as below...

BS1806 ... BS006	JISB2401 ... JISP003
BS4518 ... BS0031-16	JW17000 ... SJWI7001
MS28782 ... MS28782-001	

Endless



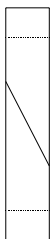
The endless back up ring is used where problems can occur with the rotation of a screwed endcaps which on assembly could cause a spiral type to unwind. Endless back up rings are normally manufactured from virgin PTFE.

Manufactured to suit O-Rings to BS1806, BS4518, JISB2401, MS27595 standards.

Order as part number shown on the table with suffix E, e.g. BS 210/E or as below...

BS1806 ... BS006/E	BS4518 ... BS0031-16/E
JISB2401... JISP003/E	MS27595 ... MS27595-004

Endless Split



The endless split back up ring is manufactured as the endless style but is split at 30° to facilitate ease of assembly in certain applications. Endless split back up rings are normally manufactured from virgin PTFE.

Manufactured to suit O-Rings to BS1806, BS4518, JISB2401, MS28774, AS8791/1 standards.

Order as part number shown on the table with the suffix ES, e.g. BS 210/ES or as below...

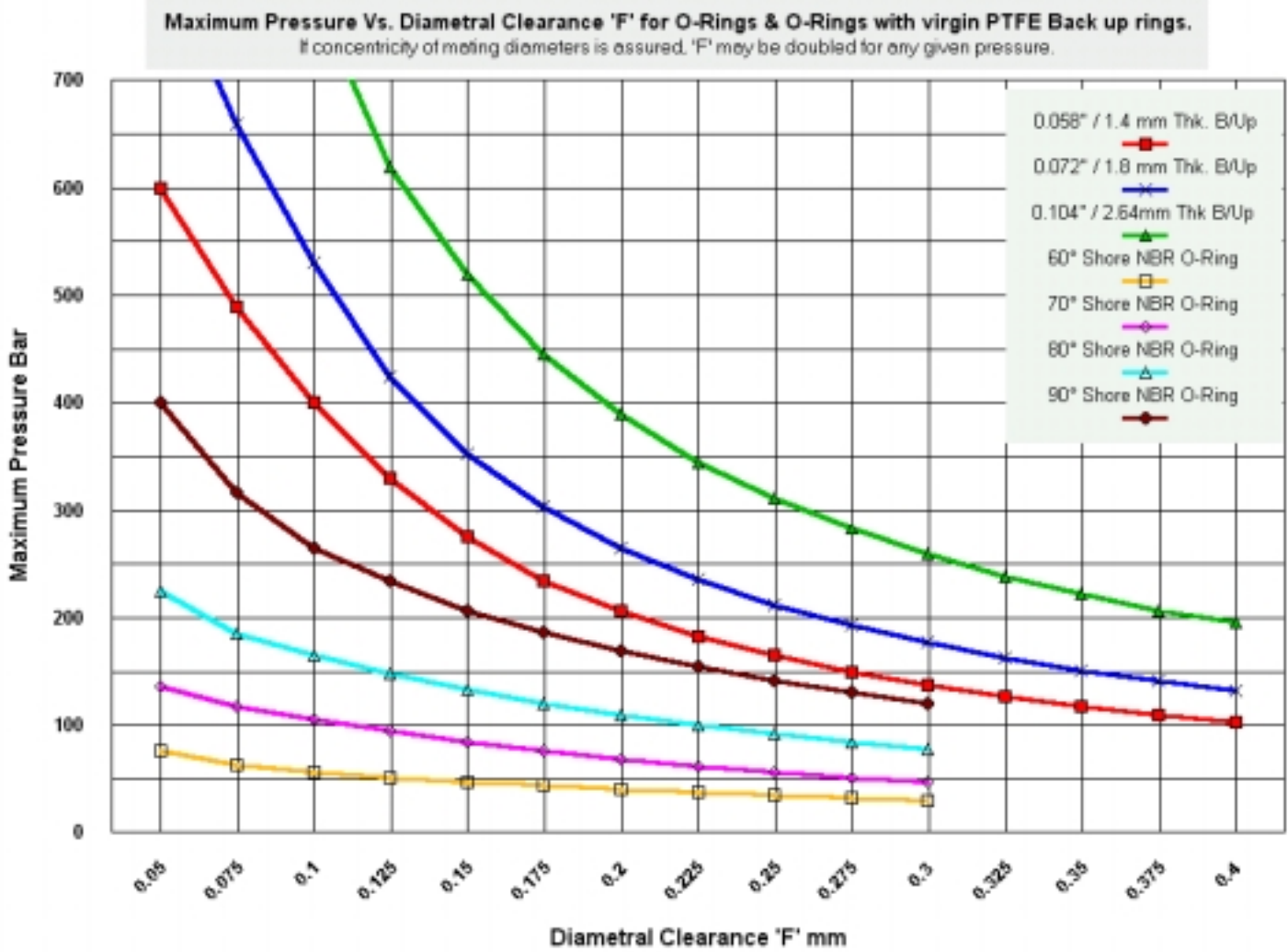
BS1806 ... BS006/ES	BS4518 ... BS0031-16/ES
JISB2401 ... JISP003/ES	MS28774 ... MS28774-004/ES
AS8791/1 ... M8791-004/ES	

Materials

All the above can be supplied in a variety of PTFE materials including Virgin PTFE, Glass Filled PTFE and material specifications to MIL-R-8791/1.

The **Endless** and **Endless Split** Styles can also be supplied in Acetal, Nylon and Peek materials along with a variety of other filled PTFE grades such as Carbon and Bronze.

Operating Conditions



Where O-Rings are used in dynamic applications, an anti-extrusion ring is recommended for pressures >100bar and temperatures >100°C.

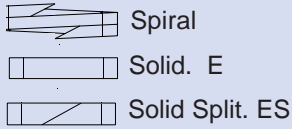
Housing groove dimensions for 'O'-Rings to BS1806 and BS4518 fitted with back-up rings in Dynamic and Static diametral applications.
 Tables 1 & 2 refer to the housing drawings.

IMPERIAL								
Housing groove dimensions for O-Rings to BS1806 fitted with back-up rings in Dynamic & Static diametral applications.								
O-Ring Section	Radial Width 'S'		Groove Width L_1				Radius 'R1' Max.	Cham. 'C' Min.
			One back-up ring		Two back-up rings			
	Max.	Min.	Max.	Min.	Max.	Min.		
0.070"	0.062"	0.060"	0.152"	0.147"	0.210"	0.205"	0.030"	0.085"
0.103"	0.094"	0.091"	0.199"	0.194"	0.257"	0.252"	0.030"	0.097"
0.139"	0.125"	0.122"	0.247"	0.241"	0.305"	0.299"	0.030"	0.103"
0.210"	0.188"	0.184"	0.355"	0.348"	0.427"	0.420"	0.030"	0.156"
0.275"	0.250"	0.245"	0.480"	0.473"	0.582"	0.576"	0.030"	0.187"

Table 1

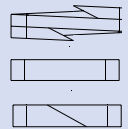
METRIC								
Housing groove dimensions for O-Rings to BS4518 fitted with back-up rings in Dynamic & Static diametral applications.								
O-Ring Section	Radial Width 'S'		Groove Width L_1				Radius 'R1' Max.	Chamf. 'C' Min.
			One back-up ring		Two back-up rings			
	Max.	Min.	Max.	Min.	Max.	Min.		
1.6 mm	1.3 mm	1.25 mm	4.0 mm	3.8 mm	5.4 mm	5.2 mm	0.5 mm	2.2 mm
2.4 mm	2.09 mm	1.97 mm	4.8 mm	4.6 mm	6.2 mm	6.0 mm	0.5 mm	2.2 mm
3.0 mm	2.65 mm	2.50 mm	5.6 mm	5.4 mm	7.0 mm	6.8 mm	1.0 mm	2.6 mm
5.7 mm	5.18 mm	4.95 mm	9.5 mm	9.3 mm	11.3 mm	11.1 mm	1.0 mm	3.7 mm

Table 2



PTFE Back-Up Rings
To Suit O-Rings to BS 1806

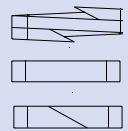
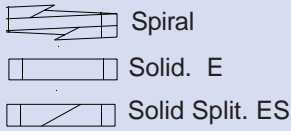
Imperial



Claron Part Number	Nominal Dimensions				O-Ring Section	Claron Part Number	Nominal Dimensions				O-Ring Section
	Ød ₁	ØD ₁	T				Ød ₁	ØD ₁	T		
BS 005	0.109	0.234				BS 113	0.562	0.750			
BS 006	0.125	0.250				BS 114	0.625	0.812			
BS 007	0.156	0.281				BS 115	0.687	0.875			
BS 008	0.187	0.312				BS 116	0.750	0.937			
BS 009	0.219	0.344				BS 117	0.812	1.000			
BS 010	0.250	0.375				BS 118	0.875	1.062			
BS 011	0.312	0.437				BS 119	0.937	1.125			
BS 012	0.375	0.500				BS 120	1.000	1.187			
BS 013	0.437	0.562				BS 121	1.062	1.250			
BS 014	0.500	0.625				BS 122	1.125	1.312			
BS 015	0.562	0.687				BS 123	1.187	1.375			
BS 016	0.625	0.750				BS 124	1.250	1.437			
BS 017	0.687	0.812				BS 125	1.312	1.500			
BS 018	0.750	0.875				BS 126	1.375	1.562			
BS 019	0.812	0.937				BS 127	1.437	1.625			
BS 020	0.875	1.000				BS 128	1.500	1.687			
BS 021	0.937	1.062				BS 129	1.562	1.750			
BS 022	1.000	1.125				BS 130	1.625	1.812			
BS 023	1.062	1.187				BS 131	1.687	1.875			
BS 024	1.125	1.250				BS 132	1.750	1.937			
BS 025	1.187	1.312				BS 133	1.812	2.000			
BS 026	1.250	1.375				BS 134	1.875	2.062	0.050		
BS 027	1.312	1.437	0.050			BS 135	1.937	2.125	to		
BS 028	1.375	1.500	to	0.070		BS 136	2.000	2.187	0.058	0.103	
BS 029	1.500	1.625	0.058			BS 137	2.062	2.250			
BS 030	1.625	1.750				BS 138	2.125	2.312			
BS 031	1.750	1.875				BS 139	2.187	2.375			
BS 032	1.875	2.000				BS 140	2.250	2.437			
BS 033	2.000	2.125				BS 141	2.312	2.500			
BS 034	2.125	2.250				BS 142	2.375	2.562			
BS 035	2.250	2.375				BS 143	2.437	2.625			
BS 036	2.375	2.500				BS 144	2.500	2.687			
BS 037	2.500	2.625				BS 145	2.562	2.750			
BS 038	2.625	2.750				BS 146	2.625	2.812			
BS 039	2.750	2.875				BS 147	2.687	2.875			
BS 040	2.875	3.000				BS 148	2.750	2.937			
BS 041	3.000	3.125				BS 149	2.812	3.000			
BS 042	3.250	3.375				BS 150	2.875	3.062			
BS 043	3.500	3.625				BS 151	3.000	3.187			
BS 044	3.750	3.875				BS 152	3.250	3.437			
BS 045	4.000	4.125				BS 153	3.500	3.687			
BS 046	4.250	4.375				BS 154	3.750	3.937			
BS 047	4.500	4.625				BS 155	4.000	4.187			
BS 048	4.750	4.875				BS 156	4.250	4.437			
BS 049	5.000	5.125				BS 157	4.500	4.687			
BS 050	5.250	5.375				BS 158	4.750	4.937			
BS 108	0.250	0.437				BS 159	5.000	5.187			
BS 109	0.312	0.500	0.050			BS 160	5.250	5.437			
BS 110	0.375	0.562	to	0.103		BS 161	5.500	5.687			
BS 111	0.437	0.625	0.058			BS 162	5.750	5.937			
BS 112	0.500	0.687									

PTFE Back-Up Rings
To Suit O-Rings to BS 1806

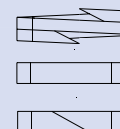
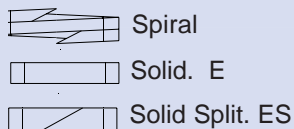
Imperial



Claron Part Number	Nominal Dimensions				Claron Part Number	Nominal Dimensions			
	Ød ₁	ØD ₁	T	O-Ring Section		Ød ₁	ØD ₁	T	O-Ring Section
BS 206	0.500	0.750			BS 256	5.750	6.000		
BS 207	0.562	0.812			BS 257	5.875	6.125		
BS 208	0.625	0.875			BS 258	6.000	6.250		
BS 209	0.687	0.937			BS 259	6.250	6.500		
BS 210	0.750	1.000			BS 260	6.500	6.750		
BS 211	0.812	1.062			BS 261	6.750	7.000		
BS 212	0.875	1.125			BS 262	7.000	7.250		
BS 213	0.937	1.187			BS 263	7.250	7.500		
BS 214	1.000	1.250			BS 264	7.500	7.750		
BS 215	1.062	1.312			BS 265	7.750	8.000		
BS 216	1.125	1.375			BS 266	8.000	8.250		
BS 217	1.187	1.437			BS 267	8.250	8.500		
BS 218	1.250	1.500			BS 268	8.500	8.750		
BS 219	1.312	1.562			BS 269	8.750	9.000		
BS 220	1.375	1.625			BS 270	9.000	9.250	0.050 to 0.058	0.139
BS 221	1.437	1.687			BS 271	9.250	9.500		
BS 222	1.500	1.750			BS 272	9.500	9.750		
BS 223	1.625	1.875			BS 273	9.750	10.000		
BS 224	1.750	2.000			BS 274	10.000	10.250		
BS 225	1.875	2.125			BS 275	10.500	10.750		
BS 226	2.000	2.250			BS 276	11.000	11.250		
BS 227	2.125	2.375			BS 277	11.500	11.750		
BS 228	2.250	2.500	0.050 to 0.058	0.139	BS 278	12.000	12.250		
BS 229	2.375	2.625			BS 279	13.000	13.250		
BS 230	2.500	2.750			BS 280	14.000	14.250		
BS 231	2.625	2.875			BS 281	15.000	15.250		
BS 232	2.750	3.000			BS 282	16.000	16.250		
BS 233	2.875	3.125			BS 283	17.000	17.250		
BS 234	3.000	3.250			BS 284	18.000	18.250		
BS 235	3.125	3.375							
BS 236	3.250	3.500			BS 314	0.750	1.125		
BS 237	3.375	3.625			BS 315	0.812	1.187		
BS 238	3.500	3.750			BS 316	0.875	1.250		
BS 239	3.625	3.875			BS 317	0.937	1.312		
BS 240	3.750	4.000			BS 318	1.000	1.375		
BS 241	3.875	4.125			BS 319	1.062	1.437		
BS 242	4.000	4.250			BS 320	1.125	1.500		
BS 243	4.125	4.375			BS 321	1.187	1.562		
BS 244	4.250	4.500			BS 322	1.250	1.625		
BS 245	4.375	4.625			BS 323	1.312	1.687		
BS 246	4.500	4.750			BS 324	1.375	1.750		
BS 247	4.625	4.875			BS 325	1.500	1.875	0.062 to 0.072	0.210
BS 248	4.750	5.000			BS 326	1.625	2.000		
BS 249	4.875	5.125			BS 327	1.750	2.125		
BS 250	5.000	5.250			BS 328	1.875	2.250		
BS 251	5.125	5.375			BS 329	2.000	2.375		
BS 252	5.250	5.500			BS 330	2.125	2.500		
BS 253	5.375	5.625			BS 331	2.250	2.625		
BS 254	5.500	5.750			BS 332	2.375	2.750		
BS 255	5.625	5.875			BS 333	2.500	2.875		
					BS 334	2.625	3.000		
					BS 335	2.750	3.125		
					BS 336	2.875	3.250		

PTFE Back-Up Rings
To Suit O-Rings to BS 1806

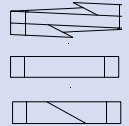
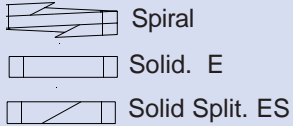
Imperial



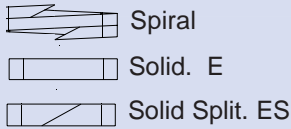
Claron Part Number	Nominal Dimensions				Claron Part Number	Nominal Dimensions			
	Ød ₁	ØD ₁	T	O-Ring Section		Ød ₁	ØD ₁	T	O-Ring Section
BS 337	3.000	3.375			BS 425	4.500	5.000		
BS 338	3.125	3.500			BS 426	4.625	5.125		
BS 339	3.250	3.625			BS 427	4.750	5.250		
BS 340	3.375	3.750			BS 428	4.875	5.375		
BS 341	3.500	3.875			BS 429	5.000	5.500		
BS 342	3.625	4.000			BS 430	5.125	5.625		
BS 343	3.750	4.125			BS 431	5.250	5.750		
BS 344	3.875	4.250			BS 432	5.375	5.875		
BS 345	4.000	4.375			BS 433	5.500	6.000		
BS 346	4.125	4.500			BS 434	5.625	6.125		
BS 347	4.250	4.625			BS 435	5.750	6.250		
BS 348	4.375	4.750			BS 436	5.875	6.375		
BS 349	4.500	4.875			BS 437	6.000	6.500		
BS 350	4.625	5.000			BS 438	6.250	6.750		
BS 351	4.750	5.125			BS 439	6.500	7.000		
BS 352	4.875	5.250			BS 440	6.750	7.250		
BS 353	5.000	5.375			BS 441	7.000	7.500		
BS 354	5.125	5.500			BS 442	7.250	7.750		
BS 355	5.250	5.625			BS 443	7.500	8.000		
BS 356	5.375	5.750			BS 444	7.750	8.250		
BS 357	5.500	5.875			BS 445	8.000	8.500		
BS 358	5.625	6.000			BS 445A	8.250	8.750		
BS 359	5.750	6.125			BS 446	8.500	9.000		
BS 360	5.875	6.250			BS 446A	8.750	9.250		
BS 361	6.000	6.375			BS 447	9.000	9.500		
BS 362	6.250	6.625	0.062		BS 447A	9.250	9.750	0.092	
BS 363	6.500	6.875	to	0.210	BS 448	9.500	10.000	to	0.275
BS 364	6.750	7.125	0.072		BS 448A	9.750	10.250	0.104	
BS 365	7.000	7.375			BS 449	10.000	10.500		
BS 366	7.250	7.625			BS 449A	10.250	10.750		
BS 367	7.500	7.875			BS 450	10.500	11.000		
BS 368	7.750	8.125			BS 450A	10.750	11.250		
BS 369	8.000	8.375			BS 451	11.000	11.500		
BS 370	8.250	8.625			BS 451A	11.250	11.750		
BS 371	8.500	8.875			BS 452	11.500	12.000		
BS 372	8.750	9.125			BS 452A	11.750	12.250		
BS 373	9.000	9.375			BS 453	12.000	12.500		
BS 374	9.250	9.625			BS 454	12.500	13.000		
BS 375	9.500	9.875			BS 455	13.000	13.500		
BS 376	9.750	10.125			BS 456	13.500	14.000		
BS 377	10.000	10.375			BS 457	14.000	14.500		
BS 378	10.500	10.875			BS 458	14.500	15.000		
BS 379	11.000	11.375			BS 459	15.000	15.500		
BS 380	11.500	11.875			BS 460	15.500	16.000		
BS 381	12.000	12.375			BS 461	16.000	16.500		
BS 382	13.000	13.375			BS 462	16.500	17.000		
BS 383	14.000	14.375			BS 463	17.000	17.500		
BS 384	15.000	15.375			BS 464	17.500	18.000		
BS 385	16.000	16.375			BS 465	18.000	18.500		
BS 386	17.000	17.375			BS 466	18.500	19.000		
BS 387	18.000	18.375			BS 467	19.000	19.500		
BS 388	19.000	19.375			BS 468	19.500	20.000		
BS 389	20.000	20.375			BS 469	20.000	20.500		
BS 390	21.000	21.375			BS 470	21.000	21.500		
BS 391	22.000	22.375			BS 471	22.000	22.500		
BS 392	23.000	23.375			BS 472	23.000	23.500		
BS 393	24.000	24.375			BS 473	24.000	24.500		
BS 394	25.000	25.375			BS 474	25.000	25.500		
BS 395	26.000	26.375			BS 475	26.000	26.500		

PTFE Back-Up Rings
To Suit O-Rings to BS 4518

Metric

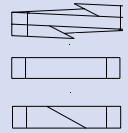


Claron Part Number	Nominal Dimensions				O-Ring Section	Claron Part Number	Nominal Dimensions				O-Ring Section
	Ød ₁	ØD ₁	T				Ød ₁	ØD ₁	T		
BS 0031-16	3.5	6.0				BS 0195-30	20	25			
BS 0041-16	4.5	7.0				BS 0215-30	22	27			
BS 0051-16	5.5	8.0				BS 0225-30	23	28			
BS 0061-16	6.5	9.0				BS 0245-30	25	30			
BS 0071-16	7.5	10.0				BS 0255-30	26	31			
BS 0081-16	8.5	11.0				BS 0265-30	27	32			
BS 0091-16	9.5	12.0				BS 0275-30	28	33			
BS 0101-16	10.5	13.0				BS 0295-30	30	35			
BS 0111-16	11.5	14.0				BS 0315-30	32	37			
BS 0121-16	12.5	15.0				BS 0325-30	33	38			
BS 0131-16	13.5	16.0	1.2			BS 0345-30	35	40			
BS 0141-16	14.5	17.0	to	1.6		BS 0355-30	36	41			
BS 0151-16	15.5	18.0	1.4			BS 0365-30	37	42			
BS 0161-16	16.5	19.0				BS 0375-30	38	43			
BS 0171-16	17.5	20.0				BS 0395-30	40	45			
BS 0181-16	18.5	21.0				BS 0415-30	42	47			
BS 0191-16	19.5	22.0				BS 0425-30	43	48			
BS 0221-16	22.5	25.0				BS 0445-30	45	50			
BS 0251-16	25.5	28.0				BS 0495-30	50	55			
BS 0271-16	27.5	30.0				BS 0545-30	55	60			
BS 0291-16	29.5	32.0				BS 0555-30	56	61			
BS 0321-16	32.5	35.0				BS 0575-30	58	63			
BS 0351-16	35.5	38.0				BS 0595-30	60	65			
BS 0371-16	37.5	40.0				BS 0635-30	64	69			
BS 0036-24	4	8				BS 0645-30	65	70			
BS 0046-24	5	9				BS 0695-30	70	75			
BS 0056-24	6	10				BS 0745-30	75	80			
BS 0066-24	7	11				BS 0795-30	80	85	1.2		
BS 0076-24	8	12				BS 0845-30	85	90	to		
BS 0086-24	9	13				BS 0895-30	90	95	1.4		3.0
BS 0096-24	10	14				BS 0945-30	95	100			
BS 0106-24	11	15				BS 0995-30	100	105			
BS 0116-24	12	16				BS 1045-30	105	110			
BS 0126-24	13	17				BS 1095-30	110	115			
BS 0136-24	14	18				BS 1145-30	115	120			
BS 0146-24	15	19				BS 1195-30	120	125			
BS 0156-24	16	20				BS 1245-30	125	130			
BS 0166-24	17	21				BS 1295-30	130	135			
BS 0176-24	18	22				BS 1345-30	135	140			
BS 0186-24	19	23				BS 1395-30	140	145			
BS 0196-24	20	24				BS 1445-30	145	150			
BS 0206-24	21	25				BS 1495-30	150	155			
BS 0216-24	22	26				BS 1545-30	155	160			
BS 0246-24	25	29				BS 1595-30	160	165			
BS 0276-24	28	32	1.2			BS 1645-30	165	170			
BS 0296-24	30	34	to	2.4		BS 1695-30	170	175			
BS 0316-24	32	36	1.4			BS 1745-30	175	180			
BS 0346-24	35	39				BS 1795-30	180	185			
BS 0356-24	36	40				BS 1845-30	185	190			
BS 0376-24	38	42				BS 1895-30	190	195			
BS 0396-24	40	44				BS 1945-30	195	200			
BS 0416-24	42	46				BS 1995-30	200	205			
BS 0446-24	45	49				BS 2045-30	205	210			
BS 0456-24	46	50				BS 2095-30	210	215			
BS 0476-24	48	52				BS 2195-30	220	225			
BS 0496-24	50	54				BS 2295-30	230	235			
BS 0516-24	52	56				BS 2395-30	240	245			
BS 0536-24	54	58				BS 2495-30	250	255			
BS 0546-24	55	59									
BS 0576-24	58	62									
BS 0586-24	59	63									
BS 0596-24	60	64									
BS 0616-24	62	66									
BS 0626-24	63	67									
BS 0646-24	65	69									
BS 0676-24	68	72									
BS 0696-24	70	74									



PTFE Back-Up Rings
To Suit O-Rings to BS 4518

Metric



Claron Part Number	Nominal Dimensions				O-Ring Section	Claron Part Number	Nominal Dimensions				O-Ring Section
	Ød ₁	ØD ₁	T				Ød ₁	ØD ₁	T		
BS 0443-57	45	55	1.6 to 1.8	5.7	BS 1743-57	175	185	1.6 to 1.8	5.7		
BS 0453-57	46	56			BS 1793-57	180	190				
BS 0493-57	50	60			BS 1843-57	185	195				
BS 0523-57	53	63			BS 1893-57	190	200				
BS 0543-57	55	65			BS 1943-57	195	205				
BS 0553-57	56	66			BS 1993-57	200	210				
BS 0593-57	60	70			BS 2043-57	205	215				
BS 0623-57	63	73			BS 2093-57	210	220				
BS 0643-57	65	75			BS 2143-57	215	225				
BS 0693-57	70	80			BS 2193-57	220	230				
BS 0743-57	75	85	BS 2293-57	230	240						
BS 0793-57	80	90	BS 2393-57	240	250						
BS 0843-57	85	95	BS 2493-57	250	260						
BS 0893-57	90	100	BS 2593-57	260	270						
BS 0943-57	95	105	BS 2693-57	270	280						
BS 0993-57	100	110	BS 2793-57	280	290						
BS 1043-57	105	115	BS 2893-57	290	300						
BS 1093-57	110	120	BS 2993-57	300	310						
BS 1143-57	115	125	BS 3193-57	320	330						
BS 1193-57	120	130	BS 3393-57	340	350						
BS 1243-57	125	135	BS 3593-57	360	370						
BS 1293-57	130	140	BS 3793-57	380	390						
BS 1343-57	135	145	BS 3993-57	400	410						
BS 1393-57	140	150	BS 4193-57	420	430						
BS 1443-57	145	155	BS 4393-57	440	450						
BS 1493-57	150	160	BS 4593-57	460	470						
BS 1543-57	155	165	BS 4793-57	480	490						
BS 1593-57	160	170	BS 4893-57	490	500						
BS 1643-57	165	175	BS 4993-57	500	510						
BS 1693-57	170	180									