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

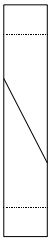
Endless

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

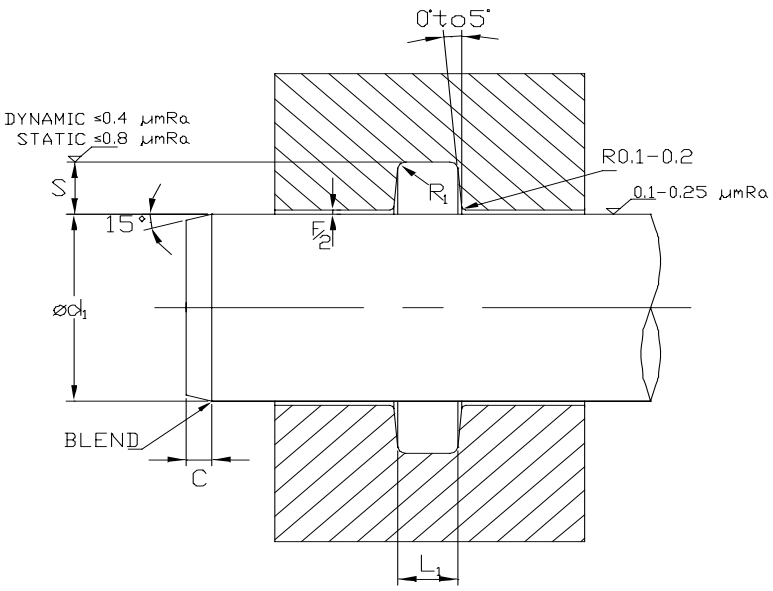
Materials

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.

Housing

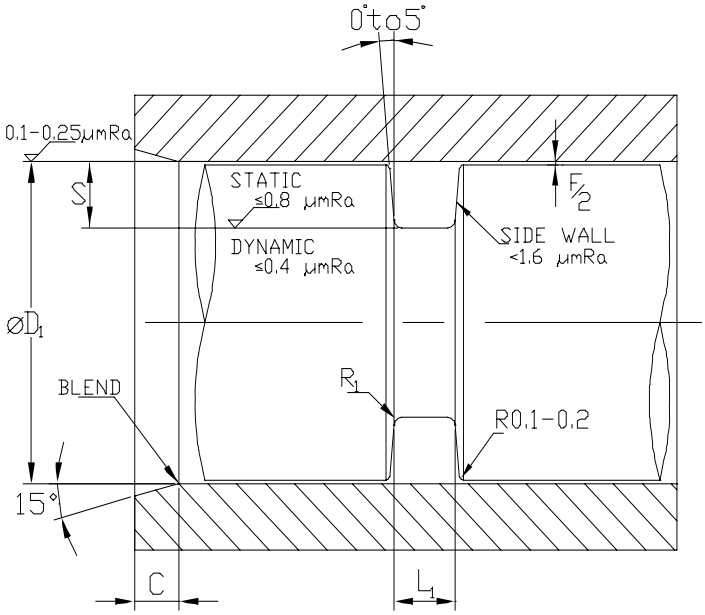
For surface finish and recommended lead in chamfers refer to the illustration below. For housing dimensions and machining tolerances refer to the catalogue page of selected seal. Refer to appendix 4 for value of tolerance symbols.

HOUSING DIMENSIONS (refer to following tables 1& 2)



Gland housing arrangement

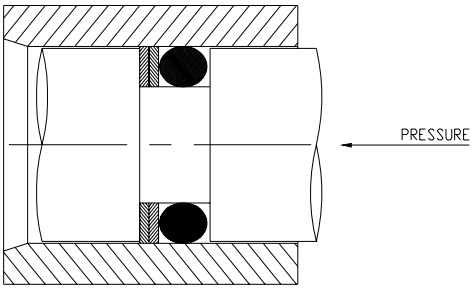
Max groove dia.= Shaft dia.$d_1$min.+2S max
Min groove dia.= Shaft dia.$d_1$min.+2S min.



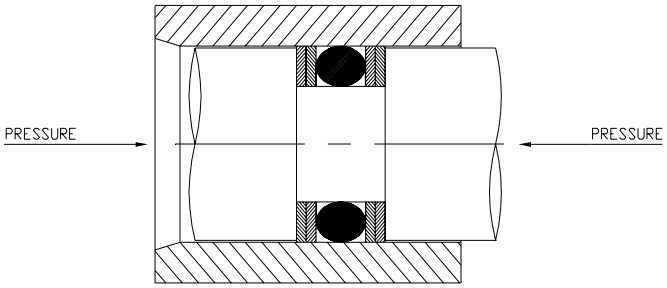
Piston housing arrangement

Max. groove dia.= Cylinder dia.D_1min.-2S min.
Min. groove dia.=Cylinder dia.D_1max.-2S max.

POSITIONING OF BACK-UP RINGS



Uni-Directional Pressure

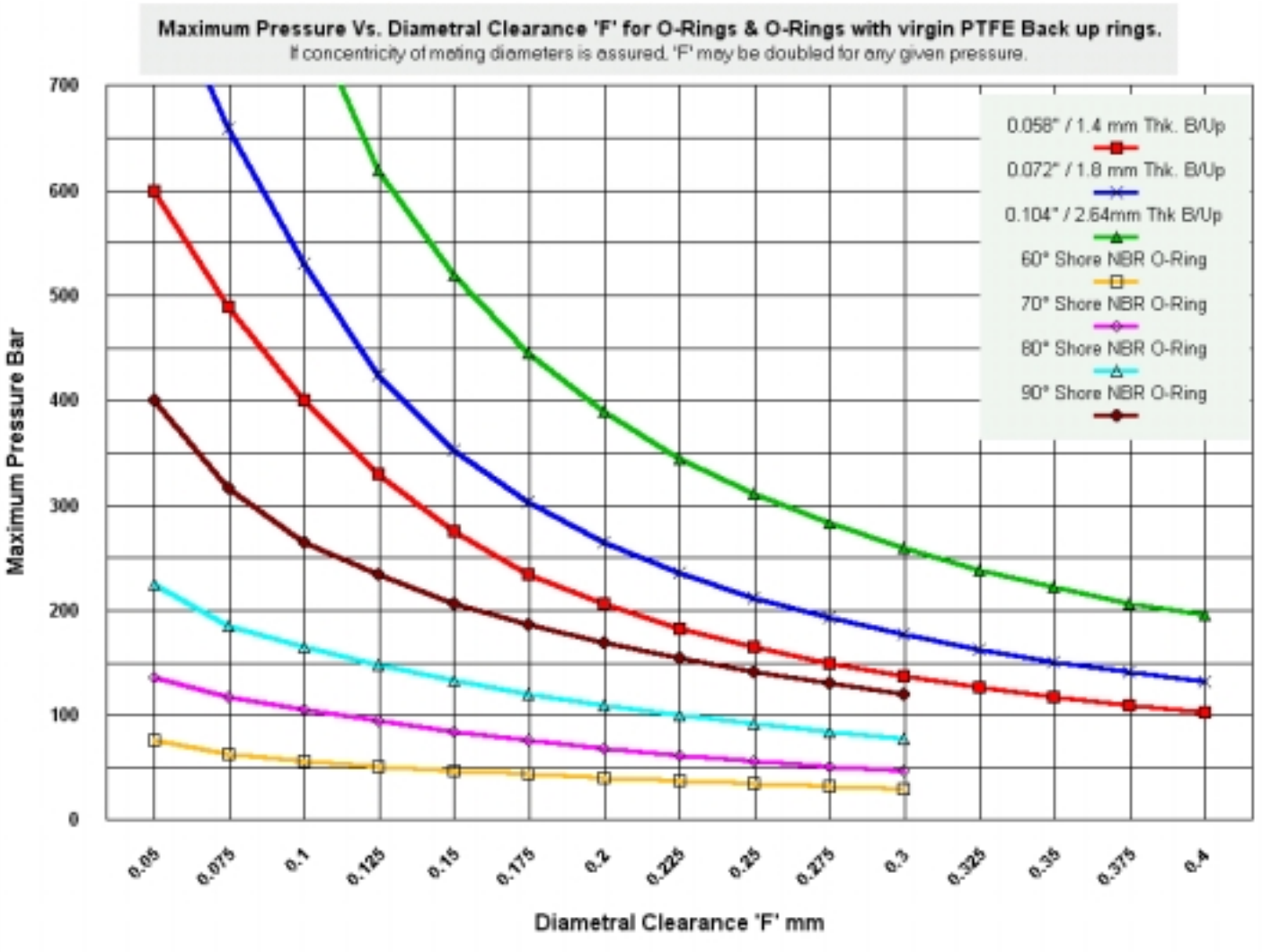


Bi-Directional Pressure

Fitting

For the back up ring to function correctly, it is important that care be taken in fitting the backup within its housing.
For a detailed checklist, refer to Appendix 3.

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 diametrical 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"

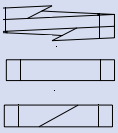
Table 1

METRIC

Housing groove dimensions for O-Rings to BS4518 fitted with back-up rings in Dynamic & Static diametrical applications.

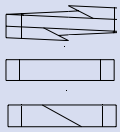
O-Ring Section	Radial Width 'S'		Groove Width L_1				Radius 'R1' Max.	Chamf. 'C' Min.
			One back-up ring		Two back-up rings			
	Max.	Min.	Max.	Min.	Max.	Min.		
1.6 mm	1.3 mm	1.25 mm	4.0 mm	3.8 mm	5.4 mm	5.2 mm	0.5 mm	2.2 mm
2.4 mm	2.09 mm	1.97 mm	4.8 mm	4.6 mm	6.2 mm	6.0 mm	0.5 mm	2.2 mm
3.0 mm	2.65 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



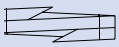
PTFE Back-Up Rings To Suit O-Rings to BS 1806

Imperial

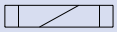


Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 005	0.109	0.234		
BS 006	0.125	0.250		
BS 007	0.156	0.281		
BS 008	0.187	0.312		
BS 009	0.219	0.344		
BS 010	0.250	0.375		
BS 011	0.312	0.437		
BS 012	0.375	0.500		
BS 013	0.437	0.562		
BS 014	0.500	0.625		
BS 015	0.562	0.687		
BS 016	0.625	0.750		
BS 017	0.687	0.812		
BS 018	0.750	0.875		
BS 019	0.812	0.937		
BS 020	0.875	1.000		
BS 021	0.937	1.062		
BS 022	1.000	1.125		
BS 023	1.062	1.187		
BS 024	1.125	1.250		
BS 025	1.187	1.312		
BS 026	1.250	1.375		
BS 027	1.312	1.437	0.050	
BS 028	1.375	1.500	to	0.070
BS 029	1.500	1.625	0.058	
BS 030	1.625	1.750		
BS 031	1.750	1.875		
BS 032	1.875	2.000		
BS 033	2.000	2.125		
BS 034	2.125	2.250		
BS 035	2.250	2.375		
BS 036	2.375	2.500		
BS 037	2.500	2.625		
BS 038	2.625	2.750		
BS 039	2.750	2.875		
BS 040	2.875	3.000		
BS 041	3.000	3.125		
BS 042	3.250	3.375		
BS 043	3.500	3.625		
BS 044	3.750	3.875		
BS 045	4.000	4.125		
BS 046	4.250	4.375		
BS 047	4.500	4.625		
BS 048	4.750	4.875		
BS 049	5.000	5.125		
BS 050	5.250	5.375		
BS 108	0.250	0.437		
BS 109	0.312	0.500	0.050	
BS 110	0.375	0.562	to	0.103
BS 111	0.437	0.625	0.058	
BS 112	0.500	0.687		

Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 113	0.562	0.750		
BS 114	0.625	0.812		
BS 115	0.687	0.875		
BS 116	0.750	0.937		
BS 117	0.812	1.000		
BS 118	0.875	1.062		
BS 119	0.937	1.125		
BS 120	1.000	1.187		
BS 121	1.062	1.250		
BS 122	1.125	1.312		
BS 123	1.187	1.375		
BS 124	1.250	1.437		
BS 125	1.312	1.500		
BS 126	1.375	1.562		
BS 127	1.437	1.625		
BS 128	1.500	1.687		
BS 129	1.562	1.750		
BS 130	1.625	1.812		
BS 131	1.687	1.875		
BS 132	1.750	1.937		
BS 133	1.812	2.000		
BS 134	1.875	2.062	0.050	
BS 135	1.937	2.125	to	0.103
BS 136	2.000	2.187	0.058	
BS 137	2.062	2.250		
BS 138	2.125	2.312		
BS 139	2.187	2.375		
BS 140	2.250	2.437		
BS 141	2.312	2.500		
BS 142	2.375	2.562		
BS 143	2.437	2.625		
BS 144	2.500	2.687		
BS 145	2.562	2.750		
BS 146	2.625	2.812		
BS 147	2.687	2.875		
BS 148	2.750	2.937		
BS 149	2.812	3.000		
BS 150	2.875	3.062		
BS 151	3.000	3.187		
BS 152	3.250	3.437		
BS 153	3.500	3.687		
BS 154	3.750	3.937		
BS 155	4.000	4.187		
BS 156	4.250	4.437		
BS 157	4.500	4.687		
BS 158	4.750	4.937		
BS 159	5.000	5.187		
BS 160	5.250	5.437		
BS 161	5.500	5.687		
BS 162	5.750	5.937		

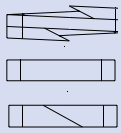

Spiral


Solid. E


Solid Split. ES

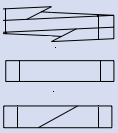
PTFE Back-Up Rings To Suit O-Rings to BS 1806

Imperial



Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 206	0.500	0.750	0.050 to 0.058	0.139
BS 207	0.562	0.812		
BS 208	0.625	0.875		
BS 209	0.687	0.937		
BS 210	0.750	1.000		
BS 211	0.812	1.062		
BS 212	0.875	1.125		
BS 213	0.937	1.187		
BS 214	1.000	1.250		
BS 215	1.062	1.312		
BS 216	1.125	1.375		
BS 217	1.187	1.437		
BS 218	1.250	1.500		
BS 219	1.312	1.562		
BS 220	1.375	1.625		
BS 221	1.437	1.687		
BS 222	1.500	1.750		
BS 223	1.625	1.875		
BS 224	1.750	2.000		
BS 225	1.875	2.125		
BS 226	2.000	2.250		
BS 227	2.125	2.375		
BS 228	2.250	2.500		
BS 229	2.375	2.625		
BS 230	2.500	2.750		
BS 231	2.625	2.875		
BS 232	2.750	3.000		
BS 233	2.875	3.125		
BS 234	3.000	3.250		
BS 235	3.125	3.375		
BS 236	3.250	3.500		
BS 237	3.375	3.625		
BS 238	3.500	3.750		
BS 239	3.625	3.875		
BS 240	3.750	4.000		
BS 241	3.875	4.125		
BS 242	4.000	4.250		
BS 243	4.125	4.375		
BS 244	4.250	4.500		
BS 245	4.375	4.625		
BS 246	4.500	4.750		
BS 247	4.625	4.875		
BS 248	4.750	5.000		
BS 249	4.875	5.125		
BS 250	5.000	5.250		
BS 251	5.125	5.375		
BS 252	5.250	5.500		
BS 253	5.375	5.625		
BS 254	5.500	5.750		
BS 255	5.625	5.875		

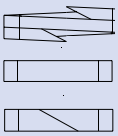
Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 256	5.750	6.000	0.050 to 0.058	0.139
BS 257	5.875	6.125		
BS 258	6.000	6.250		
BS 259	6.250	6.500		
BS 260	6.500	6.750		
BS 261	6.750	7.000		
BS 262	7.000	7.250		
BS 263	7.250	7.500		
BS 264	7.500	7.750		
BS 265	7.750	8.000		
BS 266	8.000	8.250		
BS 267	8.250	8.500		
BS 268	8.500	8.750		
BS 269	8.750	9.000		
BS 270	9.000	9.250		
BS 271	9.250	9.500		
BS 272	9.500	9.750		
BS 273	9.750	10.000		
BS 274	10.000	10.250		
BS 275	10.500	10.750		
BS 276	11.000	11.250		
BS 277	11.500	11.750		
BS 278	12.000	12.250		
BS 279	13.000	13.250		
BS 280	14.000	14.250		
BS 281	15.000	15.250		
BS 282	16.000	16.250		
BS 283	17.000	17.250		
BS 284	18.000	18.250		
BS 314	0.750	1.125	0.062 to 0.072	0.210
BS 315	0.812	1.187		
BS 316	0.875	1.250		
BS 317	0.937	1.312		
BS 318	1.000	1.375		
BS 319	1.062	1.437		
BS 320	1.125	1.500		
BS 321	1.187	1.562		
BS 322	1.250	1.625		
BS 323	1.312	1.687		
BS 324	1.375	1.750		
BS 325	1.500	1.875		
BS 326	1.625	2.000		
BS 327	1.750	2.125		
BS 328	1.875	2.250		
BS 329	2.000	2.375		
BS 330	2.125	2.500		
BS 331	2.250	2.625		
BS 332	2.375	2.750		
BS 333	2.500	2.875		
BS 334	2.625	3.000		
BS 335	2.750	3.125		
BS 336	2.875	3.250		



Spiral
Solid. E
Solid Split. ES

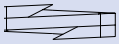
PTFE Back-Up Rings To Suit O-Rings to BS 1806

Imperial

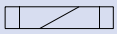


Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 337	3.000	3.375		
BS 338	3.125	3.500		
BS 339	3.250	3.625		
BS 340	3.375	3.750		
BS 341	3.500	3.875		
BS 342	3.625	4.000		
BS 343	3.750	4.125		
BS 344	3.875	4.250		
BS 345	4.000	4.375		
BS 346	4.125	4.500		
BS 347	4.250	4.625		
BS 348	4.375	4.750		
BS 349	4.500	4.875		
BS 350	4.625	5.000		
BS 351	4.750	5.125		
BS 352	4.875	5.250		
BS 353	5.000	5.375		
BS 354	5.125	5.500		
BS 355	5.250	5.625		
BS 356	5.375	5.750		
BS 357	5.500	5.875		
BS 358	5.625	6.000		
BS 359	5.750	6.125		
BS 360	5.875	6.250		
BS 361	6.000	6.375		
BS 362	6.250	6.625	0.062 to 0.072	0.210
BS 363	6.500	6.875		
BS 364	6.750	7.125		
BS 365	7.000	7.375		
BS 366	7.250	7.625		
BS 367	7.500	7.875		
BS 368	7.750	8.125		
BS 369	8.000	8.375		
BS 370	8.250	8.625		
BS 371	8.500	8.875		
BS 372	8.750	9.125		
BS 373	9.000	9.375		
BS 374	9.250	9.625		
BS 375	9.500	9.875		
BS 376	9.750	10.125		
BS 377	10.000	10.375		
BS 378	10.500	10.875		
BS 379	11.000	11.375		
BS 380	11.500	11.875		
BS 381	12.000	12.375		
BS 382	13.000	13.375		
BS 383	14.000	14.375		
BS 384	15.000	15.375		
BS 385	16.000	16.375		
BS 386	17.000	17.375		
BS 387	18.000	18.375		
BS 388	19.000	19.375		
BS 389	20.000	20.375		
BS 390	21.000	21.375		
BS 391	22.000	22.375		
BS 392	23.000	23.375		
BS 393	24.000	24.375		
BS 394	25.000	25.375		
BS 395	26.000	26.375		

Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 425	4.500	5.000		
BS 426	4.625	5.125		
BS 427	4.750	5.250		
BS 428	4.875	5.375		
BS 429	5.000	5.500		
BS 430	5.125	5.625		
BS 431	5.250	5.750		
BS 432	5.375	5.875		
BS 433	5.500	6.000		
BS 434	5.625	6.125		
BS 435	5.750	6.250		
BS 436	5.875	6.375		
BS 437	6.000	6.500		
BS 438	6.250	6.750		
BS 439	6.500	7.000		
BS 440	6.750	7.250		
BS 441	7.000	7.500		
BS 442	7.250	7.750		
BS 443	7.500	8.000		
BS 444	7.750	8.250		
BS 445	8.000	8.500		
BS 445A	8.250	8.750		
BS 446	8.500	9.000		
BS 446A	8.750	9.250		
BS 447	9.000	9.500		
BS 447A	9.250	9.750	0.092 to 0.104	0.275
BS 448	9.500	10.000		
BS 448A	9.750	10.250		
BS 449	10.000	10.500		
BS 449A	10.250	10.750		
BS 450	10.500	11.000		
BS 450A	10.750	11.250		
BS 451	11.000	11.500		
BS 451A	11.250	11.750		
BS 452	11.500	12.000		
BS 452A	11.750	12.250		
BS 453	12.000	12.500		
BS 454	12.500	13.000		
BS 455	13.000	13.500		
BS 456	13.500	14.000		
BS 457	14.000	14.500		
BS 458	14.500	15.000		
BS 459	15.000	15.500		
BS 460	15.500	16.000		
BS 461	16.000	16.500		
BS 462	16.500	17.000		
BS 463	17.000	17.500		
BS 464	17.500	18.000		
BS 465	18.000	18.500		
BS 466	18.500	19.000		
BS 467	19.000	19.500		
BS 468	19.500	20.000		
BS 469	20.000	20.500		
BS 470	21.000	21.500		
BS 471	22.000	22.500		
BS 472	23.000	23.500		
BS 473	24.000	24.500		
BS 474	25.000	25.500		
BS 475	26.000	26.500		

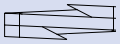

Spiral

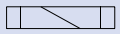

Solid. E


Solid Split. ES

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

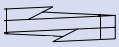
Metric



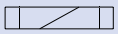


Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 0031-16	3.5	6.0		
BS 0041-16	4.5	7.0		
BS 0051-16	5.5	8.0		
BS 0061-16	6.5	9.0		
BS 0071-16	7.5	10.0		
BS 0081-16	8.5	11.0		
BS 0091-16	9.5	12.0		
BS 0101-16	10.5	13.0		
BS 0111-16	11.5	14.0		
BS 0121-16	12.5	15.0		
BS 0131-16	13.5	16.0	1.2	
BS 0141-16	14.5	17.0	to	1.6
BS 0151-16	15.5	18.0	1.4	
BS 0161-16	16.5	19.0		
BS 0171-16	17.5	20.0		
BS 0181-16	18.5	21.0		
BS 0191-16	19.5	22.0		
BS 0221-16	22.5	25.0		
BS 0251-16	25.5	28.0		
BS 0271-16	27.5	30.0		
BS 0291-16	29.5	32.0		
BS 0321-16	32.5	35.0		
BS 0351-16	35.5	38.0		
BS 0371-16	37.5	40.0		
BS 0036-24	4	8		
BS 0046-24	5	9		
BS 0056-24	6	10		
BS 0066-24	7	11		
BS 0076-24	8	12		
BS 0086-24	9	13		
BS 0096-24	10	14		
BS 0106-24	11	15		
BS 0116-24	12	16		
BS 0126-24	13	17		
BS 0136-24	14	18		
BS 0146-24	15	19		
BS 0156-24	16	20		
BS 0166-24	17	21		
BS 0176-24	18	22		
BS 0186-24	19	23		
BS 0196-24	20	24		
BS 0206-24	21	25		
BS 0216-24	22	26		
BS 0246-24	25	29		
BS 0276-24	28	32	1.2	
BS 0296-24	30	34	to	2.4
BS 0316-24	32	36	1.4	
BS 0346-24	35	39		
BS 0356-24	36	40		
BS 0376-24	38	42		
BS 0396-24	40	44		
BS 0416-24	42	46		
BS 0446-24	45	49		
BS 0456-24	46	50		
BS 0476-24	48	52		
BS 0496-24	50	54		
BS 0516-24	52	56		
BS 0536-24	54	58		
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		

Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 0195-30	20	25		
BS 0215-30	22	27		
BS 0225-30	23	28		
BS 0245-30	25	30		
BS 0255-30	26	31		
BS 0265-30	27	32		
BS 0275-30	28	33		
BS 0295-30	30	35		
BS 0315-30	32	37		
BS 0325-30	33	38		
BS 0345-30	35	40		
BS 0355-30	36	41		
BS 0365-30	37	42		
BS 0375-30	38	43		
BS 0395-30	40	45		
BS 0415-30	42	47		
BS 0425-30	43	48		
BS 0445-30	45	50		
BS 0495-30	50	55		
BS 0545-30	55	60		
BS 0555-30	56	61		
BS 0575-30	58	63		
BS 0595-30	60	65		
BS 0635-30	64	69		
BS 0645-30	65	70		
BS 0695-30	70	75		
BS 0745-30	75	80		
BS 0795-30	80	85	1.2	
BS 0845-30	85	90	to	3.0
BS 0895-30	90	95	1.4	
BS 0945-30	95	100		
BS 0995-30	100	105		
BS 1045-30	105	110		
BS 1095-30	110	115		
BS 1145-30	115	120		
BS 1195-30	120	125		
BS 1245-30	125	130		
BS 1295-30	130	135		
BS 1345-30	135	140		
BS 1395-30	140	145		
BS 1445-30	145	150		
BS 1495-30	150	155		
BS 1545-30	155	160		
BS 1595-30	160	165		
BS 1645-30	165	170		
BS 1695-30	170	175		
BS 1745-30	175	180		
BS 1795-30	180	185		
BS 1845-30	185	190		
BS 1895-30	190	195		
BS 1945-30	195	200		
BS 1995-30	200	205		
BS 2045-30	205	210		
BS 2095-30	210	215		
BS 2195-30	220	225		
BS 2295-30	230	235		
BS 2395-30	240	245		
BS 2495-30	250	255		

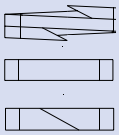

Spiral


Solid. E


Solid Split. ES

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

Metric



Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 0443-57	45	55	1.6 to 1.8	5.7
BS 0453-57	46	56		
BS 0493-57	50	60		
BS 0523-57	53	63		
BS 0543-57	55	65		
BS 0553-57	56	66		
BS 0593-57	60	70		
BS 0623-57	63	73		
BS 0643-57	65	75		
BS 0693-57	70	80		
BS 0743-57	75	85		
BS 0793-57	80	90		
BS 0843-57	85	95		
BS 0893-57	90	100		
BS 0943-57	95	105		
BS 0993-57	100	110		
BS 1043-57	105	115		
BS 1093-57	110	120		
BS 1143-57	115	125		
BS 1193-57	120	130		
BS 1243-57	125	135		
BS 1293-57	130	140		
BS 1343-57	135	145		
BS 1393-57	140	150		
BS 1443-57	145	155		
BS 1493-57	150	160		
BS 1543-57	155	165		
BS 1593-57	160	170		
BS 1643-57	165	175		
BS 1693-57	170	180		

Claron Part Number	Nominal Dimensions Ød$_1$	ØD$_1$	T	O-Ring Section
BS 1743-57	175	185	1.6 to 1.8	5.7
BS 1793-57	180	190		
BS 1843-57	185	195		
BS 1893-57	190	200		
BS 1943-57	195	205		
BS 1993-57	200	210		
BS 2043-57	205	215		
BS 2093-57	210	220		
BS 2143-57	215	225		
BS 2193-57	220	230		
BS 2293-57	230	240		
BS 2393-57	240	250		
BS 2493-57	250	260		
BS 2593-57	260	270		
BS 2693-57	270	280		
BS 2793-57	280	290		
BS 2893-57	290	300		
BS 2993-57	300	310		
BS 3193-57	320	330		
BS 3393-57	340	350		
BS 3593-57	360	370		
BS 3793-57	380	390		
BS 3993-57	400	410		
BS 4193-57	420	430		
BS 4393-57	440	450		
BS 4593-57	460	470		
BS 4793-57	480	490		
BS 4893-57	490	500		
BS 4993-57	500	510		

Imperial and Metric Back-Up Rings for Special Internal and External Static or Dynamic Applications.

Table 1	Groove Dimensions		Nominal	Housing Diameters				Groove Width	
O-Ring	Nom. Radial Depth S		B/Up Ring	Static	Static	Dynamic	Dynamic	One B/Up Ring	Two B/Up Rings
Section	Static	Dynamic	Thickness	ID d1 h9	OD D1 H9	ID d1 h9	OD D1 H9	L1 +0.2	L2 +0.2
mm	S	S	T	D1-2S	d1+2S	D1-2S	d1+2S	mm	mm
1.50	1.10	1.25	1.00	D1-2.2	d1+2.2	D1-2.5	d1+2.5	3.00	4.00
1.60	1.20	1.30	1.00	D1-2.4	d1+2.4	D1-2.6	d1+2.6	3.80	5.20
1.78	1.30	**1.50**	**1.40**	D1-2.6	d1+2.6	**N/A see F4**	d1+3.0	**3.80**	**5.20**
2.00	1.50	1.65	1.40	D1-3.0	d1+3.0	D1-3.0	d1+3.3	4.10	5.50
2.40	1.80	**2.05**	**1.40**	D1-3.6	d1+3.6	**N/A see F4**	d1+4.1	**4.60**	**6.00**
2.50	1.90	2.15	1.40	D1-3.8	d1+3.8	D1-4.3	d1+4.3	4.70	6.10
2.62	2.00	**2.25**	**1.40**	D1-4.0	d1+4.0	**N/A see F4**	d1+4.5	**5.00**	**6.40**
3.00	2.30	**2.60**	**1.40**	D1-4.6	d1+4.6	**N/A see F4**	d1+5.2	**5.40**	**6.80**
3.53	2.70	**3.10**	**1.40**	D1-5.4	d1+5.4	**N/A see F4**	d1+6.2	**6.20**	**7.60**
4.00	3.10	3.50	1.70	D1-6.2	d1+6.2	D1-7.0	d1+7.0	6.90	8.60
5.00	4.00	4.40	1.70	D1-8.0	d1+8.0	D1-8.8	d1+8.8	8.30	10.00
5.34	4.30	**4.70**	**1.70**	D1-8.6	d1+8.6	**N/A see F4**	d1+9.4	**8.80**	**10.60**
5.70	4.60	**5.00**	**1.70**	D1-9.2	d1+9.2	**N/A see F4**	d1+10.0	**9.30**	**11.10**
6.00	4.90	5.30	1.70	D1-9.8	d1+9.8	D1-10.6	d1+10.6	9.60	11.40
6.99	5.80	**6.10**	**2.50**	D1-11.6	d1+11.6	**N/A see F4**	d1+12.2	**12.00**	**14.60**
8.00	6.70	7.10	2.50	D1-13.4	d1+13.4	D1-14.2	d1+14.2	13.30	15.90
8.40	7.10	7.50	2.50	D1-14.2	d1+14.2	D1-15.0	d1+15.0	13.60	16.20

Claron Back-up Rings are manufactured for the above housing parameters in various Styles

Table2	Style and ISO 3601-4	Internal Static Ref.	External Static and Dynamic Ref. Virgin	BS STANDARD Internal Dynamic Ref.	NON BS STANDARD Internal Dynamic Ref
STYLE	Designation	Virgin PTFE	PTFE	Virgin PTFE	Virgin PTFE
Spiral	no suffix (T1)	CBI(S)-(d1)	CBE(S)-(D1)	BS ref. Eg BS010	CBI(S)-(d1)
Endless Split	ES (T2)	CBI(S)-(d1)/ES	CBE(S)-(D1)/ES	BS ref. Eg BS010/ES	CBI(S)-(d1)/ES
Endless	E (T3)	CBI(S)-(d1)/E	CBE(S)-(D1)/E	BS ref. Eg BS010/E	CBI(S)-(d1)/E
Contoured Split	PB/S (T4)	CBI(S)-(d1)/PB/S	CBE(S)-(D1)/PB/S	BS ref. Eg BS010/PB/S	CBI(S)-(d1)/PB/S
Contoured	PB (T5)	CBI(S)-(d1)/PB	CBE(S)-(D1)/PB	BS ref. Eg BS010/PB	CBI(S)-(d1)/PB

The above tables are intended for Internal and External Back-up Rings for specific Static and Dynamic Applications.

How to order

Internal Sealing

For **Internal Static** sealing use **CBI** prefix followed by radial section (S) and internal diameter (d1) followed by style and material code where applicable.
eg. Endless Style, static ID sealing for 1.6mm O-ring, 10mm Id. Ref. **CBI12-0100/E**
eg. Spiral Style, static ID sealing for 1.6mm O-ring, 10mm Id. Ref. **CBI12-0100**
eg. Contoured Style, static ID sealing for 1.6mm O-ring, 10mm Id. Ref. **CBI12-0100/PB**

For **Internal Dynamic** sealing for **Non-BS Standard** sizes use **CBI** prefix followed by radial section (S) and internal diameter (d1)style and material code where applicable.
eg. Endless Style, Dynamic ID sealing for 2.0mm O-ring, 20mm Id. Ref. **CBI165-0200/E**

All O-ring sections Highlighted **Bold** are **British Standard** sizes to **BS1806** or **BS5106**.
British Standard sizes are manufactured using the nominal ID dimension for General Purpose Dynamic applications
See Catalogue pages F4-4 to F4-9 for the housing detail and reference numbers for **BS standard** sizes. eg. Spiral Style BS010

External Sealing

For **External** sealing use **CBE** prefix followed by radial section (S) and external diameter (D1) style and material code where applicable
eg. Endless Split Style, static OD sealing for 1.6mm O-ring, 20mm OD. Ref. **CBE12-0200/ES**
eg. Endless Split Style, Dynamic OD sealing for 1.6mm O-ring, 20mm OD. Ref. **CBE13-0020/ES**
eg. Spiral Style, Dynamic OD sealing for 1.6mm O-ring, 20mm od. Ref. **CBE13-0200**
eg. Contoured Style, static OD sealing for 1.6mm O-ring, 10mm Id. Ref. **CBE12-0100/PB**

Imperial and Metric Back-Up Rings for Special Internal and External Static or Dynamic Applications.

Materials

Claron Back-up Rings are manufactured as Standard in Virgin PTFE. Other materials are also utilised to enhance performance. (Spiral Back-up Rings are only manufactured in Virgin PTFE and 15% Glass)
Claron Virgin PTFE meets FDA regulation code 21CFR sec 177.1550 and EU directive 10/2011 EC for contact with food, also meets WRAS Approval.

Table 3	Material / Style Availability			
Materials	**Material Code**	**Spiral (T1)**	**Endless (T2 & T3)**	**Contoured (T4 & T5)**
Virgin PTFE	Suffix	Standard Material	Standard Material	Available to order
	Standard material for all styles, requires no material suffix			
Virgin PTFE Norsok M-710	**/V/M710**	Available to order	Available to order	Available to order
15% GLASS PTFE	**/GC**	Available to order	Available to order	Available to order
25% GLASS PTFE	**/GE**	N/A	Available to order	Available to order
15% GRAPHITE PTFE	**/R**	N/A	Available to order	Available to order
10% CARBON FIBRE PTFE	**/CF**	N/A	Available to order	Available to order
20% CARBON PTFE	**/C**	N/A	Available to order	Available to order
46% Bronze MoS2 PTFE	**/B**	N/A	Available to order	Available to order
Acetal (POM)	**/A**	N/A	Available to order	Available to order
Peek 450G	**/P**	N/A	Available to order	Available to order
Peek PVX	**/P/PVX**	N/A	Available to order	Available to order

See page F4-3 of the Claron Catalogue
for the maximum Operating conditions of the various thicknesses of Virgin PTFE.

Claron also manufacture Back-up Rings to other standards, Contact **Claron** for details

BS1806	Spiral, Endless/Split & Contoured/Split, **See Section F4**		
BS5106 (BS4518)	Spiral, Endless/Split & Contoured/Split, **See Section F4**		
MS27595	Endless	MS27595-***/E	to AMS3678 Type 1 Grade B, unless specified as Grade A
MS28773	Endless Split	MS28773-**	Inactive for designs after 1997, material AMS3678 Type 1 Grade B
MS28774	Endless Split	MS28774-***/ES	to AMS3678 Type 1 Grade B, unless specified as Grade A
MS28782	Spiral	MS28782-**	to AMS3678 Type 1 Grade B, unless specified as Grade A
MS28783	Spiral	MS28783-**	to AMS3678 Type 1 Grade B, unless specified as Grade A
MIL-R-8791/1	Endless Split	M8791/1-***	Superceded by SAE AS8791, order as M8791/1-***
AS8791	Endless Split	M8791/1-***	to AMS3678 Type 1 Grade B, unless specified as Grade A
JIS B 2407	Spiral	JISG***	Virgin PTFE only
JIS B 2407	Endless	JISP***/Mat'l/E	Various PTFE materials including Virgin and Bronze filled
JIS B 2407	Endless Split	JISP***/Mat'l/ES	Various PTFE materials including Virgin and Bronze filled