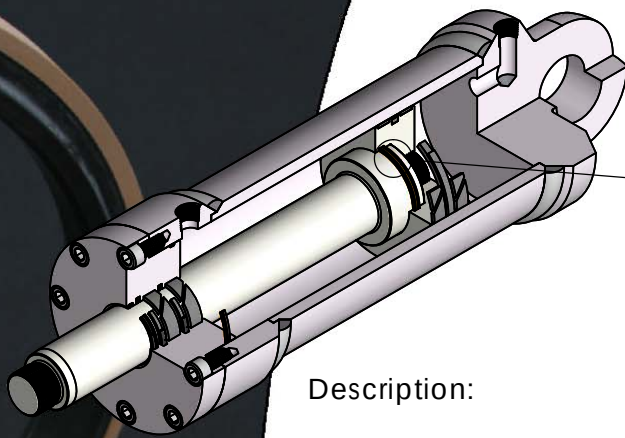
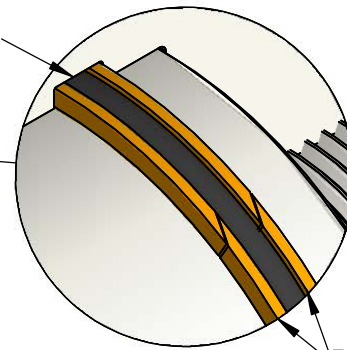




Elastomer
O-ring



T-LON® "P"
Back-up Rings

Description:

The "P" series PTFE back-up rings are proven components used for sealing both low and high pressure systems specifically for dynamic applications. Any system pushing the pressure limits on an elastomer seal, "P" series back-up rings are an inexpensive option to increase seal pressure capabilities or increase radial extrusion gaps behind the seal.

The "P" series back-up rings come standard in T-LON® 01 (Virgin PTFE) but can be made from any filled T-LON® PTFE compound or plastic/metal to increase the pressure capabilities.

Consider "P" series back-up rings with elastomer o-rings under the following conditions:

- Pressure above 1000psi (7MPa)
- Radial Extrusion gap > .005" (.13mm)
- High Reciprocating Stroke Frequency
- High Temperatures
- Medium with Contamination
- Pressure Shock Loads (Fast Pressure Changes)

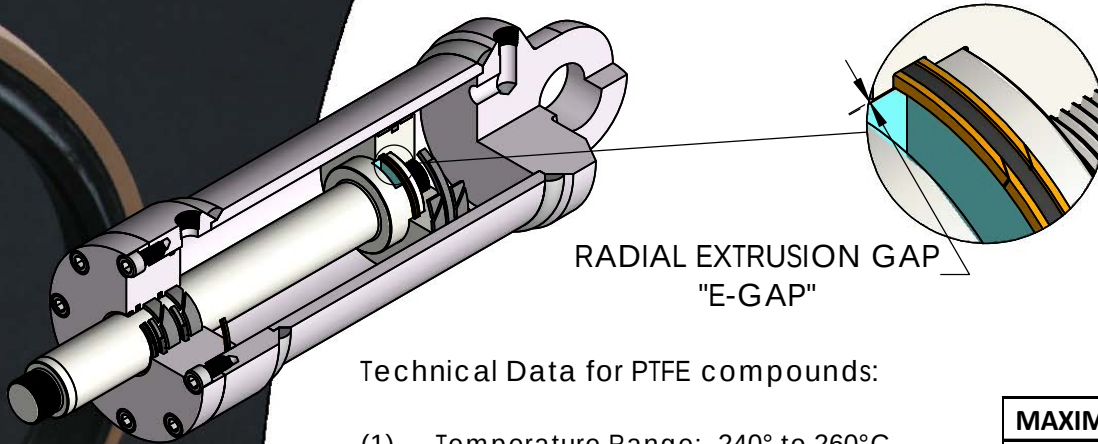
Advantages:

- Inexpensive option with the solid "T3" option
- Easy to install with the cut "T2" option
- Increase pressure rating of standard o-rings
- Available for cylinders up to 1100mm diameter

Applications:

- Mobile Hydraulic Cylinders
- Pneumatic Piston Cylinders
- Agriculture Equipment
- Hydraulic Valves and Pumps
- Filling Machines
- Testing Machinery
- Any sealing application





RADIAL EXTRUSION GAP
"E-GAP"

Technical Data for PTFE compounds:

- (1) Temperature Range: -240° to 260°C
- (2) T-LON® seal compound determines allowable pressure
 - Pressure: Up to 40 MPa
(Function of e-gap and T-LON® compound)
 - Surface Speed: Up to 2 m/s

Most Common:

Virgin PTFE ("01")

- Most cost effective
- Most flexible for fitting into tight areas

BRONZE FILLED PTFE ("21" or "22")

- Highest Extrusion Resistance of PTFE Compounds (Higher bronze content increases extrusion/wear resistance; I.E. larger e-gap allowable)
- Low abrasion characteristics

Also Available for Extreme Pressures greater than 40MPa:

PEEK Compounds ("91" or "92")

Polyamide Compounds ("1N" or "6N")

ACETAL ("1D")

MAXIMUM E-GAP (mm) (Virgin PTFE)***			
RING HT	10 MPa	20 MPa	40 MPa
1.25mm	0.20	0.10	0.04
1.90mm	0.25	0.13	0.06
2.60mm	0.38	0.20	0.09

***USE PISTON WEAR RINGS SO E-GAP DOES NOT EXCEED TABLED VALUES

MAXIMUM E-GAP (mm) (Shore 70A O-rings) REFERENCE ONLY***			
O-Ring CS (mm)	3.5 Mpa	7.0 Mpa	10.5 Mpa
< 2	0.08	0.05	0.03
2 to 3	0.09	0.07	0.04
3 to 5	0.10	0.08	0.05
5 to 7	0.13	0.09	0.07
> 7	0.15	0.10	0.08

***IF THE APPLICATION DEMANDS HIGHER PRESSURES/E-GAPS, "P" SERIES BACK-UP RINGS ARE RECOMMENDED.

ORDERING INFORMATION

P - _____ - _____ - _____

SIZE

"SEE SIZE LISTING TABLE"

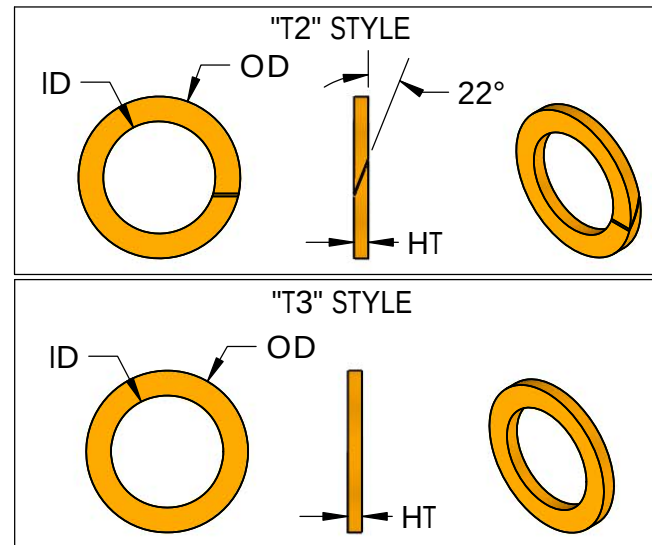
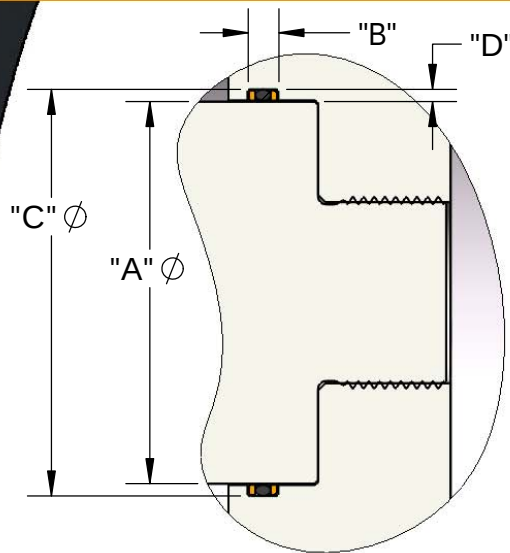
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"01" = VIRGIN PTFE

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"T2" = SCARF CUT RING
"T3" = SOLID RING



Reference Groove Dimensions for O-rings with "P" back-up rings

O-ring CS (mm)	Gland Depth "D"	Gland Width "B" No Backup Ring		Gland Width "B" One Backup Ring		Gland Width "B" Two Backup Rings	
		Min	Max	Min	Max	Min	Max
1.90	1.55	2.60	2.85	3.85	4.10	5.10	5.35
2.40	2.05	3.20	3.45	4.45	4.70	5.70	5.95
3.50	3.05	4.60	4.85	5.85	6.10	7.10	7.35
5.70	5.00	7.20	7.45	9.10	9.35	11.00	11.25
8.40	7.50	10.00	10.25	12.60	12.85	15.20	15.45

T-LON® "P" Series Back-up Ring Sizes (More Available Upon Request)

Conforms to back-up ring Japanese Industrial Standard JIS B 2407

Size	ID		OD		HT		O-ring CS, Ref
	Nominal	Tol	Nominal	Tol	Nominal	Tol	
3	3.00		6.00		1.25		1.90 mm
4	4.00		7.00		1.25		
5	5.00		8.00		1.25		
6	6.00		9.00		1.25		
7	7.00		10.00		1.25		
8	8.00		11.00		1.25		
9	9.00		12.00		1.25		
10	10.00		13.00		1.25		2.40 mm
10A	10.00		14.00		1.25		
11	11.00		15.00		1.25		
11.2	11.20		15.20		1.25		
12	12.00		16.00		1.25		
12.5	12.50		16.50		1.25		
14	14.00		16.00		1.25		
15	15.00		19.00		1.25		
16	16.00		20.00		1.25		
18	18.00		22.00		1.25		
20	20.00		24.00		1.25		
21	21.00		25.00		1.25		
22	22.00		26.00		1.25		
22A	22.00		28.00		1.25		3.50 mm
22.4	22.40		28.40		1.25		
24	24.00		30.00		1.25		
25	25.00		31.00		1.25		
25.5	25.50		31.50		1.25		
26	26.00		32.00		1.25		
28	28.00		34.00		1.25		
29	29.00		35.00		1.25		
29.5	29.50		35.50		1.25		
30	30.00		36.00		1.25		
31	31.00		37.00		1.25		
31.5	31.50		37.50		1.25		
32	32.00		38.00		1.25		
34	34.00		40.00		1.25		
35	35.00		41.00		1.25		
35.5	35.50		41.50		1.25		
36	36.00		42.00		1.25		
38	38.00		44.00		1.25		
40	40.00		46.00		1.25		
41	41.00		47.00		1.25		

T-LON® "P" Metric Dynamic Back-up Rings



Size	ID		OD		HT		O-ring CS, Ref
	Nominal	Tol	Nominal	Tol	Nominal	Tol	
42	42.00	+ .20 mm / -.00 mm	48.00	- .20 mm / +.00 mm	1.25	± 0.10mm	3.50 mm
44	44.00		50.00		1.25		
45	45.00		51.00		1.25		
46	46.00		52.00		1.25		
48	48.00		54.00		1.25		
49	49.00		55.00		1.25		
50	50.00		56.00		1.25		
48A	48.00	+ .25 mm / -.00 mm	58.00	-.25 mm / +.00 mm	1.90	± 0.13mm	5.70 mm
50A	50.00		60.00		1.90		
52	52.00		62.00		1.90		
53	53.00		63.00		1.90		
55	55.00		65.00		1.90		
56	56.00		66.00		1.90		
58	58.00		68.00		1.90		
60	60.00		70.00		1.90		
62	62.00		72.00		1.90		
63	63.00		73.00		1.90		
65	65.00		75.00		1.90		
67	67.00		77.00		1.90		
70	70.00		80.00		1.90		
71	71.00		81.00		1.90		
75	75.00		85.00		1.90		
80	80.00		90.00		1.90		
85	85.00		95.00		1.90		
86	86.00		96.00		1.90		
90	90.00		100.00		1.90		
95	95.00		105.00		1.90		
100	100.00		110.00		1.90		
102	102.00		112.00		1.90		
105	105.00		115.00		1.90		
110	110.00		120.00		1.90		
111	111.00		121.00		1.90		
112	112.00		122.00		1.90		
115	115.00		125.00		1.90		
120	120.00		130.00		1.90		
121	121.00		131.00		1.90		
125	125.00		135.00		1.90		
130	130.00		140.00		1.90		
131	131.00		141.00		1.90		
132	132.00		142.00		1.90		
133	133.00		143.00		1.90		
135	135.00		145.00		1.90		
138	138.00		148.00		1.90		
140	140.00		150.00		1.90		
145	145.00		155.00		1.90		
150	150.00		160.00		1.90		

Size	ID		OD		HT		O-ring CS, Ref
	Nominal	Tol	Nominal	Tol	Nominal	Tol	
150A	150.00	+ .30 mm / -.00 mm	165.00	-.30 mm / +.00 mm	2.60	± 0.15mm	8.40 mm
155	155.00		170.00		2.60		
160	160.00		175.00		2.60		
165	165.00		180.00		2.60		
170	170.00		185.00		2.60		
175	175.00		190.00		2.60		
180	180.00		195.00		2.60		
185	185.00		200.00		2.60		
190	190.00		205.00		2.60		
195	195.00		209.00		2.60		
200	200.00		215.00		2.60		
205	205.00		220.00		2.60		
209	209.00		224.00		2.60		
210	210.00		225.00		2.60		
215	215.00		230.00		2.60		
220	220.00		235.00		2.60		
225	225.00		240.00		2.60		
230	230.00		245.00		2.60		
235	235.00		250.00		2.60		
240	240.00		255.00		2.60		
245	245.00		260.00		2.60		
250	250.00		265.00		2.60		
255	255.00		270.00		2.60		
260	260.00		275.00		2.60		
265	265.00		280.00		2.60		
270	270.00		285.00		2.60		
275	275.00		290.00		2.60		
280	280.00		295.00		2.60		
285	285.00		300.00		2.60		
290	290.00		305.00		2.60		
295	295.00		310.00		2.60		
300	300.00		315.00		2.60		
315	305.00		330.00		2.60		
320	320.00		335.00		2.60		
335	335.00		350.00		2.60		
340	340.00		355.00		2.60		
355	355.00		370.00		2.60		
360	360.00		375.00		2.60		
375	375.00		380.00		2.60		
385	385.00		400.00		2.60		
400	400.00		415.00		2.60		