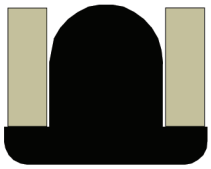
TP Profile (Piston T-seal), Compact Seal with Anti-Extrusion Technology

Parker's Piston T-seal is designed to retrofit O-rings in no back-up, single back-up and two back-up standard industrial reciprocating glands. Its compact design provides improved stability and extrusion resistance in dynamic fluid sealing applications. The flange or base of the T-seal forms a tight seal in the gland and supports the anti-extrusion back-up rings. When energized, the back-up rings bridge the extrusion gap to protect the rubber sealing element from extrusion and system contamination. The Piston T-seal eliminates the spiral or twisting failure that can occur when O-rings are used against a dynamic surface. Parker offers the Piston T-seal in a variety of elastomer and back-up ring compounds to cover a wide range of fluid compatibility, pressure and temperature.

Profile **TP0** for **no** back-up O-ring gland (standard offering)
Profile **TPS** for **single** back-up O-ring gland
Profile **TPT** for **two** back-up O-ring gland

The TP profile is sold only as an assembly (elastomer and back-up).



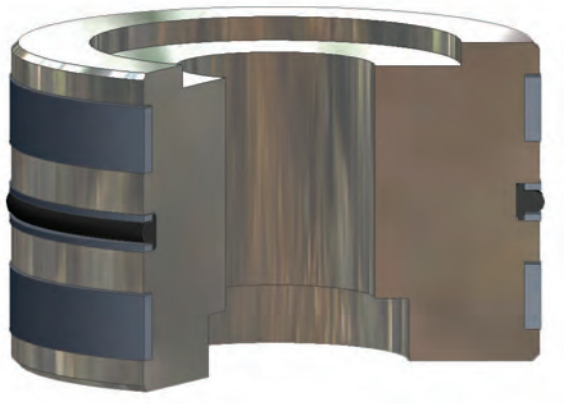
TP Cross-Section

Technical Data

Standard Materials

Base Elastomer*	Temperature Range	Surface Speed
N4115A75	-40°F to 225°F (-40°C to 107°C)	< 1.6 ft/s (0.5 m/s)
N4274A85	-10°F to 250°F (-23°C to 121°C)	< 1.6 ft/s (0.5 m/s)
V4205A75	-20°F to 400°F (-29°C to 204°C)	< 1.6 ft/s (0.5 m/s)
E4259A80	-65°F to 300°F (-54°C to 149°C)	< 1.6 ft/s (0.5 m/s

***Alternate Materials:** For applications that may require an alternate material, please see Section 3 for alternate elastomer materials.



TP installed in Piston Gland

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Technical Data (Continued)

Standard Materials

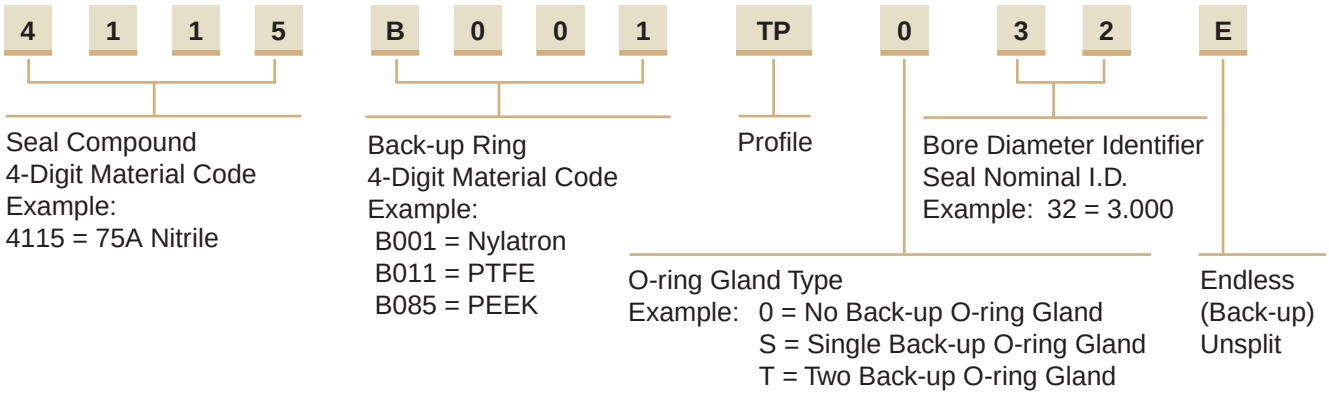
Back-up Rings**	Temperature Range	Pressure Range†
B001 Nylatron	-65°F to 250°F (-54°C to 121°C)	5,000 psi (344 bar)
B011 Virgin PTFE	-20°F to 250°F (-29°C to 121°C)	3,000 psi (206 bar)
B085 PEEK	-65°F to 500°F (-54°C to 260°C)	10,000 psi (689 bar)

****Alternate Materials:** For applications that may require an alternate material, please see Section 3 for T-seal back-up materials.

†**Pressure Range** without wear rings (see Table 2-4, page 2-5).

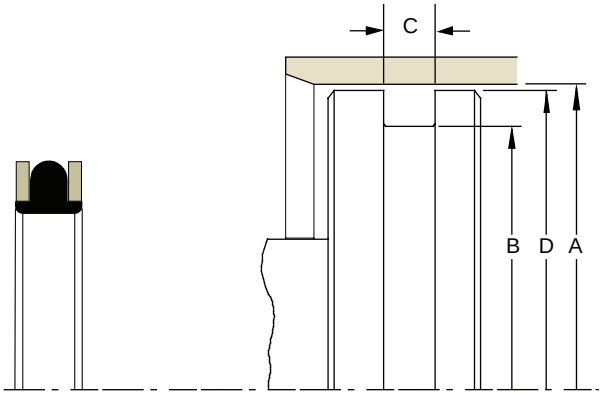
Part Number Nomenclature — T-seal Profile

Table 7-30. T-seal Profile — Inch



7

Gland Dimensions — TP Profile



Please refer to Engineering Section 2, Page 2-8 for surface finish and additional hardware considerations.

Table 7-31. TP Gland Dimensions — Inch

A Bore Diameter	B Groove Diameter	C			D Piston Diameter*	Ref. O-ring Dash Number	Compound Code				Part Number			
		TP0 Groove Width	TPS Groove Width	TPT Groove Width			4115	4274	4205	4259	Compound Code	Back-up Ring Code	Groove Width Code**	Size Code
+.002/ -.000	+.000/ -.002	+.005/ -.000	+.005/ -.000	+.005/ -.000	+.000/ -.001									
0.374	0.198	0.140	0.171	0.238	0.372	106	X		X		XXXX	B0xx	TP0	01
0.437	0.261	0.140	0.171	0.238	0.435	108	X		X		XXXX	B0xx	TP0	02
0.499	0.323	0.140	0.171	0.238	0.497	109	X		X		XXXX	B0xx	TP0	03
0.562	0.320	0.187	0.208	0.275	0.559	203	X		X		XXXX	B0xx	TP0	04

* If used with wear rings, refer to wear ring piston diameter, see Section 9.
**Chart reflects availability for TP0 only. For availability of TPS and TPT contact your local Parker Seal representative.

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Table 7-31. TP Gland Dimensions — Inch (Continued)

A Bore Diameter	B Groove Diameter	C			D Piston Diameter*	Ref. O-ring Dash Number	Compound Code				Part Number			
		TP0 Groove Width	TPS Groove Width	TPT Groove Width			4115	4274	4205	4259	Compound Code	Back-up Ring Code	Groove Width Code**	Size Code
+.002/ -.000	+.000/ -.002	+.005/ -.000	+.005/ -.000	+.005/ -.000	+.000/ -.001									
0.625	0.383	0.187	0.208	0.275	0.662	204	X		X		XXXX	B0xx	TP0	05
0.687	0.445	0.187	0.208	0.275	0.684	205	X		X		XXXX	B0xx	TP0	06
0.750	0.508	0.187	0.208	0.275	0.747	206	X		X	X	XXXX	B0xx	TP0	07
0.812	0.570	0.187	0.208	0.275	0.809	207	X		X		XXXX	B0xx	TP0	08
0.875	0.633	0.187	0.208	0.275	0.872	208	X		X	X	XXXX	B0xx	TP0	09
0.937	0.695	0.187	0.208	0.275	0.934	209	X				XXXX	B0xx	TP0	10
1.000	0.758	0.187	0.208	0.275	0.997	210	X	X	X	X	XXXX	B0xx	TP0	11
1.062	0.820	0.187	0.208	0.275	1.059	211	X		X	X	XXXX	B0xx	TP0	12
1.125	0.833	0.187	0.208	0.275	1.122	212	X	X	X	X	XXXX	B0xx	TP0	13
1.187	0.945	0.187	0.208	0.275	1.184	213	X		X		XXXX	B0xx	TP0	14
1.250	1.008	0.187	0.208	0.275	1.247	214	X		X		XXXX	B0xx	TP0	15
1.312	1.070	0.187	0.208	0.275	1.309	215	X		X		XXXX	B0xx	TP0	16
1.375	1.133	0.187	0.208	0.275	1.372	216	X		X	X	XXXX	B0xx	TP0	17
1.437	1.195	0.187	0.208	0.275	1.434	217	X		X		XXXX	B0xx	TP0	18
1.500	1.258	0.187	0.208	0.275	1.497	218	X	X	X	X	XXXX	B0xx	TP0	19
1.562	1.320	0.187	0.208	0.275	1.559	219	X				XXXX	B0xx	TP0	20
1.625	1.383	0.187	0.208	0.275	1.622	220	X	X	X		XXXX	B0xx	TP0	21
1.750	1.508	0.187	0.208	0.275	1.747	222	X	X	X	X	XXXX	B0xx	TP0	22
1.875	1.505	0.281	0.311	0.410	1.872	325	X	X	X	X	XXXX	B0xx	TP0	23
2.000	1.630	0.281	0.311	0.410	1.997	326	X	X	X	X	XXXX	B0xx	TP0	24
2.125	1.755	0.281	0.311	0.410	2.122	327	X		X	X	XXXX	B0xx	TP0	25
2.250	1.880	0.281	0.311	0.410	2.247	328	X		X		XXXX	B0xx	TP0	26
2.375	2.005	0.281	0.311	0.410	2.372	329	X		X		XXXX	B0xx	TP0	27
2.500	2.130	0.281	0.311	0.410	2.497	330	X	X	X	X	XXXX	B0xx	TP0	28
2.625	2.255	0.281	0.311	0.410	2.622	331	X		X	X	XXXX	B0xx	TP0	29
2.750	2.380	0.281	0.311	0.410	2.747	332	X		X		XXXX	B0xx	TP0	30
2.875	2.505	0.281	0.311	0.410	2.872	333	X		X	X	XXXX	B0xx	TP0	31
3.000	2.630	0.281	0.311	0.410	2.997	334	X	X	X		XXXX	B0xx	TP0	32
3.125	2.755	0.281	0.311	0.410	3.122	335	X		X		XXXX	B0xx	TP0	33
3.250	2.880	0.281	0.311	0.410	3.247	336	X	X	X	X	XXXX	B0xx	TP0	34
3.500	3.130	0.281	0.311	0.410	3.497	338	X	X	X	X	XXXX	B0xx	TP0	35
3.625	3.255	0.281	0.311	0.410	3.622	339	X		X		XXXX	B0xx	TP0	36
3.750	3.380	0.281	0.311	0.410	3.747	340	X		X		XXXX	B0xx	TP0	37
3.875	3.505	0.281	0.311	0.410	3.872	341	X		X		XXXX	B0xx	TP0	38
4.000	3.630	0.281	0.311	0.410	3.997	342	X	X	X	X	XXXX	B0xx	TP0	39
4.125	3.755	0.281	0.311	0.410	4.122	343	X		X	X	XXXX	B0xx	TP0	40
4.250	3.880	0.281	0.311	0.410	4.247	344	X	X	X		XXXX	B0xx	TP0	41
4.375	4.005	0.281	0.311	0.410	4.372	345	X		X		XXXX	B0xx	TP0	42
4.500	4.130	0.281	0.311	0.410	4.497	346	X	X	X	X	XXXX	B0xx	TP0	43
4.625	4.255	0.281	0.311	0.410	4.622	347	X				XXXX	B0xx	TP0	44
4.750	4.380	0.281	0.311	0.410	4.747	348	X	X	X	X	XXXX	B0xx	TP0	45
4.875	4.505	0.281	0.311	0.410	4.872	349	X		X		XXXX	B0xx	TP0	46
5.002	4.630	0.281	0.311	0.410	4.997	350	X	X	X		XXXX	B0xx	TP0	47
5.127	4.653	0.375	0.408	0.538	5.123	426	X		X		XXXX	B0xx	TP0	48
5.252	4.778	0.375	0.408	0.538	5.248	427	X	X	X		XXXX	B0xx	TP0	49
5.377	4.903	0.375	0.408	0.538	5.373	428	X	X	X		XXXX	B0xx	TP0	50

* If used with wear rings, refer to wear ring piston diameter, see Section 9.
**Chart reflects availability for TP0 only. For availability of TPS and TPT contact your local Parker Seal representative.

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Table 7-31. TP Gland Dimensions — Inch (Continued)

A Bore Diameter	B Groove Diameter	C			D Piston Diameter*	Ref. O-ring Dash Number	Compound Code				Part Number			
		TP0 Groove Width	TPS Groove Width	TPT Groove Width			4115	4274	4205	4259	Compound Code	Back-up Ring Code	Groove Width Code**	Size Code
+.002/ -.000	+.000/ -.002	+.005/ -.000	+.005/ -.000	+.005/ -.000	+.000/ -.001									
5.502	5.028	0.375	0.408	0.538	5.498	429	X	X		X	XXXX	B0xx	TP0	51
5.627	5.153	0.375	0.408	0.538	5.623	430	X				XXXX	B0xx	TP0	52
5.752	5.278	0.375	0.408	0.538	5.748	431	X	X	X	X	XXXX	B0xx	TP0	53
5.877	5.403	0.375	0.408	0.538	5.873	432	X				XXXX	B0xx	TP0	54
6.002	5.528	0.375	0.408	0.538	5.998	433	X	X	X		XXXX	B0xx	TP0	55
6.127	5.653	0.375	0.408	0.538	6.123	434	X				XXXX	B0xx	TP0	56
6.252	5.778	0.375	0.408	0.538	6.248	435	X				XXXX	B0xx	TP0	57
6.502	6.028	0.375	0.408	0.538	6.498	437	X		X		XXXX	B0xx	TP0	58
6.752	6.278	0.375	0.408	0.538	6.748	438	X		X		XXXX	B0xx	TP0	59
7.002	6.528	0.375	0.408	0.538	6.998	439	X		X		XXXX	B0xx	TP0	60
7.252	6.778	0.375	0.408	0.538	7.248	440	X		X		XXXX	B0xx	TP0	61
7.502	7.028	0.375	0.408	0.538	7.498	441	X			X	XXXX	B0xx	TP0	62
7.752	7.278	0.375	0.408	0.538	7.748	442	X				XXXX	B0xx	TP0	63
8.002	7.528	0.375	0.408	0.538	7.998	443	X	X	X		XXXX	B0xx	TP0	64
8.252	7.778	0.375	0.408	0.538	8.248	444	X				XXXX	B0xx	TP0	65
8.502	8.028	0.375	0.408	0.538	8.498	445	X		X		XXXX	B0xx	TP0	66
9.002	8.528	0.375	0.408	0.538	8.998	446	X				XXXX	B0xx	TP0	67
9.502	9.028	0.375	0.408	0.538	9.498	447	X				XXXX	B0xx	TP0	68
10.002	9.528	0.375	0.408	0.538	9.998	448	X				XXXX	B0xx	TP0	69
10.502	10.028	0.375	0.408	0.538	10.498	449	X				XXXX	B0xx	TP0	70
11.002	10.528	0.375	0.408	0.538	10.998	450	X				XXXX	B0xx	TP0	71
11.502	11.028	0.375	0.408	0.538	11.498	451	X				XXXX	B0xx	TP0	72
12.002	11.528	0.375	0.408	0.538	11.998	452	X		X		XXXX	B0xx	TP0	73
14.002	13.528	0.375	0.408	0.538	13.998	456	X			X	XXXX	B0xx	TP0	77
15.502	15.028	0.375	0.408	0.538	15.498	459	X				XXXX	B0xx	TP0	80
16.002	15.528	0.375	0.408	0.538	15.998	460	X			X	XXXX	B0xx	TP0	81
17.002	16.528	0.375	0.408	0.538	16.998	462	X				XXXX	B0xx	TP0	83
17.502	17.028	0.375	0.408	0.538	17.498	463	X				XXXX	B0xx	TP0	84
24.002	23.528	0.375	0.408	0.538	23.998	N/A	X		X	X	XXXX	B0xx	TP0	97

* If used with wear rings, refer to wear ring piston diameter, see Section 9.
**Chart reflects availability for TP0 only. For availability of TPS and TPT contact your local Parker Seal representative.
NOTE: For sizes larger than those shown in the table, please contact your local Parker Seal representative.

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