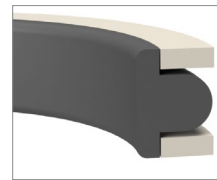
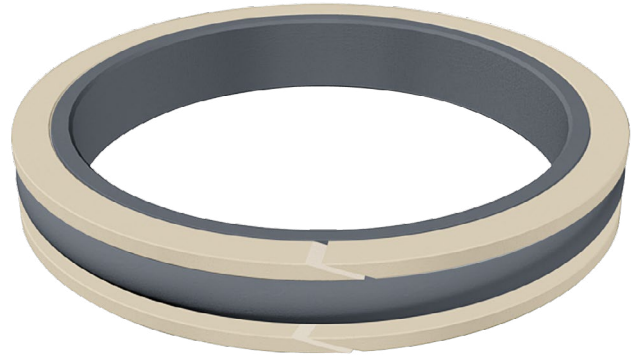
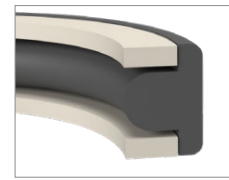


Seal Materials	Temp. Range		
Nitrile (NBR)	-40°C	to	120°C
Viton™/Fluorocarbon (FKM)	-26°C	to	204°C
Hydrogenated Nitrile (HNBR)	-40°C	to	160°C
Back-up Ring Materials			
Nylon/Polyamide (PA)	-54°C	to	121°C
Polytetrafluoroethylene (PTFE)	-260°C	to	260°C
KasPex™ PEEK	-70°C	to	260°C



Piston (TPO)



Rod (TRO)

## Product Description

T-seals are double acting seals that are available in both piston and rod profiles. Standard T-seals are designed to replace or retrofit traditional O-ring glands. They can accommodate higher pressures depending on material selection. The design is also considered to be more stable than an O-ring, as the T-seal shape helps to eliminate rolling or spiraling issues.

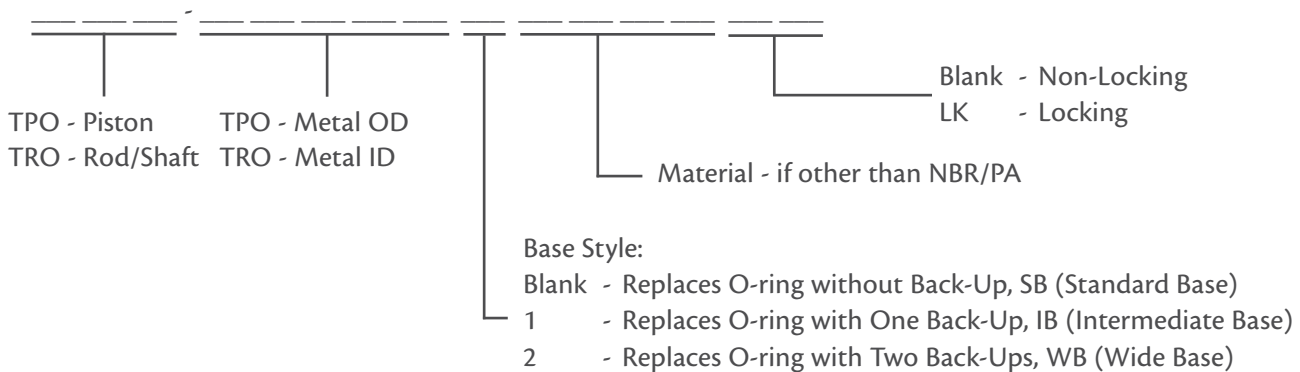
Our standard T-seals are non-locking designs composed of an NBR 70A sealing element and two integrated split PA back-up rings. Viton™ FKM sealing element and PTFE back-up rings are recommended for improved chemical resistance.

Increasing the sealing element hardness to 90A and/or upgrading to KasPex PEEK back-up rings is recommended for higher pressure (>5000 PSI) handling ability.

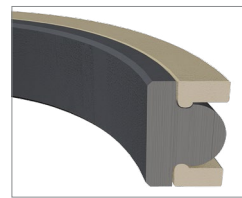
With proper seal design, material selection, and gland tolerances, our T-Seals are proven to handle well over 10,000 PSI. Please refer to the following [T-seal Case Study](#).

Contact us today for assistance in selecting the best T-seal design for your application.

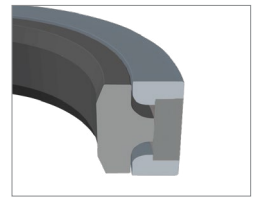
## Part Numbers:



## Locking Style



Locking T-seal (LK)



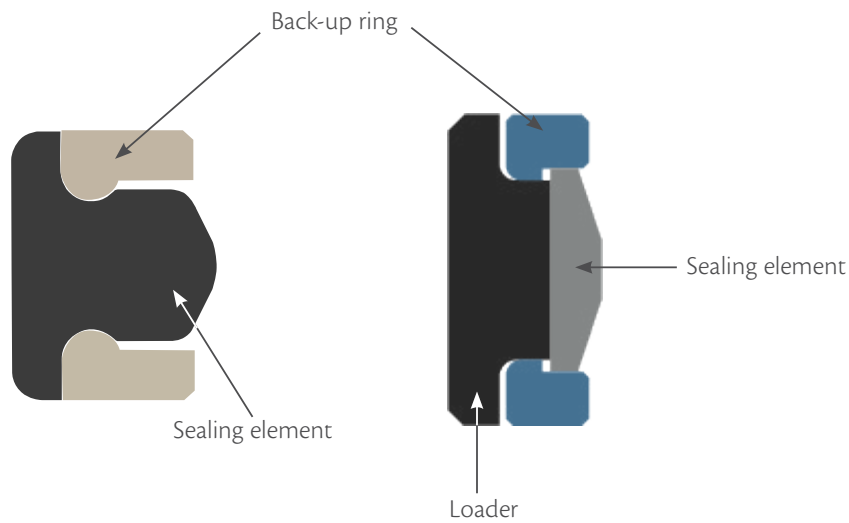
Locking Capped T-seal

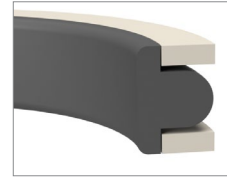
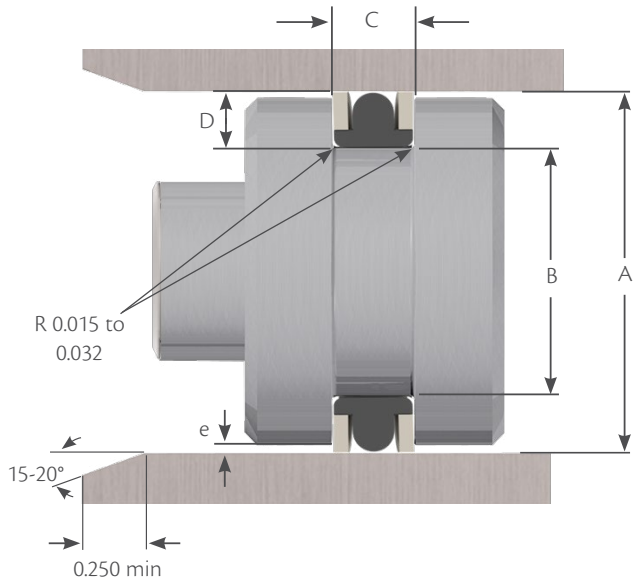
## Improve Ease of Installation

T-seals are also available in a locking profile (if required) which assists with the installation process. With the inter-locking design, customers benefit from:

- Reduced chance of installing the back-up rings incorrectly. This reduces the possibility that the back-up ring can be sheared off in a port or retaining ring groove during assembly.
- The back-up rings lock into the T-seal element when assembled in the seal gland

*The locking style T-seal (LK) is available for T-seals and capped piston T-seals (CTS). If installation issues occur when using T-seals, contact Hi-Tech Seals and inquire about locking T-seals.*





Groove Depth D	Series	Groove Width C			Maximum extrusion gap (e) e <sub>max</sub> at 80°C (175°F)		
		SB	IB	WB	1000 psi	3000 psi	5000 psi
0.091"	3/32 (100)	0.150	0.183	0.245	-	-	-
0.121"	1/8 (200)	0.185	0.235	0.304	0.025	0.008	0.005
0.185"	3/16 (300)	0.280	0.334	0.424	0.030	0.012	0.007
0.236"	1/4 (400)	0.366	0.475	0.579	0.035	0.017	0.010

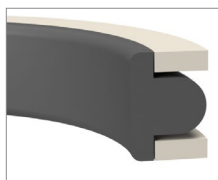
Standard Materials (NBR 70A + PA)

Part Numbers	Nominal Reference			A Bore Dia.	B Groove Dia.	C Groove Width
	ID	OD	C/S			
	Tolerance			+0.002 -0.000	+0.000 -0.002	+0.010 -0.000
TPO 0375	3/16	3/8	3/32	0.375	0.193	0.150
TPO 0437	1/4	7/16	3/32	0.437	0.255	0.150
TPO 0500	5/16	1/2	3/32	0.500	0.318	0.150
TPO 0562	5/16	9/16	1/8	0.562	0.320	0.185
TPO 0625	3/8	5/8	1/8	0.625	0.383	0.185
TPO 0687	7/16	11/16	1/8	0.687	0.445	0.185
TPO 0750	1/2	3/4	1/8	0.750	0.508	0.185
TPO 0812	9/16	13/16	1/8	0.812	0.570	0.185
TPO 0875	5/8	7/8	1/8	0.875	0.633	0.185
TPO 0937	11/16	15/16	1/8	0.937	0.695	0.185
TPO 1000	3/4	1	1/8	1.000	0.758	0.185
TPO 1062	13/16	1 - 1/16	1/8	1.062	0.820	0.185
TPO 1125	7/8	1 - 1/8	1/8	1.125	0.883	0.185
TPO 1187	15/16	1 - 3/16	1/8	1.187	0.945	0.185
TPO 1250	1	1 - 1/4	1/8	1.250	1.008	0.185
TPO 1312	1 - 1/16	1 - 5/16	1/8	1.312	1.070	0.185
TPO 1375	1 - 1/8	1 - 3/8	1/8	1.375	1.133	0.185
TPO 1437	1 - 3/16	1 - 7/16	1/8	1.437	1.195	0.185
TPO 1500	1 - 1/4	1 - 1/2	1/8	1.500	1.258	0.185
TPO 15001	1 - 1/4	1 - 1/2	1/8	1.500	1.258	0.235
TPO 15002	1 - 1/4	1 - 1/2	1/8	1.500	1.258	0.304
TPO 1562	1 - 5/16	1 - 9/16	1/8	1.562	1.320	0.185
TPO 1625	1 - 3/8	1 - 5/8	1/8	1.625	1.383	0.185
TPO 1687	1 - 7/16	1 - 11/16	1/8	1.687	1.445	0.185
TPO 1750	1 - 1/2	1 - 3/4	1/8	1.750	1.508	0.185
TPO 17501	1 - 1/2	1 - 3/4	1/8	1.750	1.508	0.235
TPO 17502	1 - 1/2	1 - 3/4	1/8	1.750	1.508	0.304
TPO 1875	1 - 1/2	1 - 7/8	3/16	1.875	1.505	0.280
TPO 2000	1 - 5/8	2	3/16	2.000	1.630	0.280

Part Numbers	Nominal Reference			A Bore Dia.	B Groove Dia.	C Groove Width
	ID	OD	C/S			
	Tolerance			+0.002 -0.000	+0.000 -0.002	+0.010 -0.000
TPO 20001	1 - 5/8	2	3/16	2.000	1.630	0.334
TPO 20002	1 - 5/8	2	3/16	2.000	1.630	0.424
TPO 2125	1 - 3/4	2 - 1/8	3/16	2.125	1.755	0.280
TPO 2250	1 - 7/8	2 - 1/4	3/16	2.250	1.880	0.280
TPO 22501	1 - 7/8	2 - 1/4	3/16	2.250	1.880	0.334
TPO 22502	1 - 7/8	2 - 1/4	3/16	2.250	1.880	0.424
TPO 2375	2	2 - 3/8	3/16	2.375	2.005	0.280
TPO 23752	2	2 - 3/8	3/16	2.375	2.005	0.424
TPO 2500	2 - 1/8	2 - 1/2	3/16	2.500	2.130	0.280
TPO 25001	2 - 1/8	2 - 1/2	3/16	2.500	2.130	0.334
TPO 25002	2 - 1/8	2 - 1/2	3/16	2.500	2.130	0.424
TPO 2625	2 - 1/4	2 - 5/8	3/16	2.625	2.255	0.280
TPO 2750	2 - 3/8	2 - 3/4	3/16	2.750	2.380	0.280
TPO 27502	2 - 3/8	2 - 3/4	3/16	2.750	2.380	0.424
TPO 2875	2 - 1/2	2 - 7/8	3/16	2.875	2.505	0.280
TPO 28752	2 - 1/2	2 - 7/8	3/16	2.875	2.505	0.424
TPO 3000	2 - 5/8	3	3/16	3.000	2.630	0.280
TPO 30001	2 - 5/8	3	3/16	3.000	2.630	0.334
TPO 30002	2 - 5/8	3	3/16	3.000	2.630	0.424
TPO 3125	2 - 3/4	3 - 1/8	3/16	3.125	2.755	0.280
TPO 3250	2 - 7/8	3 - 1/4	3/16	3.250	2.880	0.280
TPO 3375	3	3 - 3/8	3/16	3.375	3.005	0.280
TPO 3500	3 - 1/8	3 - 1/2	3/16	3.500	3.130	0.280
TPO 35001	3 - 1/8	3 - 1/2	3/16	3.500	3.130	0.334
TPO 35002	3 - 1/8	3 - 1/2	3/16	3.500	3.130	0.424
TPO 3625	3 - 1/4	3 - 5/8	3/16	3.625	3.255	0.280
TPO 3750	3 - 3/8	3 - 3/4	3/16	3.750	3.380	0.280
TPO 3875	3 - 1/2	3 - 7/8	3/16	3.875	3.505	0.280
TPO 4000	3 - 5/8	4	3/16	4.000	3.630	0.280



## Piston Style

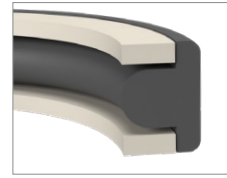
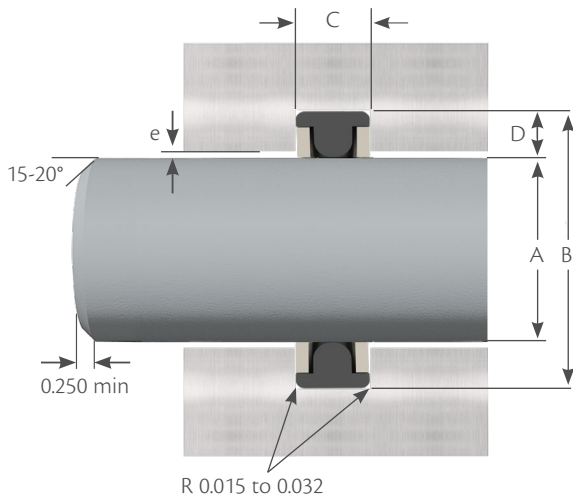


T-Seals

Part Numbers	Nominal Reference			A	B	C
	ID	OD	C/S	Bore Dia.	Groove Dia.	Groove Width
				<b>+0.002</b>	<b>+0.000</b>	<b>+0.010</b>
				<b>-0.000</b>	<b>-0.002</b>	<b>-0.000</b>
TPO 40001	3 - 5/8	4	3/16	4.000	3.630	0.334
TPO 40002	3 - 5/8	4	3/16	4.000	3.630	0.424
TPO 4125	3 - 3/4	4 - 1/8	3/16	4.125	3.755	0.280
TPO 4250	3 - 7/8	4 - 1/4	3/16	4.250	3.880	0.280
TPO 4375	4	4 - 3/8	3/16	4.375	4.005	0.280
TPO 4500	4 - 1/8	4 - 1/2	3/16	4.500	4.130	0.280
TPO 45001	4 - 1/8	4 - 1/2	3/16	4.500	4.130	0.334
TPO 45002	4 - 1/8	4 - 1/2	3/16	4.500	4.130	0.424
TPO 4625	4 - 1/4	4 - 5/8	3/16	4.625	4.255	0.280
TPO 46251	4 - 1/4	4 - 5/8	3/16	4.625	4.255	0.334
TPO 4750	4 - 3/8	4 - 3/4	3/16	4.750	4.380	0.280
TPO 47502	4 - 3/8	4 - 3/4	3/16	4.750	4.380	0.424
TPO 4875	4 - 1/2	4 - 7/8	3/16	4.875	4.505	0.280
TPO 5000	4 - 5/8	5	3/16	5.000	4.630	0.280
TPO 50001	4 - 5/8	5	3/16	5.000	4.630	0.334
TPO 50002	4 - 1/2	5	1/4	5.000	4.528	0.579
TPO 5125	4 - 5/8	5 - 1/8	1/4	5.125	4.653	0.366
TPO 5250	4 - 3/4	5 - 1/4	1/4	5.250	4.778	0.366
TPO 52502	4 - 3/4	5 - 1/4	1/4	5.250	4.778	0.579
TPO 5375	4 - 7/8	5 - 3/8	1/4	5.375	4.903	0.366
TPO 5500	5	5 - 1/2	1/4	5.500	5.028	0.366
TPO 55001	5	5 - 1/2	1/4	5.500	5.028	0.475
TPO 55002	5	5 - 1/2	1/4	5.500	5.028	0.579
TPO 5625	5 - 1/8	5 - 5/8	1/4	5.625	5.153	0.366
TPO 5750	5 - 1/4	5 - 3/4	1/4	5.750	5.278	0.366
TPO 5875	5 - 3/8	5 - 7/8	1/4	5.875	5.403	0.366
TPO 6000	5 - 1/2	6	1/4	6.000	5.528	0.366
TPO 60001	5 - 1/2	6	1/4	6.000	5.528	0.475
TPO 60002	5 - 1/2	6	1/4	6.000	5.528	0.579
TPO 6125	5 - 3/8	6 - 1/8	1/4	6.125	5.653	0.366
TPO 6250	5 - 3/4	6 - 1/4	1/4	6.250	5.778	0.366
TPO 62501	5 - 3/4	6 - 1/4	1/4	6.250	5.778	0.475
TPO 62502	5 - 3/4	6 - 1/4	1/4	6.250	5.778	0.579
TPO 6375	5 - 7/8	6 - 3/8	1/4	6.375	5.903	0.366

Part Numbers	Nominal Reference			A	B	C
	ID	OD	C/S	Bore Dia.	Groove Dia.	Groove Width
				<b>+0.002</b>	<b>+0.000</b>	<b>+0.010</b>
				<b>-0.000</b>	<b>-0.002</b>	<b>-0.000</b>
TPO 6500	6	6 - 1/2	1/4	6.500	6.028	0.366
TPO 65001	6	6 - 1/2	1/4	6.500	6.028	0.475
TPO 65002	6	6 - 1/2	1/4	6.500	6.028	0.579
TPO 6750	6 - 1/4	6 - 3/4	1/4	6.750	6.278	0.366
TPO 7000	6 - 1/2	7	1/4	7.000	6.528	0.366
TPO 70001	6 - 1/2	7	1/4	7.000	6.528	0.475
TPO 70002	6 - 1/2	7	1/4	7.000	6.528	0.579
TPO 7250	6 - 3/4	7 - 1/4	1/4	7.250	6.778	0.366
TPO 7500	7	7 - 1/2	1/4	7.500	7.028	0.366
TPO 75002	7	7 - 1/2	1/4	7.500	7.028	0.579
TPO 7750	7 - 1/4	7 - 3/4	1/4	7.750	7.278	0.366
TPO 8000	7 - 1/2	8	1/4	8.000	7.528	0.366
TPO 80002	7 - 1/2	8	1/4	8.000	7.528	0.579
TPO 8250	7 - 3/4	8 - 1/4	1/4	8.250	7.778	0.366
TPO 82501	7 - 3/4	8 - 1/4	1/4	8.250	7.778	0.475
TPO 8500	8	8 - 1/2	1/4	8.500	8.028	0.366
TPO 9000	8 - 1/2	9	1/4	9.000	8.528	0.366
TPO 90001	8 - 1/2	9	1/4	9.000	8.528	0.475
TPO 90002	8 - 1/2	9	1/4	9.000	8.528	0.579
TPO 9500	9	9 - 1/2	1/4	9.500	9.028	0.366
TPO 10000	9 - 1/2	10	1/4	10.000	9.528	0.366
TPO 100001	9 - 1/2	10	1/4	10.000	9.528	0.475
TPO 10500	10	10 - 1/2	1/4	10.500	10.028	0.366
TPO 11000	10 - 1/2	11	1/4	11.000	10.528	0.366
TPO 11500	11	11 - 1/2	1/4	11.500	11.028	0.366
TPO 12000	11 - 1/2	12	1/4	12.000	11.528	0.366
TPO 120001	11 - 1/2	12	1/4	12.000	11.528	0.475
TPO 12500	12	12 - 1/2	1/4	12.500	12.028	0.366
TPO 13000	12 - 1/2	13	1/4	13.000	12.528	0.366
TPO 130001	12 - 1/2	13	1/4	13.000	12.528	0.475
TPO 13500	13	13 - 1/2	1/4	13.500	13.028	0.366
TPO 14000	13 - 1/2	14	1/4	14.000	13.528	0.366
TPO 140001	13 - 1/2	14	1/4	14.000	13.528	0.475
TPO 15500	15	15 - 1/2	1/4	15.500	15.028	0.366

## Rod Style



Groove Depth D	Series	Groove Width C			Maximum extrusion gap (e) e <sub>max</sub> at 80°C (175°F)		
		SB	IB	WB	1000 psi	3000 psi	5000 psi
Standard Materials (NBR 70A + PA)							
0.091"	3/32 (100)	0.150	0.183	0.245	-	-	-
0.121"	1/8 (200)	0.185	0.235	0.304	0.025	0.008	0.005
0.185"	3/16 (300)	0.280	0.334	0.424	0.030	0.012	0.007
0.236"	1/4 (400)	0.366	0.475	0.579	0.035	0.017	0.010

Part Numbers	Nominal Reference			A Shaft Dia.	B Groove Dia.	C Groove Width
	ID	OD	C/S			
	Tolerance			+0.000 -0.002	+0.002 -0.000	+0.010 -0.000
TRO 0187	3/16	3/8	3/32	0.187	0.369	0.150
TRO 0250	1/4	7/16	3/32	0.250	0.432	0.150
TRO 0312	5/16	1/2	3/32	0.312	0.494	0.150
TRO 0375	3/8	5/8	1/8	0.375	0.617	0.185
TRO 0437	7/16	11/16	1/8	0.437	0.679	0.185
TRO 0500	1/2	3/4	1/8	0.500	0.742	0.185
TRO 0562	9/16	13/16	1/8	0.562	0.804	0.185
TRO 0625	5/8	7/8	1/8	0.625	0.867	0.185
TRO 0687	11/16	15/16	1/8	0.687	0.929	0.185
TRO 0750	3/4	1	1/8	0.750	0.992	0.185
TRO 0812	13/16	1 - 1/16	1/8	0.812	1.054	0.185
TRO 0875	7/8	1 - 1/8	1/8	0.875	1.117	0.185
TRO 0937	15/16	1 - 3/16	1/8	0.937	1.179	0.185
TRO 1000	1	1 - 1/4	1/8	1.000	1.242	0.185
TRO 1062	1 - 1/16	1 - 5/16	1/8	1.062	1.304	0.185
TRO 1125	1 - 1/8	1 - 3/8	1/8	1.125	1.367	0.185
TRO 1187	1 - 3/16	1 - 7/16	1/8	1.187	1.429	0.185
TRO 1250	1 - 1/4	1 - 1/2	1/8	1.250	1.492	0.185
TRO 1312	1 - 5/16	1 - 9/16	1/8	1.312	1.554	0.185
TRO 1375	1 - 3/8	1 - 5/8	1/8	1.375	1.617	0.185
TRO 1437	1 - 7/16	1 - 11/16	1/8	1.437	1.679	0.185
TRO 1500	1 - 1/2	1 - 3/4	1/8	1.500	1.742	0.185
TRO 15001	1 - 1/2	1 - 3/4	1/8	1.500	1.742	0.235
TRO 1625	1 - 5/8	2	3/16	1.625	1.995	0.280
TRO 1750	1 - 3/4	2 - 1/8	3/16	1.750	2.120	0.280
TRO 1875	1 - 7/8	2 - 1/4	3/16	1.875	2.245	0.280
TRO 2000	2	2 - 3/8	3/16	2.000	2.370	0.280
TRO 2125	2 - 1/8	2 - 1/2	3/16	2.125	2.495	0.280
TRO 2250	2 - 1/4	2 - 5/8	3/16	2.250	2.620	0.280
TRO 2375	2 - 3/8	2 - 3/4	3/16	2.375	2.745	0.280
TRO 2500	2 - 1/2	2 - 7/8	3/16	2.500	2.870	0.280
TRO 2625	2 - 5/8	3	3/16	2.625	2.995	0.280
TRO 2750	2 - 3/4	3 - 1/8	3/16	2.750	3.120	0.280
TRO 2875	2 - 7/8	3 - 1/4	3/16	2.875	3.245	0.280

Part Numbers	Nominal Reference			A Shaft Dia.	B Groove Dia.	C Groove Width
	ID	OD	C/S			
	Tolerance			+0.000 -0.002	+0.002 -0.000	+0.010 -0.000
TRO 3000	3	3 - 3/8	3/16	3.000	3.370	0.280
TRO 3125	3 - 1/8	3 - 1/2	3/16	3.125	3.495	0.280
TRO 3250	3 - 1/4	3 - 5/8	3/16	3.250	3.620	0.280
TRO 3375	3 - 3/8	3 - 3/4	3/16	3.375	3.745	0.280
TRO 3500	3 - 1/2	3 - 7/8	3/16	3.500	3.870	0.280
TRO 3625	3 - 5/8	4	3/16	3.625	3.995	0.280
TRO 3750	3 - 3/4	4 - 1/8	3/16	3.750	4.120	0.280
TRO 3875	3 - 7/8	4 - 1/4	3/16	3.875	4.245	0.280
TRO 4000	4	4 - 3/8	3/16	4.000	4.370	0.280
TRO 4125	4 - 1/8	4 - 1/2	3/16	4.125	4.495	0.280
TRO 4250	4 - 1/4	4 - 5/8	3/16	4.250	4.620	0.280
TRO 4375	4 - 3/8	4 - 3/4	3/16	4.375	4.745	0.280
TRO 4500	4 - 1/2	4 - 7/8	3/16	4.500	4.870	0.280
TRO 5000	5	5 - 1/2	1/4	5.000	5.472	0.366
TRO 5250	5 - 1/4	5 - 3/4	1/4	5.250	5.722	0.366
TRO 5500	5 - 1/2	6	1/4	5.500	5.972	0.366
TRO 5625	5 - 5/8	6 - 1/8	1/4	5.625	6.097	0.366
TRO 5875	5 - 7/8	6 - 3/8	1/4	5.875	6.347	0.366
TRO 6000	6	6 - 1/2	1/4	6.000	6.472	0.366
TRO 6250	6 - 1/4	6 - 3/4	1/4	6.250	6.722	0.366
TRO 6500	6 - 1/2	7	1/4	6.500	6.972	0.366
TRO 6750	6 - 3/4	7 - 1/4	1/4	6.750	7.222	0.366
TRO 7000	7	7 - 1/2	1/4	7.000	7.472	0.366
TRO 7250	7 - 1/4	7 - 3/4	1/4	7.250	7.722	0.366
TRO 7500	7 - 1/2	8	1/4	7.500	7.972	0.366
TRO 7750	7 - 3/4	8 - 1/4	1/4	7.750	8.222	0.366
TRO 8000	8	8 - 1/2	1/4	8.000	8.472	0.366
TRO 8500	8 - 1/2	9	1/4	8.500	8.972	0.366
TRO 9000	9	9 - 1/2	1/4	9.000	9.472	0.366
TRO 9500	9 - 1/2	10	1/4	9.500	9.972	0.366
TRO 10000	10	10 - 1/2	1/4	10.000	10.472	0.366
TRO 10500	10 - 1/2	11	1/4	10.500	10.972	0.366
TRO 11000	11	11 - 1/2	1/4	11.000	11.472	0.366
TRO 11500	11 - 1/2	12	1/4	11.500	11.972	0.366

T-Seals