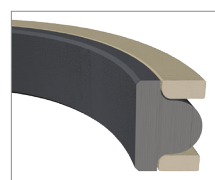
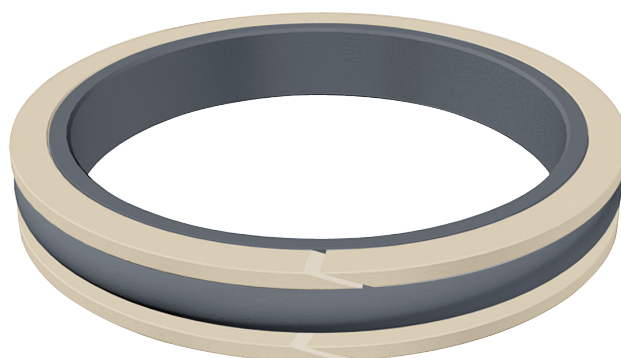
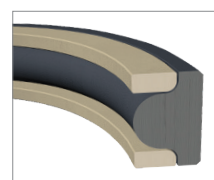


Seal Materials	Temp. Range	
Nitrile	-40°C	to 120°C
Viton™/Fluorocarbon	-26°C	to 204°C
Hydrogenated Nitrile	-40°C	to 160°C
EPDM	-54°C	to 150°C
Perfluoroelastomer	-15°C	to 310°C
Aflas® FEPM	-9°C	to 232°C
Back-up Ring Materials		
Nylon	-54°C	to 121°C
PTFE	-268°C	to 232°C
PEEK	-70°C	to 260°C



Piston (TPO)



Rod (TRO)

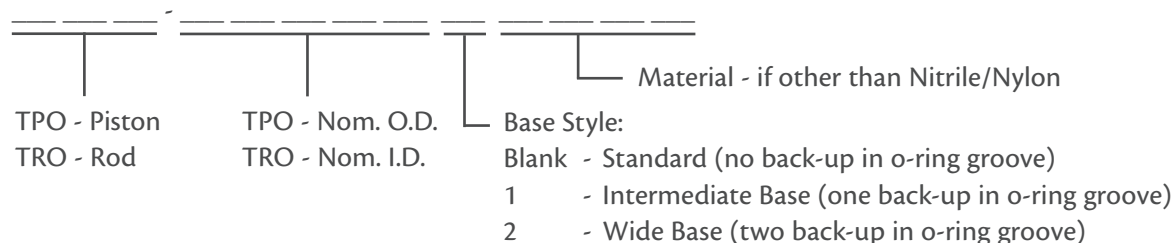
## Product Description

T-seals have a double acting seal design that are available in both piston and rod profiles. A standard O-ring groove can accommodate either a piston and rod profile. Their design aid in preventing extrusion up to 5000 psi. They are also a more reliable options, as they help eliminate the rolling or spiraling associated with O-rings.

Our standard T-seals are composed of a nitrile sealing element and two split nylon back-up rings. A popular combination for added chemical resistance is our Viton™ and PEEK T-seal.

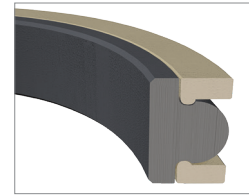
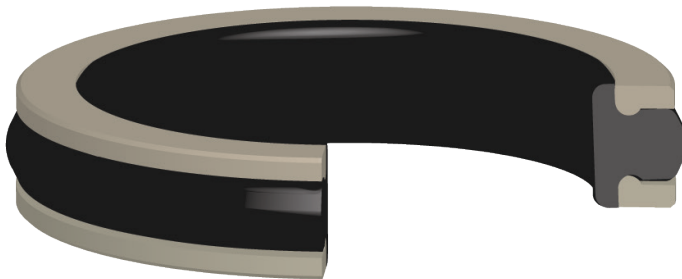
Contact us for assistance when replacing an O-ring and back-up combination with a T-Seal.

## Part Numbers:

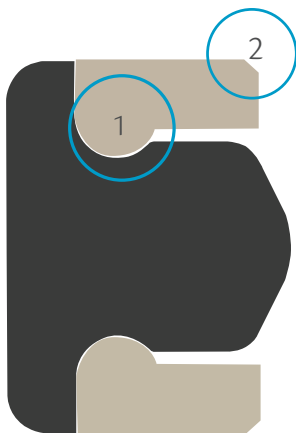


**Example:** TPO 0875VPPEEK - Viton™ Piston T-seal, PEEK Back-Up Rings, 7/8” Nom. O.D., 1/8” Nom. C/S

## Locking Style



## Improve Ease of Installation



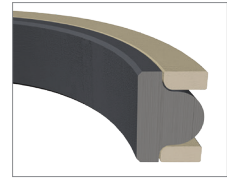
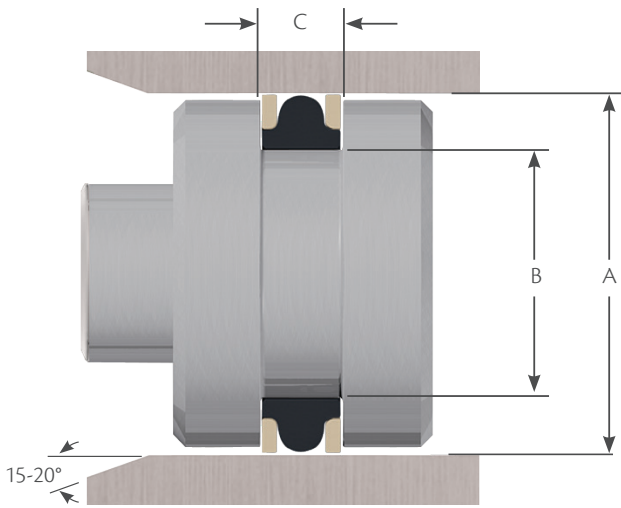
1 . Piston T-seals are available in locking profile which assists with the installation process. With the inter-locking design, customers benefit from:

- A reduced chance of installing the back-up rings incorrectly.
- The back-up rings lock into the T-seal element when assembled in the seal gland.

2. Chamfered back-up ring reduces the possibility that the back-up ring can be sheared off in a port or retaining ring groove during assembly.

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

## Piston Style



### Piston Clearance Limits

Bore Size Range	Max. Dia. Clearance
0.250" to 0.500"	0.004"
0.501" to 1.750"	0.005"
1.751" to 4.875"	0.007"
4.876" to 9.000"	0.009"
9.001" - up	0.010"

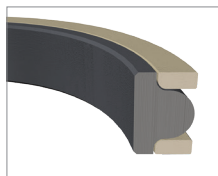
Part Numbers	Nominal Reference			A Bore Dia.	B Groove Dia.	C Groove Width
	I.D.	O.D.	C/S			
	<b>Tolerance</b>			<b>+0.001 -0.001</b>	<b>+0.002 -0.000</b>	<b>+0.010 -0.000</b>
TPO 0375	3/16	3/8	3/32	0.375	0.190	0.150
TPO 0437	1/4	7/16	3/32	0.437	0.252	0.150
TPO 0500	5/16	1/2	3/32	0.500	0.315	0.150
TPO 0562	5/16	9/16	1/8	0.562	0.317	0.185
TPO 0625	3/8	5/8	1/8	0.625	0.380	0.185
TPO 0687	7/16	11/16	1/8	0.687	0.442	0.185
TPO 0750	1/2	3/4	1/8	0.750	0.505	0.185
TPO 0812	9/16	13/16	1/8	0.812	0.567	0.185
TPO 0875	5/8	7/8	1/8	0.875	0.630	0.185
TPO 0937	11/16	15/16	1/8	0.937	0.692	0.185
TPO 1000	3/4	1	1/8	1.001	0.756	0.185
TPO 1062	13/16	1 - 1/16	1/8	1.063	0.818	0.185
TPO 1125	7/8	1 - 1/8	1/8	1.126	0.881	0.185
TPO 1187	15/16	1 - 3/16	1/8	1.188	0.943	0.185
TPO 1250	1	1 - 1/4	1/8	1.251	1.006	0.185
TPO 1312	1 - 1/16	1 - 5/16	1/8	1.313	1.068	0.185
TPO 1375	1 - 1/8	1 - 3/8	1/8	1.376	1.131	0.185
TPO 1437	1 - 3/16	1 - 7/16	1/8	1.438	1.193	0.185
TPO 1500	1 - 1/4	1 - 1/2	1/8	1.501	1.256	0.185
TPO 15001	1 - 1/4	1 - 1/2	1/8	1.501	1.256	0.235
TPO 15002	1 - 1/4	1 - 1/2	1/8	1.501	1.256	0.304
TPO 1562	1 - 5/16	1 - 9/16	1/8	1.563	1.318	0.185
TPO 1625	1 - 3/8	1 - 5/8	1/8	1.626	1.381	0.185
TPO 1687	1 - 7/16	1 - 11/16	1/8	1.688	1.442	0.185
TPO 1750	1 - 1/2	1 - 3/4	1/8	1.751	1.506	0.185
TPO 17501	1 - 1/2	1 - 3/4	1/8	1.751	1.506	0.235
TPO 17502	1 - 1/2	1 - 3/4	1/8	1.751	1.506	0.304
TPO 1875	1 - 1/2	1 - 7/8	3/16	1.876	1.502	0.280
TPO 2000	1 - 5/8	2	3/16	2.001	1.627	0.280

Part Numbers	Nominal Reference			A Bore Dia.	B Groove Dia.	C Groove Width
	I.D.	O.D.	C/S			
	<b>Tolerance</b>			<b>+0.001</b>	<b>+0.002</b>	<b>+0.010</b>
TPO 20001	1 - 5/8	2	3/16	2.001	1.627	0.334
TPO 20002	1 - 5/8	2	3/16	2.001	1.627	0.424
TPO 2125	1 - 3/4	2 - 1/8	3/16	2.126	1.752	0.280
TPO 2250	1 - 7/8	2 - 1/4	3/16	2.251	1.877	0.280
TPO 22501	1 - 7/8	2 - 1/4	3/16	2.251	1.877	0.334
TPO 22502	1 - 7/8	2 - 1/4	3/16	2.251	1.877	0.424
TPO 2375	2	2 - 3/8	3/16	2.376	2.002	0.280
TPO 23752	2	2 - 3/8	3/16	2.376	2.002	0.424
TPO 2500	2 - 1/8	2 - 1/2	3/16	2.501	2.127	0.280
TPO 25001	2 - 1/8	2 - 1/2	3/16	2.501	2.127	0.334
TPO 25002	2 - 1/8	2 - 1/2	3/16	2.501	2.127	0.424
TPO 2625	2 - 1/4	2 - 5/8	3/16	2.626	2.252	0.280
	<b>Tolerance</b>			<b>+0.002 -0.002</b>	<b>+0.003 -0.001</b>	<b>+0.010 -0.000</b>
TPO 2750	2 - 3/8	2 - 3/4	3/16	2.751	2.377	0.280
TPO 27502	2 - 3/8	2 - 3/4	3/16	2.751	2.377	0.424
TPO 2875	2 - 1/2	2 - 7/8	3/16	2.876	2.502	0.280
TPO 28752	2 - 1/2	2 - 7/8	3/16	2.876	2.502	0.424
TPO 3000	2 - 5/8	3	3/16	3.001	2.627	0.280
TPO 30001	2 - 5/8	3	3/16	3.001	2.627	0.334
TPO 30002	2 - 5/8	3	3/16	3.001	2.627	0.424
TPO 3125	2 - 3/4	3 - 1/8	3/16	3.126	2.752	0.280
TPO 3250	2 - 7/8	3 - 1/4	3/16	3.251	2.877	0.280
TPO 3375	3	3 - 3/8	3/16	3.377	3.003	0.280
TPO 3500	3 - 1/8	3 - 1/2	3/16	3.502	3.128	0.280
TPO 35001	3 - 1/8	3 - 1/2	3/16	3.502	3.128	0.334
TPO 35002	3 - 1/8	3 - 1/2	3/16	3.502	3.128	0.424
TPO 3625	3 - 1/4	3 - 5/8	3/16	3.627	3.253	0.280
TPO 3750	3 - 3/8	3 - 3/4	3/16	3.752	3.378	0.280

# T-Seals

IMPERIAL SEALS

## Piston Style

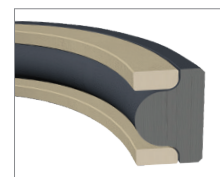
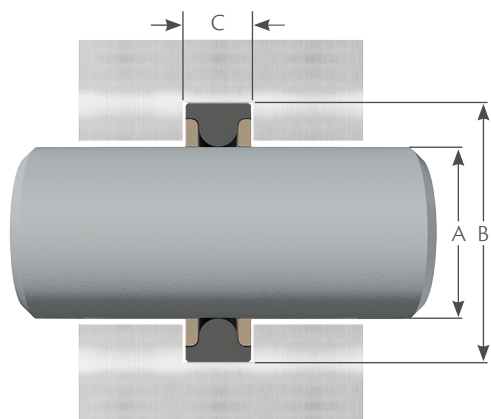


T-Seals

Part Numbers	Nominal Reference			A Bore Dia.	B Groove Dia.	C Groove Width
	I.D.	O.D.	C/S			
	Tolerance			+0.002 -0.002	+0.003 -0.001	+0.010 -0.000
TPO 3875	3 - 1/2	3 - 7/8	3/16	3.877	3.503	0.280
TPO 4000	3 - 5/8	4	3/16	4.002	3.628	0.280
TPO 40001	3 - 5/8	4	3/16	4.002	3.628	0.334
TPO 40002	3 - 5/8	4	3/16	4.002	3.628	0.424
TPO 4125	3 - 3/4	4 - 1/8	3/16	4.127	3.753	0.280
TPO 4250	3 - 7/8	4 - 1/4	3/16	4.252	3.878	0.280
TPO 4375	4	4 - 3/8	3/16	4.377	4.003	0.280
TPO 4500	4 - 1/8	4 - 1/2	3/16	4.502	4.128	0.280
TPO 45001	4 - 1/8	4 - 1/2	3/16	4.502	4.128	0.334
TPO 45002	4 - 1/8	4 - 1/2	3/16	4.502	4.128	0.424
TPO 4625	4 - 1/4	4 - 5/8	3/16	4.627	4.253	0.280
TPO 46251	4 - 1/4	4 - 5/8	3/16	4.627	4.253	0.334
TPO 4750	4 - 3/8	4 - 3/4	3/16	4.752	4.378	0.280
TPO 47502	4 - 3/8	4 - 3/4	3/16	4.752	4.378	0.424
TPO 4875	4 - 1/2	4 - 7/8	3/16	4.877	4.503	0.280
TPO 5000	4 - 5/8	5	3/16	5.003	4.629	0.280
TPO 50001	4 - 5/8	5	3/16	5.003	4.629	0.334
TPO 50002	4 - 1/2	5	1/4	5.000	4.524	0.475
TPO 50003	4 - 1/2	5	1/4	5.000	4.524	0.579
TPO 5125	4 - 5/8	5 - 1/8	1/4	5.128	4.649	0.366
TPO 5250	4 - 3/4	5 - 1/4	1/4	5.253	4.774	0.366
TPO 52502	4 - 3/4	5 - 1/4	1/4	5.253	4.774	0.579
TPO 5375	4 - 7/8	5 - 3/8	1/4	5.378	4.899	0.366
TPO 5500	5	5 - 1/2	1/4	5.503	5.024	0.366
TPO 55001	5	5 - 1/2	1/4	5.503	5.024	0.475
TPO 55002	5	5 - 1/2	1/4	5.503	5.024	0.579
TPO 5625	5 - 1/8	5 - 5/8	1/4	5.628	5.149	0.366
TPO 5750	5 - 1/4	5 - 3/4	1/4	5.753	5.274	0.366
TPO 5875	5 - 3/8	5 - 7/8	1/4	5.878	5.399	0.366
TPO 6000	5 - 1/2	6	1/4	6.003	5.524	0.366
TPO 60001	5 - 1/2	6	1/4	6.003	5.524	0.475
TPO 60002	5 - 1/2	6	1/4	6.003	5.524	0.579
TPO 6125	5 - 3/8	6 - 1/8	1/4	6.128	5.649	0.366
TPO 6250	5 - 3/4	6 - 1/4	1/4	6.253	5.774	0.366
TPO 62501	5 - 3/4	6 - 1/4	1/4	6.253	5.774	0.475
TPO 62502	5 - 3/4	6 - 1/4	1/4	6.253	5.774	0.579

Part Numbers	Nominal Reference			A Bore Dia.	B Groove Dia.	C Groove Width
	I.D.	O.D.	C/S			
	Tolerance			+0.003 -0.003	+0.004 -0.002	+0.010 -0.000
TPO 6375	5 - 7/8	6 - 3/8	1/4	6.378	5.899	0.366
TPO 6500	6	6 - 1/2	1/4	6.503	6.024	0.366
TPO 65001	6	6 - 1/2	1/4	6.503	6.024	0.475
TPO 65002	6	6 - 1/2	1/4	6.503	6.024	0.579
TPO 6750	6 - 1/4	6 - 3/4	1/4	6.753	6.274	0.366
TPO 7000	6 - 1/2	7	1/4	7.003	6.524	0.366
TPO 70001	6 - 1/2	7	1/4	7.003	6.524	0.475
TPO 70002	6 - 1/2	7	1/4	7.003	6.524	0.579
TPO 7250	6 - 3/4	7 - 1/4	1/4	7.253	6.774	0.366
TPO 7500	7	7 - 1/2	1/4	7.503	7.024	0.366
TPO 75002	7	7 - 1/2	1/4	7.503	7.024	0.579
TPO 7750	7 - 1/4	7 - 3/4	1/4	7.753	7.274	0.366
TPO 8000	7 - 1/2	8	1/4	8.003	7.524	0.366
TPO 80002	7 - 1/2	8	1/4	8.003	7.524	0.579
TPO 8250	7 - 3/4	8 - 1/4	1/4	8.253	7.774	0.366
TPO 82501	7 - 3/4	8 - 1/4	1/4	8.253	7.774	0.475
TPO 8500	8	8 - 1/2	1/4	8.503	8.024	0.366
TPO 9000	8 - 1/2	9	1/4	9.003	8.524	0.366
TPO 90001	8 - 1/2	9	1/4	9.003	8.524	0.475
TPO 90002	8 - 1/2	9	1/4	9.003	8.524	0.579
TPO 9500	9	9 - 1/2	1/4	9.503	9.024	0.366
TPO 10000	9 - 1/2	10	1/4	10.003	9.524	0.366
TPO 100001	9 - 1/2	10	1/4	10.003	9.524	0.475
TPO 10500	10	10 - 1/2	1/4	10.503	10.024	0.366
TPO 11000	10 - 1/2	11	1/4	11.003	10.524	0.366
TPO 11500	11	11 - 1/2	1/4	11.503	11.024	0.366
TPO 12000	11 - 1/2	12	1/4	12.003	11.524	0.366
TPO 120001	11 - 1/2	12	1/4	12.003	11.524	0.475
TPO 12500	12	12 - 1/2	1/4	12.503	12.024	0.366
TPO 13000	12 - 1/2	13	1/4	13.003	12.524	0.366
TPO 130001	12 - 1/2	13	1/4	13.003	12.524	0.475
TPO 13500	13	13 - 1/2	1/4	13.503	13.024	0.366
TPO 14000	13 - 1/2	14	1/4	14.003	13.524	0.366
TPO 140001	13 - 1/2	14	1/4	14.003	13.524	0.475
TPO 15500	15	15 - 1/2	1/4	15.503	15.024	0.366

## Rod Style



### Throat Clearance Limits

Shaft Size Range	Max. Dia. Clearance
0.123" to 0.375"	0.004"
0.376" to 1.500"	0.005"
1.501" to 4.500"	0.007"
4.501" to 8.500"	0.009"
8.501" - up	0.010"

Part Numbers	Nominal Reference			A	B	C
	I.D.	O.D.	C/S	Shaft Dia.	Groove Dia.	Groove Width
<b>Tolerance</b>				<b>+0.001</b>	<b>+0.002</b>	<b>+0.010</b>
				<b>-0.001</b>	<b>-0.002</b>	<b>-0.000</b>
TRO 0187	3/16	3/8	3/32	0.186	0.370	0.150
TRO 0250	1/4	7/16	3/32	0.248	0.433	0.150
TRO 0312	5/16	1/2	3/32	0.310	0.495	0.150
TRO 0375	3/8	5/8	1/8	0.373	0.618	0.185
TRO 0437	7/16	11/16	1/8	0.435	0.680	0.185
TRO 0500	1/2	3/4	1/8	0.498	0.743	0.185
TRO 0562	9/16	13/16	1/8	0.560	0.805	0.185
TRO 0625	5/8	7/8	1/8	0.623	0.868	0.185
TRO 0687	11/16	15/16	1/8	0.685	0.930	0.185
TRO 0750	3/4	1	1/8	0.747	0.992	0.185
TRO 0812	13/16	1 - 1/16	1/8	0.809	1.054	0.185
TRO 0875	7/8	1 - 1/8	1/8	0.872	1.117	0.185
TRO 0937	15/16	1 - 3/16	1/8	0.934	1.179	0.185
TRO 1000	1	1 - 1/4	1/8	0.997	1.242	0.185
TRO 1062	1 - 1/16	1 - 5/16	1/8	1.059	1.304	0.185
TRO 1125	1 - 1/8	1 - 3/8	1/8	1.122	1.367	0.185
TRO 1187	1 - 3/16	1 - 7/16	1/8	1.184	1.429	0.185
TRO 1250	1 - 1/4	1 - 1/2	1/8	1.247	1.492	0.185
TRO 1312	1 - 5/16	1 - 9/16	1/8	1.309	1.554	0.185
TRO 1375	1 - 3/8	1 - 5/8	1/8	1.372	1.617	0.185
TRO 1437	1 - 7/16	1 - 11/16	1/8	1.434	1.679	0.185
TRO 1500	1 - 1/2	1 - 3/4	1/8	1.497	1.742	0.185
TRO 15001	1 - 1/2	1 - 3/4	1/8	1.497	1.742	0.235
TRO 1625	1 - 5/8	2	3/16	1.622	1.996	0.280
TRO 1750	1 - 3/4	2 - 1/8	3/16	1.747	2.121	0.280
TRO 1875	1 - 7/8	2 - 1/4	3/16	1.872	2.246	0.280
TRO 2000	2	2 - 3/8	3/16	1.997	2.371	0.280
TRO 2125	2 - 1/8	2 - 1/2	3/16	2.122	2.496	0.280
TRO 2250	2 - 1/4	2 - 5/8	3/16	2.247	2.613	0.280
<b>Tolerance</b>				<b>+0.002</b>	<b>+0.001</b>	<b>+0.010</b>
				<b>-0.002</b>	<b>-0.003</b>	<b>-0.000</b>
TRO 2375	2 - 3/8	2 - 3/4	3/16	2.372	2.746	0.280
TRO 2500	2 - 1/2	2 - 7/8	3/16	2.497	2.871	0.280
TRO 2625	2 - 5/8	3	3/16	2.622	2.996	0.280
TRO 2750	2 - 3/4	3 - 1/8	3/16	2.747	3.121	0.280
TRO 2875	2 - 7/8	3 - 1/4	3/16	2.872	3.246	0.280

Part Numbers	Nominal Reference			A	B	C
	I.D.	O.D.	C/S	Shaft Dia.	Groove Dia.	Groove Width
<b>Tolerance</b>				<b>+0.002</b>	<b>+0.001</b>	<b>+0.010</b>
				<b>-0.002</b>	<b>-0.003</b>	<b>-0.000</b>
TRO 3000	3	3 - 3/8	3/16	2.996	3.370	0.280
TRO 3125	3 - 1/8	3 - 1/2	3/16	3.121	3.495	0.280
TRO 3250	3 - 1/4	3 - 5/8	3/16	3.246	3.620	0.280
TRO 3375	3 - 3/8	3 - 3/4	3/16	3.371	3.745	0.280
TRO 3500	3 - 1/2	3 - 7/8	3/16	3.496	3.870	0.280
TRO 3625	3 - 5/8	4	3/16	3.621	3.995	0.280
TRO 3750	3 - 3/4	4 - 1/8	3/16	3.746	4.120	0.280
TRO 3875	3 - 7/8	4 - 1/4	3/16	3.871	4.245	0.280
TRO 4000	4	4 - 3/8	3/16	3.996	4.370	0.280
TRO 4125	4 - 1/8	4 - 1/2	3/16	4.121	4.495	0.280
TRO 4250	4 - 1/4	4 - 5/8	3/16	4.246	4.620	0.280
TRO 4375	4 - 3/8	4 - 3/4	3/16	4.371	4.745	0.280
TRO 4500	4 - 1/2	4 - 7/8	3/16	4.496	4.870	0.280
TRO 5000	5	5 - 1/2	1/4	4.996	5.475	0.366
TRO 5250	5 - 1/4	5 - 3/4	1/4	5.246	5.725	0.366
TRO 5500	5 - 1/2	6	1/4	5.496	5.975	0.366
TRO 5625	5 - 5/8	6 - 1/8	1/4	5.621	6.100	0.366
<b>Tolerance</b>				<b>+0.003</b>	<b>+0.002</b>	<b>+0.010</b>
				<b>-0.003</b>	<b>-0.004</b>	<b>-0.000</b>
TRO 5875	5 - 7/8	6 - 3/8	1/4	5.871	6.350	0.366
TRO 6000	6	6 - 1/2	1/4	5.996	6.475	0.366
TRO 6250	6 - 1/4	6 - 3/4	1/4	6.246	6.725	0.366
TRO 6500	6 - 1/2	7	1/4	6.496	6.975	0.366
TRO 6750	6 - 3/4	7 - 1/4	1/4	6.746	7.225	0.366
TRO 7000	7	7 - 1/2	1/4	6.996	7.475	0.366
TRO 7250	7 - 1/4	7 - 3/4	1/4	7.246	7.725	0.366
TRO 7500	7 - 1/2	8	1/4	7.500	7.984	0.366
TRO 7750	7 - 3/4	8 - 1/4	1/4	7.746	8.225	0.366
TRO 8000	8	8 - 1/2	1/4	7.996	8.475	0.366
TRO 8500	8 - 1/2	9	1/4	8.500	8.984	0.366
TRO 9000	9	9 - 1/2	1/4	8.996	9.475	0.366
TRO 9500	9 - 1/2	10	1/4	9.496	9.975	0.366
TRO 10000	10	10 - 1/2	1/4	9.996	10.475	0.366
TRO 10500	10 - 1/2	11	1/4	10.496	10.975	0.366
TRO 11000	11	11 - 1/2	1/4	10.996	11.475	0.366
TRO 11500	11 - 1/2	12	1/4	11.496	11.975	0.366

T-Seals