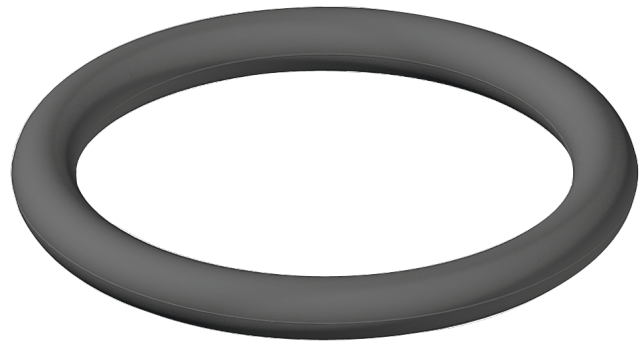
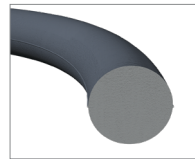


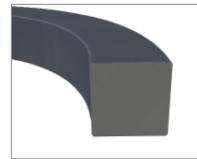
Materials	Temp. Range		
Nitrile	-40°C	to	120°C
Low Temp. Nitrile	-54°C	to	116°C
Hydrogenated Nitrile	-40°C	to	160°C
Viton™/Fluorocarbon	-26°C	to	204°C
PTFE	-260°C	to	260°C
Aflas® FEPM	-9°C	to	232°C
Neoprene	-40°C	to	121°C
EPDM	-54°C	to	150°C
Perfluoroelastomer	-32°C	to	350°C
Silicone	-65°C	to	232°C
Fluorosilicone	-56°C	to	204°C



Material information is not intended for design purposes. Please consult us when designing applications.



O-Ring



Square Cut Ring



Quad Ring

## Product Description

The O-ring is the most widely used seal in history due to its simplicity, low cost, ease of installation, and small space requirements. O-rings are designed for both static and dynamic applications. A properly designed O-ring groove allows the O-ring to be squeezed diametrically out-of-round even before the application of pressure. The O-ring seals by distortion of its resilient elastic compound to fill the leakage path. Quad rings have the same diameters and cross sections as an O-ring, only the profile is different. Square cut rings have the same ID as an O-ring, but have different cross sections. See page 4 for actual square ring cross sections.

## Part Numbers:



### O-Rings

- N70 - Nitrile
- N90 - Nitrile
- LTN - Low Temp. Nitrile
- HS7 - Hydrogenated Nitrile
- HS8 - Hydrogenated Nitrile
- HS9 - Hydrogenated Nitrile
- V75 - Viton™
- V90 - Viton™
- LTV - Low Temp. Viton™

### O-Rings

- FK7 - Fluorocarbon
- FK9 - Fluorocarbon
- T - PTFE
- A80 - Aflas® FEPM
- NEO - Neoprene
- E70 - EPDM
- E80 - EPDM
- PF7 - Perfluoroelastomer
- PF9 - Perfluoroelastomer

### O-Rings

- KAL - Kalrez®
- S70 - Silicone
- FS7 - Fluorosilicone
- U90 - Urethane

### Square Cut Rings

- TS7 - Nitrile
- TS9 - Nitrile

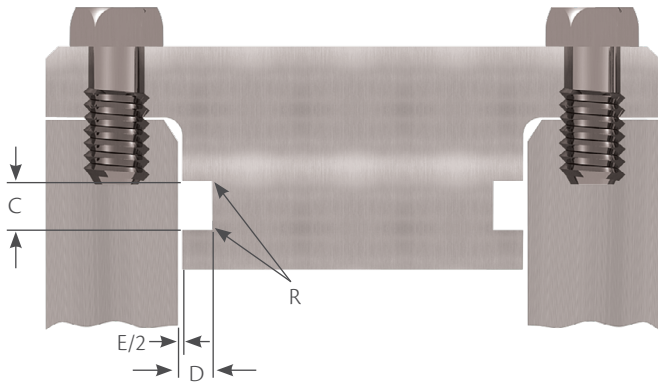
### Quad Rings

- QN7 - Nitrile
- QN9 - Nitrile
- QV7 - Viton™
- QE7 - EPDM

**Example:** HS8 224 - Hydrogenated Nitrile, 80 Durometer, 1 - 3/4" Nom. I.D., 1/8" Nom. C/S

# O-Rings

## Static Radial Applications

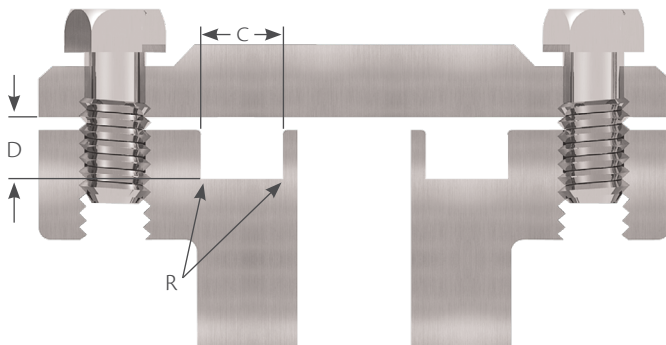


Information is based on ISO 3601

\* Pneumatic applications typically do not use a Back-up ring.

O-Ring C/S	D		E	C			R	
	Groove Depth	Squeeze		Groove Width +0.010/-0.000				
		Inches	%	No Back-Up Ring	One Back-Up Ring	Two Back-Up Rings	Groove Radius	
0.070	0.049 - 0.057	0.010 - 0.025	14 - 35	0.004	0.110	0.165	0.220	0.008 - 0.016
0.103	0.075 - 0.087	0.013 - 0.031	13 - 30	0.005	0.150	0.205	0.260	0.008 - 0.016
0.139	0.101 - 0.117	0.018 - 0.042	13 - 30	0.006	0.197	0.252	0.307	0.016 - 0.031
0.210	0.156 - 0.180	0.025 - 0.059	12 - 28	0.006	0.283	0.354	0.429	0.016 - 0.031
0.275	0.212 - 0.242	0.028 - 0.069	10 - 25	0.007	0.374	0.484	0.594	0.031 - 0.047

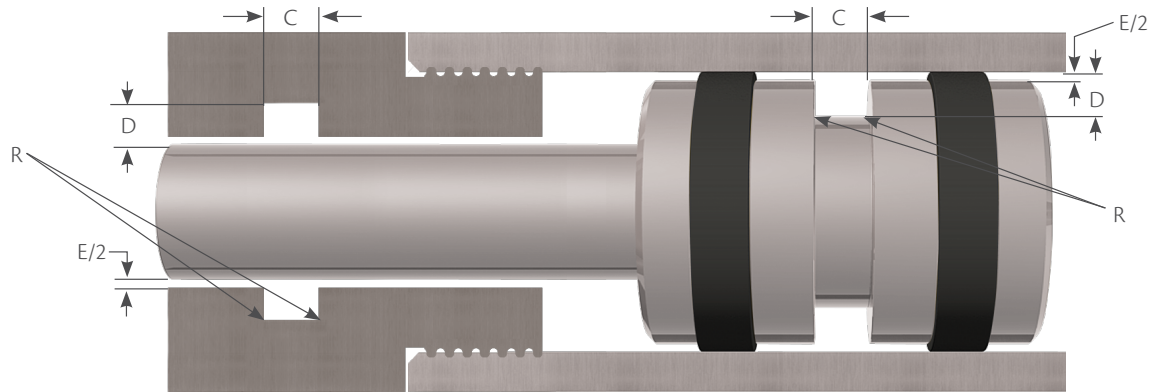
## Static Axial (Face) Applications



Information is based on ISO 3601

O-Ring C/S	D		C		R
	Groove Depth +0.004/-0.000	Squeeze %	Groove Width +0.008/-0.000		
			Hydraulic	Pneumatic	Groove Radius
0.070	0.051	21 - 36	0.126	0.114	0.008 - 0.016
0.103	0.079	19 - 30	0.157	0.142	0.008 - 0.016
0.139	0.106	17 - 26	0.209	0.189	0.016 - 0.031
0.210	0.165	15 - 23	0.299	0.276	0.016 - 0.031
0.275	0.224	13 - 20	0.354	0.335	0.031 - 0.047

## Reciprocating Applications



Information is based on ISO 3601

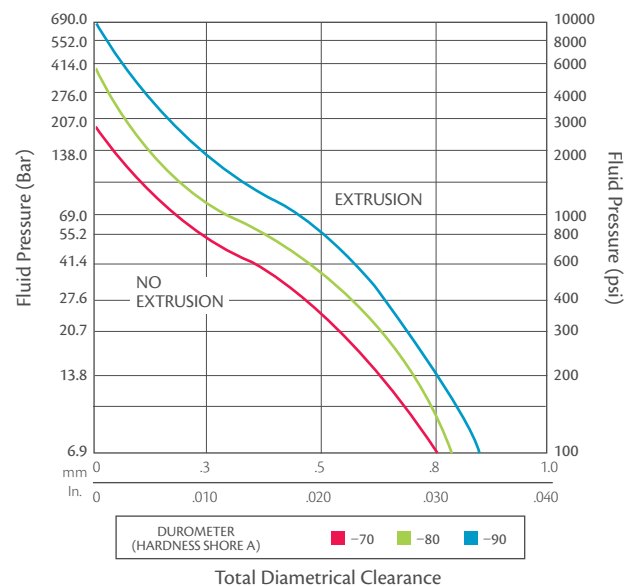
\* Pneumatic applications typically do not use a Back-up ring.

O-Ring C/S	D		Squeeze				E	C			R	
	Groove depth		Hydraulic		Pneumatic			Diametrical Clearance Max.	No Back-Up Ring	One Back-Up Ring		Two Back-Up Rings
	Hydraulic	Pneumatic	Inches	%	Inches	%						
0.070	0.054 - 0.058	0.056 - 0.060	0.009 -0.019	13 - 27	0.007 -0.017	10 - 24	0.004	0.110	0.165	0.220	0.008 -0.016	
0.103	0.081 - 0.088	0.083 - 0.092	0.012 -0.025	12 - 24	0.008 -0.023	8 - 22	0.005	0.150	0.205	0.260	0.008 -0.016	
0.139	0.112 - 0.120	0.115 - 0.125	0.015 -0.031	11 - 22	0.010 -0.028	7 - 20	0.006	0.197	0.252	0.307	0.016 -0.031	
0.210	0.173 - 0.182	0.177 - 0.190	0.023 -0.042	11 - 20	0.015 -0.038	7 - 18	0.006	0.283	0.354	0.429	0.016 -0.031	
0.275	0.229 - 0.244	0.234 - 0.253	0.025 -0.052	9 - 19	0.017 -0.047	6 - 17	0.007	0.374	0.484	0.594	0.031 -0.047	

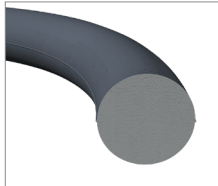
## Limits for Extrusion

There are different methods to counter O-ring extrusion. One of these methods is to simply increase the durometer rating of the O-ring. However, as the durometer is increased, the O-ring can become less malleable. Another option would be to use anti-extrusion devices. These are thin rings made of hard plastic materials such as PTFE, nylon, and PEEK. Once in place these rings will provide essentially zero clearance.

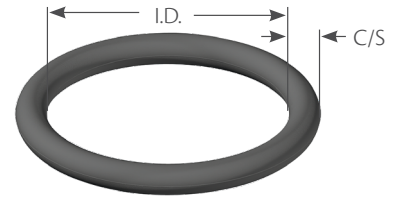
Reduce the clearance shown by 60% when using silicone or fluoro-silicone elastomers.



# O-Rings



Square Cut Rings	Actual C/S
000 Series	0.066
100 Series	0.099
200 Series	0.134
300 Series	0.205
400 Series	0.266



Dash #	Nominal			Actual Sizing			
	I.D.	O.D.	C/S	I.D.	C/S		
001	1/32	3/32	1/32	0.029 ± 0.004	0.040	± 0.003	
002	3/64	9/64	3/64	0.042 ± 0.004	0.050	± 0.003	
003	1/16	3/16	1/16	0.056 ± 0.004	0.060	± 0.003	
004	5/64	13/64	1/16	0.070 ± 0.005	0.070	± 0.003	
005	3/32	7/32	1/16	0.101 ± 0.005	0.070	± 0.003	
006	1/8	1/4	1/16	0.114 ± 0.005	0.070	± 0.003	
007	5/32	9/32	1/16	0.145 ± 0.005	0.070	± 0.003	
008	3/16	5/16	1/16	0.176 ± 0.005	0.070	± 0.003	
009	7/32	11/32	1/16	0.208 ± 0.005	0.070	± 0.003	
010	1/4	3/8	1/16	0.239 ± 0.005	0.070	± 0.003	
011	5/16	7/16	1/16	0.301 ± 0.005	0.070	± 0.003	
012	3/8	1/2	1/16	0.364 ± 0.005	0.070	± 0.003	
013	7/16	9/16	1/16	0.426 ± 0.005	0.070	± 0.003	
014	1/2	5/8	1/16	0.489 ± 0.005	0.070	± 0.003	
015	9/16	11/16	1/16	0.551 ± 0.007	0.070	± 0.003	
016	5/8	3/4	1/16	0.614 ± 0.009	0.070	± 0.003	
017	11/16	13/16	1/16	0.676 ± 0.009	0.070	± 0.003	
018	3/4	7/8	1/16	0.739 ± 0.009	0.070	± 0.003	
019	13/16	15/16	1/16	0.801 ± 0.009	0.070	± 0.003	
020	7/8	1	1/16	0.864 ± 0.009	0.070	± 0.003	
021	15/16	1 - 1/16	1/16	0.926 ± 0.009	0.070	± 0.003	
022	1	1 - 1/8	1/16	0.989 ± 0.010	0.070	± 0.003	
023	1 - 1/16	1 - 3/16	1/16	1.051 ± 0.010	0.070	± 0.003	
024	1 - 1/8	1 - 1/4	1/16	1.114 ± 0.010	0.070	± 0.003	
025	1 - 3/16	1 - 5/16	1/16	1.176 ± 0.011	0.070	± 0.003	
026	1 - 1/4	1 - 3/8	1/16	1.239 ± 0.011	0.070	± 0.003	
027	1 - 5/16	1 - 7/16	1/16	1.301 ± 0.011	0.070	± 0.003	
028	1 - 3/8	1 - 1/2	1/16	1.364 ± 0.013	0.070	± 0.003	
029	1 - 1/2	1 - 5/8	1/16	1.489 ± 0.013	0.070	± 0.003	
030	1 - 5/8	1 - 3/4	1/16	1.614 ± 0.013	0.070	± 0.003	
031	1 - 3/4	1 - 7/8	1/16	1.739 ± 0.015	0.070	± 0.003	
032	1 - 7/8	2	1/16	1.864 ± 0.015	0.070	± 0.003	
033	2	2 - 1/8	1/16	1.989 ± 0.018	0.070	± 0.003	
034	2 - 1/8	2 - 1/4	1/16	2.114 ± 0.018	0.070	± 0.003	
035	2 - 1/4	2 - 3/8	1/16	2.239 ± 0.018	0.070	± 0.003	
036	2 - 3/8	2 - 1/2	1/16	2.364 ± 0.018	0.070	± 0.003	
037	2 - 1/2	2 - 5/8	1/16	2.489 ± 0.018	0.070	± 0.003	
038	2 - 5/8	2 - 3/4	1/16	2.614 ± 0.020	0.070	± 0.003	
039	2 - 3/4	2 - 7/8	1/16	2.739 ± 0.020	0.070	± 0.003	
040	2 - 7/8	3	1/16	2.864 ± 0.020	0.070	± 0.003	
041	3	3 - 1/8	1/16	2.989 ± 0.024	0.070	± 0.003	
042	3 - 1/4	3 - 3/8	1/16	3.239 ± 0.024	0.070	± 0.003	
043	3 - 1/2	3 - 5/8	1/16	3.489 ± 0.024	0.070	± 0.003	

Dash #	Nominal			Actual Sizing			
	I.D.	O.D.	C/S	I.D.	C/S		
044	3 - 3/4	3 - 7/8	1/16	3.739 ± 0.027	0.070	± 0.003	
045	4	4 - 1/8	1/16	3.989 ± 0.027	0.070	± 0.003	
046	4 - 1/4	4 - 3/8	1/16	4.239 ± 0.030	0.070	± 0.003	
047	4 - 1/2	4 - 5/8	1/16	4.489 ± 0.030	0.070	± 0.003	
048	4 - 3/4	4 - 7/8	1/16	4.739 ± 0.030	0.070	± 0.003	
049	5	5 - 1/8	1/16	4.989 ± 0.037	0.070	± 0.003	
050	5 - 1/4	5 - 3/8	1/16	5.239 ± 0.037	0.070	± 0.003	
102	1/16	1/4	3/32	0.049 ± 0.005	0.103	± 0.003	
103	3/32	9/32	3/32	0.081 ± 0.005	0.103	± 0.003	
104	1/8	5/16	3/32	0.112 ± 0.005	0.103	± 0.003	
105	5/32	11/32	3/32	0.143 ± 0.005	0.103	± 0.003	
106	3/16	3/8	3/32	0.174 ± 0.005	0.103	± 0.003	
107	7/32	13/32	3/32	0.206 ± 0.005	0.103	± 0.003	
108	1/4	7/16	3/32	0.237 ± 0.005	0.103	± 0.003	
109	5/16	1/2	3/32	0.299 ± 0.005	0.103	± 0.003	
110	3/8	9/16	3/32	0.362 ± 0.005	0.103	± 0.003	
111	7/16	5/8	3/32	0.424 ± 0.005	0.103	± 0.003	
112	1/2	11/16	3/32	0.487 ± 0.005	0.103	± 0.003	
113	9/16	3/4	3/32	0.549 ± 0.007	0.103	± 0.003	
114	5/8	13/16	3/32	0.612 ± 0.009	0.103	± 0.003	
115	11/16	7/8	3/32	0.674 ± 0.009	0.103	± 0.003	
116	3/4	15/16	3/32	0.737 ± 0.009	0.103	± 0.003	
117	13/16	1	3/32	0.799 ± 0.010	0.103	± 0.003	
118	7/8	1 - 1/16	3/32	0.862 ± 0.010	0.103	± 0.003	
119	15/16	1 - 1/8	3/32	0.924 ± 0.010	0.103	± 0.003	
120	1	1 - 3/16	3/32	0.987 ± 0.010	0.103	± 0.003	
121	1 - 1/16	1 - 1/4	3/32	1.049 ± 0.010	0.103	± 0.003	
122	1 - 1/8	1 - 5/16	3/32	1.112 ± 0.010	0.103	± 0.003	
123	1 - 3/16	1 - 3/8	3/32	1.174 ± 0.012	0.103	± 0.003	
124	1 - 1/4	1 - 7/16	3/32	1.237 ± 0.012	0.103	± 0.003	
125	1 - 5/16	1 - 1/2	3/32	1.299 ± 0.012	0.103	± 0.003	
126	1 - 3/8	1 - 9/16	3/32	1.362 ± 0.012	0.103	± 0.003	
127	1 - 7/16	1 - 5/8	3/32	1.424 ± 0.012	0.103	± 0.003	
128	1 - 1/2	1 - 11/16	3/32	1.487 ± 0.012	0.103	± 0.003	
129	1 - 9/16	1 - 3/4	3/32	1.549 ± 0.015	0.103	± 0.003	
130	1 - 5/8	1 - 13/16	3/32	1.612 ± 0.015	0.103	± 0.003	
131	1 - 11/16	1 - 7/8	3/32	1.674 ± 0.015	0.103	± 0.003	
132	1 - 3/4	1 - 15/16	3/32	1.737 ± 0.015	0.103	± 0.003	
133	1 - 13/16	2	3/32	1.799 ± 0.015	0.103	± 0.003	
134	1 - 7/8	2 - 1/16	3/32	1.862 ± 0.015	0.103	± 0.003	
135	1 - 15/16	2 - 1/8	3/32	1.925 ± 0.017	0.103	± 0.003	
136	2	2 - 3/16	3/32	1.987 ± 0.017	0.103	± 0.003	



Dash #	Nominal			Actual Sizing			
	I.D.	O.D.	C/S	I.D.	C/S	I.D.	C/S
137	2 - 1/16	2 - 1/4	3/32	2.050	± 0.017	0.103	± 0.003
138	2 - 1/8	2 - 5/16	3/32	2.112	± 0.017	0.103	± 0.003
139	2 - 3/16	2 - 3/8	3/32	2.175	± 0.017	0.103	± 0.003
140	2 - 1/4	2 - 7/16	3/32	2.237	± 0.017	0.103	± 0.003
141	2 - 5/16	2 - 1/2	3/32	2.300	± 0.020	0.103	± 0.003
142	2 - 3/8	2 - 9/16	3/32	2.362	± 0.020	0.103	± 0.003
143	2 - 7/16	2 - 5/8	3/32	2.425	± 0.020	0.103	± 0.003
144	2 - 1/2	2 - 11/16	3/32	2.487	± 0.020	0.103	± 0.003
145	2 - 9/16	2 - 3/4	3/32	2.550	± 0.020	0.103	± 0.003
146	2 - 5/8	2 - 13/16	3/32	2.612	± 0.020	0.103	± 0.003
147	2 - 11/16	2 - 7/8	3/32	2.675	± 0.022	0.103	± 0.003
148	2 - 3/4	2 - 15/16	3/32	2.737	± 0.022	0.103	± 0.003
149	2 - 13/16	3	3/32	2.800	± 0.022	0.103	± 0.003
150	2 - 7/8	3 - 1/16	3/32	2.862	± 0.022	0.103	± 0.003
151	3	3 - 3/16	3/32	2.987	± 0.024	0.103	± 0.003
152	3 - 1/4	3 - 7/16	3/32	3.237	± 0.024	0.103	± 0.003
153	3 - 1/2	3 - 11/16	3/32	3.487	± 0.024	0.103	± 0.003
154	3 - 3/4	2 - 15/16	3/32	3.737	± 0.028	0.103	± 0.003
155	4	4 - 3/16	3/32	3.987	± 0.028	0.103	± 0.003
156	4 - 1/4	4 - 7/16	3/32	4.237	± 0.030	0.103	± 0.003
157	4 - 1/2	4 - 11/16	3/32	4.487	± 0.030	0.103	± 0.003
158	4 - 3/4	4 - 15/16	3/32	4.737	± 0.030	0.103	± 0.003
159	5	5 - 3/16	3/32	4.987	± 0.035	0.103	± 0.003
160	5 - 1/4	5 - 7/16	3/32	5.237	± 0.035	0.103	± 0.003
161	5 - 1/2	5 - 11/16	3/32	5.487	± 0.035	0.103	± 0.003
162	5 - 3/4	5 - 15/16	3/32	5.737	± 0.035	0.103	± 0.003
163	6	6 - 3/16	3/32	5.987	± 0.035	0.103	± 0.003
164	6 - 1/4	6 - 7/16	3/32	6.237	± 0.040	0.103	± 0.003
165	6 - 1/2	6 - 11/16	3/32	6.487	± 0.040	0.103	± 0.003
166	6 - 3/4	6 - 15/16	3/32	6.737	± 0.040	0.103	± 0.003
167	7	7 - 3/16	3/32	6.987	± 0.040	0.103	± 0.003
168	7 - 1/4	7 - 7/16	3/32	7.237	± 0.045	0.103	± 0.003
169	7 - 1/2	7 - 11/16	3/32	7.487	± 0.045	0.103	± 0.003
170	7 - 3/4	7 - 15/16	3/32	7.737	± 0.045	0.103	± 0.003
171	8	8 - 3/16	3/32	7.987	± 0.045	0.103	± 0.003
172	8 - 1/4	8 - 7/16	3/32	8.237	± 0.050	0.103	± 0.003
173	8 - 1/2	8 - 11/16	3/32	8.487	± 0.050	0.103	± 0.003
174	8 - 3/4	8 - 15/16	3/32	8.737	± 0.050	0.103	± 0.003
175	9	9 - 3/16	3/32	8.987	± 0.050	0.103	± 0.003
176	9 - 1/4	9 - 7/16	3/32	9.237	± 0.055	0.103	± 0.003
177	9 - 1/2	9 - 11/16	3/32	9.487	± 0.055	0.103	± 0.003
178	9 - 3/4	9 - 15/16	3/32	9.737	± 0.055	0.103	± 0.003
201	3/16	7/16	1/8	0.171	± 0.005	0.139	± 0.004
202	1/4	1/2	1/8	0.234	± 0.005	0.139	± 0.004
203	5/16	9/16	1/8	0.296	± 0.005	0.139	± 0.004
204	3/8	5/8	1/8	0.359	± 0.005	0.139	± 0.004
205	7/16	11/16	1/8	0.421	± 0.005	0.139	± 0.004
206	1/2	3/4	1/8	0.484	± 0.005	0.139	± 0.004
207	9/16	13/16	1/8	0.546	± 0.007	0.139	± 0.004

Dash #	Nominal			Actual Sizing			
	I.D.	O.D.	C/S	I.D.	C/S	I.D.	C/S
208	5/8	7/8	1/8	0.609	± 0.009	0.139	± 0.004
209	11/16	15/16	1/8	0.671	± 0.009	0.139	± 0.004
210	3/4	1	1/8	0.734	± 0.010	0.139	± 0.004
211	13/16	1 - 1/16	1/8	0.796	± 0.010	0.139	± 0.004
212	7/8	1 - 1/8	1/8	0.859	± 0.010	0.139	± 0.004
213	15/16	1 - 3/16	1/8	0.921	± 0.010	0.139	± 0.004
214	1	1 - 1/4	1/8	0.984	± 0.010	0.139	± 0.004
215	1 - 1/16	1 - 5/16	1/8	1.046	± 0.010	0.139	± 0.004
216	1 - 1/8	1 - 3/8	1/8	1.109	± 0.012	0.139	± 0.004
217	1 - 3/16	1 - 7/16	1/8	1.171	± 0.012	0.139	± 0.004
218	1 - 1/4	1 - 1/2	1/8	1.234	± 0.012	0.139	± 0.004
219	1 - 5/16	1 - 9/16	1/8	1.296	± 0.012	0.139	± 0.004
220	1 - 3/8	1 - 5/8	1/8	1.359	± 0.012	0.139	± 0.004
221	1 - 7/16	1 - 11/16	1/8	1.421	± 0.012	0.139	± 0.004
222	1 - 1/2	1 - 3/4	1/8	1.484	± 0.015	0.139	± 0.004
223	1 - 5/8	1 - 7/8	1/8	1.609	± 0.015	0.139	± 0.004
224	1 - 3/4	2	1/8	1.734	± 0.015	0.139	± 0.004
225	1 - 7/8	2 - 1/8	1/8	1.859	± 0.018	0.139	± 0.004
226	2	2 - 1/4	1/8	1.984	± 0.018	0.139	± 0.004
227	2 - 1/8	2 - 3/8	1/8	2.109	± 0.018	0.139	± 0.004
228	2 - 1/4	2 - 1/2	1/8	2.234	± 0.020	0.139	± 0.004
229	2 - 3/8	2 - 5/8	1/8	2.359	± 0.020	0.139	± 0.004
230	2 - 1/2	2 - 3/4	1/8	2.484	± 0.020	0.139	± 0.004
231	2 - 5/8	2 - 7/8	1/8	2.609	± 0.020	0.139	± 0.004
232	2 - 3/4	3	1/8	2.734	± 0.024	0.139	± 0.004
233	2 - 7/8	3 - 1/8	1/8	2.859	± 0.024	0.139	± 0.004
234	3	3 - 1/4	1/8	2.984	± 0.024	0.139	± 0.004
235	3 - 1/8	3 - 3/8	1/8	3.109	± 0.024	0.139	± 0.004
236	3 - 1/4	3 - 1/2	1/8	3.234	± 0.024	0.139	± 0.004
237	3 - 3/8	3 - 5/8	1/8	3.359	± 0.024	0.139	± 0.004
238	3 - 1/2	3 - 3/4	1/8	3.484	± 0.024	0.139	± 0.004
239	3 - 5/8	3 - 7/8	1/8	3.609	± 0.028	0.139	± 0.004
240	3 - 3/4	4	1/8	3.734	± 0.028	0.139	± 0.004
241	3 - 7/8	4 - 1/8	1/8	3.859	± 0.028	0.139	± 0.004
242	4	4 - 1/4	1/8	3.984	± 0.028	0.139	± 0.004
243	4 - 1/8	4 - 3/8	1/8	4.109	± 0.028	0.139	± 0.004
244	4 - 1/4	4 - 1/2	1/8	4.234	± 0.030	0.139	± 0.004
245	4 - 3/8	4 - 5/8	1/8	4.359	± 0.030	0.139	± 0.004
246	4 - 1/2	4 - 3/4	1/8	4.484	± 0.030	0.139	± 0.004
247	4 - 5/8	4 - 7/8	1/8	4.609	± 0.030	0.139	± 0.004
248	4 - 3/4	5	1/8	4.734	± 0.030	0.139	± 0.004
249	4 - 7/8	5 - 1/8	1/8	4.859	± 0.035	0.139	± 0.004
250	5	5 - 1/4	1/8	4.984	± 0.035	0.139	± 0.004
251	5 - 1/8	5 - 3/8	1/8	5.109	± 0.035	0.139	± 0.004
252	5 - 1/4	5 - 1/2	1/8	5.234	± 0.035	0.139	± 0.004
253	5 - 3/8	5 - 5/8	1/8	5.359	± 0.035	0.139	± 0.004
254	5 - 1/2	5 - 3/4	1/8	5.484	± 0.035	0.139	± 0.004
255	5 - 5/8	5 - 7/8	1/8	5.609	± 0.035	0.139	± 0.004
256	5 - 3/4	6	1/8	5.734	± 0.035	0.139	± 0.004
257	5 - 7/8	6 - 1/8	1/8	5.859	± 0.035	0.139	± 0.004

# O-Rings

IMPERIAL SEALS

Dash #	Nominal			Actual Sizing			
	I.D.	O.D.	C/S	I.D.	C/S		
258	6	6 - 1/4	1/8	5.984	± 0.035	0.139	± 0.004
259	6 - 1/4	6 - 1/2	1/8	6.234	± 0.040	0.139	± 0.004
260	6 - 1/2	6 - 3/4	1/8	6.484	± 0.040	0.139	± 0.004
261	6 - 3/4	7	1/8	6.734	± 0.040	0.139	± 0.004
262	7	7 - 1/4	1/8	6.984	± 0.040	0.139	± 0.004
263	7 - 1/4	7 - 1/2	1/8	7.234	± 0.045	0.139	± 0.004
264	7 - 1/2	7 - 3/4	1/8	7.484	± 0.045	0.139	± 0.004
265	7 - 3/4	8	1/8	7.734	± 0.045	0.139	± 0.004
266	8	8 - 1/4	1/8	7.984	± 0.045	0.139	± 0.004
267	8 - 1/4	8 - 1/2	1/8	8.234	± 0.050	0.139	± 0.004
268	8 - 1/2	8 - 3/4	1/8	8.484	± 0.050	0.139	± 0.004
269	8 - 3/4	9	1/8	8.734	± 0.050	0.139	± 0.004
270	9	9 - 1/4	1/8	8.984	± 0.050	0.139	± 0.004
271	9 - 1/4	9 - 1/2	1/8	9.234	± 0.055	0.139	± 0.004
272	9 - 1/2	9 - 3/4	1/8	9.484	± 0.055	0.139	± 0.004
273	9 - 3/4	10	1/8	9.734	± 0.055	0.139	± 0.004
274	10	10 - 1/4	1/8	9.984	± 0.055	0.139	± 0.004
275	10 - 1/2	10 - 3/4	1/8	10.484	± 0.055	0.139	± 0.004
276	11	11 - 1/4	1/8	10.984	± 0.065	0.139	± 0.004
277	11 - 1/2	11 - 3/4	1/8	11.484	± 0.065	0.139	± 0.004
278	12	12 - 1/4	1/8	11.984	± 0.065	0.139	± 0.004
279	13	13 - 1/4	1/8	12.984	± 0.065	0.139	± 0.004
280	14	14 - 1/4	1/8	13.984	± 0.065	0.139	± 0.004
281	15	15 - 1/4	1/8	14.984	± 0.065	0.139	± 0.004
282	16	16 - 1/4	1/8	15.955	± 0.075	0.139	± 0.004
283	17	17 - 1/4	1/8	16.956	± 0.080	0.139	± 0.004
284	18	18 - 1/4	1/8	17.955	± 0.085	0.139	± 0.004
309	7/16	13/16	3/16	0.412	± 0.005	0.210	± 0.005
310	1/2	7/8	3/16	0.475	± 0.005	0.210	± 0.005
311	9/16	15/16	3/16	0.537	± 0.007	0.210	± 0.005
312	5/8	1	3/16	0.600	± 0.009	0.210	± 0.005
313	11/16	1 - 1/16	3/16	0.662	± 0.009	0.210	± 0.005
314	3/4	1 - 1/8	3/16	0.725	± 0.010	0.210	± 0.005
315	13/16	1 - 3/16	3/16	0.787	± 0.010	0.210	± 0.005
316	7/8	1 - 1/4	3/16	0.850	± 0.010	0.210	± 0.005
317	15/16	1 - 5/16	3/16	0.912	± 0.010	0.210	± 0.005
318	1	1 - 3/8	3/16	0.975	± 0.010	0.210	± 0.005
319	1 - 1/16	1 - 7/16	3/16	1.037	± 0.010	0.210	± 0.005
320	1 - 1/8	1 - 1/2	3/16	1.100	± 0.012	0.210	± 0.005
321	1 - 3/16	1 - 9/16	3/16	1.162	± 0.012	0.210	± 0.005
322	1 - 1/4	1 - 5/8	3/16	1.225	± 0.012	0.210	± 0.005
323	1 - 5/16	1 - 11/16	3/16	1.287	± 0.012	0.210	± 0.005
324	1 - 3/8	1 - 3/4	3/16	1.350	± 0.012	0.210	± 0.005
325	1 - 1/2	1 - 7/8	3/16	1.475	± 0.015	0.210	± 0.005
326	1 - 5/8	2	3/16	1.600	± 0.015	0.210	± 0.005
327	1 - 3/4	2 - 1/8	3/16	1.725	± 0.015	0.210	± 0.005
328	1 - 7/8	2 - 1/4	3/16	1.850	± 0.015	0.210	± 0.005
329	2	2 - 3/8	3/16	1.975	± 0.018	0.210	± 0.005
330	2 - 1/8	2 - 1/2	3/16	2.100	± 0.018	0.210	± 0.005

Dash #	Nominal			Actual Sizing			
	I.D.	O.D.	C/S	I.D.	C/S		
331	2 - 1/4	2 - 5/8	3/16	2.225	± 0.018	0.210	± 0.005
332	2 - 3/8	2 - 3/4	3/16	2.350	± 0.018	0.210	± 0.005
333	2 - 1/2	2 - 7/8	3/16	2.475	± 0.020	0.210	± 0.005
334	2 - 5/8	3	3/16	2.600	± 0.020	0.210	± 0.005
335	2 - 3/4	3 - 1/8	3/16	2.725	± 0.020	0.210	± 0.005
336	2 - 7/8	3 - 1/4	3/16	2.850	± 0.020	0.210	± 0.005
337	3	3 - 3/8	3/16	2.975	± 0.024	0.210	± 0.005
338	3 - 1/8	3 - 1/2	3/16	3.100	± 0.024	0.210	± 0.005
339	3 - 1/4	3 - 5/8	3/16	3.225	± 0.024	0.210	± 0.005
340	3 - 3/8	3 - 3/4	3/16	3.350	± 0.024	0.210	± 0.005
341	3 - 1/2	3 - 7/8	3/16	3.475	± 0.024	0.210	± 0.005
342	3 - 5/8	4	3/16	3.600	± 0.028	0.210	± 0.005
343	3 - 3/4	4 - 1/8	3/16	3.725	± 0.028	0.210	± 0.005
344	3 - 7/8	4 - 1/4	3/16	3.850	± 0.028	0.210	± 0.005
345	4	4 - 3/8	3/16	3.975	± 0.028	0.210	± 0.005
346	4 - 1/8	4 - 1/2	3/16	4.100	± 0.028	0.210	± 0.005
347	4 - 1/4	4 - 5/8	3/16	4.225	± 0.030	0.210	± 0.005
348	4 - 3/8	4 - 3/4	3/16	4.350	± 0.030	0.210	± 0.005
349	4 - 1/2	4 - 7/8	3/16	4.475	± 0.030	0.210	± 0.005
350	4 - 5/8	5	3/16	4.600	± 0.030	0.210	± 0.005
351	4 - 3/4	5 - 1/8	3/16	4.725	± 0.030	0.210	± 0.005
352	4 - 7/8	5 - 1/4	3/16	4.850	± 0.030	0.210	± 0.005
353	5	5 - 3/8	3/16	4.975	± 0.037	0.210	± 0.005
354	5 - 1/8	5 - 1/2	3/16	5.100	± 0.037	0.210	± 0.005
355	5 - 1/4	5 - 5/8	3/16	5.225	± 0.037	0.210	± 0.005
356	5 - 3/8	5 - 3/4	3/16	5.350	± 0.037	0.210	± 0.005
357	5 - 1/2	5 - 7/8	3/16	5.475	± 0.037	0.210	± 0.005
358	5 - 5/8	6	3/16	5.600	± 0.037	0.210	± 0.005
359	5 - 3/4	6 - 1/8	3/16	5.725	± 0.037	0.210	± 0.005
360	5 - 7/8	6 - 1/4	3/16	5.850	± 0.037	0.210	± 0.005
361	6	6 - 3/8	3/16	5.975	± 0.037	0.210	± 0.005
362	6 - 1/4	6 - 5/8	3/16	6.225	± 0.040	0.210	± 0.005
363	6 - 1/2	6 - 7/8	3/16	6.475	± 0.040	0.210	± 0.005
364	6 - 3/4	7 - 1/8	3/16	6.725	± 0.040	0.210	± 0.005
365	7	7 - 3/8	3/16	6.975	± 0.040	0.210	± 0.005
366	7 - 1/4	7 - 5/8	3/16	7.225	± 0.045	0.210	± 0.005
367	7 - 1/2	7 - 7/8	3/16	7.475	± 0.045	0.210	± 0.005
368	7 - 3/4	8 - 1/8	3/16	7.725	± 0.045	0.210	± 0.005
369	8	8 - 3/8	3/16	7.975	± 0.045	0.210	± 0.005
370	8 - 1/4	8 - 5/8	3/16	8.225	± 0.050	0.210	± 0.005
371	8 - 1/2	8 - 7/8	3/16	8.475	± 0.050	0.210	± 0.005
372	8 - 3/4	9 - 1/8	3/16	8.725	± 0.050	0.210	± 0.005
373	9	9 - 3/8	3/16	8.975	± 0.050	0.210	± 0.005
374	9 - 1/4	9 - 5/8	3/16	9.225	± 0.055	0.210	± 0.005
375	9 - 1/2	9 - 7/8	3/16	9.475	± 0.055	0.210	± 0.005
376	9 - 3/4	10 - 1/8	3/16	9.725	± 0.055	0.210	± 0.005
377	10	10 - 3/8	3/16	9.975	± 0.055	0.210	± 0.005
378	10 - 1/2	10 - 7/8	3/16	10.475	± 0.060	0.210	± 0.005
379	11	11 - 3/8	3/16	10.975	± 0.060	0.210	± 0.005
380	11 - 1/2	11 - 7/8	3/16	11.475	± 0.065	0.210	± 0.005

Dash #	Nominal			Actual Sizing			
	I.D.	O.D.	C/S	I.D.	I.D.	C/S	C/S
381	12	12 - 3/8	3/16	11.975	± 0.065	0.210	± 0.005
382	13	13 - 3/8	3/16	12.975	± 0.065	0.210	± 0.005
383	14	14 - 3/8	3/16	13.975	± 0.070	0.210	± 0.005
384	15	15 - 3/8	3/16	14.975	± 0.070	0.210	± 0.005
385	16	16 - 3/8	3/16	15.955	± 0.075	0.210	± 0.005
386	17	17 - 3/8	3/16	16.955	± 0.080	0.210	± 0.005
387	18	18 - 3/8	3/16	17.955	± 0.085	0.210	± 0.005
388	19	19 - 3/8	3/16	18.952	± 0.090	0.210	± 0.005
389	20	20 - 3/8	3/16	19.952	± 0.095	0.210	± 0.005
390	21	21 - 3/8	3/16	20.952	± 0.095	0.210	± 0.005
391	22	22 - 3/8	3/16	21.952	± 0.100	0.210	± 0.005
392	23	23 - 3/8	3/16	22.940	± 0.105	0.210	± 0.005
393	24	24 - 3/8	3/16	23.940	± 0.110	0.210	± 0.005
394	25	25 - 3/8	3/16	24.940	± 0.115	0.210	± 0.005
395	26	26 - 3/8	3/16	25.940	± 0.120	0.210	± 0.005
425	4 - 1/2	5	1/4	4.475	± 0.033	0.275	± 0.006
426	4 - 5/8	5 - 1/8	1/4	4.600	± 0.033	0.275	± 0.006
427	4 - 3/4	5 - 1/4	1/4	4.725	± 0.033	0.275	± 0.006
428	4 - 7/8	5 - 3/8	1/4	4.850	± 0.033	0.275	± 0.006
429	5	5 - 1/2	1/4	4.975	± 0.037	0.275	± 0.006
430	5 - 1/8	5 - 5/8	1/4	5.100	± 0.037	0.275	± 0.006
431	5 - 1/4	5 - 3/4	1/4	5.225	± 0.037	0.275	± 0.006
432	5 - 3/8	5 - 7/8	1/4	5.350	± 0.037	0.275	± 0.006
433	5 - 1/2	6	1/4	5.475	± 0.037	0.275	± 0.006
434	5 - 5/8	6 - 1/8	1/4	5.600	± 0.037	0.275	± 0.006
435	5 - 3/4	6 - 1/4	1/4	5.725	± 0.037	0.275	± 0.006
436	5 - 7/8	6 - 3/8	1/4	5.850	± 0.037	0.275	± 0.006
437	6	6 - 1/2	1/4	5.975	± 0.037	0.275	± 0.006
438	6 - 1/4	6 - 3/4	1/4	6.225	± 0.040	0.275	± 0.006
439	6 - 1/2	7	1/4	6.475	± 0.040	0.275	± 0.006
440	6 - 3/4	7 - 1/4	1/4	6.725	± 0.040	0.275	± 0.006
441	7	7 - 1/2	1/4	6.975	± 0.040	0.275	± 0.006
442	7 - 1/4	7 - 3/4	1/4	7.225	± 0.045	0.275	± 0.006
443	7 - 1/2	8	1/4	7.475	± 0.045	0.275	± 0.006
444	7 - 3/4	8 - 1/4	1/4	7.725	± 0.045	0.275	± 0.006
445	8	8 - 1/2	1/4	7.975	± 0.045	0.275	± 0.006
446	8 - 1/2	9	1/4	8.475	± 0.055	0.275	± 0.006
447	9	9 - 1/2	1/4	8.975	± 0.055	0.275	± 0.006
448	9 - 1/2	10	1/4	9.475	± 0.055	0.275	± 0.006
449	10	10 - 1/2	1/4	9.975	± 0.055	0.275	± 0.006
450	10 - 1/2	11	1/4	10.475	± 0.060	0.275	± 0.006
451	11	11 - 1/2	1/4	10.975	± 0.060	0.275	± 0.006
452	11 - 1/2	12	1/4	11.475	± 0.060	0.275	± 0.006
453	12	12 - 1/2	1/4	11.975	± 0.060	0.275	± 0.006
454	12 - 1/2	13	1/4	12.475	± 0.060	0.275	± 0.006
455	13	13 - 1/2	1/4	12.975	± 0.060	0.275	± 0.006
456	13 - 1/2	14	1/4	13.475	± 0.070	0.275	± 0.006
457	14	14 - 1/2	1/4	13.975	± 0.070	0.275	± 0.006
458	14 - 1/2	15	1/4	14.475	± 0.070	0.275	± 0.006

Dash #	Nominal			Actual Sizing			
	I.D.	O.D.	C/S	I.D.	I.D.	C/S	C/S
459	15	15 - 1/2	1/4	14.975	± 0.070	0.275	± 0.006
460	15 - 1/2	16	1/4	15.475	± 0.070	0.275	± 0.006
461	16	16 - 1/2	1/4	15.955	± 0.075	0.275	± 0.006
462	16 - 1/2	17	1/4	16.455	± 0.075	0.275	± 0.006
463	17	17 - 1/2	1/4	16.955	± 0.080	0.275	± 0.006
464	17 - 1/2	18	1/4	17.455	± 0.085	0.275	± 0.006
465	18	18 - 1/2	1/4	17.955	± 0.085	0.275	± 0.006
466	18 - 1/2	19	1/4	18.455	± 0.085	0.275	± 0.006
467	19	19 - 1/2	1/4	18.955	± 0.090	0.275	± 0.006
468	19 - 1/2	20	1/4	19.455	± 0.090	0.275	± 0.006
469	20	20 - 1/2	1/4	19.955	± 0.095	0.275	± 0.006
470	21	21 - 1/2	1/4	20.955	± 0.095	0.275	± 0.006
471	22	22 - 1/2	1/4	21.955	± 0.100	0.275	± 0.006
472	23	23 - 1/2	1/4	22.940	± 0.105	0.275	± 0.006
473	24	24 - 1/2	1/4	23.940	± 0.110	0.275	± 0.006
474	25	25 - 1/2	1/4	24.940	± 0.115	0.275	± 0.006
475	26	26 - 1/2	1/4	25.940	± 0.120	0.275	± 0.006

We offer O-rings in sizes ranging from 400-424. These O-ring size dimensions and tolerances are unassigned under ISO 3601. In addition, We stock specific non-standard cross-section O-rings such as 3/8", 1/2" and 3/4".

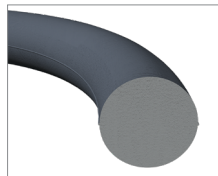
### O-Rings for Tube Fitting Bosses

Dash #	Tube Size OD Inch	Hydraulic MIL-P-5570 MS28778	O-ring Size (Actual)			
			ID	ID	CS	CS
901	3/32		0.185	± 0.005	0.056	± 0.003
902	1/8	2	0.239	± 0.005	0.064	± 0.003
903	3/16	3	0.301	± 0.005	0.064	± 0.003
904	1/4	4	0.351	± 0.005	0.072	± 0.003
905	5/16	5	0.414	± 0.005	0.072	± 0.003
906	3/8	6	0.468	± 0.005	0.078	± 0.003
907	7/16		0.530	± 0.005	0.082	± 0.003
908	1/2	8	0.644	± 0.009	0.087	± 0.003
909	9/16		0.706	± 0.009	0.097	± 0.003
910	5/8	10	0.755	± 0.009	0.097	± 0.003
911	11/16		0.863	± 0.009	0.116	± 0.004
912	3/4	12	0.924	± 0.009	0.116	± 0.004
913	13/16		0.986	± 0.010	0.116	± 0.004
914	7/8	14	1.048	± 0.010	0.116	± 0.004
916	1	16	1.171	± 0.010	0.116	± 0.004
918	1-1/8		1.355	± 0.012	0.116	± 0.004
920	1-1/4	20	1.475	± 0.014	0.118	± 0.004
924	1-1/2	24	1.720	± 0.014	0.118	± 0.004
928	1-3/4	28	2.090	± 0.018	0.118	± 0.004
932	2	32	2.337	± 0.018	0.118	± 0.004

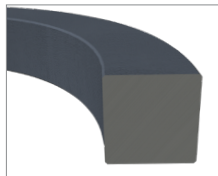
# O-Ring Cord



Materials	Temp. Range		
Nitrile	-40°C	to	120°C
Hydrogenated Nitrile	-40°C	to	160°C
Viton™/Fluorocarbon	-26°C	to	204°C
EPDM	-54°C	to	150°C
Neoprene	-40°C	to	121°C
Silicone	-65°C	to	232°C



O-Ring



Square Cut Ring



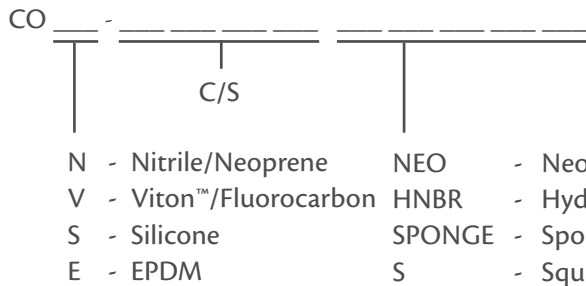
Quad Ring

Cross - Sections (inches)		
0.063	0.250	0.625
0.093	0.275	0.687
0.103	0.312	0.750
0.125	0.375	0.872
0.139	0.437	1.000
0.188	0.500	
0.210	0.562	

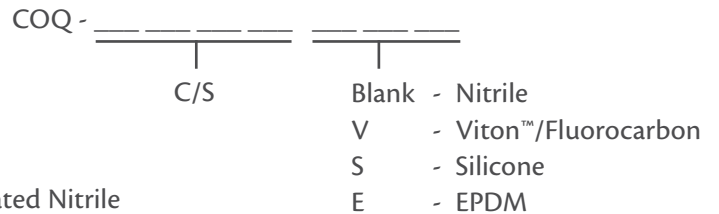
## Product Description

O-ring cord is excellent for large diameter static applications. Our O-ring cord is sold by the foot. Custom O-ring sizes can be manufactured through our in-house splice and vulcanizing service. For groove information refer to the O-ring section which begins on page 1.

## Part Numbers:



### Quad Cord



Example: COV 139S - Square Viton™ Cord, 0.139" C/S

Example: COQ 500 - Quad Nitrile Cord, 0.500" C/S

Materials	Temp. Range		
Nitrile 70 Durometer	-40°C	to	120°C
Nitrile 90 Durometer	-25°C	to	120°C
Hydrogenated Nitrile	-40°C	to	160°C
Viton™/Fluorocarbon	-26°C	to	204°C
EPDM	-54°C	to	150°C
Silicone	-65°C	to	230°C



## Product Description

We offer O-ring kits in popular materials such as nitrile, hydrogenated nitrile, Viton™/fluorocarbon, EPDM and silicone. Standard kits come filled with nearly 350 O-rings in 30 of the most popular imperial sizes, making this an excellent tool for shops, maintenance workers, or crews out in the field. We also offers BOSS (ORB) kits, ORS kits, spliced O-ring kit, O-ring board and O-ring warehouse.

## Part Numbers:

KIT - \_\_\_\_\_  
 |  
 Description

**Example:** KIT V75 - Viton™, 75 Durometer O-Ring Kit

# O-Ring Kits

## Standard Kits

Part Number	Description
KIT N70	Nitrile, 70 Durometer O-Ring Kit
KIT N90	Nitrile, 90 Durometer O-Ring Kit
KIT QN7	Nitrile, 70 Durometer Quad Ring Kit
KIT HS8	Hydrogenated Nitrile, 80 Durometer O-Ring Kit
KIT V75	Viton™, 75 Durometer O-Ring Kit
KIT V90	Viton™, 90 Durometer O-Ring Kit
KIT S70	Silicone, 70 Durometer O-Ring Kit
KIT E70	EPDM, 70 Durometer O-Ring Kit
KIT BUN	Nitrile, Back-Up Ring Kit

Each standard kit contains contents represented by the imperial O-ring sizes listed in the chart to the right.

## Standard Kit Content

Dash #	Quantity	Dash #	Quantity
006	20	211	10
007	20	212	10
008	20	213	10
009	20	214	10
010	20	215	10
011	20	216	10
012	20	217	10
110	13	218	10
111	13	219	10
112	13	220	10
113	13	221	10
114	13	222	10
115	13	325	7
116	13	326	7
210	10	327	7

## Kits

### Part Number: \*KIT ORB

O-Ring	Quantity
N90 901	10
N90 902	10
N90 903	10
N90 904	10
N90 905	10
N90 906	12
N90 907	12
N90 908	12
N90 909	12
N90 910	12
N90 911	10
N90 912	10
N90 913	10
N90 914	10
N90 916	10
N90 918	10
N90 920	10
N90 924	10
N90 928	10
N90 932	10

KIT ORB is also available in Viton™ material (KIT ORBV)

### Part Number: \*KIT ORS

O-Ring	Quantity
N90 011	25
N90 012	25
N90 014	25
N90 016	20
N90 018	20
N90 021	15
N90 025	10
N90 029	10

KIT ORS is also available in Viton™ material (KIT ORSV90)

### Part Number: \*KIT ORS

O-Ring	C/S	Quantity
CON 070	0.070"	7 ft.
CON 103	0.103"	7 ft.
CON 139	0.139"	7 ft.
CON 210	0.210"	7 ft.
CON 275	0.275"	7 ft.
Cutting Tool		1 unit
Splicing Tool		1 unit
KIT GLUE		1 unit

## O-Ring Warehouse

O-ring warehouses are an exceptional counter top O-ring storage unit. The standard unit, KIT WHSE1 is equipped with 000 to 300 series O-rings in 70 durometer nitrile, and with 900 series O-rings provided in 90 durometer nitrile.

The O-ring warehouse is also available in a fully 90 durometer nitrile and a 75 durometer fluorocarbon.



O-Rings Kits

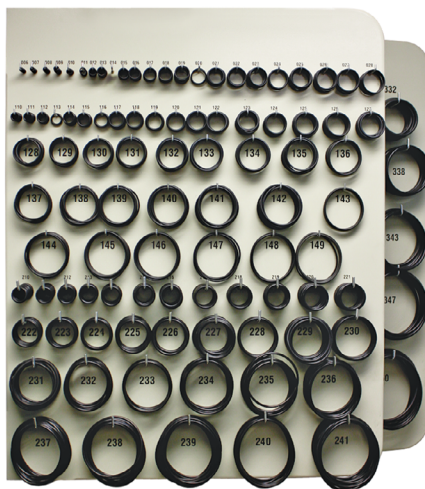
### Part Number: KIT WHSE1

Dash #	Quantity
001 thru 016	20
017 thru 024	10
025 thru 031	7
032 thru 043	5
044 thru 046	2
110 thru 116	15
117 thru 124	10
125 thru 142	5

Dash #	Quantity
143 thru 146	3
147 thru 151	2
210 thru 216	10
217 thru 229	5
230 thru 232	3
233 thru 237	2
325 thru 328	5
329 thru 330	4

Dash #	Quantity
331 thru 338	2
901 thru 914	5
916	5
918	5
920	5
924	5
928	5
932	5

## O-Ring Board



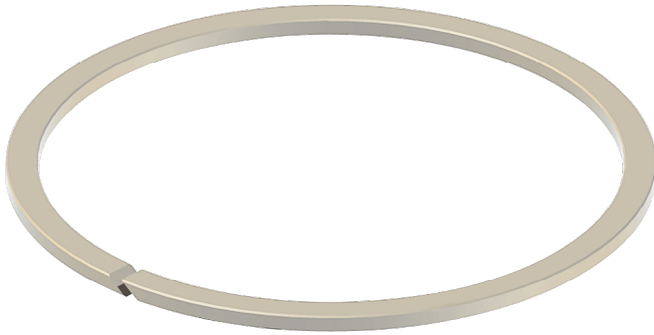
O-ring boards come equipped with 1325 O-rings in 152 sizes. This is a perfect accessory for any shop or maintenance area. The O-ring board mounts sturdily to the wall. All hardware is included.

Dash #	Quantity
006 thru 028	10 each
110 thru 149	10 each
210 thru 259	10 each
325 thru 350	5 each
425 thru 437	5 each

Other materials and durometers are available upon request. Replacement O-rings are available through Hi-Tech Seals.



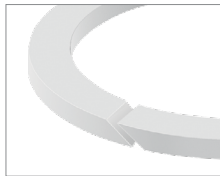
# Back-Up Rings



Materials	Temp. Range		
Nitrile	-40°C	to	120°C
Viton™/Fluorocarbon	-26°C	to	204°C
PTFE	-260°C	to	260°C
PEEK	-70°C	to	260°C
Hytrel®	-54°C	to	149°C
Urethane	-54°C	to	105°C



Solid Flat  
(27595)



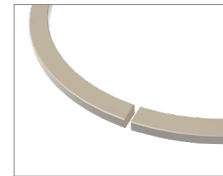
Scarf Cut  
(28774)



Spiral Cut  
(28782)



Solid Contoured

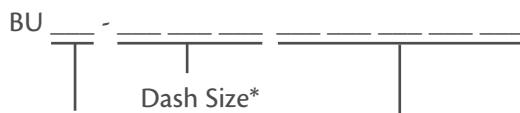


Butt Cut

## Product Description

Back-up rings are plastic or rubber rings used to prevent the O-ring from entering the clearance gap. When high pressures are exerted on the O-ring, its soft rubber material can be forced into the clearance gap causing the O-ring to extrude (see our O-ring brochure for examples of O-ring failure). The hard back-up ring material will keep the O-ring material from flowing into the gap, which will prevent premature failure. MIL spec numbers 27595, 28774, and 28782 are for reference purposes only. PTFE back-up rings are manufactured to our specifications.

## Part Numbers:



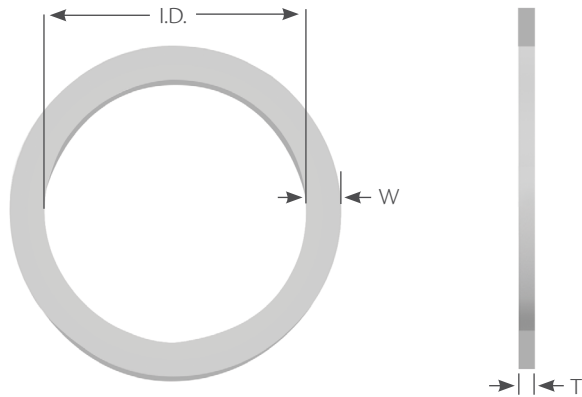
- N - Nitrile
- V - Viton™
- T - PTFE
- P - PEEK
- H - Hytrel®
- U - Urethane

### Cut Style for PTFE Back-Ups:

- 27595 - Solid Flat
- 28774 - Scarf Cut
- 28782 - Spiral Cut
- Blank - Elastomer Rings

# Back-Up Rings

Solid PTFE (MS 27595)



Back-Up Rings

Part Number	I.D.	T ± 0.002	W ± 0.002
BUT 001 27595	0.041	0.040	0.030
BUT 002 27595	0.054	0.045	0.040
BUT 003 27595	0.068		0.047
BUT 004 27595	0.082	± 0.003	0.050
BUT 005 27595	0.113		
BUT 006 27595	0.127		
BUT 007 27595	0.158		
BUT 008 27595	0.189		
BUT 009 27595	0.221		
BUT 010 27595	0.252		
BUT 011 27595	0.314		
BUT 012 27595	0.377		
BUT 013 27595	0.442		
BUT 014 27595	0.505		
BUT 015 27595	0.567		
BUT 016 27595	0.630		
BUT 017 27595	0.692		
BUT 018 27595	0.755		
BUT 019 27595	0.817		
BUT 020 27595	0.883		
BUT 021 27595	0.945		
BUT 022 27595	1.008		
BUT 023 27595	1.070		
BUT 024 27595	1.133		
BUT 025 27595	1.195		
BUT 026 27595	1.258		
BUT 027 27595	1.320		
BUT 028 27595	1.383		
BUT 029 27595	1.508		
BUT 030 27595	1.633		
BUT 031 27595	1.758		
BUT 032 27595	1.883		
BUT 033 27595	2.088		
BUT 034 27595	2.133		
BUT 035 27595	2.258		
BUT 036 27595	2.383		

Part Number	I.D.	T ± 0.002	W ± 0.002
BUT 037 27595	2.508	± 0.003	0.050
BUT 038 27595	2.633		
BUT 039 27595	2.758		
BUT 040 27595	2.883		
BUT 041 27595	3.008		
BUT 042 27595	3.258		
BUT 043 27595	3.508		
BUT 044 27595	3.758		
BUT 045 27595	4.008		
BUT 046 27595	4.258		
BUT 047 27595	4.508		
BUT 048 27595	4.758		
BUT 049 27595	5.008		
BUT 050 27595	5.258		
BUT 102 27595	0.063	± 0.003	0.088
BUT 103 27595	0.095		
BUT 104 27595	0.126		
BUT 105 27595	0.157		
BUT 106 27595	0.188		
BUT 107 27595	0.220		
BUT 108 27595	0.251		
BUT 109 27595	0.313		
BUT 110 27595	0.376		
BUT 111 27595	0.439		
BUT 112 27595	0.501		
BUT 113 27595	0.564		
BUT 114 27595	0.626		
BUT 115 27595	0.689		
BUT 116 27595	0.751		
BUT 117 27595	0.817		
BUT 118 27595	0.879		
BUT 119 27595	0.942		
BUT 120 27595	1.004		
BUT 121 27595	1.067		
BUT 122 27595	1.129		

# Back-Up Rings

IMPERIAL SEALS

Solid PTFE (MS 27595)

Back-Up Rings

Part Number	I.D.	T ± 0.002	W ± 0.002
BUT 123 27595	1.192	± 0.003	0.050
BUT 124 27595	1.254		
BUT 125 27595	1.317		
BUT 126 27595	1.379		
BUT 127 27595	1.442		
BUT 128 27595	1.504		
BUT 129 27595	1.567		
BUT 130 27595	1.631		
BUT 131 27595	1.693		
BUT 132 27595	1.756		
BUT 133 27595	1.818		
BUT 134 27595	1.881		
BUT 135 27595	1.944		
BUT 136 27595	2.006		
BUT 137 27595	2.069		
BUT 138 27595	2.131		
BUT 139 27595	2.194		
BUT 140 27595	2.256		
BUT 141 27595	2.319		
BUT 142 27595	2.381		
BUT 143 27595	2.444		
BUT 144 27595	2.506		
BUT 145 27595	2.569		
BUT 146 27595	2.631		
BUT 147 27595	2.694		
BUT 148 27595	2.756		
BUT 149 27595	2.819		
BUT 150 27595	2.881		
BUT 151 27595	3.006		
BUT 152 27595	3.256		
BUT 153 27595	3.506		
BUT 154 27595	3.756		
BUT 155 27595	4.006		
BUT 156 27595	4.256		
BUT 157 27595	4.506		
BUT 158 27595	4.756		
BUT 159 27595	5.006		
BUT 160 27595	5.256		
BUT 161 27595	5.506		
BUT 162 27595	5.756		
BUT 163 27595	6.006		
BUT 164 27595	6.256		
BUT 165 27595	6.506		
BUT 166 27595	6.756		
BUT 167 27595	7.006		
BUT 168 27595	7.256		
BUT 169 27595	7.506		
BUT 170 27595	7.756		
BUT 171 27595	8.006		
BUT 172 27595	8.256		
BUT 173 27595	8.506		
	± 0.005		

Part Number	I.D.	T ± 0.002	W ± 0.002
BUT 174 27595	8.756	± 0.005	0.050
BUT 175 27595	9.006		
BUT 176 27595	9.256		
BUT 177 27595	9.506		
BUT 178 27595	9.756		
BUT 201 27595	0.193	± 0.003	0.050
BUT 202 27595	0.255		
BUT 203 27595	0.318		
BUT 204 27595	0.380		
BUT 205 27595	0.443		
BUT 206 27595	0.505		
BUT 207 27595	0.568		
BUT 208 27595	0.630		
BUT 209 27595	0.693		
BUT 210 27595	0.755		
BUT 211 27595	0.817		
BUT 212 27595	0.880		
BUT 213 27595	0.942		
BUT 214 27595	1.005		
BUT 215 27595	1.067		
BUT 216 27595	1.130		
BUT 217 27595	1.192		
BUT 218 27595	1.255		
BUT 219 27595	1.317		
BUT 220 27595	1.380		
BUT 221 27595	1.442		
BUT 222 27595	1.505		
BUT 223 27595	1.631		
BUT 224 27595	1.756		
BUT 225 27595	1.882		
BUT 226 27595	2.007		
BUT 227 27595	2.132		
BUT 228 27595	2.257		
BUT 229 27595	2.382		
BUT 230 27595	2.507		
BUT 231 27595	2.632		
BUT 232 27595	2.757		
BUT 233 27595	2.882		
BUT 234 27595	3.007		
BUT 235 27595	3.132		
BUT 236 27595	3.257		
BUT 237 27595	3.382		
BUT 238 27595	3.507		
BUT 239 27595	3.632		
BUT 240 27595	3.757		
BUT 241 27595	3.882		
BUT 242 27595	4.007		
BUT 243 27595	4.132		
BUT 244 27595	4.257		
BUT 245 27595	4.382		

# Back-Up Rings

Solid PTFE (MS 27595)

Part Number	I.D.	T ± 0.002	W ± 0.002
BUT 246 27595	4.507	0.050	0.119
BUT 247 27595	4.632		
BUT 248 27595	4.757		
BUT 249 27595	4.882		
BUT 250 27595	5.007		
BUT 251 27595	5.132		
BUT 252 27595	5.257		
BUT 253 27595	5.382		
BUT 254 27595	5.507		
BUT 255 27595	5.632		
BUT 256 27595	5.757		
BUT 257 27595	5.882		
BUT 258 27595	6.007		
BUT 259 27595	6.257		
BUT 260 27595	6.507		
BUT 261 27595	6.757		
BUT 262 27595	7.007		
BUT 263 27595	7.257		
BUT 264 27595	7.507		
BUT 265 27595	7.757		
BUT 266 27595	8.007		
BUT 267 27595	8.257		
BUT 268 27595	8.507		
BUT 269 27595	8.757		
BUT 270 27595	9.007		
BUT 271 27595	9.257		
BUT 272 27595	9.507		
BUT 273 27595	9.757		
BUT 274 27595	10.007		
BUT 275 27595	10.507		
BUT 276 27595	11.007		
BUT 277 27595	11.507		
BUT 278 27595	12.007		
BUT 279 27595	13.007		
BUT 280 27595	14.007		
BUT 281 27595	15.007		
BUT 282 27595	16.007		
BUT 283 27595	17.007		
BUT 284 27595	18.007		
BUT 309 27595	0.437	± 0.003	0.185
BUT 310 27595	0.499		
BUT 311 27595	0.562		
BUT 312 27595	0.624		
BUT 313 27595	0.687		
BUT 314 27595	0.749		
BUT 315 27595	0.812		
BUT 316 27595	0.874		
BUT 317 27595	0.937		
BUT 318 27595	0.999		
BUT 319 27595	1.062		

Part Number	I.D.	T ± 0.002	W ± 0.002
BUT 320 27595	1.124	± 0.003	0.073
BUT 321 27595	1.187		
BUT 322 27595	1.249		
BUT 323 27595	1.312		
BUT 324 27595	1.374		
BUT 325 27595	1.499		
BUT 326 27595	1.624		
BUT 327 27595	1.750		
BUT 328 27595	1.875		
BUT 329 27595	2.000		
BUT 330 27595	2.125		
BUT 331 27595	2.250		
BUT 332 27595	2.375		
BUT 333 27595	2.500		
BUT 334 27595	2.625		
BUT 335 27595	2.750		
BUT 336 27595	2.875		
BUT 337 27595	3.000		
BUT 338 27595	3.125		
BUT 339 27595	3.250		
BUT 340 27595	3.375		
BUT 341 27595	3.500		
BUT 342 27595	3.625		
BUT 343 27595	3.750		
BUT 344 27595	3.875		
BUT 345 27595	4.000		
BUT 346 27595	4.125		
BUT 347 27595	4.250		
BUT 348 27595	4.375		
BUT 349 27595	4.500		
BUT 350 27595	4.625		
BUT 351 27595	4.750		
BUT 352 27595	4.875		
BUT 353 27595	5.000		
BUT 354 27595	5.125		
BUT 355 27595	5.250		
BUT 356 27595	5.375		
BUT 357 27595	5.500		
BUT 358 27595	5.625		
BUT 359 27595	5.750		
BUT 360 27595	5.875		
BUT 361 27595	6.000		
BUT 362 27595	6.250		
BUT 363 27595	6.500		
BUT 364 27595	6.750		
BUT 365 27595	7.000		
BUT 366 27595	7.250		
BUT 367 27595	7.500		
BUT 368 27595	7.750		
BUT 369 27595	8.000		
BUT 370 27595	8.251	± 0.005	

Back-Up Rings

# Back-Up Rings

IMPERIAL SEALS

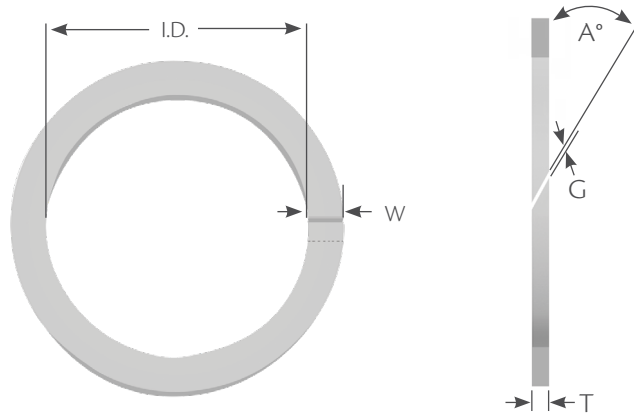
## Solid PTFE (MS 27595)

Part Number	I.D.	T ± 0.002	W ± 0.002		
BUT 371 27595	8.501	± 0.005	0.073		
BUT 372 27595	8.751				
BUT 373 27595	9.001				
BUT 374 27595	9.251				
BUT 375 27595	9.501				
BUT 376 27595	9.751				
BUT 377 27595	10.001				
BUT 378 27595	10.501				
BUT 379 27595	11.001				
BUT 380 27595	11.501				
BUT 381 27595	12.001				
BUT 382 27595	13.001				
BUT 383 27595	14.001				
BUT 384 27595	15.001				
BUT 385 27595	16.001				
BUT 386 27595	17.001				
BUT 387 27595	18.001				
BUT 388 27595	19.001				
BUT 389 27595	20.001				
BUT 390 27595	21.001				
BUT 391 27595	22.001				
BUT 392 27595	23.001				
BUT 393 27595	24.001				
BUT 394 27595	25.001				
BUT 395 27595	26.001				
BUT 400 27595	1.379			± 0.003	0.108
BUT 401 27595	1.504				
BUT 402 27595	1.629				
BUT 403 27595	1.754				
BUT 404 27595	1.879				
BUT 405 27595	2.004				
BUT 406 27595	2.129				
BUT 407 27595	2.254				
BUT 408 27595	2.379				
BUT 409 27595	2.504				
BUT 410 27595	2.629				
BUT 411 27595	2.754				
BUT 412 27595	2.879				
BUT 413 27595	3.004				
BUT 414 27595	3.129				
BUT 415 27595	3.254				
BUT 416 27595	3.379				
BUT 417 27595	3.504				
BUT 418 27595	3.629				
BUT 419 27595	3.754				
BUT 420 27595	3.879				
BUT 421 27595	4.004				
BUT 422 27595	4.129				
BUT 423 27595	4.254				
BUT 424 27595	4.379				

Part Number	I.D.	T ± 0.002	W ± 0.002		
BUT 425 27595	4.504	± 0.003	0.108		
BUT 426 27595	4.629				
BUT 427 27595	4.754				
BUT 428 27595	4.879				
BUT 429 27595	5.004				
BUT 430 27595	5.129				
BUT 431 27595	5.254				
BUT 432 27595	5.379				
BUT 433 27595	5.504				
BUT 434 27595	5.629				
BUT 435 27595	5.754				
BUT 436 27595	5.879				
BUT 437 27595	6.004				
BUT 438 27595	6.254				
BUT 439 27595	6.504				
BUT 440 27595	6.754				
BUT 441 27595	7.004				
BUT 442 27595	7.254				
BUT 443 27595	7.504				
BUT 444 27595	7.754				
BUT 445 27595	8.004				
BUT 446 27595	8.505			± 0.005	0.236
BUT 447 27595	9.005				
BUT 448 27595	9.505				
BUT 449 27595	10.005				
BUT 450 27595	10.505				
BUT 451 27595	11.005				
BUT 452 27595	11.505				
BUT 453 27595	12.005				
BUT 454 27595	12.505				
BUT 455 27595	13.005				
BUT 456 27595	13.505				
BUT 457 27595	14.005				
BUT 458 27595	14.505				
BUT 459 27595	15.005				
BUT 460 27595	15.505				
BUT 461 27595	16.005				
BUT 462 27595	16.505				
BUT 463 27595	17.005				
BUT 464 27595	17.505				
BUT 465 27595	18.005				
BUT 466 27595	18.505				
BUT 467 27595	19.005				
BUT 468 27595	19.505				
BUT 469 27595	20.005				
BUT 470 27595	21.005				
BUT 471 27595	22.005				
BUT 472 27595	23.005				
BUT 473 27595	24.005				
BUT 474 27595	25.005				
BUT 475 27595	26.005				

# Back-Up Rings

Scarf PTFE (MS 28774)



Back-Up Rings

Part Number	I.D.	T	W ± 0.002	G	A°
BUT 001 28774	0.072	± 0.003	0.030	0.005 to 0.000	39 +0 -4
BUT 002 28774	0.085		0.038		
BUT 003 28774	0.097		0.045		
BUT 004 28774	0.111				
BUT 005 28774	0.126				
BUT 006 28774	0.142				33 +0 -3
BUT 007 28774	0.173				30 +0 -3
BUT 008 28774	0.204				26 +0 -3
BUT 009 28774	0.236				
BUT 010 28774	0.267				
BUT 011 28774	0.329				
BUT 012 28774	0.392				
BUT 013 28774	0.457				
BUT 014 28774	0.520				
BUT 015 28774	0.582				
BUT 016 28774	0.645				
BUT 017 28774	0.707				
BUT 018 28774	0.770				
BUT 019 28774	0.832				
BUT 020 28774	0.900				
BUT 021 28774	0.962				
BUT 022 28774	1.025				
BUT 023 28774	1.087				
BUT 024 28774	1.150				
BUT 025 28774	1.212				
BUT 026 28774	1.275				
BUT 027 28774	1.337				
BUT 028 28774	1.400				
BUT 029 28774	1.525				
BUT 030 28774	1.650				
BUT 031 28774	1.775				
BUT 032 28774	1.900				
BUT 033 28774	2.025				
BUT 034 28774	2.150				
BUT 035 28774	2.275				

Part Number	I.D.	T	W ± 0.002	G	A°
BUT 036 28774	2.400	± 0.003	0.053	0.005 to 0.000	22 +0 -3
BUT 037 28774	2.525				
BUT 038 28774	2.650				
BUT 039 28774	2.775				
BUT 040 28774	2.900				
BUT 041 28774	3.025				
BUT 042 28774	3.275				
BUT 043 28774	3.525				
BUT 044 28774	3.775				
BUT 045 28774	4.025				
BUT 046 28774	4.275				
BUT 047 28774	4.525				
BUT 048 28774	4.775				
BUT 049 28774	5.025				
BUT 050 28774	5.275				
BUT 102 28774	0.080	0.052 to 0.045	0.086	0.006 to 0.000	22 +0 -3
BUT 103 28774	0.111				
BUT 104 28774	0.142				
BUT 105 28774	0.173				
BUT 106 28774	0.205				
BUT 107 28774	0.236				
BUT 108 28774	0.267				
BUT 109 28774	0.330				
BUT 110 28774	0.392				
BUT 111 28774	0.454				
BUT 112 28774	0.517				
BUT 113 28774	0.579				
BUT 114 28774	0.642				
BUT 115 28774	0.704				
BUT 116 28774	0.767				
BUT 117 28774	0.834				
BUT 118 28774	0.897				
BUT 119 28774	0.959				
BUT 120 28774	1.022				
BUT 121 28774	1.084				

# Back-Up Rings

IMPERIAL SEALS

## Scarf PTFE (MS 28774)

Back-Up Rings

Part Number	I.D.	T	W ± 0.002	G	A°	
BUT 122 28774	1.147					
BUT 123 28774	1.209					
BUT 124 28774	1.272					
BUT 125 28774	1.334					
BUT 126 28774	1.399					
BUT 127 28774	1.461					
BUT 128 28774	1.524					
BUT 129 28774	1.586					
BUT 130 28774	1.649					
BUT 131 28774	1.711					
BUT 132 28774	1.774					
BUT 133 28774	1.836					
BUT 134 28774	1.899					
BUT 135 28774	1.961					
BUT 136 28774	2.024					
BUT 137 28774	2.086					
BUT 138 28774	2.149					
BUT 139 28774	2.211					
BUT 140 28774	2.260					
BUT 141 28774	2.322					
BUT 142 28774	2.385					
BUT 143 28774	2.447					
BUT 144 28774	2.510					
BUT 145 28774	2.572					
BUT 146 28774	2.635	± 0.003	0.052	0.086	0.006	22 +0 -3
BUT 147 28774	2.697		to		to	
BUT 148 28774	2.760		0.045		0.000	
BUT 149 28774	2.822					
BUT 150 28774	2.947					
BUT 151 28774	3.197					
BUT 152 28774	3.447					
BUT 153 28774	3.697					
BUT 154 28774	3.947					
BUT 155 28774	4.197					
BUT 156 28774	4.447					
BUT 157 28774	4.697					
BUT 158 28774	4.947					
BUT 159 28774	5.197					
BUT 160 28774	5.447					
BUT 161 28774	5.697					
BUT 162 28774	5.947					
BUT 163 28774	6.197					
BUT 164 28774	6.447					
BUT 165 28774	6.697					
BUT 166 28774	6.947					
BUT 167 28774	7.197					
BUT 168 28774	7.447					
BUT 169 28774	7.697					
BUT 170 28774	7.947					
BUT 171 28774	8.197					

Part Number	I.D.	T	W ± 0.002	G	A°	
BUT 172 28774	8.447					
BUT 173 28774	8.697					
BUT 174 28774	8.947					
BUT 175 28774	9.197	± 0.003	0.052	0.086	0.006	22 +0 -3
BUT 176 28774	9.447		to		to	
BUT 177 28774	9.697		0.045		0.000	
BUT 178 28774	9.947					
BUT 201 28774	0.196					
BUT 202 28774	0.258					
BUT 203 28774	0.321					
BUT 204 28774	0.383					
BUT 205 28774	0.446					
BUT 206 28774	0.508					
BUT 207 28774	0.571					
BUT 208 28774	0.633					
BUT 209 28774	0.696					
BUT 210 28774	0.758					
BUT 211 28774	0.821					
BUT 212 28774	0.883					0.006
BUT 213 28774	0.946					to
BUT 214 28774	1.008					0.000
BUT 215 28774	1.071					
BUT 216 28774	1.133					
BUT 217 28774	1.196					
BUT 218 28774	1.258					
BUT 219 28774	1.321					
BUT 220 28774	1.383					
BUT 221 28774	1.446	± 0.003	0.052	0.119		22 +0 -3
BUT 222 28774	1.508		to			
BUT 223 28774	1.633		0.045			
BUT 224 28774	1.758					
BUT 225 28774	1.883					
BUT 226 28774	2.008					
BUT 227 28774	2.133					
BUT 228 28774	2.258					
BUT 229 28774	2.383					
BUT 230 28774	2.508					
BUT 231 28774	2.633					
BUT 232 28774	2.758					
BUT 233 28774	2.883					
BUT 234 28774	3.008					
BUT 235 28774	3.133					
BUT 236 28774	3.258					
BUT 237 28774	3.383					
BUT 238 28774	3.508					
BUT 239 28774	3.633					
BUT 240 28774	3.758					
BUT 241 28774	3.883					
BUT 242 28774	4.008					



# Back-Up Rings

Scarf PTFE (MS 28774)

Part Number	I.D.	T ± 0.005	W ± 0.002	G	A°	
BUT 243 28774	4.133					
BUT 244 28774	4.258					
BUT 245 28774	4.383					
BUT 246 28774	4.508					
BUT 247 28774	4.633					
BUT 248 28774	4.758					
BUT 249 28774	4.883					
BUT 250 28774	5.008					
BUT 251 28774	5.133					
BUT 252 28774	5.258					
BUT 253 28774	5.383					
BUT 254 28774	5.508					
BUT 255 28774	5.633					
BUT 256 28774	5.758					
BUT 257 28774	5.883					
BUT 258 28774	6.008					
BUT 259 28774	6.258					
BUT 260 28774	6.508					
BUT 261 28774	6.758					
BUT 262 28774	7.008					
BUT 263 28774	7.258					
BUT 264 28774	7.508	± 0.003	0.052 to 0.045	0.119	0.007 to 0.000	22 +0 -3
BUT 265 28774	7.758					
BUT 266 28774	8.008					
BUT 267 28774	8.258					
BUT 268 28774	8.508					
BUT 269 28774	8.758					
BUT 270 28774	9.008					
BUT 271 28774	9.258					
BUT 272 28774	9.508					
BUT 273 28774	9.758					
BUT 274 28774	10.008					
BUT 275 28774	10.508					
BUT 276 28774	11.008					
BUT 277 28774	11.508					
BUT 278 28774	12.008					
BUT 279 28774	13.008					
BUT 280 28774	14.008					
BUT 281 28774	15.008					
BUT 282 28774	16.008					
BUT 283 28774	17.008					
BUT 284 28774	18.008					
BUT 309 28774	0.453					
BUT 310 28774	0.515					
BUT 311 28774	0.578	± 0.003	0.070	0.183	0.007 to 0.000	22 +0 -3
BUT 312 28774	0.640					
BUT 313 28774	0.703					
BUT 314 28774	0.765					
BUT 315 28774	0.828					
BUT 316 28774	0.890					
BUT 317 28774	0.953					
BUT 318 28774	1.015					
BUT 319 28774	1.078					
BUT 320 28774	1.140					
BUT 321 28774	1.203					
BUT 322 28774	1.265					
BUT 323 28774	1.328					
BUT 324 28774	1.390					
BUT 325 28774	1.515					
BUT 326 28774	1.640					
BUT 327 28774	1.765					
BUT 328 28774	1.890					
BUT 329 28774	2.015					
BUT 330 28774	2.140					
BUT 331 28774	2.270					
BUT 332 28774	2.395					
BUT 333 28774	2.520					
BUT 334 28774	2.645					
BUT 335 28774	2.770					
BUT 336 28774	2.895					
BUT 337 28774	3.020					
BUT 338 28774	3.145					
BUT 339 28774	3.275					
BUT 340 28774	3.400	± 0.003	0.070	0.183	0.007 to 0.000	22 +0 -3
BUT 341 28774	3.525					
BUT 342 28774	3.650					
BUT 343 28774	3.775					
BUT 344 28774	3.900					
BUT 345 28774	4.030					
BUT 346 28774	4.155					
BUT 347 28774	4.280					
BUT 348 28774	4.405					
BUT 349 28774	4.530					
BUT 350 28774	4.655					
BUT 351 28774	4.780					
BUT 352 28774	4.905					
BUT 353 28774	5.030					
BUT 354 28774	5.155					
BUT 355 28774	5.280					
BUT 356 28774	5.405					
BUT 357 28774	5.530					
BUT 358 28774	5.655					
BUT 359 28774	5.780					
BUT 360 28774	5.905					
BUT 361 28774	6.030					
BUT 362 28774	6.280					
BUT 363 28774	6.530					
BUT 364 28774	6.780					
BUT 365 28774	7.030					

Back-Up Rings

# Back-Up Rings

IMPERIAL SEALS

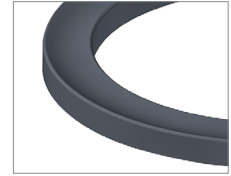
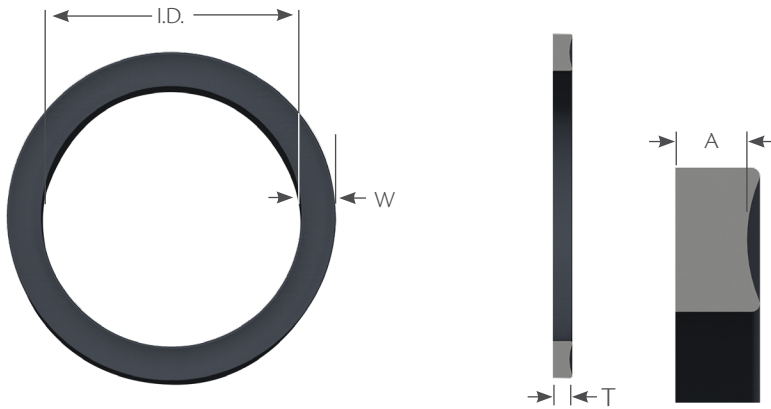
Scarfed PTFE (MS 28774)

Part Number	I.D.	T ± 0.005	W ± 0.002	G	A°
BUT 366 28774	7.280	± 0.003	0.070	0.183	0.007 to 0.000
BUT 367 28774	7.530				
BUT 368 28774	7.780				
BUT 369 28774	8.030				
BUT 370 28774	8.280				
BUT 371 28774	8.530				
BUT 372 28774	8.780				
BUT 373 28774	9.030				
BUT 374 28774	9.280				
BUT 375 28774	9.530				
BUT 376 28774	9.780				
BUT 377 28774	10.030				
BUT 378 28774	10.530				
BUT 379 28774	11.030				
BUT 380 28774	11.530				
BUT 381 28774	12.030				
BUT 382 28774	13.030				
BUT 383 28774	14.030				
BUT 384 28774	15.030				
BUT 385 28774	16.030				
BUT 386 28774	17.030				
BUT 387 28774	18.030				
BUT 388 28774	19.030				
BUT 389 28774	20.030				
BUT 390 28774	21.030				
BUT 391 28774	22.030				
BUT 392 28774	23.030				
BUT 393 28774	24.030				
BUT 394 28774	25.030				
BUT 395 28774	26.030				
BUT 425 28774	4.553	± 0.003	0.105	0.236	0.008 to 0.000
BUT 426 28774	4.678				
BUT 427 28774	4.803				
BUT 428 28774	4.928				
BUT 429 28774	5.053				
BUT 430 28774	5.178				
BUT 431 28774	5.303				
BUT 432 28774	5.428				
BUT 433 28774	5.553				
BUT 434 28774	5.678				
BUT 435 28774	5.803				
BUT 436 28774	5.928				
BUT 437 28774	6.053				
BUT 438 28774	6.276				
BUT 439 28774	6.526				
BUT 440 28774	6.776				
BUT 441 28774	7.026				

Part Number	I.D.	T ± 0.005	W ± 0.002	G	A°
BUT 442 28774	7.276	± 0.003	0.105	0.236	0.008 to ± 0.000
BUT 443 28774	7.526				
BUT 444 28774	7.776				
BUT 445 28774	8.026				
BUT 446 28774	8.526				
BUT 447 28774	9.026				
BUT 448 28774	9.526				
BUT 449 28774	10.026				
BUT 450 28774	10.526				
BUT 451 28774	11.026				
BUT 452 28774	11.526				
BUT 453 28774	12.026				
BUT 454 28774	12.526				
BUT 455 28774	13.026				
BUT 456 28774	13.526				
BUT 457 28774	14.026				
BUT 458 28774	14.526				
BUT 459 28774	15.026				
BUT 460 28774	15.526				
BUT 461 28774	16.026				
BUT 462 28774	16.526				
BUT 463 28774	17.026				
BUT 464 28774	17.526				
BUT 465 28774	18.026				
BUT 466 28774	18.526				
BUT 467 28774	19.026				
BUT 468 28774	19.526				
BUT 469 28774	20.026				
BUT 470 28774	21.026				
BUT 471 28774	22.026				
BUT 472 28774	23.026				
BUT 473 28774	24.026				
BUT 474 28774	25.026				
BUT 475 28774	26.026				

# Back-Up Rings

Contoured Sizes



Back-Up Rings

Dash No.	I.D.	W	T	A			
004	0.096	± 0.005	0.049	0.045 ± 0.003			
005	0.127						
006	0.140						
007	0.171						
008	0.202						
009	0.234						
010	0.265						
011	0.327						
012	0.390						
013	0.455						
014	0.518						
015	0.580						
016	0.643				± 0.009	0.053 ± 0.003	0.045 ± 0.003
017	0.705						
018	0.768						
019	0.830						
020	0.893						
021	0.955						
022	1.018	± 0.010	0.049	0.045 ± 0.003			
023	1.080						
024	1.143						
025	1.205	± 0.011	0.049	0.045 ± 0.003			
026	1.268						
027	1.330	± 0.013	0.049	0.045 ± 0.003			
028	1.393						
029	1.518	± 0.015	0.049	0.045 ± 0.003			
030	1.643						
031	1.768						
032	1.893	± 0.018	0.049	0.045 ± 0.003			
033	2.018						
034	2.143						
035	2.268						
036	2.393						
037	2.519						
038	2.643	± 0.020	0.049	0.045 ± 0.003			
039	2.768						

Dash No.	I.D.	W	T	A
040	2.893	0.053 ± 0.003	0.049	0.045 ± 0.003
041	3.018			
042	3.268			
043	3.518			
044	3.768			
045	4.018			
046	4.268			
047	4.518			
048	4.768			
049	5.018			
050	5.268			
102	0.077	0.086 ± 0.003	0.053	0.045 ± 0.003
103	0.109			
104	0.140			
105	0.171			
106	0.202			
107	0.234			
108	0.265			
109	0.327			
110	0.390			
111	0.452			
112	0.515			
113	0.577			
114	0.640			
115	0.702			
116	0.765			
117	0.831			
118	0.893			
119	0.956			
120	1.018			
121	1.081			
122	1.143			
123	1.206			
124	1.268			
125	1.331			

# Back-Up Rings

IMPERIAL SEALS

## Contoured Sizes

Dash No.	I.D.	W	T	A
126	1.393			
127	1.456			
128	1.518			
129	1.581			
130	1.643			
131	1.706			
132	1.768			
133	1.831			
134	1.893			
135	1.956			
136	2.018			
137	2.081			
138	2.143			
139	2.206			
140	2.268			
141	2.331			
142	2.393			
143	2.456			
144	2.518			
145	2.581			
146	2.643			
147	2.706			
148	2.768			
149	2.831			
150	2.893			
151	3.018			
152	3.268			
153	3.518			
154	3.768			
155	4.018			
156	4.268			
157	4.518			
158	4.768			
159	5.018			
160	5.268			
161	5.518			
162	5.768			
163	6.018			
164	6.268			
165	6.518			
166	6.768			
167	7.018			
168	7.268			
169	7.518			
170	7.768			
171	8.018			

Dash No.	I.D.	W	T	A
172	8.268			
173	8.518			
174	8.768			
175	9.018			
176	9.268			
177	9.518			
178	9.768			
179				
201	0.202			
202	0.265			
203	0.327			
204	0.390			
205	0.455			
206	0.518			
207	0.580			
208	0.643			
209	0.705			
210	0.765			
211	0.828			
212	0.891			
213	0.953			
214	1.016			
215	1.078			
216	1.141			
217	1.203			
218	1.266			
219	1.334			
220	1.397			
221	1.459			
222	1.522			
223	1.647			
224	1.772			
225	1.897			
226	2.022			
227	2.147			
228	2.272			
229	2.397			
230	2.522			
231	2.631			
232	2.756			
233	2.881			
234	3.006			
235	3.131			
236	3.256			
237	3.381			
238	3.506			

# Back-Up Rings

Contoured Sizes

Dash No.	I.D.	W	T	A	
239	3.631	0.118 ± 0.004	0.050	0.040 ± 0.003	
240	3.756				
241	3.881				± 0.028
242	4.006				
243	4.131				
244	4.256				
245	4.381				
246	4.506				± 0.030
247	4.631				
248	4.768				
249	4.893				
250	5.018				
251	5.143				
252	5.268				
253	5.393				
254	5.518				± 0.035
255	5.643				
256	5.768				
257	5.893				
258	6.018				
259	6.268				
260	6.518				± 0.040
261	6.768				
262	7.018				
263	7.268				
264	7.518				
265	7.768	± 0.045			
266	8.018				
267	8.268				
268	8.518				
269	8.768	± 0.050			
270	9.018				
271	9.268				
272	9.518				
273	9.768				
274	10.018	± 0.055			
275	10.518				
276	11.018				
277	11.518				
278	12.018				
279	13.018	± 0.065			
280	14.018				
281	15.018				
282	15.989	± 0.075			
283	16.989	± 0.080			
284	17.989	± 0.085			

Dash No.	I.D.	W	T	A	
309	0.450	0.183 ± 0.005	0.076	0.060 ± 0.004	
310	0.513				± 0.005
311	0.575				± 0.007
312	0.638				± 0.009
313	0.700				
314	0.763				
315	0.825				
316	0.888				
317	0.950				± 0.010
318	1.013				
319	1.075				
320	1.138				
321	1.200				
322	1.263				± 0.012
323	1.316				
324	1.388				
325	1.513				
326	1.638				
327	1.763				± 0.015
328	1.888				
329	2.013				
330	2.138				
331	2.268				± 0.018
332	2.393				
333	2.518				
334	2.643				
335	2.768				± 0.020
336	2.893				
337	3.018				
338	3.143				
339	3.273				± 0.024
340	3.398				
341	3.523				
342	3.648				
343	3.773				
344	3.898	± 0.028			
345	4.028				
346	4.153				
347	4.278				
348	4.403				
349	4.528	± 0.030			
350	4.653				
351	4.778				
352	4.903				
353	5.028	± 0.037			
354	5.153				

Back-Up Rings

# Back-Up Rings

IMPERIAL SEALS

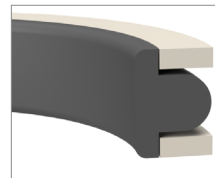
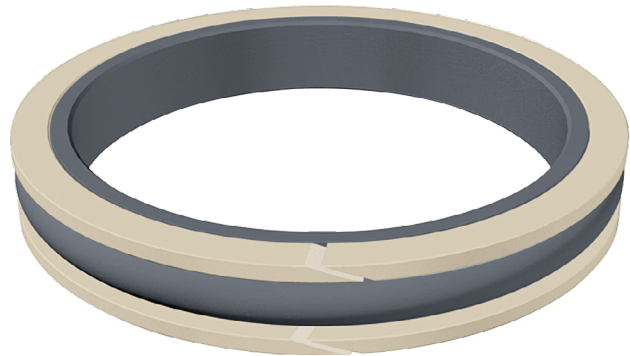
## Contoured Sizes

Back-Up Rings

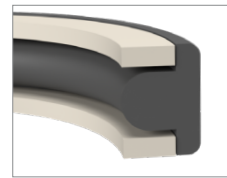
Dash No.	I.D.	W	T	A
355	5.278	0.183 ± 0.005	0.076	0.060 ± 0.004
356	5.403			
357	5.528			
358	5.653			
359	5.778			
360	5.903			
361	6.028			
362	6.278			
363	6.528			
364	6.778			
365	7.028			
366	7.278			
367	7.528			
368	7.778			
369	8.028			
370	8.278			
371	8.528			
372	8.778			
373	9.028			
374	9.278			
375	9.528			
376	9.778			
377	10.028			
378	10.528			
379	11.028			
380	11.528			
381	12.028			
382	13.028			
383	14.028			
384	15.028			
385	16.008			
386	17.008			
387	18.008			
388	19.006			
389	20.006			
390	21.006			
391	22.006			
392	22.993			
393	23.993			
394	24.993			
395	25.993			
425	4.551	0.236 ± 0.006	0.117	0.096 ± 0.005
426	4.676			
427	4.801			
428	4.926			

Dash No.	I.D.	W	T	A
429	5.051	0.236 ± 0.006	0.117	0.096 ± 0.005
430	5.176			
431	5.301			
432	5.426			
433	5.551			
434	5.676			
435	5.801			
436	5.926			
437	6.051			
438	6.274			
439	6.525			
440	6.774			
441	7.024			
442	7.274			
443	7.524			
444	7.774			
445	8.024			
446	8.524			
447	9.024			
448	9.524			
449	10.024			
450	10.524			
451	11.024			
452	11.524			
453	12.024			
454	12.524			
455	13.024			
456	13.524			
457	14.024			
458	14.524			
459	15.024			
460	15.524			
461	16.004			
462	16.504			
463	17.004			
464	17.504			
465	18.004			
466	18.504			
467	19.004			
468	19.504			
469	20.004			
470	21.004			
471	22.004			
472	23.004			
473	24.004			
474	25.004			
475	26.004			

Seal Materials	Temp. Range	
Nitrile	-40°C	to 120°C
Viton™/Fluorocarbon	-26°C	to 204°C
Hydrogenated Nitrile	-40°C	to 160°C
Perfluoroelastomer	-32°C	to 350°C
Aflas® FEPM	-9°C	to 232°C
Back-up Ring Materials		
Nylon	-54°C	to 121°C
PTFE	-260°C	to 260°C
PEEK	-70°C	to 260°C



Piston (TPO)



Rod (TRO)

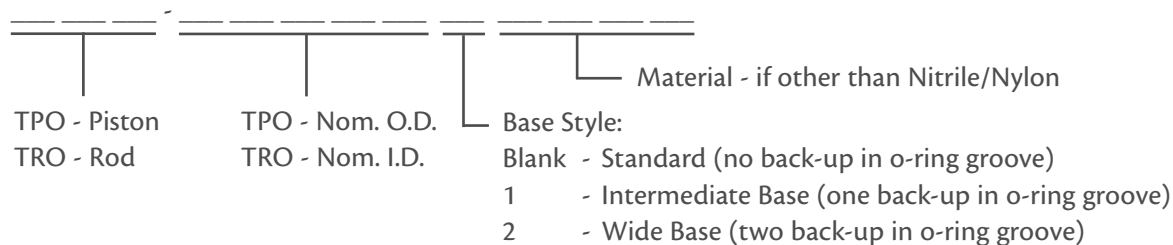
## Product Description

T-seals are double acting seals that are available in both piston and rod profiles. A standard O-ring groove can accommodate a standard T-seal. 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 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 materials.

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

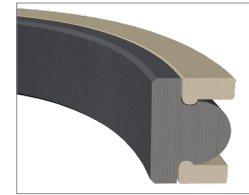
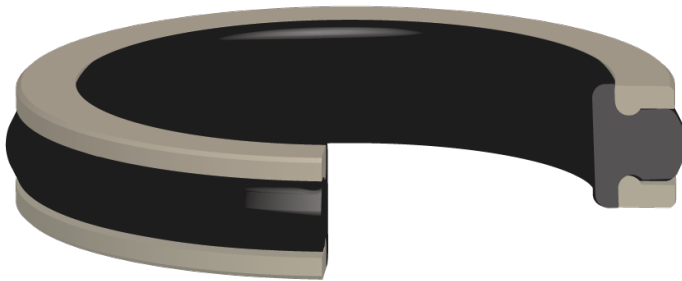
## Part Numbers:



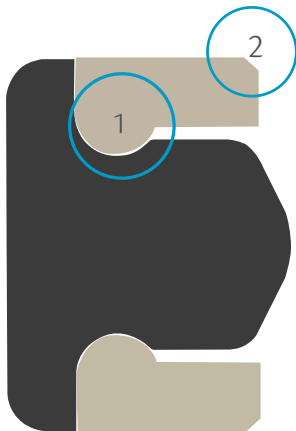
**Example:** TPO 0875VPPEEK - Viton™ Piston T-seal, PEEK Back-Up Rings, 7/8” Nom. O.D., 1/8” Nom. C/S



## Locking Style



## Improve Ease of Installation



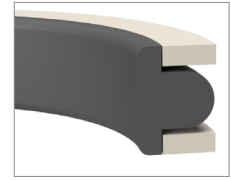
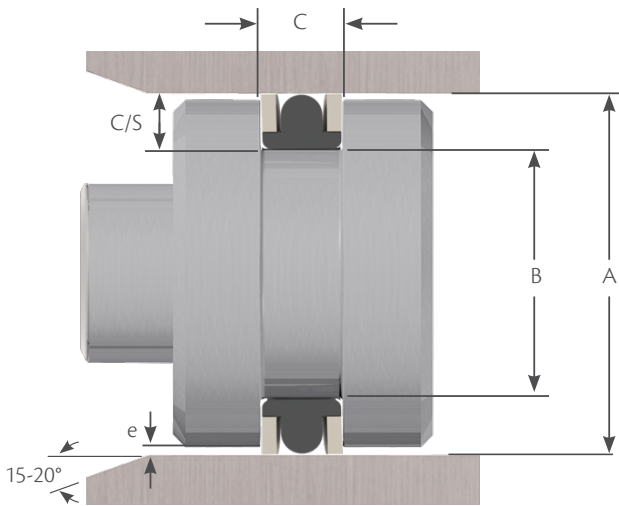
1 . Piston T-seals are also available in a locking profile which assists with the installation process. With the inter-locking design, customers benefit from:

- 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



Maximum extrusion gap (e)

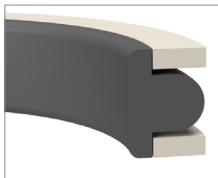
Radial Depth C/S	Series	e <sub>max</sub> at 80°C (175°F)		
		1000 psi	3000 psi	5000 psi
0.121"	1/8 (200)	0.025	0.008	0.005
0.185"	3/16 (300)	0.030	0.012	0.007
0.236"	1/4 (400)	0.035	0.017	0.010

Part Numbers	Nominal Reference			A Bore Dia.	B Groove Dia.	C Groove Width
	I.D.	O.D.	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
	I.D.	O.D.	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

T-Seals

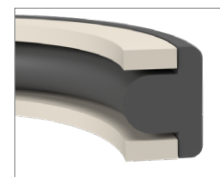
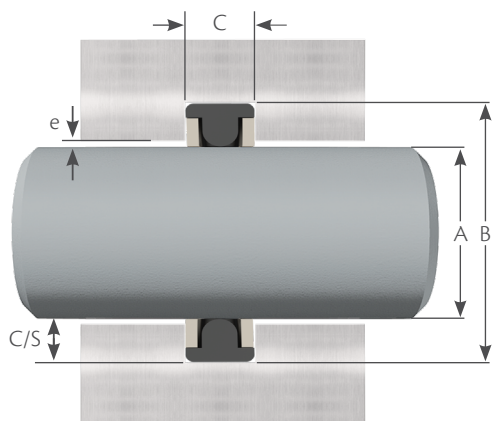
## Piston Style



Part Numbers	Nominal Reference			A	B	C
	I.D.	O.D.	C/S	Bore Dia.	Groove Dia.	Groove Width
Tolerance				+0.002 -0.000	+0.000 -0.002	+0.010 -0.000
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
	I.D.	O.D.	C/S	Bore Dia.	Groove Dia.	Groove Width
Tolerance				+0.002 -0.000	+0.000 -0.002	+0.010 -0.000
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



Maximum extrusion gap (e)

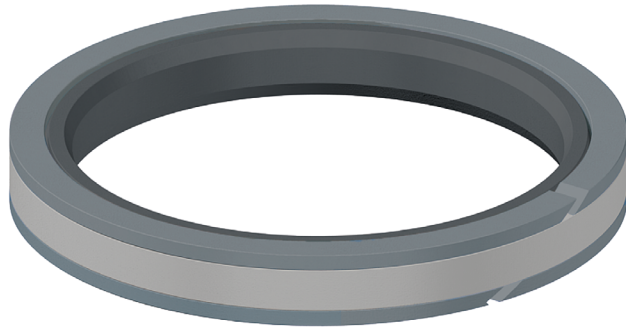
Radial Depth C/S	e <sub>max</sub> at 80°C (175°F)			
	Series	1000 psi	3000 psi	5000 psi
0.121"	1/8 (200)	0.025	0.008	0.005
0.185"	3/16 (300)	0.030	0.012	0.007
0.236"	1/4 (400)	0.035	0.017	0.010

Part Numbers	Nominal Reference			A	B	C
	I.D.	O.D.	C/S	Shaft Dia.	Groove Dia.	Groove Width
	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	B	C
	I.D.	O.D.	C/S	Shaft Dia.	Groove Dia.	Groove Width
	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

# Capped T-Seals



Capped T-Seals

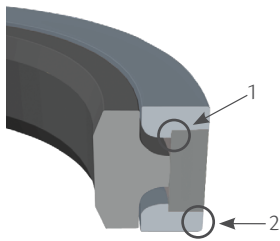
Seal (Cap) Materials	Temp. Range		
15% Glass, 5% Moly PTFE	-260°C	to	260°C
40% Bronze filled PTFE	-260C	to	260°C
Energizer Materials			
Nitrile	-40°C	to	120°C
Low Temp. Nitrile	-54°C	to	116°C
Viton™/Fluorocarbon	-26°C	to	204°C
Ethylene Propylene	-54°C	to	150°C
Back-up Ring Material:			
Nylon	-54°C	to	121°C

Other popular Back-up materials that are available include PEEK and various PTFE compounds.

## Product Description

Capped T-seals are double-acting, high pressure, high performance piston seals. They are designed to accommodate large extrusion gaps. The major benefits of this design are its excellent extrusion resistance, low friction, and low wear, which are all presented in a compact and stable design. Standard capped T-seals consist of four pieces; a nitrile energizer, a 15% glass, 5% moly PTFE cap, and two nylon anti-extrusion rings. Suitable for pressures up to 10000 PSI.

## Improve Ease of Installation



1. With the inter-locking design, customers benefit from:
  - A reduced chance of installing the back-up rings incorrectly.
  - The back-up rings locking behind T-seal when assembled in the application.
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.

Contact us if you have any issue installing a capped T-Seal.

## Part Numbers:

CTS - \_\_\_\_\_  
                   |  
                   Nominal O.D.

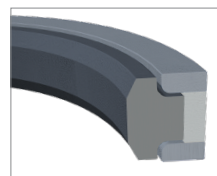
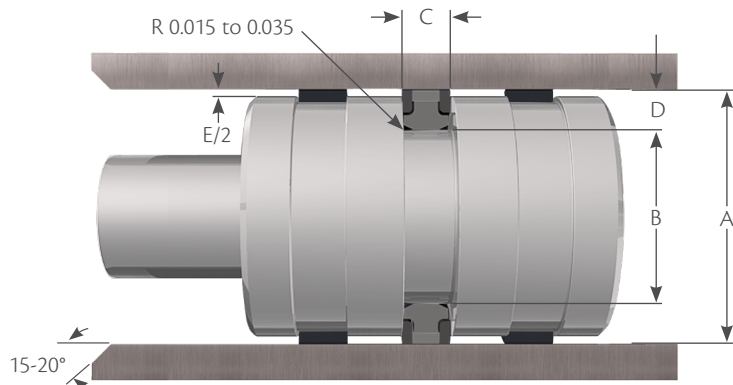
                  |  
                   Material - if other than standard

CAT\* - \_\_\_\_\_ 4  
                   |  
                   O.D.

**Example:** CTS 2500 - Capped T-seal, Nitrile Energizer, Glass/Moly PTFE Cap, Two Nylon Anti-Extrusion Rings, 2 - 1/2" Nominal ID

\* Caterpillar equivalent style

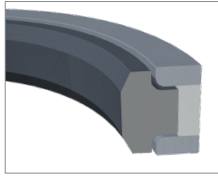
# Capped T-Seals



Capped T-Seals

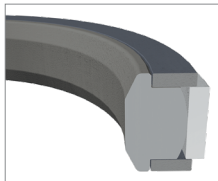
Part Number	A		B		C	D	Nominal E*	
	Bore Diameter	Tolerance	Groove Diameter	Tolerance	Groove Width +0.010 -0.000	Groove Depth	Capped T-Seal C/S	Diametrical Clearance
CTS 1500	1.500	+0.002 / - 0.000	1.126	+0.000 / - 0.002	0.424	0.187	3/16	0.025
CTS 1750	1.750	+0.002 / - 0.000	1.376	+0.000 / - 0.002	0.424	0.187	3/16	0.025
CTS 2000	2.000	+0.002 / - 0.000	1.626	+0.000 / - 0.002	0.424	0.187	3/16	0.025
CTS 2250	2.250	+0.002 / - 0.000	1.876	+0.000 / - 0.002	0.424	0.187	3/16	0.025
CTS 2500	2.500	+0.002 / - 0.000	2.126	+0.000 / - 0.002	0.424	0.187	3/16	0.025
CTS 2750	2.750	+0.002 / - 0.000	2.376	+0.000 / - 0.002	0.424	0.187	3/16	0.025
CTS 3000	3.000	+0.003 / - 0.000	2.520	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 3250	3.250	+0.003 / - 0.000	2.770	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 3500	3.500	+0.003 / - 0.000	3.020	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 3750	3.750	+0.003 / - 0.000	3.270	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 4000	4.000	+0.003 / - 0.000	3.520	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 4250	4.250	+0.003 / - 0.000	3.770	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 4500	4.500	+0.003 / - 0.000	4.020	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 4750	4.750	+0.003 / - 0.000	4.270	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 4780	4.780	+0.003 / - 0.000	4.300	+0.000 / - 0.003	0.579	0.240	1/4	0.030
CTS 5000	5.000	+0.004 / - 0.000	4.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 5250	5.250	+0.004 / - 0.000	4.520	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 5500	5.500	+0.004 / - 0.000	4.770	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 5750	5.750	+0.004 / - 0.000	5.020	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 6000	6.000	+0.004 / - 0.000	5.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 6250	6.250	+0.004 / - 0.000	5.520	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 6290	6.290	+0.004 / - 0.000	5.560	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 6500	6.500	+0.004 / - 0.000	5.770	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 6750	6.750	+0.004 / - 0.000	6.020	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 7000	7.000	+0.004 / - 0.000	6.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 7040	7.040	+0.004 / - 0.000	6.310	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 7250	7.250	+0.004 / - 0.000	6.520	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 7500	7.500	+0.004 / - 0.000	6.770	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 7540	7.540	+0.004 / - 0.000	6.810	+0.000 / - 0.004	0.750	0.365	3/8	0.035

# Capped T-Seals



Part Number	A		B		C	D	Nominal E*	
	Bore Diameter	Tolerance	Groove Diameter	Tolerance	Groove Width +0.010 -0.000	Groove Depth	Capped T-Seal C/S	Diametrical Clearance
CTS 7750	7.750	+0.004 / - 0.000	7.020	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 7800	7.800	+0.004 / - 0.000	7.070	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 8000	8.000	+0.004 / - 0.000	7.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 8250	8.250	+0.004 / - 0.000	7.520	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 8300	8.300	+0.004 / - 0.000	7.570	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 8500	8.500	+0.004 / - 0.000	7.770	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 8750	8.750	+0.004 / - 0.000	8.020	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 9000	9.000	+0.004 / - 0.000	8.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 9040	9.040	+0.004 / - 0.000	8.310	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 9500	9.500	+0.004 / - 0.000	8.770	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 10000	10.000	+0.004 / - 0.000	9.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 10500	10.500	+0.004 / - 0.000	9.770	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 11000	11.000	+0.004 / - 0.000	10.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 12000	12.000	+0.004 / - 0.000	11.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 12500	12.500	+0.004 / - 0.000	11.770	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 13000	13.000	+0.004 / - 0.000	12.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 13500	13.500	+0.004 / - 0.000	12.770	+0.000 / - 0.004	0.750	0.365	3/8	0.035
CTS 14000	14.000	+0.004 / - 0.000	13.270	+0.000 / - 0.004	0.750	0.365	3/8	0.035

## \* Caterpillar Four Piece

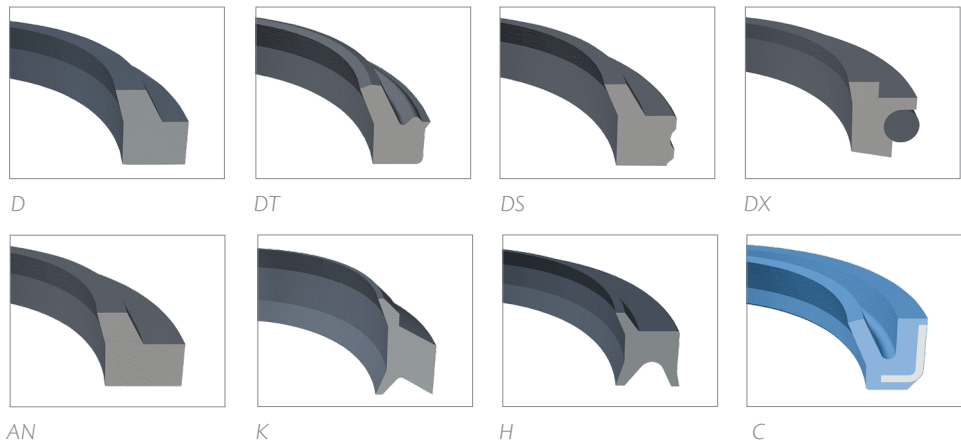
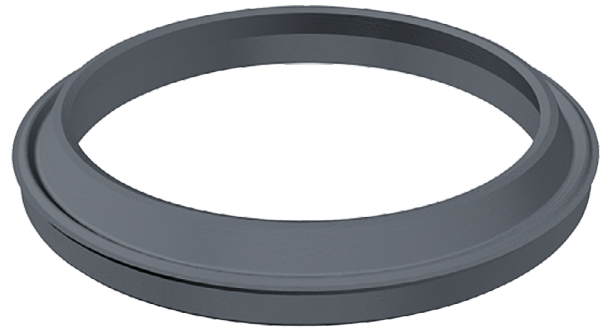


Part Number	CAT Number	O.D.	Height	Length
CAT 55004	8J8767	5.500	0.412 - 0.416	0.628 - 0.632
CAT 65004	8J8703	6.500	0.480 - 0.484	0.628 - 0.632
CAT 70004	8J3749	7.000	0.480 - 0.484	0.628 - 0.632
CAT 85004	3G4762	8.500	0.543 - 0.547	0.628 - 0.632
CAT 105004	3G4765	10.500	0.591 - 0.595	0.688 - 0.692

*Our Caterpillar parts are not original equipment parts. Caterpillar part numbers are only provided as a reference.*



Materials	Temp. Range
Urethane	-54°C to 105°C
Hydrogenated Nitrile	-40°C to 160°C
Viton™/Fluorocarbon	-26°C to 204°C
PEEK	-70°C to 260°C
Hytrel®	-54°C to 149°C
Nitrile	-40°C to 120°C



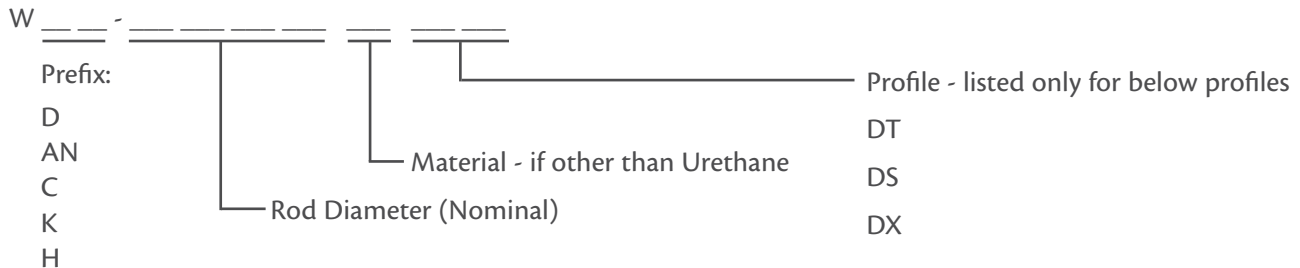
Additional styles such as Seal Guard, Trailmobile and Hyster are available upon request.

## Product Description

Wipers are primarily designed to stop contaminants from entering a cylinder on the rod, however, they can also act as a secondary rod seal. If contaminants were to enter a cylinder it could lead to damage of the rod and/or other sealing components. A properly selected wiper could help reduce the need for unscheduled maintenance and even increase the time between maintenance cycles.

It is important to select the correct style and material for an application. Our standard wiper material is urethane, however, nitrile, hydrogenated nitrile, Viton™, PEEK, and Hytrel® wipers are available. When selecting the material for a wiper remember to consider: required abrasion resistance, elasticity, resilience, and fluid compatibility.

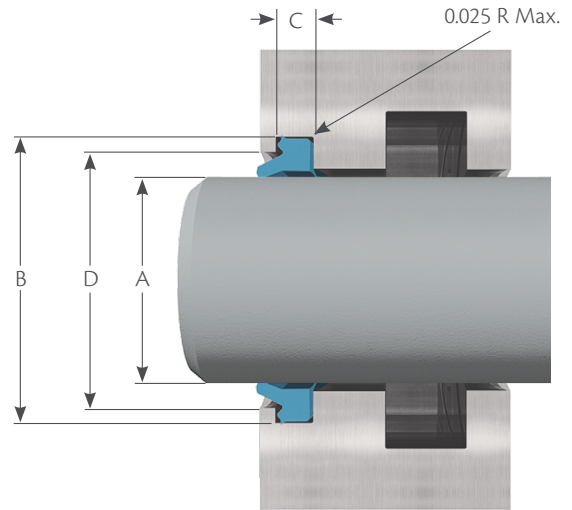
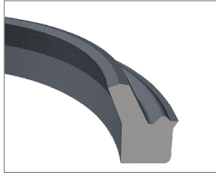
## Part Numbers:



**Example:** WD 1250 - 1 - 1/4" Nom. I.D., Wiper, Urethane, D Style  
 WD 5750DT - 5 - 3/4" Nom. I.D., Wiper, Urethane, DT Style

# Wipers

## D, DT, DS and DX styles



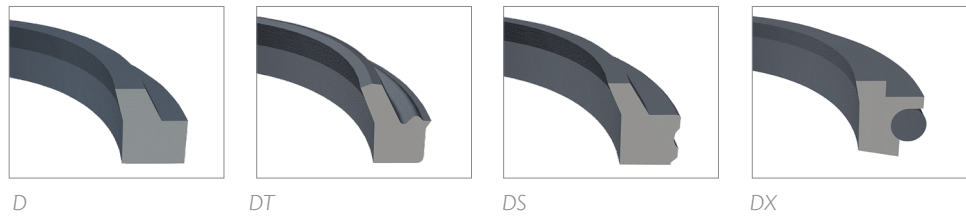
DT Wipers are a one piece snap-in type rod wiper designed for medium duty applications. The outside lip provides improved O.D. ingress resistance. The DT style wiper lip reduces apparent rod seal leakage with equivalent ingress resistance to a sharp lip wiper.

\* DT, D, DS and DX are all available in the sizes listed below. WD prefix most commonly represents our DT style wiper.

*Part Number	A Shaft Diameter	B Groove Diameter +0.006 -0.000	C Groove Width +0.004 -0.000	D Shoulder Diameter +0.010 -0.000
WD 0250	0.250	0.497	0.124	0.410
WD 0312	0.313	0.560	0.124	0.475
WD 0375	0.375	0.622	0.124	0.535
WD 0437	0.438	0.685	0.124	0.600
WD 0500	0.500	0.747	0.124	0.660
WD 0562	0.563	0.810	0.124	0.725
WD 0625	0.625	0.872	0.124	0.785
WD 0687	0.688	0.935	0.124	0.850
WD 0750	0.750	1.122	0.187	0.995
WD 0812	0.813	1.185	0.187	1.060
WD 0875	0.875	1.247	0.187	1.120
WD 0937	0.938	1.310	0.187	1.185
WD 1000	1.000	1.372	0.187	1.245
WD 1062	1.063	1.435	0.187	1.310
WD 1125	1.125	1.497	0.187	1.370
WD 1187	1.188	1.560	0.187	1.435
WD 1250	1.250	1.622	0.187	1.495
WD 1312	1.313	1.685	0.187	1.560
WD 1375	1.375	1.747	0.187	1.620
WD 1437	1.438	1.810	0.187	1.685
WD 1500	1.500	1.872	0.187	1.745
WD 1562	1.563	1.935	0.187	1.810
WD 1625	1.625	1.997	0.187	1.870
WD 1687	1.688	2.060	0.187	1.935
WD 1750	1.750	2.122	0.187	1.995

*Part Number	A Shaft Diameter	B Groove Diameter +0.006 -0.000	C Groove Width +0.004 -0.000	D Shoulder Diameter +0.010 -0.000
WD 1812	1.813	2.185	0.187	2.060
WD 1875	1.875	2.247	0.187	2.120
WD 1937	1.938	2.310	0.187	2.185
WD 2000	2.000	2.497	0.249	2.327
WD 2062	2.063	2.560	0.249	2.390
WD 2125	2.125	2.622	0.249	2.452
WD 2187	2.188	2.685	0.249	2.515
WD 2250	2.250	2.747	0.249	2.577
WD 2312	2.313	2.810	0.249	2.640
WD 2375	2.375	2.872	0.249	2.702
WD 2437	2.438	2.935	0.249	2.765
WD 2500	2.500	2.997	0.249	2.827
WD 2562	2.563	3.060	0.249	2.890
WD 2625	2.625	3.122	0.249	2.952
WD 2687	2.688	3.185	0.249	3.015
WD 2750	2.750	3.247	0.249	3.077
WD 2812	2.823	3.310	0.249	3.140
WD 2875	2.875	3.372	0.249	3.202
WD 2937	2.938	3.435	0.249	3.265
WD 3000	3.000	3.497	0.249	3.327
WD 3125	3.125	3.622	0.249	3.452
WD 3250	3.250	3.747	0.249	3.577
WD 3375	3.375	3.872	0.249	3.702
WD 3500	3.500	3.997	0.249	3.827
WD 3625	3.625	4.122	0.249	3.952

DT, D, DS and DX styles



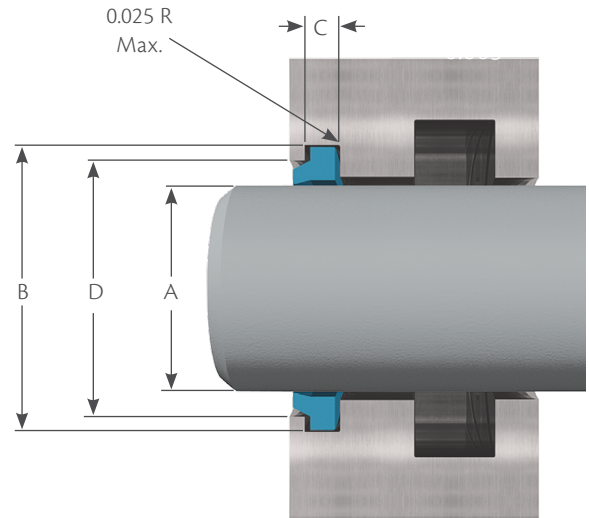
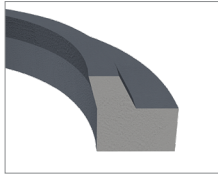
\*DT, D, DS and DX are all available in the sizes listed below. WD prefix most commonly represents our DT style wiper.

*Part Number	A Shaft Diameter	B Groove Diameter +0.006 -0.000	C Groove Width +0.004 -0.000	D Shoulder Diameter +0.010 -0.000
WD 3750	3.750	4.247	0.249	4.077
WD 3875	3.875	4.372	0.249	4.202
WD 4000	4.000	4.497	0.249	4.327
WD 4125	4.125	4.622	0.249	4.452
WD 4250	4.250	4.747	0.249	4.577
WD 4375	4.375	4.872	0.249	4.702
WD 4500	4.500	5.247	0.374	4.993
WD 4625	4.625	5.372	0.374	5.118
WD 4750	4.750	5.497	0.374	5.243
WD 4875	4.875	5.622	0.374	5.368
WD 5000	5.000	5.747	0.374	5.493
WD 5125	5.125	5.872	0.374	5.618
WD 5250	5.250	5.997	0.374	5.743
WD 5375	5.375	6.122	0.374	5.868
WD 5500	5.500	6.247	0.374	5.993
WD 5625	5.625	6.372	0.374	6.118
WD 5750	5.750	6.497	0.374	6.243
WD 5875	5.875	6.622	0.374	6.368
WD 6000	6.000	6.747	0.374	6.493
WD 6250	6.250	6.997	0.374	6.743
WD 6500	6.500	7.247	0.374	6.993
WD 6750	6.250	7.497	0.374	7.243
WD 7000	7.000	7.747	0.374	7.493

*Part Number	A Shaft Diameter	B Groove Diameter +0.006 -0.000	C Groove Width +0.004 -0.000	D Shoulder Diameter +0.010 -0.000
WD 7250	7.250	7.997	0.374	7.743
WD 7500	7.500	8.247	0.374	7.993
WD 7750	7.750	8.497	0.374	8.243
WD 8000	8.000	8.747	0.374	8.493
WD 8250	8.125	8.997	0.374	8.743
WD 8500	8.500	9.247	0.374	8.993
WD 8750	8.750	9.497	0.374	9.243
WD 9000	9.000	9.747	0.374	9.493
WD 9250	9.250	9.997	0.374	9.743
WD 9500	9.500	10.247	0.374	9.993
WD 9750	9.750	10.497	0.374	10.243
WD 10000	10.000	10.997	0.499	10.659
WD 10250	10.250	11.247	0.499	10.909
WD 10500	10.500	11.497	0.499	11.159
WD 10750	10.750	11.747	0.499	11.409
WD 11000	11.000	11.997	0.499	11.659
WD 11250	11.250	12.247	0.499	11.909
WD 11500	11.500	12.497	0.499	12.159
WD 11750	11.750	12.747	0.499	12.409
WD 12000	12.000	12.997	0.499	12.659
WD 12500	12.500	13.497	0.499	13.159
WD 13000	13.000	13.997	0.499	13.659

# Wipers

## AN - Style

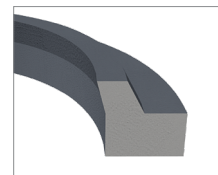


AN Wipers are a light duty snap-in wiper that will retrofit into glands prescribed in MS-3375.

Part Number	A Shaft Diameter +0.000 -0.002	B Groove Diameter +0.004 -0.000	C Groove Width +0.003 -0.000	D Shoulder Diameter +0.005 -0.000
WAN 0500	0.498	0.760	0.107	0.647
WAN 0562	0.560	0.823	0.107	0.710
WAN 0625	0.623	0.885	0.107	0.772
WAN 0688	0.684	0.948	0.107	0.834
WAN 0750	0.748	1.010	0.107	0.897
WAN 0812	0.810	1.084	0.107	0.960
WAN 0875	0.873	1.147	0.107	1.023
WAN 0937	0.935	1.209	0.107	1.085
WAN 1000	0.998	1.272	0.107	1.148
WAN 1062	1.060	1.334	0.107	1.210
WAN 1125	1.123	1.397	0.107	1.273
WAN 1187	1.185	1.459	0.107	1.335
WAN 1250	1.248	1.522	0.107	1.398
WAN 1312	1.310	1.614	0.107	1.480
WAN 1375	1.373	1.677	0.107	1.542
WAN 1437	1.435	1.739	0.107	1.605
WAN 1500	1.498	1.802	0.107	1.668
WAN 1563	1.561	1.865	0.107	1.731
WAN 1625	1.623	1.927	0.107	1.793
WAN 1687	1.686	1.990	0.107	1.856
WAN 1750	1.748	2.052	0.107	1.918
WAN 1812	1.811	2.115	0.107	1.981
WAN 1875	1.873	2.177	0.107	2.043
WAN 1938	1.936	2.240	0.107	2.106
WAN 2000	1.998	2.302	0.107	2.178

Part Number	A Shaft Diameter +0.000 -0.002	B Groove Diameter +0.004 -0.000	C Groove Width +0.003 -0.000	D Shoulder Diameter +0.005 -0.000
WAN 2063	2.061	2.365	0.107	2.241
WAN 2125	2.123	2.427	0.107	2.303
WAN 2188	2.186	2.490	0.107	2.366
WAN 2250	2.248	2.552	0.107	2.428
WAN 2313	2.311	2.615	0.107	2.491
WAN 2375	2.373	2.677	0.107	2.553
WAN 2437	2.436	2.740	0.107	2.616
WAN 2500	2.498	2.802	0.107	2.678
WAN 2562	2.561	2.865	0.107	2.741
WAN 2625	2.623	2.989	0.122	2.834
WAN 2688	2.686	3.052	0.122	2.897
WAN 2750	2.748	3.114	0.122	2.959
WAN 2813	2.811	3.177	0.122	3.022
WAN 2875	2.873	3.239	0.122	3.084
WAN 3000	2.997	3.364	0.122	3.209
WAN 3125	3.122	3.489	0.122	3.334
WAN 3250	3.247	3.614	0.122	3.459
WAN 3375	3.372	3.729	0.122	3.584
WAN 3500	3.497	3.864	0.122	3.709
WAN 3625	3.622	3.989	0.122	3.834
WAN 3750	3.747	4.114	0.122	3.959
WAN 3875	3.872	4.239	0.122	4.084
WAN 4000	3.997	4.427	0.138	4.240
WAN 4125	4.122	4.552	0.138	4.365
WAN 4250	4.247	4.677	0.138	4.490

AN - Style



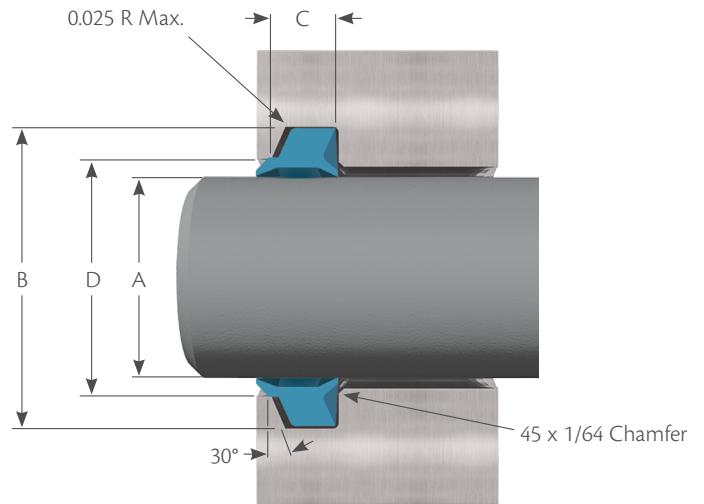
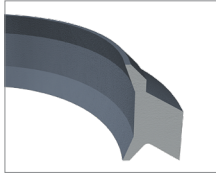
Wipers

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width	D Shoulder Diameter
	+0.000 -0.002	+0.004 -0.000	+0.003 -0.000	+0.005 -0.000
WAN 4375	4.372	4.802	0.138	4.615
WAN 4500	4.497	4.927	0.138	4.740
WAN 4625	4.622	5.052	0.138	4.865
WAN 4750	4.747	5.177	0.138	4.990
WAN 4875	4.872	5.302	0.138	5.115
WAN 5000	4.997	5.427	0.138	5.240
WAN 5125	5.122	5.552	0.138	5.365
WAN 5250	5.247	5.677	0.138	5.490
WAN 5375	5.372	5.802	0.138	5.615
WAN 5500	5.497	5.927	0.138	5.740
WAN 5625	5.622	6.114	0.154	5.896
WAN 5750	5.747	6.239	0.154	6.022
WAN 5875	5.872	6.364	0.154	6.146
WAN 6000	5.997	6.489	0.154	6.272
WAN 6250	6.247	6.739	0.154	6.522
WAN 6500	6.497	6.989	0.154	6.772
WAN 6750	6.747	7.239	0.154	7.022
WAN 7000	6.997	7.489	0.154	7.272
WAN 7250	7.247	7.739	0.154	7.522
WAN 7500	7.497	7.989	0.154	7.772
WAN 7750	7.747	8.239	0.154	8.022

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width	D Shoulder Diameter
	+0.000 -0.002	+0.004 -0.000	+0.003 -0.000	+0.005 -0.000
WAN 8000	7.997	8.489	0.154	8.272
WAN 8250	8.247	8.739	0.154	8.522
WAN 8500	8.497	8.989	0.154	8.772
WAN 8750	8.747	9.239	0.154	9.022
WAN 9000	8.997	9.489	0.154	9.272
WAN 9250	9.247	9.739	0.154	9.522
WAN 9500	9.497	9.989	0.154	9.772
WAN 9750	9.747	10.239	0.154	10.022
WAN 10000	9.997	10.489	0.154	10.272
WAN 10250	10.247	10.739	0.154	10.522
WAN 10500	10.497	10.989	0.154	10.772
WAN 10750	10.747	11.239	0.154	11.022
WAN 11000	10.997	11.489	0.154	11.272
WAN 11250	11.247	11.739	0.169	11.522
WAN 11500	11.497	11.989	0.169	11.772
WAN 11750	11.747	12.239	0.169	12.022
WAN 12000	11.997	12.489	0.169	12.272
WAN 12250	12.247	12.739	0.169	12.522
WAN 12500	12.497	12.989	0.169	12.772
WAN 12750	12.747	13.239	0.169	13.022
WAN 13000	12.997	13.489	0.169	13.272

# Wipers

## K - Style

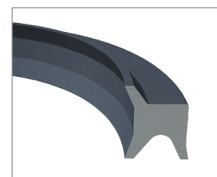
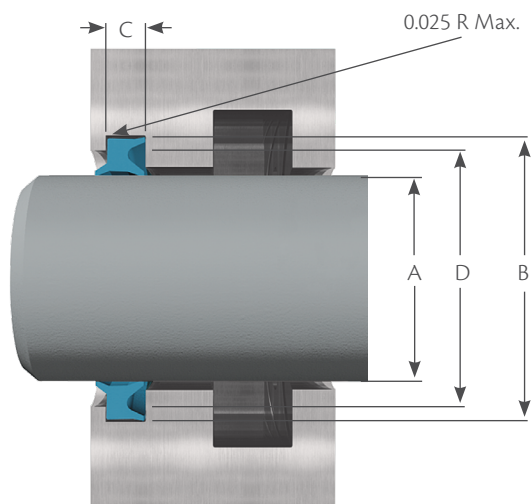


K Style Wipers are a one-piece, snap-in type rod wiper, designed for light duty applications. This style acts as a secondary rod seal.

Part Number	A Shaft Diameter	B Groove Diameter +0.005 -0.000	C Groove Width +0.015 -0.000	D Shoulder Diameter +0.015 -0.000
WK 0500	0.500	0.760	0.155	0.625
WK 0562	0.562	0.822	0.155	0.687
WK 0625	0.625	0.885	0.155	0.750
WK 0687	0.688	0.947	0.155	0.812
WK 0750	0.750	1.135	0.195	0.832
WK 0812	0.812	1.197	0.195	0.894
WK 0875	0.875	1.260	0.195	0.957
WK 0937	0.938	1.322	0.195	1.019
WK 1000	1.000	1.385	0.195	1.082
WK 1062	1.063	1.447	0.195	1.144
WK 1125	1.125	1.510	0.195	1.207
WK 1187	1.188	1.572	0.195	1.269
WK 1250	1.250	1.635	0.195	1.332
WK 1312	1.313	1.697	0.195	1.394
WK 1375	1.375	1.760	0.195	1.457
WK 1437	1.437	1.822	0.195	1.519
WK 1500	1.500	1.885	0.195	1.582
WK 1562	1.563	1.947	0.195	1.644
WK 1625	1.625	2.010	0.195	1.707
WK 1687	1.688	2.072	0.195	1.769
WK 1750	1.750	2.135	0.195	1.832
WK 1812	1.813	2.197	0.195	1.894
WK 1875	1.875	2.260	0.195	1.957
WK 1937	1.938	2.322	0.195	2.019
WK 2000	2.000	2.385	0.195	2.082
WK 2125	2.125	2.510	0.195	2.207
WK 2250	2.250	2.760	0.255	2.407
WK 2375	2.375	2.885	0.255	2.532
WK 2500	2.500	3.010	0.255	2.657
WK 2625	2.625	3.135	0.255	2.782
WK 2750	2.750	3.260	0.255	2.907
WK 2875	2.875	3.385	0.255	3.032

Part Number	A Shaft Diameter	B Groove Diameter +0.005 -0.000	C Groove Width +0.015 -0.000	D Shoulder Diameter +0.015 -0.000
WK 3000	3.000	3.510	0.255	3.157
WK 3125	3.125	3.635	0.255	3.282
WK 3250	3.250	3.760	0.255	3.407
WK 3375	3.375	3.885	0.255	3.532
WK 3500	3.500	4.010	0.255	3.657
WK 3625	3.625	4.135	0.255	3.782
WK 3750	3.750	4.260	0.255	3.907
WK 3875	3.875	4.385	0.255	4.032
WK 4000	4.000	4.510	0.255	4.157
WK 4125	4.125	4.635	0.255	4.282
WK 4250	4.250	4.760	0.255	4.407
WK 4375	4.375	4.885	0.255	4.532
WK 4500	4.500	5.010	0.255	4.657
WK 4625	4.625	5.135	0.255	4.782
WK 4750	4.750	5.260	0.255	4.907
WK 4875	4.875	5.385	0.255	5.032
WK 5000	5.000	5.510	0.255	5.157
WK 5250	5.250	5.760	0.255	5.407
WK 5500	5.500	6.010	0.255	5.657
WK 5750	5.750	6.260	0.255	5.907
WK 6000	6.000	6.510	0.255	6.157
WK 6250	6.250	6.760	0.255	6.407
WK 6500	6.500	7.010	0.255	6.657
WK 6750	6.750	7.260	0.255	6.907
WK 7000	7.000	7.510	0.255	7.157
WK 7500	7.500	8.010	0.255	7.657
WK 8000	8.000	8.510	0.255	8.157
WK 8500	8.500	9.010	0.255	8.657
WK 9000	9.000	9.510	0.255	9.157
WK 9500	9.500	10.010	0.255	9.657
WK 10000	10.000	10.510	0.255	10.157

## H - Style



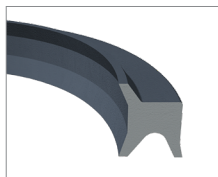
H Style Wipers are a one piece snap-in type rod wiper designed for light duty applications. This style acts as a secondary rod seal.

Part Number	A Shaft Diameter	B Groove Diameter +0.003 -0.000	C Groove Width +0.015 -0.000	D Shoulder Diameter +0.003 -0.000
WH 0250	0.250	0.552	0.203	0.370
WH 0312	0.312	0.615	0.203	0.432
WH 0375	0.375	0.677	0.203	0.495
WH 0437	0.437	0.740	0.203	0.557
WH 0500	0.500	0.802	0.203	0.620
WH 0562	0.562	0.865	0.203	0.682
WH 0625	0.625	0.927	0.203	0.745
WH 0687	0.688	0.990	0.203	0.808
WH 0750	0.750	1.052	0.203	0.870
WH 0812	0.812	1.177	0.218	0.947
WH 0875	0.875	1.240	0.218	1.010
WH 0937	0.937	1.302	0.218	1.072
WH 1000	1.000	1.365	0.218	1.135
WH 1062	1.062	1.427	0.218	1.197
WH 1125	1.125	1.490	0.218	1.260
WH 1187	1.187	1.552	0.218	1.322
WH 1250	1.250	1.615	0.218	1.385
WH 1312	1.312	1.702	0.218	1.447
WH 1375	1.375	1.740	0.218	1.510
WH 1437	1.437	1.802	0.218	1.572
WH 1500	1.500	1.865	0.218	1.635
WH 1562	1.562	1.927	0.218	1.697
WH 1625	1.625	1.990	0.218	1.760
WH 1687	1.688	2.052	0.218	1.823
WH 1750	1.750	2.115	0.218	1.885

Part Number	A Shaft Diameter	B Groove Diameter +0.003 -0.000	C Groove Width +0.015 -0.000	D Shoulder Diameter +0.003 -0.000
WH 1812	1.812	2.177	0.218	1.947
WH 1875	1.875	2.240	0.218	2.010
WH 1937	1.937	2.302	0.218	2.072
WH 2000	2.000	2.365	0.218	2.135
WH 2062	2.062	2.427	0.218	2.197
WH 2125	2.125	2.490	0.218	2.260
WH 2187	2.188	2.683	0.281	2.323
WH 2250	2.250	2.745	0.281	2.385
WH 2312	2.312	2.807	0.281	2.447
WH 2375	2.375	2.870	0.281	2.510
WH 2437	2.437	2.932	0.281	2.572
WH 2500	2.500	2.995	0.281	2.635
WH 2562	2.562	3.057	0.281	2.697
WH 2625	2.625	3.120	0.281	2.760
WH 2687	2.688	3.183	0.281	2.823
WH 2750	2.750	3.245	0.281	2.885
WH 2812	2.812	3.307	0.281	2.947
WH 2875	2.875	3.370	0.281	3.010
WH 2937	2.938	3.433	0.281	3.073
WH 3000	3.000	3.495	0.281	3.135
WH 3125	3.125	3.620	0.281	3.260
WH 3250	3.250	3.745	0.281	3.385
WH 3375	3.375	3.870	0.281	3.510
WH 3500	3.500	3.995	0.281	3.635
WH 3625	3.625	4.120	0.281	3.760

# Wipers

## H - Style

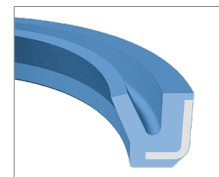
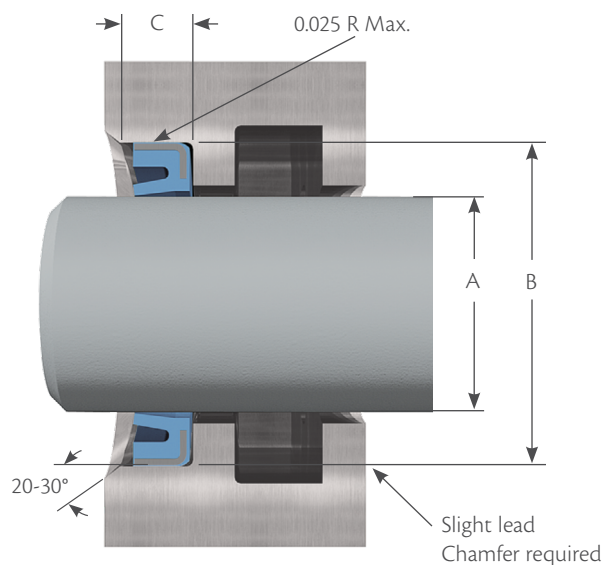


Part Number	A	B	C	D
	Shaft Diameter	Groove Diameter +0.003 -0.000	Groove Width +0.015 -0.000	Shoulder Diameter +0.003 -0.000
WH 3750	3.750	4.245	0.281	3.885
WH 3875	3.875	4.370	0.281	4.010
WH 4000	4.000	4.495	0.281	4.135
WH 4125	4.125	4.620	0.281	4.260
WH 4250	4.250	4.745	0.281	4.385
WH 4375	4.375	4.870	0.281	4.510
WH 4500	4.500	4.995	0.281	4.635
WH 4625	4.625	5.120	0.281	4.760
WH 4750	4.750	5.245	0.281	4.885
WH 4875	4.875	5.370	0.281	5.010
WH 5000	5.000	5.495	0.281	5.135
WH 5125	5.125	5.620	0.281	5.260
WH 5250	5.250	5.745	0.281	5.385
WH 5375	5.375	5.870	0.281	5.510
WH 5500	5.500	5.995	0.281	5.635
WH 5625	5.625	6.120	0.281	5.760
WH 5750	5.750	6.245	0.281	5.885
WH 5875	5.875	6.370	0.281	6.010

Part Number	A	B	C	D
	Shaft Diameter	Groove Diameter +0.003 -0.000	Groove Width +0.015 -0.000	Shoulder Diameter +0.003 -0.000
WH 6000	6.000	6.495	0.281	6.135
WH 6250	6.250	6.745	0.281	6.385
WH 6500	6.500	6.995	0.281	6.635
WH 6750	6.750	7.245	0.281	6.885
WH 7000	7.000	7.495	0.281	7.135
WH 7250	7.250	7.745	0.281	7.385
WH 7500	7.500	7.995	0.281	7.635
WH 7750	7.750	8.245	0.281	7.885
WH 8000	8.000	8.495	0.281	8.135
WH 8250	8.250	8.745	0.281	8.385
WH 8500	8.500	8.995	0.281	8.635
WH 8750	8.750	9.245	0.281	8.885
WH 9000	9.000	9.495	0.281	9.135
WH 9250	9.250	9.745	0.281	9.385
WH 9500	9.500	9.995	0.281	9.635
WH 9750	9.750	10.245	0.281	9.885
WH 10000	10.000	10.495	0.281	10.135



## Metal Encased Style



Metal encased wipers are composed of a nitrile (N) or urethane (U) element encased in a high quality steel metal retainer.

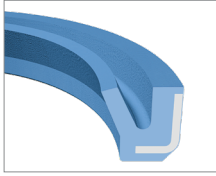
The lip is rigid enough to handle tough scraping environments such as dry or wet mud, and ice, yet sensitive enough to exclude fine dust and moisture.

Part Number	A Shaft Diameter	B Groove Diameter +0.003 -0.000	C Groove Width +0.015 -0.000	Material
WC 0500	0.500	0.750	0.125	N
WC 05001000250	0.500	1.000	0.250	U
WC 06250875	0.625	0.875	0.125	N
WC 06250937	0.625	0.937	0.187	N
WC 0625	0.625	1.125	0.312	U
WC 0687	0.687	1.000	0.187	N
WC 07501000125	0.750	1.000	0.125	N
WC 0750	0.750	1.250	0.250	U, N
WC 07501250312	0.750	1.250	0.312	U
WC 08751125	0.875	1.125	0.125	N
WC 08751250	0.875	1.250	0.187	N
WC 0875	0.875	1.375	0.312	U
WC 0937	0.937	1.187	0.125	N
WC 10001250125	1.000	1.250	0.125	N
WC 10001375	1.000	1.375	0.187	N
WC 1000187	1.000	1.500	0.187	N
WC 1000	1.000	1.500	0.312	U
WC 1063	1.063	1.500	0.187	N
WC 11251500187	1.125	1.500	0.187	N
WC 1125250	1.125	1.625	0.250	N
WC 1125	1.125	1.625	0.312	U
WC 1187	1.187	1.625	0.250	U
WC 12501500125	1.250	1.500	0.125	N
WC 12501690187	1.250	1.690	0.187	N

Part Number	A Shaft Diameter	B Groove Diameter +0.003 -0.000	C Groove Width +0.015 -0.000	Material
WC 1250250	1.250	1.750	0.250	U, N
WC 1250	1.250	1.750	0.312	U
WC 12501750312	1.250	1.750	0.312	N
WC 13751625	1.375	1.625	0.125	N
WC 13751750	1.375	1.750	0.187	N
WC 1375250	1.375	1.875	0.250	N
WC 1375	1.375	1.875	0.312	U
WC 13752000312	1.375	2.000	0.312	N
WC 15001875187	1.500	1.875	0.187	N
WC 15001875250	1.500	1.875	0.250	N
WC 1500250	1.500	2.000	0.250	U, N
WC 1500	1.500	2.000	0.312	U
WC 15002125	1.500	2.125	0.312	U
WC 1500375	1.500	2.250	0.375	U
WC 16252125250	1.625	2.125	0.250	N
WC 1625	1.625	2.125	0.312	U
WC 17502125187	1.750	2.125	0.187	N
WC 1750250	1.750	2.250	0.250	U, N
WC 1750	1.750	2.250	0.312	U
WC 1750375	1.750	2.437	0.375	U
WC 1875	1.875	2.375	0.312	U
WC 20002375187	2.000	2.375	0.187	N
WC 2000250	2.000	2.500	0.250	U
WC 2000	2.000	2.500	0.312	U

# Wipers

## Metal Encased Style



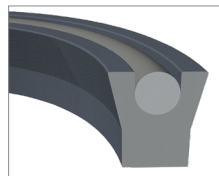
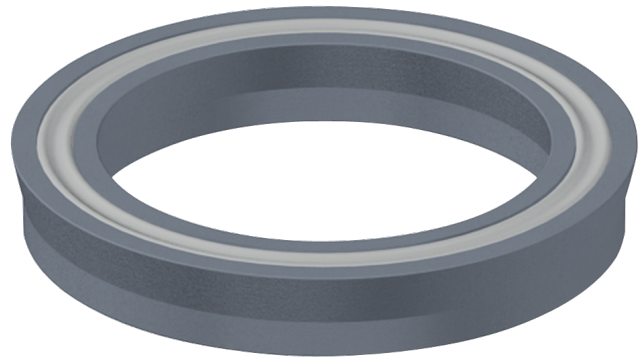
Wipers

Part Number	A Shaft Diameter	B Groove Diameter +0.003 -0.000	C Groove Width +0.015 -0.000	Material
WC 20002625	2.000	2.625	0.250	N
WC 2000375	2.000	2.687	0.375	N
WC 20002750	2.000	2.750	0.375	U
WC 2125	2.125	2.625	0.312	U
WC 2250250	2.250	2.750	0.250	U
WC 22502625	2.250	2.625	0.250	N
WC 2250	2.250	2.750	0.312	U
WC 22502875	2.250	2.875	0.250	N
WC 2250375	2.250	3.000	0.375	N
WC 2375	2.375	2.875	0.312	U
WC 2375375	2.375	3.125	0.375	U
WC 25003000250	2.500	3.000	0.250	N
WC 2500	2.500	3.000	0.312	U
WC 25003125	2.500	3.125	0.250	U, N
WC 25003250250	2.500	3.250	0.250	U
WC 2625	2.625	3.125	0.250	U
WC 2750187	2.750	3.250	0.187	N
WC 2750	2.750	3.250	0.312	U
WC 27503500375	2.750	3.500	0.375	U
WC 2750500	2.750	3.750	0.500	U
WC 3000	3.000	3.500	0.312	U
WC 3000375	3.000	3.750	0.375	U
WC 3000500	3.000	4.000	0.500	N
WC 30003625250	3.000	3.625	0.250	N
WC 30003750250	3.000	3.750	0.250	U
WC 32503750	3.250	3.750	0.312	U
WC 3250	3.250	3.875	0.312	U

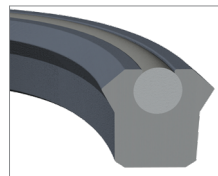
Part Number	A Shaft Diameter	B Groove Diameter +0.003 -0.000	C Groove Width +0.015 -0.000	Material
WC 3250500	3.250	4.250	0.500	N
WC 35004000	3.500	4.000	0.312	U
WC 3500	3.500	4.125	0.312	U
WC 35004250	3.500	4.250	0.250	U
WC 3500500	3.500	4.500	0.500	U
WC 35004750250	3.500	4.750	0.250	N
WC 3625	3.625	4.250	0.312	U
WC 3750	3.750	4.375	0.312	U
WC 4000	4.000	4.625	0.312	U
WC 40004750	4.000	4.750	0.312	U
WC 4000500	4.000	5.000	0.500	U
WC 4250	4.250	4.875	0.312	U
WC 4375312	4.375	5.000	0.312	U
WC 4500	4.500	5.125	0.312	U
WC 45005250	4.500	5.250	0.312	U
WC 4500500	4.500	5.500	0.500	U
WC 4750500	4.750	5.750	0.500	U
WC 5000	5.000	5.750	0.312	U
WC 52505750	5.250	5.750	0.312	U
WC 5250	5.250	5.875	0.312	U
WC 55006125375	5.500	6.125	0.375	U
WC 55006250	5.500	6.250	0.312	U
WC 57506375375	5.750	6.375	0.375	U
WC 6000	6.000	6.625	0.375	U
WC 6000500	6.000	7.000	0.500	U
WC 6500625	6.500	7.500	0.625	U
WC 6750	6.750	7.375	0.375	U

Metal encased wipers are typically stocked in nitrile (N) or urethane (U), however, additional materials and sizes are available.

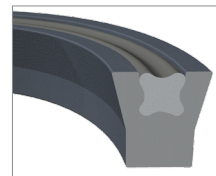
Seal Materials	Temp. Range	
Urethane	-54°C	to 105°C
Viton™/Fluorocarbon	-26°C	to 204°C
Hytrel®/Fluorotrel™	-54°C	to 149°C
Hydrogenated Nitrile	-40°C	to 160°C
Loader Materials		
Nitrile 70 Duro.	-40°C	to 120°C
Nitrile 90 Duro.	-25°C	to 120°C
Low Temp. Nitrile	-54°C	to 116°C
Viton™/Fluorocarbon	-26°C	to 204°C
Ethylene Propylene	-54°C	to 150°C



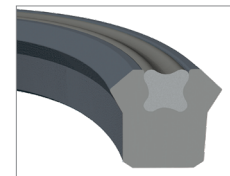
O-Ring Loaded w/ Straight Lip



O-Ring Loaded w/ Beveled Lip



Quad Loaded w/ Straight Lip



Quad Loaded w/ Beveled Lip

## Product Description

U-cups are one of the most popular lip seals used today. Loaded U-cups are primarily intended for dynamic reciprocating applications. They are an excellent seal in low pressure rod or piston applications. As the system pressure increases, the loading lip force also increases, automatically compensating for the higher pressure while maintaining a positive seal. A variety of styles, materials, and sizes are available to suit specific requirements.

## Part Numbers:



Prefix:

- LUC - TPU Loaded U-Cup
- HNBR - Hydrogenated Nitrile/HNBR loader
- VUC - Viton™/Viton™ Loader
- HTL - Hytrel®/Nitrile Loader

Suffix:

- Blank - O-Ring Loaded, Straight Lip
- B - O-Ring Loaded, Beveled Lip
- Q - Quad Loaded, Straight Lip
- BQ - Quad Loaded, Beveled Lip
- Material - if other than described by the prefix

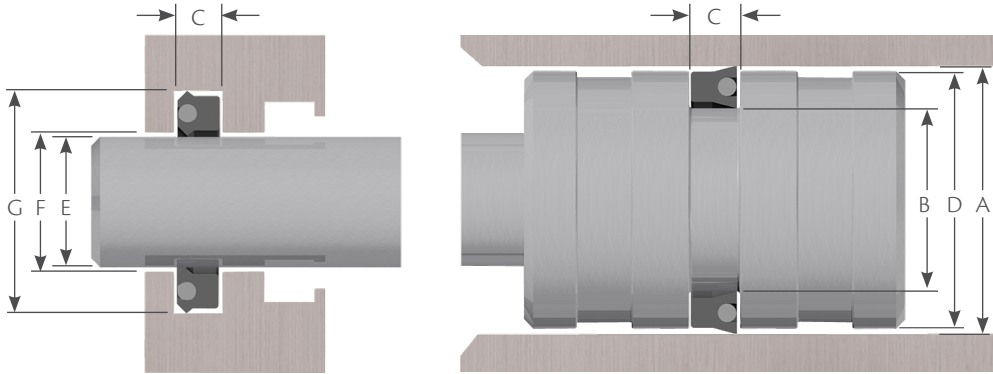
\* Height is only listed if the axial height is greater than the cross-section.

**Example:** LUC 1250 1062 250 - Urethane U-Cup, Nitrile O-Ring, 0.125" C/S, 1.062" Nominal I.D., .0250" Height (Nominal Depth).

# Loaded U-Cups

IMPERIAL SEALS

Loaded U-Cups



If a wear ring is used value C is to the O.D. of the installed wear ring.

If a wear ring is used value F is to the I.D. of the installed wear ring.

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.002 -0.000</b>	<b>+0.000 -0.001</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.001</b>	<b>+0.002 -0.000</b>	<b>+0.002 -0.000</b>
1/8"	12500125	1/8	3/8	1/8	0.138	0.375	0.374	0.125	0.125	0.126	0.375
	12500125250			1/4	0.275						
	12500187	3/16	7/16	1/8	0.138	0.437	0.436	0.187	0.187	0.188	0.437
	12500187250			1/4	0.275						
	12500250	1/4	1/2	1/8	0.138	0.500	0.499	0.250	0.250	0.251	0.500
	12500250250			1/4	0.275						
	12500312	5/16	9/16	1/8	0.138	0.562	0.561	0.312	0.312	0.313	0.562
	12500312250			1/4	0.275						
	12500375	3/8	5/8	1/8	0.138	0.625	0.624	0.375	0.375	0.376	0.625
	12500375250			1/4	0.275						
	12500437	7/16	11/16	1/8	0.138	0.687	0.686	0.437	0.437	0.438	0.687
	12500437250			1/4	0.275						
	12500500	1/2	3/4	1/8	0.138	0.750	0.749	0.500	0.500	0.501	0.750
	12500500250			1/4	0.275						
	12500562	9/16	13/16	1/8	0.138	0.812	0.811	0.562	0.562	0.563	0.812
	12500562250			1/4	0.275						
	12500625	5/8	7/8	1/8	0.138	0.875	0.874	0.625	0.625	0.626	0.875
	12500625250			1/4	0.275						
	12500687	11/16	15/16	1/8	0.138	0.937	0.936	0.687	0.687	0.688	0.937
	12500687250			1/4	0.275						
	12500750	3/4	1	1/8	0.138	1.000	0.999	0.750	0.750	0.751	1.000
	12500750250			1/4	0.275						
	12500812	13/16	1 - 1/16	1/8	0.138	1.062	1.061	0.812	0.812	0.813	1.062
	12500812250			1/4	0.275						
	12500875	7/8	1 - 1/8	1/8	0.138	1.125	1.124	0.875	0.875	0.876	1.125
	12500875250			1/4	0.275						
	12500937	15/16	1 - 3/16	1/8	0.138	1.187	1.186	0.937	0.937	0.938	1.187
	12500937250			1/4	0.275						
	12501000	1	1 - 1/4	1/8	0.138	1.250	1.249	1.000	1.000	1.001	1.250
	12501000250			1/4	0.275						
	12501062	1 - 1/16	1 - 5/16	1/8	0.138	1.312	1.311	1.062	1.062	1.063	1.312
	12501062250			1/4	0.275						

# Loaded U-Cups

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.002 -0.000</b>	<b>+0.000 -0.001</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.001</b>	<b>+0.002 -0.000</b>	<b>+0.002 -0.000</b>
1/8"	12501125	1 - 1/8	1 - 3/8	1/8	0.138	1.375	1.374	1.125	1.125	1.126	1.375
	12501125250			1/4	0.275						
	12501187	1 - 3/16	1 - 7/16	1/8	0.138	1.437	1.436	1.187	1.187	1.188	1.437
	12501187250			1/4	0.275						
	12501250	1 - 1/4	1 - 1/2	1/8	0.138	1.500	1.499	1.250	1.250	1.251	1.500
	12501250250			1/4	0.275						
	12501312	1 - 5/16	1 - 9/16	1/8	0.138	1.562	1.561	1.312	1.312	1.313	1.562
	12501312250			1/4	0.275						
	12501375	1 - 3/8	1 - 5/8	1/8	0.138	1.625	1.624	1.375	1.375	1.376	1.625
	12501375250			1/4	0.275						
	12501437	1 - 7/16	1 - 11/16	1/8	0.138	1.687	1.686	1.437	1.437	1.438	1.687
	12501437250			1/4	0.275						
	12501500	1 - 1/2	1 - 3/4	1/8	0.138	1.750	1.749	1.500	1.500	1.501	1.750
	12501500250			1/4	0.275						
	12501625	1 - 5/8	1 - 7/8	1/8	0.138	1.875	1.874	1.625	1.625	1.626	1.875
	12501625250			1/4	0.275						
	12501750	1 - 3/4	2	1/8	0.138	2.000	1.999	1.750	1.750	1.751	2.000
	12501750250			1/4	0.275						
	12501875	1 - 7/8	2 - 1/8	1/8	0.138	2.125	2.124	1.875	1.875	1.876	2.125
	12501875250			1/4	0.275						
	12502000	2	2 - 1/4	1/8	0.138	2.250	2.249	2.000	2.000	2.001	2.250
	12502000250			1/4	0.275						
	12502125	2 - 1/8	2 - 3/8	1/8	0.138	2.375	2.374	2.125	2.125	2.126	2.375
	12502125250			1/4	0.275						
	12502250	2 - 1/4	2 - 1/2	1/8	0.138	2.500	2.499	2.250	2.250	2.251	2.500
	12502250250			1/4	0.275						
	12502375	2 - 3/8	2 - 5/8	1/8	0.138	2.625	2.624	2.375	2.375	2.376	2.625
	12502375250			1/4	0.275						
	12502500	2 - 1/2	2 - 3/4	1/8	0.138	2.750	2.749	2.500	2.500	2.501	2.750
	12502500250			1/4	0.275						
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.002 -0.000</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.002</b>	<b>+0.002 -0.000</b>	<b>+0.002 -0.000</b>
3/16"	18700187	3/16	9/16	3/16	0.207	0.562	0.561	0.187	0.187	0.188	0.562
	18700187312			5/16	0.344						
	18700250	1/4	5/8	3/16	0.207	0.625	0.624	0.250	0.250	0.251	0.625
	18700250312			5/16	0.344						
	18700312	5/16	11/16	3/16	0.207	0.687	0.686	0.312	0.312	0.313	0.687
	18700312312			5/16	0.344						
	1870375	3/8	3/4	3/16	0.207	0.750	0.749	0.375	0.375	0.376	0.750
	18700375312			5/16	0.344						
	18700437	7/16	13/16	3/16	0.207	0.812	0.811	0.437	0.437	0.438	0.812
	18700437312			5/16	0.344						
	18700500	1/2	7/8	3/16	0.207	0.875	0.874	0.500	0.500	0.501	0.875
	18700500312			5/16	0.344						
	18700562	9/16	15/16	3/16	0.207	0.937	0.936	0.562	0.562	0.563	0.937
	18700562312			5/16	0.344						

# Loaded U-Cups

IMPERIAL SEALS

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.002 -0.000	+0.000 -0.002	+0.000 -0.002	+0.000 -0.002	+0.002 -0.000	+0.002 -0.000
3/16"	18700625	5/8	1	3/16	0.207	1.000	0.999	0.625	0.625	0.626	1.000
	18700625312			5/16	0.344						
	18700687	11/16	1 - 1/16	3/16	0.207	1.062	1.061	0.687	0.687	0.688	1.062
	18700687312			5/16	0.344						
	18700750	3/4	1 - 1/8	3/16	0.207	1.125	1.124	0.750	0.750	0.751	1.125
	18700750312			5/16	0.344						
	18700812	13/16	1 - 3/16	3/16	0.207	1.187	1.186	0.812	0.812	0.813	1.187
	18700812312			5/16	0.344						
	18700875	7/8	1 - 1/4	3/16	0.207	1.250	1.249	0.875	0.875	0.876	1.250
	18700875312			5/16	0.344						
	18700937	15/16	1 - 5/16	3/16	0.207	1.312	1.311	0.937	0.937	0.938	1.312
	18700937312			5/16	0.344						
	18701000	1	1 - 3/8	3/16	0.207	1.375	1.374	1.000	1.000	1.001	1.375
	18701000312			5/16	0.344						
	18701062	1 - 1/16	1 - 7/16	3/16	0.207	1.437	1.436	1.062	1.062	1.063	1.437
	18701062312			5/16	0.344						
	18701125	1 - 1/8	1 - 1/2	3/16	0.207	1.500	1.499	1.125	1.125	1.126	1.500
	18701125312			5/16	0.344						
	18701187	1 - 3/16	1 - 9/16	3/16	0.207	1.562	1.561	1.187	1.187	1.188	1.562
	18701187312			5/16	0.344						
	18701250	1 - 1/4	1 - 5/8	3/16	0.207	1.625	1.624	1.250	1.250	1.251	1.625
	18701250312			5/16	0.344						
	18701312	1 - 5/16	1 - 11/16	3/16	0.207	1.687	1.686	1.312	1.312	1.313	1.687
	18701312312			5/16	0.344						
	18701375	1 - 3/8	1 - 3/4	3/16	0.207	1.750	1.749	1.375	1.375	1.376	1.750
	18701375312			5/16	0.344						
	18701437	1 - 7/16	1 - 13/16	3/16	0.207	1.812	1.811	1.437	1.437	1.438	1.812
	18701437312			5/16	0.344						
	18701500	1 - 1/2	1 - 7/8	3/16	0.207	1.875	1.874	1.500	1.500	1.501	1.875
	18701500375			3/8	0.413						
	18701625	1 - 5/8	2	3/16	0.207	2.000	1.999	1.625	1.625	1.626	2.000
	18701625375			3/8	0.413						
	18701687	1 - 11/16	2 - 1/16	3/16	0.207	2.062	2.061	1.687	1.687	1.688	2.062
	18701687375			3/8	0.413						
	18701750	1 - 3/4	2 - 1/8	3/16	0.207	2.125	2.124	1.750	1.750	1.751	2.125
	18701750375			3/8	0.413						
	18701875	1 - 7/8	2 - 1/4	3/16	0.207	2.250	2.249	1.875	1.875	1.876	2.250
	18701875375			3/8	0.413						
	18702000	2	2 - 3/8	3/16	0.207	2.375	2.374	2.000	2.000	2.001	2.375
	18702000375			3/8	0.413						
	18702125	2 - 1/8	2 - 1/2	3/16	0.207	2.500	2.499	2.125	2.125	2.126	2.500
	18702125375			3/8	0.413						
	18702250	2 - 1/4	2 - 5/8	3/16	0.207	2.625	2.624	2.250	2.250	2.251	2.625
	18702250375			3/8	0.413						
	18702375	2 - 3/8	2 - 3/4	3/16	0.207	2.750	2.749	2.375	2.375	2.376	2.750
	18702375375			3/8	0.413						

# Loaded U-Cups

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.002 -0.000</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.002</b>	<b>+0.002 -0.000</b>	<b>+0.002 -0.000</b>
3/16"	18702500	2 - 1/2	2 - 7/8	3/16	0.207	2.875	2.874	2.500	2.500	2.501	2.875
	18702500375			3/8	0.413						
	18702625	2 - 5/8	3	3/16	0.207	3.000	2.999	2.625	2.625	2.626	3.000
	18702625375			3/8	0.413						
	18702750	2 - 3/4	3 - 1/8	3/16	0.207	3.125	3.124	2.750	2.750	2.751	3.125
	18702750375			3/8	0.413						
	18702875	2 - 7/8	3 - 1/4	3/16	0.207	3.250	3.249	2.875	2.875	2.876	3.250
	18702875375			3/8	0.413						
	18703000	3	3 - 3/8	3/16	0.207	3.375	3.374	3.000	3.000	3.001	3.375
	18703000375			3/8	0.413						
	18703125	3 - 1/8	3 - 1/2	3/16	0.207	3.500	3.499	3.125	3.125	3.126	3.500
	18703125375			3/8	0.413						
	18703250	3 - 1/4	3 - 5/8	3/16	0.207	3.625	3.624	3.250	3.250	3.251	3.625
	18703250375			3/8	0.413						
	18703375	3 - 3/8	3 - 3/4	3/16	0.207	3.750	3.749	3.375	3.375	3.376	3.750
	18703375375			3/8	0.413						
	18703500	3 - 1/2	3 - 7/8	3/16	0.207	3.875	3.874	3.500	3.500	3.501	3.875
	18703500375			3/8	0.413						
	18703625	3 - 5/8	4	3/16	0.207	4.000	3.999	3.625	3.625	3.626	4.000
	18703625375			3/8	0.413						
	18703750	3 - 3/4	4 - 1/8	3/16	0.207	4.125	4.124	3.750	3.750	3.751	4.125
	18703750375			3/8	0.413						
	18703875	3 - 7/8	4 - 1/4	3/16	0.207	4.250	4.249	3.875	3.875	3.876	4.250
	18703875375			3/8	0.413						
	18704000	4	4 - 3/8	3/16	0.207	4.375	4.374	4.000	4.000	4.001	4.375
	18704000375			3/8	0.413						
	18704125	4 - 1/8	4 - 1/2	3/16	0.207	4.500	4.499	4.125	4.125	4.126	4.500
	18704125375			3/8	0.413						
	18704250	4 - 1/4	4 - 5/8	3/16	0.207	4.625	4.624	4.250	4.250	4.251	4.625
	18704250375			3/8	0.413						
	18704375	4 - 3/8	4 - 3/4	3/16	0.207	4.750	4.749	4.375	4.375	4.376	4.750
	18704375375			3/8	0.413						
	18704500	4 - 1/2	4 - 7/8	3/16	0.207	4.875	4.874	4.500	4.500	4.501	4.875
	18704500375			3/8	0.413						
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.003 -0.000</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.003</b>	<b>+0.000 -0.002</b>	<b>+0.003 -0.000</b>	<b>+0.003 -0.000</b>
1/4"	25000250	1/4	3/4	1/4	0.275	0.750	0.749	0.250	0.250	0.251	0.750
	25000250375			3/8	0.413						
	25000312	5/16	13/16	1/4	0.275	0.812	0.811	0.312	0.312	0.313	0.812
	25000312375			3/8	0.413						
	25000375	3/8	7/8	1/4	0.275	0.875	0.874	0.375	0.375	0.376	0.875
	25000375375			3/8	0.413						
	25000437	7/16	15/16	1/4	0.275	0.937	0.936	0.437	0.437	0.438	0.937
	25000437375			3/8	0.413						
	25000500	1/2	1	1/4	0.275	1.000	0.999	0.500	0.500	0.501	1.000
	25000500375			3/8	0.413						

# Loaded U-Cups

IMPERIAL SEALS

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications			Shaft Applications			
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.003 -0.000</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.003</b>	<b>+0.000 -0.002</b>	<b>+0.003 -0.000</b>	<b>+0.003 -0.000</b>
1/4"	25000562	9/16	1 - 1/16	1/4	0.275	1.062	1.061	0.562	0.562	0.563	1.062
	25000562375			3/8	0.413						
	25000625	5/8	1 - 1/8	1/4	0.275	1.125	1.124	0.625	0.625	0.626	1.125
	25000625375			3/8	0.413						
	25000687	11/16	1 - 3/16	1/4	0.275	1.187	1.186	0.687	0.687	0.688	1.187
	25000687375			3/8	0.413						
	25000750	3/4	1 - 1/4	1/4	0.275	1.250	1.249	0.750	0.750	0.751	1.250
	25000750375			3/8	0.413						
	25000812	13/16	1 - 5/16	1/4	0.275	1.312	1.311	0.812	0.812	0.813	1.312
	25000812375			3/8	0.413						
	25000875	7/8	1 - 3/8	1/4	0.275	1.375	1.374	0.875	0.875	0.876	1.375
	25000875375			3/8	0.413						
	25000937	15/16	1 - 7/16	1/4	0.275	1.437	1.436	0.937	0.937	0.938	1.437
	25000937375			3/8	0.413						
	25001000	1	1 - 1/2	1/4	0.275	1.500	1.499	1.000	1.000	1.001	1.500
	25001000375			3/8	0.413						
	25001062	1 - 1/16	1 - 9/16	1/4	0.275	1.562	1.561	1.062	1.062	1.063	1.562
	25001062375			3/8	0.413						
	25001125	1 - 1/8	1 - 5/8	1/4	0.275	1.625	1.624	1.125	1.125	1.126	1.625
	25001125375			3/8	0.413						
	25001187	1 - 3/16	1 - 11/16	1/4	0.275	1.687	1.686	1.187	1.187	1.188	1.687
	25001187375			3/8	0.413						
	25001250	1 - 1/4	1 - 3/4	1/4	0.275	1.750	1.749	1.250	1.250	1.251	1.750
	25001250375			3/8	0.413						
	25001312	1 - 5/16	1 - 13/16	1/4	0.275	1.813	1.812	1.313	1.313	1.314	1.813
	25001312375			3/8	0.413						
	25001375	1 - 3/8	1 - 7/8	1/4	0.275	1.875	1.874	1.375	1.375	1.376	1.875
	25001375375			3/8	0.413						
	25001437	1 - 7/16	1 - 15/16	1/4	0.275	1.937	1.936	1.437	1.437	1.438	1.937
	25001437375			3/8	0.413						
	25001500	1 - 1/2	2	1/4	0.275	2.000	1.999	1.500	1.500	1.501	2.000
	25001500375			3/8	0.413						
	25001625	1 - 5/8	2 - 1/8	1/4	0.275	2.125	2.124	1.625	1.625	1.626	2.125
	25001625375			3/8	0.413						
	25001750	1 - 3/4	2 - 1/4	1/4	0.275	2.250	2.249	1.750	1.750	1.751	2.250
	25001750375			3/8	0.413						
	25001875	1 - 7/8	2 - 3/8	1/4	0.275	2.375	2.374	1.875	1.875	1.876	2.375
	25001875375			3/8	0.413						
	25002000	2	2 - 1/2	1/4	0.275	2.500	2.499	2.000	2.000	2.001	2.500
	25002000375			3/8	0.413						
	25002125	2 - 1/8	2 - 5/8	1/4	0.275	2.625	2.624	2.125	2.125	2.126	2.625
	25002125375			3/8	0.413						
	25002250	2 - 1/4	2 - 3/4	1/4	0.275	2.750	2.749	2.250	2.250	2.251	2.750
	25002250375			3/8	0.413						
	25002375	2 - 3/8	2 - 7/8	1/4	0.275	2.875	2.874	2.375	2.375	2.376	2.875
	25002375375			3/8	0.413						



# Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications			Shaft Applications			
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.003 -0.000</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.003</b>	<b>+0.000 -0.002</b>	<b>+0.003 -0.000</b>	<b>+0.003 -0.000</b>
1/4"	25002500	2 - 1/2	3	1/4	0.275	3.000	2.999	2.500	2.500	2.501	3.000
	25002500375			3/8	0.413						
	25002625	2 - 5/8	3 - 1/8	1/4	0.275	3.125	3.124	2.625	2.625	2.626	3.125
	25002625375			3/8	0.413						
	25002750	2 - 3/4	3 - 1/4	1/4	0.275	3.250	3.249	2.750	2.750	2.751	3.250
	25002750375			3/8	0.413						
	25002875	2 - 7/8	3 - 3/8	1/4	0.275	3.375	3.374	2.875	2.875	2.876	3.375
	25002875375			3/8	0.413						
	25003000	3	3 - 1/2	1/4	0.275	3.500	3.499	3.000	3.000	3.001	3.500
	25003000375			3/8	0.413						
	25003125	3 - 1/8	3 - 5/8	1/4	0.275	3.625	3.624	3.125	3.125	3.126	3.625
	25003125375			3/8	0.413						
	25003250	3 - 1/4	3 - 3/4	1/4	0.275	3.750	3.749	3.250	3.250	3.251	3.750
	25003250375			3/8	0.413						
	25003375	3 - 3/8	3 - 7/8	1/4	0.275	3.875	3.874	3.375	3.375	3.376	3.875
	25003375375			3/8	0.413						
	25003500	3 - 1/2	4	1/4	0.275	4.000	3.999	3.500	3.500	3.501	4.000
	25003500375			3/8	0.413						
	25003625	3 - 5/8	4 - 1/8	1/4	0.275	4.125	4.124	3.625	3.625	3.626	4.125
	25003625375			3/8	0.413						
	25003750	3 - 3/4	4 - 1/4	1/4	0.275	4.250	4.249	3.750	3.750	3.751	4.250
	25003750375			3/8	0.413						
	25004000	4	4 - 1/2	1/4	0.275	4.500	4.499	4.000	4.000	4.001	4.500
	25004000562			9/16	0.619						
	25004125	4 - 1/8	4 - 5/8	1/4	0.275	4.625	4.624	4.125	4.125	4.126	4.625
	25004125562			9/16	0.619						
	25004250	4 - 1/4	4 - 3/4	1/4	0.275	4.750	4.749	4.250	4.250	4.251	4.750
	25004250562			9/16	0.619						
	25004375	4 - 3/8	4 - 7/8	1/4	0.275	4.875	4.874	4.375	4.375	4.376	4.875
	25004375562			9/16	0.619						
	25004500	4 - 1/2	5	1/4	0.275	5.000	4.999	4.500	4.500	4.501	5.000
	25004500562			9/16	0.619						
	25004625	4 - 5/8	5 - 1/8	1/4	0.275	5.125	5.124	4.625	4.625	4.626	5.125
	25004625562			9/16	0.619						
	25004750	4 - 3/4	5 - 1/4	1/4	0.275	5.250	5.249	4.750	4.750	4.751	5.250
	25004750562			9/16	0.619						
	25004875	4 - 7/8	5 - 3/8	1/4	0.275	5.375	5.374	4.875	4.875	4.876	5.375
	25004875562			9/16	0.619						
	25005000	5	5 - 1/2	1/4	0.275	5.500	5.499	5.000	5.000	5.001	5.500
	25005000562			9/16	0.619						
	25005125	5 - 1/8	5 - 5/8	1/4	0.275	5.625	5.624	5.125	5.125	5.126	5.625
	25005125562			9/16	0.619						
	25005250	5 - 1/4	5 - 3/4	1/4	0.275	5.750	5.749	5.250	5.250	5.251	5.750
	25005250562			9/16	0.619						
	25005375	5 - 3/8	5 - 7/8	1/4	0.275	5.875	5.874	5.375	5.375	5.376	5.875
	25005375562			9/16	0.619						

Loaded U-Cups

# Loaded U-Cups

IMPERIAL SEALS

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications			Shaft Applications			
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.003 -0.000	+0.000 -0.002	+0.000 -0.003	+0.000 -0.002	+0.003 -0.000	+0.003 -0.000
1/4"	25005500	5 - 1/2	6	1/4	0.275	6.000	5.999	5.500	5.500	5.501	6.000
	9/16			0.619							
	25005625	5 - 5/8	6 - 1/8	1/4	0.275	6.125	6.124	5.625	5.625	5.626	6.125
	9/16			0.619							
	25005750	5 - 3/4	6 - 1/4	1/4	0.275	6.250	6.249	5.750	5.750	5.751	6.250
	9/16			0.619							
	25005875	5 - 7/8	6 - 3/8	1/4	0.275	6.375	6.374	5.875	5.875	5.876	6.375
	9/16			0.619							
	25006000	6	6 - 1/2	1/4	0.275	6.500	6.499	6.000	6.000	6.001	6.500
	9/16			0.619							
	25006250	6 - 1/4	6 - 3/4	1/4	0.275	6.750	6.749	6.250	6.250	6.251	6.750
	9/16			0.619							
	25006500	6 - 1/2	7	1/4	0.275	7.000	6.999	6.500	6.500	6.501	7.000
	9/16			0.619							
	25006750	6 - 3/4	7 - 1/4	1/4	0.275	7.250	7.249	6.750	6.750	6.751	7.250
	9/16			0.619							
	25007000	7	7 - 1/2	1/4	0.275	7.500	7.499	7.000	7.000	7.001	7.500
	9/16			0.619							
	25007250	7 - 1/4	7 - 3/4	1/4	0.275	7.750	7.749	7.250	7.250	7.251	7.750
	9/16			0.619							
	25007500	7 - 1/2	8	1/4	0.275	8.000	7.999	7.500	7.500	7.501	8.000
	9/16			0.619							
	25007750	7 - 3/4	8 - 1/4	1/4	0.275	8.250	8.249	7.750	7.750	7.751	8.250
	9/16			0.619							
	25008000	8	8 - 1/2	1/4	0.275	8.500	8.499	8.000	8.000	8.001	8.500
	9/16			0.619							
	25008250	8 - 1/4	8 - 3/4	1/4	0.275	8.750	8.749	8.250	8.250	8.251	8.750
	9/16			0.619							
	25008500	8 - 1/2	9	1/4	0.275	9.000	8.999	8.500	8.500	8.501	9.000
	9/16			0.619							
	25008750	8 - 3/4	9 - 1/4	1/4	0.275	9.250	9.249	8.750	8.750	8.751	9.250
	9/16			0.619							
	25009000	9	9 - 1/2	1/4	0.275	9.500	9.499	9.000	9.000	9.001	9.500
	9/16			0.619							
	25009250	9 - 1/4	9 - 3/4	1/4	0.275	9.750	9.749	9.250	9.250	9.251	9.750
	9/16			0.619							
	25009500	9 - 1/2	10	1/4	0.275	10.000	9.999	9.500	9.500	9.501	10.000
	9/16			0.619							
	25009750	9 - 3/4	10 - 1/4	1/4	0.275	10.250	10.249	9.750	9.750	9.751	10.250
	9/16			0.619							
	250010000	10	10 - 1/2	1/4	0.275	10.500	10.499	10.000	10.000	10.001	10.500
	9/16			0.619							

Loaded U-Cups

# Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.003 -0.000</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.004</b>	<b>+0.000 -0.002</b>	<b>+0.003 -0.000</b>	<b>+0.004 -0.000</b>
5/16"	31200375	3/8	1	5/16	0.344	1.000	0.998	0.375	0.375	0.377	1.000
	31200375500			1/2	0.550						
	31200437	7/16	1 - 1/16	5/16	0.344	1.062	1.060	0.437	0.437	0.439	1.062
	31200437500			1/2	0.550						
	31200500	1/2	1 - 1/8	5/16	0.344	1.125	1.123	0.500	0.500	0.502	1.125
	31200500500			1/2	0.550						
	31200562	9/16	1 - 3/16	5/16	0.344	1.187	1.185	0.562	0.562	0.564	1.187
	31200562500			1/2	0.550						
	31200625	5/8	1 - 1/4	5/16	0.344	1.250	1.248	0.625	0.625	0.627	1.250
	31200625500			1/2	0.550						
	31200687	11/16	1 - 5/16	5/16	0.344	1.312	1.310	0.687	0.687	0.689	1.312
	31200687500			1/2	0.550						
	31200750	3/4	1 - 3/8	5/16	0.344	1.375	1.373	0.750	0.750	0.752	1.375
	31200750500			1/2	0.550						
	31200812	13/16	1 - 7/16	5/16	0.344	1.437	1.435	0.812	0.812	0.814	1.437
	31200812500			1/2	0.550						
	31200875	7/8	1 - 1/2	5/16	0.344	1.500	1.498	0.875	0.875	0.877	1.500
	31200875500			1/2	0.550						
	31200937	15/16	1 - 9/16	5/16	0.344	1.562	1.560	0.937	0.937	0.939	1.562
	31200937500			1/2	0.550						
	31201000	1	1 - 5/8	5/16	0.344	1.625	1.623	1.000	1.000	1.002	1.625
	31201000500			1/2	0.550						
	31201062	1 - 1/16	1 - 11/16	5/16	0.344	1.687	1.685	1.062	1.062	1.064	1.687
	31201062500			1/2	0.550						
	31201125	1 - 1/8	1 - 3/4	5/16	0.344	1.750	1.748	1.125	1.125	1.127	1.750
	31201125500			1/2	0.550						
	31201375	1 - 3/16	1 - 13/16	5/16	0.344	1.812	1.810	1.187	1.187	1.189	1.812
	31201375500			1/2	0.550						
	31201250	1 - 1/4	1 - 7/8	5/16	0.344	1.875	1.873	1.250	1.250	1.252	1.875
	31201250500			1/2	0.550						
	31201312	1 - 5/16	1 - 15/16	5/16	0.344	1.937	1.935	1.312	1.312	1.314	1.937
	31201312500			1/2	0.550						
	31201375	1 - 3/8	2	5/16	0.344	2.000	1.998	1.375	1.375	1.377	2.000
	31201375500			1/2	0.550						
	31201437	1 - 7/16	2 - 1/16	5/16	0.344	2.062	2.060	1.437	1.437	1.439	2.062
	31201437500			1/2	0.550						
	31201500	1 - 1/2	2 - 1/8	5/16	0.344	2.125	2.123	1.500	1.500	1.502	2.125
	31201500500			1/2	0.550						

Loaded U-Cups

# Loaded U-Cups

IMPERIAL SEALS

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	C Groove Width	Piston Applications			Shaft Applications		
						A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.003 -0.000	+0.000 -0.002	+0.000 -0.004	+0.000 -0.002	+0.003 -0.000	+0.004 -0.000
5/16"	31201625	1 - 5/8	2 - 1/4	5/16	0.344	2.250	2.248	1.625	1.625	1.627	2.250
	31201625500			1/2	0.550						
	31201750	1 - 3/4	2 - 3/8	5/16	0.344	2.375	2.373	1.750	1.750	1.752	2.375
	31201750500			1/2	0.550						
	31201875	1 - 7/8	2 - 1/2	5/16	0.344	2.500	2.498	1.875	1.875	1.877	2.500
	31201875500			1/2	0.550						
	31202000	2	2 - 5/8	5/16	0.344	2.625	2.623	2.000	2.000	2.002	2.625
	31202000500			1/2	0.550						
	31202125	2 - 1/8	2 - 3/4	5/16	0.344	2.750	2.748	2.125	2.125	2.127	2.750
	31202125500			1/2	0.550						
	31202250	2 - 1/4	2 - 7/8	5/16	0.344	2.875	2.873	2.250	2.250	2.252	2.875
	31202250500			1/2	0.550						
	31202375	2 - 3/8	3	5/16	0.344	3.000	2.998	2.375	2.375	2.377	3.000
	31202375500			1/2	0.550						
	31202500	2 - 1/2	3 - 1/8	5/16	0.344	3.125	3.123	2.500	2.500	2.502	3.125
	31202500500			1/2	0.550						
	31202625	2 - 5/8	3 - 1/4	5/16	0.344	3.250	3.248	2.625	2.625	2.627	3.250
	31202625500			1/2	0.550						
	31202750	2 - 3/4	3 - 3/8	5/16	0.344	3.375	3.373	2.750	2.750	2.752	3.375
	31202750500			1/2	0.550						
	31202875	2 - 7/8	3 - 1/2	5/16	0.344	3.500	3.498	2.875	2.875	2.877	3.500
	31202875500			1/2	0.550						
	31203000	3	3 - 5/8	5/16	0.344	3.625	3.623	3.000	3.000	3.002	3.625
	31203000500			1/2	0.550						
	31203125	3 - 1/8	3 - 3/4	5/16	0.344	3.750	3.748	3.125	3.125	3.127	3.750
	31203125500			1/2	0.550						
	31203250	3 - 1/4	3 - 7/8	5/16	0.344	3.875	3.873	3.250	3.250	3.252	3.875
	31203250500			1/2	0.550						
	31203375	3 - 3/8	4	5/16	0.344	4.000	3.998	3.375	3.375	3.377	4.000
	31203375500			1/2	0.550						
	31203500	3 - 1/2	4 - 1/8	5/16	0.344	4.125	4.123	3.500	3.500	3.502	4.125
	31203500500			1/2	0.550						
	31203625	3 - 5/8	4 - 1/4	5/16	0.344	4.250	4.248	3.625	3.625	3.627	4.250
	31203625500			1/2	0.550						
	31203750	3 - 3/4	4 - 3/8	5/16	0.344	4.375	4.373	3.750	3.750	3.752	4.375
	31203750500			1/2	0.550						
	31203875	3 - 7/8	4 - 1/2	5/16	0.344	4.500	4.498	3.875	3.875	3.877	4.500
	31203875500			1/2	0.550						
	31204000	4	4 - 5/8	5/16	0.344	4.625	4.623	4.000	4.000	4.002	4.625
	31204000562			9/16	0.619						
	31204125	4 - 1/8	4 - 3/4	5/16	0.344	4.750	4.748	4.125	4.125	4.127	4.750
	31204125562			9/16	0.619						
	31204250	4 - 1/4	4 - 7/8	5/16	0.344	4.875	4.873	4.250	4.250	4.252	4.875
	31204250562			9/16	0.619						
	31204375	4 - 3/8	5	5/16	0.344	5.000	4.998	4.375	4.375	4.377	5.000
	31204375562			9/16	0.619						

Loaded U-Cups

# Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.003 -0.000	+0.000 -0.002	+0.000 -0.004	+0.000 -0.002	+0.003 -0.000	+0.004 -0.000
5/16"	31204500	4 - 1/2	5 - 1/8	5/16	0.344	5.125	5.123	4.500	4.500	4.502	5.125
	31204500625			5/8	0.688						
	31204625	4 - 5/8	5 - 1/4	5/16	0.344	5.250	5.248	4.625	4.625	4.627	5.250
	31204625625			5/8	0.688						
	31204750	4 - 3/4	5 - 3/8	5/16	0.344	5.375	5.373	4.750	4.750	4.752	5.375
	31204750625			5/8	0.688						
	31204875	4 - 7/8	5 - 1/2	5/16	0.344	5.500	5.498	4.875	4.875	4.877	5.500
	31204875625			5/8	0.688						
	31205000	5	5 - 5/8	5/16	0.344	5.625	5.623	5.000	5.000	5.002	5.625
	31205000625			5/8	0.688						
	31205125	5 - 1/8	5 - 3/4	5/16	0.344	5.750	5.748	5.125	5.125	5.127	5.750
	31205125625			5/8	0.688						
	31205250	5 - 1/4	5 - 7/8	5/16	0.344	5.875	5.873	5.250	5.250	5.252	5.875
	31205250625			5/8	0.688						
	31205375	5 - 3/8	6	5/16	0.344	6.000	5.998	5.375	5.375	5.377	6.000
	31205375625			5/8	0.688						
	31205500	5 - 1/2	6 - 1/8	5/16	0.344	6.125	6.123	5.500	5.500	5.502	6.125
	31205500625			5/8	0.688						
	31205625	5 - 5/8	6 - 1/4	5/16	0.344	6.250	6.248	5.625	5.625	5.627	6.250
	31205625625			5/8	0.688						
	31205750	5 - 3/4	6 - 3/8	5/16	0.344	6.375	6.373	5.750	5.750	5.752	6.375
	31205750625			5/8	0.688						
	31205875	5 - 7/8	6 - 1/2	5/16	0.344	6.500	6.498	5.875	5.875	5.877	6.500
	31205875625			5/8	0.688						
	31206000	6	6 - 5/8	5/16	0.344	6.625	6.623	6.000	6.000	6.002	6.625
	31206000625			5/8	0.688						
	31206125	6 - 1/8	6 - 3/4	5/16	0.344	6.750	6.748	6.125	6.125	6.127	6.750
	31206125625			5/8	0.688						
	31206250	6 - 1/4	6 - 7/8	5/16	0.344	6.875	6.873	6.250	6.250	6.252	6.875
	31206250625			5/8	0.688						
	31206375	6 - 3/8	7	5/16	0.344	7.000	6.998	6.375	6.375	6.377	7.000
	31206375625			5/8	0.688						
	31206500	6 - 1/2	7 - 1/8	5/16	0.344	7.125	7.123	6.500	6.500	6.502	7.125
	31206500625			5/8	0.688						
	31206625	6 - 5/8	7 - 1/4	5/16	0.344	7.250	7.248	6.625	6.625	6.627	7.250
	31206625625			5/8	0.688						
	31206750	6 - 3/4	7 - 3/8	5/16	0.344	7.375	7.373	6.750	6.750	6.752	7.375
	31206750625			5/8	0.688						
	31206875	6 - 7/8	7 - 1/2	5/16	0.344	7.500	7.498	6.875	6.875	6.877	7.500
	31206875625			5/8	0.688						
	31207000	7	7 - 5/8	5/16	0.344	7.625	7.623	7.000	7.000	7.002	7.625
	31207000625			5/8	0.688						
	31207125	7 - 1/8	7 - 3/4	5/16	0.344	7.750	7.748	7.125	7.125	7.127	7.750
	31207125625			5/8	0.688						

Loaded U-Cups

# Loaded U-Cups

IMPERIAL SEALS

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010</b> <b>-0.000</b>	<b>+0.003</b> <b>-0.000</b>	<b>+0.000</b> <b>-0.002</b>	<b>+0.000</b> <b>-0.004</b>	<b>+0.000</b> <b>-0.002</b>	<b>+0.003</b> <b>-0.000</b>	<b>+0.004</b> <b>-0.000</b>
5/16"	31207250	7 - 1/4	7 - 7/8	5/16	0.344	7.875	7.873	7.250	7.250	7.252	7.875
	31207250625			5/8	0.688						
	31207375	7 - 3/8	8	5/16	0.344	8.000	7.998	7.375	7.375	7.377	8.000
	31207375625			5/8	0.688						
<b>Tolerance Limits</b>					<b>+0.010</b> <b>-0.000</b>	<b>+0.004</b> <b>-0.000</b>	<b>+0.000</b> <b>-0.002</b>	<b>+0.000</b> <b>-0.005</b>	<b>+0.000</b> <b>-0.002</b>	<b>+0.004</b> <b>-0.000</b>	<b>+0.005</b> <b>-0.000</b>
3/8"	37500500	1/2	1 - 1/4	3/8	0.413	1.250	1.248	0.500	0.500	0.502	1.250
	37500500625			5/8	0.688						
	37500562	9/16	1 - 5/16	3/8	0.413	1.312	1.310	0.562	0.562	0.564	1.312
	37500562625			5/8	0.688						
	37500625	5/8	1 - 3/8	3/8	0.413	1.375	1.373	0.625	0.625	0.627	1.375
	37500625625			5/8	0.688						
	37500687	11/16	1 - 7/16	3/8	0.413	1.437	1.435	0.687	0.687	0.689	1.437
	37500687625			5/8	0.688						
	37500750	3/4	1 - 1/2	3/8	0.413	1.500	1.498	0.750	0.750	0.752	1.500
	37500750625			5/8	0.688						
	37500812	13/16	1 - 9/16	3/8	0.413	1.562	1.560	0.812	0.812	0.814	1.562
	37500812625			5/8	0.688						
	37500875	7/8	1 - 5/8	3/8	0.413	1.625	1.623	0.875	0.875	0.877	1.625
	37500875625			5/8	0.688						
	37500937	15/16	1 - 11/16	3/8	0.413	1.687	1.685	0.937	0.937	0.939	1.687
	37500937625			5/8	0.688						
	37501000	1	1 - 3/4	3/8	0.413	1.750	1.748	1.000	1.000	1.002	1.750
	37501000625			5/8	0.688						
	37501062	1 - 1/16	1 - 13/16	3/8	0.413	1.812	1.810	1.062	1.062	1.064	1.812
	37501062625			5/8	0.688						
	37501125	1 - 1/8	1 - 7/8	3/8	0.413	1.875	1.873	1.125	1.125	1.127	1.875
	37501125625			5/8	0.688						
	37501187	1 - 3/16	1 - 15/16	3/8	0.413	1.937	1.935	1.187	1.187	1.189	1.937
	37501187625			5/8	0.688						
	37501250	1 - 1/4	2	3/8	0.413	2.000	1.998	1.250	1.250	1.252	2.000
	37501250625			5/8	0.688						
	37501312	1 - 5/16	2 - 1/16	3/8	0.413	2.062	2.060	1.312	1.312	1.314	2.062
	37501312625			5/8	0.688						
	37501375	1 - 3/8	2 - 1/8	3/8	0.413	2.125	2.123	1.375	1.375	1.377	2.125
	37501375625			5/8	0.688						
	37501437	1 - 7/16	2 - 3/16	3/8	0.413	2.187	2.185	1.437	1.437	1.439	2.187
	37501437625			5/8	0.688						
37501500	1 - 1/2	2 - 1/4	3/8	0.413	2.250	2.248	1.500	1.500	1.502	2.250	
37501500625			5/8	0.688							
37501625	1 - 5/8	2 - 3/8	3/8	0.413	2.375	2.373	1.625	1.625	1.627	2.375	
37501625625			5/8	0.688							
37501750	1 - 3/4	2 - 1/2	3/8	0.413	2.500	2.498	1.750	1.750	1.752	2.500	
37501750625			5/8	0.688							
37501875	1 - 7/8	2 - 5/8	3/8	0.413	2.625	2.623	1.875	1.875	1.877	2.625	
37501875625			5/8	0.688							

# Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	C		Piston Applications				Shaft Applications		
					Groove Width	Tolerance Limits	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.	
						<b>+0.010 -0.000</b>	<b>+0.004 -0.000</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.005</b>	<b>+0.000 -0.002</b>	<b>+0.004 -0.000</b>	<b>+0.005 -0.000</b>	
3/8"	37502000	2	2 - 3/4	3/8	0.413	2.750	2.748	2.000	2.000	2.002	2.750		
	37502000625			5/8	0.688								
	37502125	2 - 1/8	2 - 7/8	3/8	0.413	2.875	2.873	2.125	2.125	2.127	2.875		
	37502125625			5/8	0.688								
	37502250	2 - 1/4	3	3/8	0.413	3.000	2.998	2.250	2.250	2.252	3.000		
	37502250625			5/8	0.688								
	37502375	2 - 3/8	3 - 1/8	3/8	0.413	3.125	3.123	2.375	2.375	2.377	3.125		
	37502375625			5/8	0.688								
	37502500	2 - 1/2	3 - 1/4	3/8	0.413	3.250	3.248	2.500	2.500	2.502	3.250		
	37502500625			5/8	0.688								
	37502625	2 - 5/8	3 - 3/8	3/8	0.413	3.375	3.373	2.625	2.625	2.627	3.375		
	37502625625			5/8	0.688								
	37502750	2 - 3/4	3 - 1/2	3/8	0.413	3.500	3.498	2.750	2.750	2.752	3.500		
	37502750625			5/8	0.688								
	37502875	2 - 7/8	3 - 5/8	3/8	0.413	3.625	3.623	2.875	2.875	2.877	3.625		
	37502875625			5/8	0.688								
	37503000	3	3 - 3/4	3/8	0.413	3.750	3.748	3.000	3.000	3.002	3.750		
	37503000625			5/8	0.688								
	37503125	3 - 1/8	3 - 7/8	3/8	0.413	3.875	3.873	3.125	3.125	3.127	3.875		
	37503125625			5/8	0.688								
	37503250	3 - 1/4	4	3/8	0.413	4.000	3.998	3.250	3.250	3.252	4.000		
	37503250625			5/8	0.688								
	37503375	3 - 3/8	4 - 1/8	3/8	0.413	4.125	4.123	3.375	3.375	3.377	4.125		
	37503375625			5/8	0.688								
	37503500	3 - 1/2	4 - 1/4	3/8	0.413	4.250	4.248	3.500	3.500	3.502	4.250		
	37503500625			5/8	0.688								
	37503625	3 - 5/8	4 - 3/8	3/8	0.413	4.375	4.373	3.625	3.625	3.627	4.375		
	37503625625			5/8	0.688								
	37503750	3 - 3/4	4 - 1/2	3/8	0.413	4.500	4.498	3.750	3.750	3.752	4.500		
	37503750625			5/8	0.688								
	37503875	3 - 7/8	4 - 5/8	3/8	0.413	4.625	4.623	3.875	3.875	3.877	4.625		
	37503875625			5/8	0.688								
	37504000	4	4 - 3/4	3/8	0.413	4.750	4.748	4.000	4.000	4.002	4.750		
	37504000625			5/8	0.688								
	37504125	4 - 1/8	4 - 7/8	3/8	0.413	4.875	4.873	4.125	4.125	4.127	4.875		
	37504125625			5/8	0.688								
	37504250	4 - 1/4	5	3/8	0.413	5.000	4.998	4.250	4.250	4.252	5.000		
	37504250625			5/8	0.688								
	37504375	4 - 3/8	5 - 1/8	3/8	0.413	5.125	5.123	4.375	4.375	4.377	5.125		
	37504375625			5/8	0.688								
	37504500	4 - 1/2	5 - 1/4	3/8	0.413	5.250	5.248	4.500	4.500	4.502	5.250		
	37504500625			5/8	0.688								
	37504625	4 - 5/8	5 - 3/8	3/8	0.413	5.375	5.373	4.625	4.625	4.627	5.375		
	37504625625			5/8	0.688								
	37504750	4 - 3/4	5 - 1/2	3/8	0.413	5.500	5.498	4.750	4.750	4.752	5.500		
	37504750625			5/8	0.688								

Loaded U-Cups

# Loaded U-Cups

IMPERIAL SEALS

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C	A	D	B	E	F	G
					Groove Width	Bore Dia.	Piston Dia.	Groove Dia.	Shaft Dia.	Throat Dia.	Groove Dia.
					<b>+0.010</b> <b>-0.000</b>	<b>+0.004</b> <b>-0.000</b>	<b>+0.000</b> <b>-0.002</b>	<b>+0.000</b> <b>-0.005</b>	<b>+0.000</b> <b>-0.002</b>	<b>+0.004</b> <b>-0.000</b>	<b>+0.005</b> <b>-0.000</b>
3/8"	37504875	4 - 7/8	5 - 5/8	3/8	0.413	5.625	5.623	4.875	4.875	4.877	5.625
	3750487625			5/8	0.688						
	3705000	5	5 - 3/4	3/8	0.413	5.750	5.748	5.000	5.000	5.002	5.750
	3750000625			5/8	0.688						
	37505125	5 - 1/8	5 - 7/8	3/8	0.413	5.875	5.873	5.125	5.125	5.127	5.875
	37505125625			5/8	0.688						
	37505250	5 - 1/4	6	3/8	0.413	6.000	5.998	5.250	5.250	5.252	6.000
	37505250625			5/8	0.688						
	37505375	5 - 3/8	6 - 1/8	3/8	0.413	6.125	6.123	5.375	5.375	5.377	6.125
	37505375625			5/8	0.688						
	37505500	5 - 1/2	6 - 1/4	3/8	0.413	6.250	6.248	5.500	5.500	5.502	6.250
	37505500625			5/8	0.688						
	37505625	5 - 5/8	6 - 3/8	3/8	0.413	6.375	6.373	5.625	5.625	5.627	6.375
	37505625625			5/8	0.688						
	37505750	5 - 3/4	6 - 1/2	3/8	0.413	6.500	6.498	5.750	5.750	5.752	6.500
	37505750625			5/8	0.688						
	37505875	5 - 7/8	6 - 5/8	3/8	0.413	6.625	6.623	5.875	5.875	5.877	6.625
	37505875625			5/8	0.688						
	37506000	6	6 - 3/4	3/8	0.413	6.750	6.748	6.000	6.000	6.002	6.750
	37506000625			5/8	0.688						
	37506250	6 - 1/4	7	3/8	0.413	7.000	6.998	6.250	6.250	6.252	7.000
	37506250625			5/8	0.688						
	37506500	6 - 1/2	7 - 1/4	3/8	0.413	7.250	7.248	6.500	6.500	6.502	7.250
	37506500625			5/8	0.688						
	37506750	6 - 3/4	7 - 1/2	3/8	0.413	7.500	7.498	6.750	6.750	6.752	7.500
	37506750625			5/8	0.688						
	37507000	7	7 - 3/4	3/8	0.413	7.750	7.748	7.000	7.000	7.002	7.750
	37507000625			5/8	0.688						
	37507250	7 - 1/4	8	3/8	0.413	8.000	7.998	7.250	7.250	7.252	8.000
	37507250625			5/8	0.688						
	37507500	7 - 1/2	8 - 1/4	3/8	0.413	8.250	8.248	7.500	7.500	7.502	8.250
	37507500625			5/8	0.688						
	37507750	7 - 3/4	8 - 1/2	3/8	0.413	8.500	8.498	7.750	7.750	7.752	8.500
	37507750625			5/8	0.688						
	37508000	8	8 - 3/4	3/8	0.413	8.750	8.748	8.000	8.000	8.002	8.750
	37508000625			5/8	0.688						
	3750 8250	8 - 1/4	9	3/8	0.413	9.000	8.998	8.250	8.250	8.252	9.000
	37508250625			5/8	0.688						
	37508500	8 - 1/2	9 - 1/4	3/8	0.413	9.250	9.248	8.500	8.500	8.502	9.250
	37508500625			5/8	0.688						
	37508750	8 - 3/4	9 - 1/2	3/8	0.413	9.500	9.498	8.750	8.750	8.752	9.500
	37508750625			5/8	0.688						
	37509000	9	9 - 3/4	3/8	0.413	9.750	9.748	9.000	9.000	9.002	9.750
	37509000625			5/8	0.688						
	37509250	9 - 1/4	10	3/8	0.413	10.000	9.998	9.250	9.250	9.252	10.000
	37509250625			5/8	0.688						



# Loaded U-Cups

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.004 -0.000</b>	<b>+0.000 -0.002</b>	<b>+0.000 -0.005</b>	<b>+0.000 -0.002</b>	<b>+0.004 -0.000</b>	<b>+0.005 -0.000</b>
3/8"	37509500	9 - 1/2	10 - 1/4	3/8	0.413	10.250	10.248	9.500	9.500	9.502	10.250
	37509500625			5/8	0.688						
	37509750	9 - 3/4	10 - 1/2	3/8	0.413	10.500	10.498	9.750	9.750	9.752	10.500
	37509750625			5/8	0.688						
	375010000	10	10 - 3/4	3/8	0.413	10.750	10.748	10.000	10.000	10.002	10.750
	375010000625			5/8	0.688						
	375010250	10 - 1/4	11	3/8	0.413	11.000	10.998	10.250	10.250	10.252	11.000
	375010250625			5/8	0.688						
	375010500	10 - 1/2	11 - 1/4	3/8	0.413	11.250	11.248	10.500	10.500	10.502	11.250
	375010500625			5/8	0.688						
	375010750	10 - 3/4	11 - 1/2	3/8	0.413	11.500	11.498	10.750	10.750	10.752	11.500
	375010750625			5/8	0.688						
	375011000	11	11 - 3/4	3/8	0.413	11.750	11.748	11.000	11.000	11.002	11.750
	375011000625			5/8	0.688						
	375011250	11 - 1/4	12	3/8	0.413	12.000	11.998	11.250	11.250	11.252	12.000
	375011250625			5/8	0.688						
	375011500	11 - 1/2	12 - 1/4	3/8	0.413	12.250	12.248	11.500	11.500	11.502	12.250
	375011500625			5/8	0.688						
	375011750	11 - 3/4	12 - 1/2	3/8	0.413	12.500	12.498	11.750	11.750	11.752	12.500
	375011750625			5/8	0.688						
	375012000	12	12 - 3/4	3/8	0.413	12.750	12.748	12.000	12.000	12.002	12.750
	375012000625			5/8	0.688						
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.005 -0.000</b>	<b>+0.000 -0.003</b>	<b>+0.000 -0.007</b>	<b>+0.000 -0.003</b>	<b>+0.005 -0.000</b>	<b>+0.007 -0.000</b>
1/2"	50001000	1	2	1/2	0.550	2.000	1.998	1.000	1.000	1.002	2.000
	50001000750			3/4	0.825						
	50001250	1 - 1/4	2 - 1/4	1/2	0.550	2.250	2.248	1.250	1.250	1.252	2.250
	50001250750			3/4	0.825						
	50001375	1 - 3/8	2 - 3/8	1/2	0.550	2.375	2.373	1.375	1.375	1.377	2.375
	50001375750			3/4	0.825						
	50001500	1 - 1/2	2 - 1/2	1/2	0.550	2.500	2.498	1.500	1.500	1.502	2.500
	50001500750			3/4	0.825						
	50001750	1 - 3/4	2 - 3/4	1/2	0.550	2.750	2.748	1.750	1.750	1.752	2.750
	50001750750			3/4	0.825						
	50002000	2	3	1/2	0.550	3.000	2.998	2.000	2.000	2.002	3.000
	50002000750			3/4	0.825						
	50002250	2 - 1/4	3 - 1/4	1/2	0.550	3.250	3.248	2.250	2.250	2.252	3.250
	50002250750			3/4	0.825						
	50002375	2 - 3/8	3 - 3/8	1/2	0.550	3.375	3.373	2.375	2.375	2.377	3.375
	50002375750			3/4	0.825						
	50002500	2 - 1/2	3 - 1/2	1/2	0.550	3.500	3.498	2.500	2.500	2.502	3.500
	50002500750			3/4	0.825						
	50002750	2 - 3/4	3 - 3/4	1/2	0.550	3.750	3.748	2.750	2.750	2.752	3.750
	50002750750			3/4	0.825						
	50003000	3	4	1/2	0.550	4.000	3.998	3.000	3.000	3.002	4.000
	50003000750			3/4	0.825						

# Loaded U-Cups

IMPERIAL SEALS

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications			Shaft Applications			
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.005 -0.000	+0.000 -0.003	+0.000 -0.007	+0.000 -0.003	+0.005 -0.000	+0.007 -0.000
1/2"	50003250	3 - 1/4	4 - 1/4	1/2	0.550	4.250	4.248	3.250	3.250	3.252	4.250
	50003250750			3/4	0.825						
	50003500	3 - 1/2	4 - 1/2	1/2	0.550	4.500	4.498	3.500	3.500	3.502	4.500
	50003500750			3/4	0.825						
	50003750	3 - 3/4	4 - 3/4	1/2	0.550	4.750	4.748	3.750	3.750	3.752	4.750
	50003750750			3/4	0.825						
	50004000	4	5	1/2	0.550	5.000	4.998	4.000	4.000	4.002	5.000
	50004000750			3/4	0.825						
	50004250	4 - 1/4	5 - 1/4	1/2	0.550	5.250	5.248	4.250	4.250	4.252	5.250
	50004250750			3/4	0.825						
	50004375	4 - 3/8	5 - 3/8	1/2	0.550	5.375	5.373	4.375	4.375	4.377	5.375
	50004375750			3/4	0.825						
	50004500	4 - 1/2	5 - 1/2	1/2	0.550	5.500	5.498	4.500	4.500	4.502	5.500
	50004500750			3/4	0.825						
	50004750	4 - 3/4	5 - 3/4	1/2	0.550	5.750	5.748	4.750	4.750	4.752	5.750
	50004750750			3/4	0.825						
	50005000	5	6	1/2	0.550	6.000	5.998	5.000	5.000	5.002	6.000
	50005000750			3/4	0.825						
	50005250	5 - 1/4	6 - 1/4	1/2	0.550	6.250	6.248	5.250	5.250	5.252	6.250
	50005250750			3/4	0.825						
	50005375	5 - 3/8	6 - 3/8	1/2	0.550	6.375	6.373	5.375	5.375	5.377	6.375
	50005375750			3/4	0.825						
	50005500	5 - 1/2	6 - 1/2	1/2	0.550	6.500	6.498	5.500	5.500	5.502	6.500
	50005500750			3/4	0.825						
	50005750	5 - 3/4	6 - 3/4	1/2	0.550	6.750	6.748	5.750	5.750	5.752	6.750
	50005750750			3/4	0.825						
	50006000	6	7	1/2	0.550	7.000	6.998	6.000	6.000	6.002	7.000
	50006000750			3/4	0.825						
	50006250	6 - 1/4	7 - 1/4	1/2	0.550	7.250	7.248	6.250	6.250	6.252	7.250
	50006250750			3/4	0.825						
	50006500	6 - 1/2	7 - 1/2	1/2	0.550	7.500	7.498	6.500	6.500	6.502	7.500
	50006500750			3/4	0.825						
	50006750	6 - 3/4	7 - 3/4	1/2	0.550	7.750	7.748	6.750	6.750	6.752	7.750
	50006750750			3/4	0.825						
	50007000	7	8	1/2	0.550	8.000	7.998	7.000	7.000	7.002	8.000
	50007000750			3/4	0.825						
	50007250	7 - 1/4	8 - 1/4	1/2	0.550	8.250	8.248	7.250	7.250	7.252	8.250
	50007250750			3/4	0.825						
	50007500	7 - 1/2	8 - 1/2	1/2	0.550	8.500	8.498	7.500	7.500	7.502	8.500
	50007500750			3/4	0.825						
	50007750	7 - 3/4	8 - 3/4	1/2	0.550	8.750	8.748	7.750	7.750	7.752	8.750
	50007750750			3/4	0.825						
	50008000	8	9	1/2	0.550	9.000	8.998	8.000	8.000	8.002	9.000
	50008000750			3/4	0.825						
	50008250	8 - 1/4	9 - 1/4	1/2	0.550	9.250	9.248	8.250	8.250	8.252	9.250
	50008250750			3/4	0.825						

# Loaded U-Cups

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.005 -0.000</b>	<b>+0.000 -0.003</b>	<b>+0.000 -0.007</b>	<b>+0.000 -0.003</b>	<b>+0.005 -0.000</b>	<b>+0.007 -0.000</b>
1/2"	50008500	8 - 1/2	9 - 1/2	1/2	0.550	9.500	9.498	8.500	8.500	8.502	9.500
	50008500750			3/4	0.825						
	50008750	8 - 3/4	9 - 3/4	1/2	0.550	9.750	9.748	8.750	8.750	8.752	9.750
	50008750750			3/4	0.825						
	50009000	9	10	1/2	0.550	10.000	9.998	9.000	9.000	9.002	10.000
	50009000750			3/4	0.825						
	50009250	9 - 1/4	10 - 1/4	1/2	0.550	10.250	10.248	9.250	9.250	9.252	10.250
	50009250750			3/4	0.825						
	50009500	9 - 1/2	10 - 1/2	1/2	0.550	10.500	10.498	9.500	9.500	9.502	10.500
	50009500750			3/4	0.825						
	50009750	9 - 3/4	10 - 3/4	1/2	0.550	10.750	10.748	9.750	9.750	9.752	10.750
	50009750750			3/4	0.825						
	500010000	10	11	1/2	0.550	11.000	10.998	10.000	10.000	10.002	11.000
	500010000750			3/4	0.825						
	500010500	10 - 1/2	11 - 1/2	1/2	0.550	11.500	11.498	10.500	10.500	10.502	11.500
	500010500750			3/4	0.825						
	500011000	11	12	1/2	0.550	12.000	11.998	11.000	11.000	11.002	12.000
	500011000750			3/4	0.825						
	500011500	11 - 1/2	12 - 1/2	1/2	0.550	12.500	12.498	11.500	11.500	11.502	12.500
	500011500750			3/4	0.825						
	500012000	12	13	1/2	0.550	13.000	12.998	12.000	12.000	12.002	13.000
	500012000750			3/4	0.825						
	500012500	12 - 1/2	13 - 1/2	1/2	0.550	13.500	13.498	12.500	12.500	12.502	13.500
	500012500750			3/4	0.825						
	500013000	13	14	1/2	0.550	14.000	13.998	13.000	13.000	13.002	14.000
	500013000750			3/4	0.825						
	500013500	13 - 1/2	14 - 1/2	1/2	0.550	14.500	14.498	13.500	13.500	13.502	14.500
	500013500750			3/4	0.825						
	500014000	14	15	1/2	0.550	15.000	14.998	14.000	14.000	14.002	15.000
	500014000750			3/4	0.825						
	500014500	14 - 1/2	15 - 1/2	1/2	0.550	15.500	15.498	14.500	14.500	14.502	15.500
	500014500750			3 / 4	0.825						
	500015000	15	16	1/2	0.550	16.000	15.998	15.000	15.000	15.002	16.000
	500015000750			3/4	0.825						
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.006 -0.000</b>	<b>+0.000 -0.003</b>	<b>+0.000 -0.009</b>	<b>+0.000 -0.003</b>	<b>+0.006 -0.000</b>	<b>+0.009 -0.000</b>
	62501250	1 - 1/4	2 - 1/2	5/8	0.688	2.500	2.497	1.250	1.250	1.253	2.500
	62501250100			1	1.100						
	62501375	1 - 3/8	2 - 5/8	5/8	0.688	2.625	2.622	1.375	1.375	1.378	2.625
	62501375100			1	1.100						
	62501500	1 - 1/2	2 - 3/4	5/8	0.688	2.750	2.747	1.500	1.500	1.503	2.750
	62501500100			1	1.100						
	62501750	1 - 3/4	3	5/8	0.688	3.000	2.997	1.750	1.750	1.753	3.000
	62501750100			1	1.100						
	62502000	2	3 - 1/4	5/8	0.688	3.250	3.247	2.000	2.000	2.003	3.250
	62502000100			1	1.100						

# Loaded U-Cups

IMPERIAL SEALS

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications			Shaft Applications			
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.006 -0.000	+0.000 -0.003	+0.000 -0.009	+0.000 -0.003	+0.006 -0.000	+0.009 -0.000
5/8"	62502250	2 - 1/4	3 - 1/2	5/8	0.688	3.500	3.497	2.250	2.250	2.253	3.500
	62502250100			1	1.100						
	62502500	2 - 1/2	3 - 3/4	5/8	0.688	3.750	3.747	2.500	2.500	2.503	3.750
	62502500100			1	1.100						
	62502750	2 - 3/4	4	5/8	0.688	4.000	3.997	2.750	2.750	2.753	4.000
	62502750100			1	1.100						
	62503000	3	4 - 1/4	5/8	0.688	4.250	4.247	3.000	3.000	3.003	4.250
	62503000100			1	1.100						
	62503250	3 - 1/4	4 - 1/2	5/8	0.688	4.500	4.497	3.250	3.250	3.253	4.500
	62503250100			1	1.100						
	62503500	3 - 1/2	4 - 3/4	5/8	0.688	4.750	4.747	3.500	3.500	3.503	4.750
	62503500100			1	1.100						
	62503750	3 - 3/4	5	5/8	0.688	5.000	4.997	3.750	3.750	3.753	5.000
	62503750100			1	1.100						
	62504000	4	5 - 1/4	5/8	0.688	5.250	5.247	4.000	4.000	4.003	5.250
	62504000100			1	1.100						
	62504250	4 - 1/4	5 - 1/2	5/8	0.688	5.500	5.497	4.250	4.250	4.253	5.500
	62504250100			1	1.100						
	62504500	4 - 1/2	5 - 3/4	5/8	0.688	5.750	5.747	4.500	4.500	4.503	5.750
	62504500100			1	1.100						
	62504750	4 - 3/4	6	5/8	0.688	6.000	5.997	4.750	4.750	4.753	6.000
	62504750100			1	1.100						
	62505000	5	6 - 1/4	5/8	0.688	6.250	6.247	5.000	5.000	5.003	6.250
	62505000100			1	1.100						
	62505250	5 - 1/4	6 - 1/2	5/8	0.688	6.500	6.447	5.250	5.250	5.253	6.500
	62505250100			1	1.100						
	62505500	5 - 1/2	6 - 3/4	5/8	0.688	6.750	6.747	5.500	5.500	5.503	6.750
	62505500100			1	1.100						
	62505750	5 - 3/4	7	5/8	0.688	7.000	6.997	5.750	5.750	5.753	7.000
	62505750100			1	1.100						
	62506000	6	7 - 1/4	5/8	0.688	7.250	7.247	6.000	6.000	6.003	7.250
	62506000100			1	1.100						
	62506250	6 - 1/4	7 - 1/2	5/8	0.688	7.500	7.497	6.250	6.250	6.253	7.500
	62506250100			1	1.100						
	62506500	6 - 1/2	7 - 3/4	5/8	0.688	7.750	7.747	6.500	6.500	6.503	7.750
	62506500100			1	1.100						
	62506750	6 - 3/4	8	5/8	0.688	8.000	7.997	6.750	6.750	6.753	8.000
	62506750100			1	1.100						
	62507000	7	8 - 1/4	5/8	0.688	8.250	8.247	7.000	7.000	7.003	8.250
	62507000100			1	1.100						
	62507250	7 - 1/4	8 - 1/2	5/8	0.688	8.500	8.497	7.250	7.250	7.253	8.500
	62507250100			1	1.100						
	62507500	7 - 1/2	8 - 3/4	5/8	0.688	8.750	8.747	7.500	7.500	7.503	8.750
	62507500100			1	1.100						
	62507750	7 - 3/4	9	5/8	0.688	9.000	8.997	7.750	7.750	7.753	9.000
	62507750100			1	1.100						

Loaded U-Cups

# Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications			Shaft Applications			
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.006 -0.000	+0.000 -0.003	+0.000 -0.009	+0.000 -0.003	+0.006 -0.000	+0.009 -0.000
5/8"	62508000	8	9 - 1/4	5/8	0.688	9.250	9.247	8.000	8.000	8.003	9.250
	62508000100			1	1.100						
	62508250	8 - 1/4	9 - 1/2	5/8	0.688	9.500	9.497	8.250	8.250	8.253	9.500
	62508250100			1	1.100						
	62508500	8 - 1/2	9 - 3/4	5/8	0.688	9.750	9.747	8.500	8.500	8.503	9.750
	62508500100			1	1.100						
	62508750	8 - 3/4	10	5/8	0.688	10.000	9.997	8.750	8.750	8.753	10.000
	62508750100			1	1.100						
	62509000	9	10 - 1/4	5/8	0.688	10.250	10.247	9.000	9.000	9.003	10.250
	62509000100			1	1.100						
	62509250	9 - 1/4	10 - 1/2	5/8	0.688	10.500	10.497	9.250	9.250	9.253	10.500
	62509250100			1	1.100						
	62509500	9 - 1/2	10 - 3/4	5/8	0.688	10.750	10.747	9.500	9.500	9.503	10.750
	62509500100			1	1.100						
	62509750	9 - 3/4	11	5/8	0.688	11.000	10.997	9.750	9.750	9.753	11.000
	62509750100			1	1.100						
	625010000	10	11 - 1/4	5/8	0.688	11.250	11.247	10.000	10.000	10.003	11.250
	625010000100			1	1.100						
	625010250	10 - 1/4	11 - 1/2	5/8	0.688	11.500	11.497	10.250	10.250	10.253	11.500
	625010250100			1	1.100						
	625010500	10 - 1/2	11 - 3/4	5/8	0.688	11.750	11.747	10.500	10.500	10.503	11.750
	625010500100			1	1.100						
	625010750	10 - 3/4	12	5/8	0.688	12.000	11.997	10.750	10.750	10.753	12.000
	625010750100			1	1.100						
	625011000	11	12 - 1/4	5/8	0.688	12.250	12.247	11.000	11.000	11.003	12.250
	625011000100			1	1.100						
	625011250	11 - 1/4	12 - 1/2	5/8	0.688	12.500	12.497	11.250	11.250	11.253	12.500
	625011250100			1	1.100						
	625011500	11 - 1/2	12 - 3/4	5/8	0.688	12.750	12.747	11.500	11.500	11.503	12.750
	625011500100			1	1.100						
	625011750	11 - 3/4	13	5/8	0.688	13.000	12.997	11.750	11.750	11.753	13.000
	625011750100			1	1.100						
	625012000	12	13 - 1/4	5/8	0.688	13.250	13.247	12.000	12.000	12.003	13.250
	625012000100			1	1.100						
	625012250	12 - 1/4	13 - 1/2	5/8	0.688	13.500	13.497	12.250	12.250	12.253	13.500
	625012250100			1	1.100						
	625012500	12 - 1/2	13 - 3/4	5/8	0.688	13.750	13.747	12.500	12.500	12.503	13.750
	625012500100			1	1.100						
	625012750	12 - 3/4	14	5/8	0.688	14.000	13.997	12.750	12.750	12.753	14.000
	625012750100			1	1.100						
	625013000	13	14 - 1/4	5/8	0.688	14.250	14.247	13.000	13.000	13.003	14.250
	625013000100			1	1.100						
	625013250	13 - 1/4	14 - 1/2	5/8	0.688	14.500	14.497	13.250	13.250	13.253	14.500
	625013250100			1	1.100						
	625013500	13 - 1/2	14 - 3/4	5/8	0.688	14.750	14.747	13.500	13.500	13.503	14.750
	625013500100			1	1.100						

Loaded U-Cups

# Loaded U-Cups

IMPERIAL SEALS

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications				Shaft Applications		
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.006 -0.000	+0.000 -0.003	+0.000 -0.009	+0.000 -0.003	+0.006 -0.000	+0.009 -0.000
5/8"	625013750	13 - 3/4	15	5/8	0.688	15.000	14.997	13.750	13.750	13.753	15.000
	625013750100			1	1.100						
	625014000	14	15 - 1/4	5/8	0.688	15.250	15.247	14.000	14.000	14.003	15.250
	625014000100			1	1.100						
	625014250	14 - 1/4	15 - 1/2	5/8	0.688	15.500	15.497	14.250	14.250	14.253	15.500
	625014250100			1	1.100						
	625014500	14 - 1/2	15 - 3/4	5/8	0.688	15.750	15.747	14.500	14.500	14.503	15.750
	625014500100			1	1.100						
	625014750	14 - 3/4	16	5/8	0.688	16.000	15.997	14.750	14.750	14.753	16.000
	625014750100			1	1.100						
	625015000	15	16 - 1/4	5/8	0.688	16.250	16.247	15.000	15.000	15.003	16.250
	625015000100			1	1.100						
	625015500	15 - 1/2	16 - 3/4	5/8	0.688	16.750	16.747	15.500	15.500	15.503	16.750
	625015500100			1	1.100						
	625016000	16	17 - 1/4	5/8	0.688	17.250	17.247	16.000	16.000	16.003	17.250
	625016000100			1	1.100						
	625016500	16 - 1/2	17 - 3/4	5/8	0.688	17.750	17.747	16.500	16.500	16.503	17.750
	625016500100			1	1.100						
	625017000	17	18 - 1/4	5/8	0.688	18.250	18.247	17.000	17.000	17.003	18.250
	625017000100			1	1.100						
	625017500	17 - 1/2	18 - 3/4	5/8	0.688	18.750	18.747	17.500	17.500	17.503	18.750
	625017500100			1	1.100						
	625018000	18	19 - 1/4	5/8	0.688	19.250	19.247	18.000	18.000	18.003	19.250
	625018000100			1	1.100						
Tolerance Limits					+0.010 -0.000	+0.007 -0.000	+0.000 -0.004	+0.000 -0.011	+0.000 -0.004	+0.007 -0.000	+0.011 -0.000
3/4"	75003000	3	4 - 1/2	3/4	0.825	4.500	4.497	3.000	3.000	3.003	4.500
	75003000125			1 - 1/4	1.375						
	75003250	3 - 1/4	4 - 3/4	3/4	0.825	4.750	4.747	3.250	3.250	3.253	4.750
	75003250125			1 - 1/4	1.375						
	75003500	3 - 1/2	5	3/4	0.825	5.000	4.997	3.500	3.500	3.503	5.000
	75003500125			1 - 1/4	1.375						
	75003750	3 - 3/4	5 - 1/4	3/4	0.825	5.250	5.247	3.750	3.750	3.753	5.250
	75003750125			1 - 1/4	1.375						
	75004000	4	5 - 1/2	3/4	0.825	5.500	5.497	4.000	4.000	4.003	5.500
	75004000125			1 - 1/4	1.375						
	75004250	4 - 1/4	5 - 3/4	3/4	0.825	5.750	5.747	4.250	4.250	4.253	5.750
	75004250125			1 - 1/4	1.375						
	75004500	4 - 1/2	6	3/4	0.825	6.000	5.997	4.500	4.500	4.503	6.000
	75004500125			1 - 1/4	1.375						
	75004750	4 - 3/4	6 - 1/4	3/4	0.825	6.250	6.247	4.750	4.750	4.753	6.250
	75004750125			1 - 1/4	1.375						
	75005000	5	6 - 1/2	3/4	0.825	6.500	6.497	5.000	5.000	5.003	6.500
	75005000125			1 - 1/4	1.375						
	75005250	5 - 1/4	6 - 3/4	3/4	0.825	6.750	6.747	5.250	5.250	5.253	6.750
	75005250125			1 - 1/4	1.375						
	75005500	5 - 1/2	7	3/4	0.825	7.000	6.997	5.500	5.500	5.503	7.000
	75005500125			1 - 1/4	1.375						

# Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	Piston Applications		Shaft Applications				
					C Groove Width	A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
Tolerance Limits					+0.010 -0.000	+0.007 -0.000	+0.000 -0.004	+0.000 -0.011	+0.000 -0.004	+0.007 -0.000	+0.011 -0.000
3/4"	75005750	5 - 3/4	7 - 1/4	3/4	0.825	7.250	7.247	5.750	5.750	5.753	7.250
	75005750125			1 - 1/4	1.375						
	75006000	6	7 - 1/2	3/4	0.825	7.500	7.497	6.000	6.000	6.003	7.500
	75006000125			1 - 1/4	1.375						
	75006250	6 - 1/4	7 - 3/4	3/4	0.825	7.750	7.747	6.250	6.250	6.253	7.750
	75006250125			1 - 1/4	1.375						
	75006500	6 - 1/2	8	3/4	0.825	8.000	7.997	6.500	6.500	6.503	8.000
	75006500125			1 - 1/4	1.375						
	75006750	6 - 3/4	8 - 1/4	3/4	0.825	8.250	8.247	6.750	6.750	6.753	8.250
	75006750125			1 - 1/4	1.375						
	75007000	7	8 - 1/2	3/4	0.825	8.500	8.497	7.000	7.000	7.003	8.500
	75007000125			1 - 1/4	1.375						
	75007250	7 - 1/4	8 - 3/4	3/4	0.825	8.750	8.747	7.250	7.250	7.253	8.750
	75007250125			1 - 1/4	1.375						
	75007500	7 - 1/2	9	3/4	0.825	9.000	8.997	7.500	7.500	7.503	9.000
	75007500125			1 - 1/4	1.375						
	75007750	7 - 3/4	9 - 1/4	3/4	0.825	9.250	9.247	7.750	7.750	7.753	9.250
	75007750125			1 - 1/4	1.375						
	75008000	8	9 - 1/2	3/4	0.825	9.500	9.497	8.000	8.000	8.003	9.500
	75008000125			1 - 1/4	1.375						
	75008250	8 - 1/4	9 - 3/4	3/4	0.825	9.750	9.747	8.250	8.250	8.253	9.750
	75008250125			1 - 1/4	1.375						
	75008500	8 - 1/2	10	3/4	0.825	10.000	9.997	8.500	8.500	8.503	10.000
	75008500125			1 - 1/4	1.375						
	75008750	8 - 3/4	10 - 1/4	3/4	0.825	10.250	10.247	8.750	8.750	8.753	10.250
	75008750125			1 - 1/4	1.375						
	75009000	9	10 - 1/2	3/4	0.825	10.500	10.447	9.000	9.000	9.003	10.500
	75009000125			1 - 1/4	1.375						
	75009250	9 - 1/4	10 - 3/4	3/4	0.825	10.750	10.747	9.250	9.250	9.253	10.750
	75009250125			1 - 1/4	1.375						
	75009500	9 - 1/2	11	3/4	0.825	11.000	10.997	9.500	9.500	9.503	11.000
	75009500125			1 - 1/4	1.375						
	75009750	9 - 3/4	11 - 1/4	3/4	0.825	11.250	11.247	9.750	9.750	9.753	11.250
	75009750125			1 - 1/4	1.375						
	750010000	10	11 - 1/2	3/4	0.825	11.500	11.497	10.000	10.000	10.003	11.500
	750010000125			1 - 1/4	1.375						
	750010500	10 - 1/2	12	3/4	0.825	12.000	11.997	10.500	10.500	10.503	12.000
	750010500125			1 - 1/4	1.375						
	750011000	11	12 - 1/2	3/4	0.825	12.500	12.497	11.000	11.000	11.003	12.500
	750011000125			1 - 1/4	1.375						
	750011500	11 - 1/2	13	3/4	0.825	13.000	12.997	11.500	11.500	11.503	13.000
	750011500125			1 - 1/4	1.375						
	750012000	12	13 - 1/2	3/4	0.825	13.500	13.497	12.000	12.000	12.003	13.500
	750012000125			1 - 1/4	1.375						
	750012500	12 - 1/2	14	3/4	0.825	14.000	13.997	12.500	12.500	12.503	14.000
	750012500125			1 - 1/4	1.375						

Loaded U-Cups

# Loaded U-Cups

IMPERIAL SEALS

Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	C Groove Width	Piston Applications			Shaft Applications			
						A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.	
					<b>Tolerance Limits</b>	<b>+0.010 -0.000</b>	<b>+0.007 -0.000</b>	<b>+0.000 -0.004</b>	<b>+0.000 -0.011</b>	<b>+0.000 -0.004</b>	<b>+0.007 -0.000</b>	<b>+0.011 -0.000</b>
3/4"	750013000	13	14 - 1/2	3/4	0.825	14.500	14.497	13.000	13.000	13.003	14.500	
	750013000125			1 - 1/4	1.375							
	750013500	13 - 1/2	15	3/4	0.825	15.000	14.997	13.500	13.500	13.503	15.000	
	750013500125			1 - 1/4	1.375							
	750014000	14	15 - 1/2	3/4	0.825	15.500	15.497	14.000	14.000	14.003	15.500	
	750014000125			1 - 1/4	1.375							
	750014500	14 - 1/2	16	3/4	0.825	16.000	15.997	14.500	14.500	14.503	16.000	
	750014500125			1 - 1/4	1.375							
	750015000	15	16 - 1/2	3/4	0.825	16.500	16.497	15.000	15.000	15.003	16.500	
	750015000125			1 - 1/4	1.375							
	750015500	15 - 1/2	17	3/4	0.825	17.000	16.997	15.500	15.500	15.503	17.000	
	750015500125			1 - 1/4	1.375							
	750016000	16	17 - 1/2	3/4	0.825	17.500	17.497	16.000	16.000	16.003	17.500	
	750016000125			1 - 1/4	1.375							
	750016500	16 - 1/2	18	3/4	0.825	18.000	17.997	16.500	16.500	16.503	18.000	
	750016500125			1 - 1/4	1.375							
	750017000	17	18 - 1/2	3/4	0.825	18.500	18.497	17.000	17.000	17.003	18.500	
	750017000125			1 - 1/4	1.375							
	750017500	17 - 1/2	19	3/4	0.825	19.000	18.997	17.500	17.500	17.503	19.000	
	750017500125			1 - 1/4	1.375							
	750018000	18	19 - 1/2	3/4	0.825	19.500	19.497	18.000	18.000	18.003	19.500	
	750018000125			1 - 1/4	1.375							
	750018500	18 - 1/2	20	3/4	0.825	20.000	19.997	18.500	18.500	18.503	20.000	
	750018500125			1 - 1/4	1.375							
	750019000	19	20 - 1/2	3/4	0.825	20.500	20.497	19.000	19.000	19.003	20.500	
	750019000125			1 - 1/4	1.375							
	750019500	19 - 1/2	21	3/4	0.825	21.000	20.997	19.500	19.500	19.503	21.000	
	750019500125			1 - 1/4	1.375							
	750020000	20	21 - 1/2	3/4	0.825	21.500	21.497	20.000	20.000	20.003	21.500	
	750020000125			1 - 1/4	1.375							
					<b>Tolerance Limits</b>	<b>+0.010 -0.000</b>	<b>+0.009 -0.000</b>	<b>+0.000 -0.005</b>	<b>+0.000 -0.015</b>	<b>+0.000 -0.005</b>	<b>+0.009 -0.000</b>	<b>+0.015 -0.000</b>
1"	10003000	3	5	1	1.100	5.000	4.996	3.000	3.000	3.004	5.000	
	10003000150			1 - 1/2	1.650							
	10003500	3 - 1/2	5 - 1/2	1	1.100	5.500	5.496	3.500	3.500	3.504	5.500	
	10003500150			1 - 1/2	1.650							
	10004000	4	6	1	1.100	6.000	5.996	4.000	4.000	4.004	6.000	
	10004000150			1 - 1/2	1.650							
	10004500	4 - 1/2	6 - 1/2	1	1.100	6.500	6.496	4.500	4.500	4.504	6.500	
	10004500150			1 - 1/2	1.650							
	10005000	5	7	1	1.100	7.000	6.996	5.000	5.000	5.004	7.000	
	10005000150			1 - 1/2	1.650							
	10005500	5 - 1/2	7 - 1/2	1	1.100	7.500	7.496	5.500	5.500	5.504	7.500	
	10005500150			1 - 1/2	1.650							
	10006000	6	8	1	1.100	8.000	7.996	6.000	6.000	6.004	8.000	
	10006000150			1 - 1/2	1.650							



# Loaded U-Cups

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	C Groove Width	Piston Applications			Shaft Applications		
						A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.
<b>Tolerance Limits</b>					<b>+0.010 -0.000</b>	<b>+0.009 -0.000</b>	<b>+0.000 -0.005</b>	<b>+0.000 -0.015</b>	<b>+0.000 -0.005</b>	<b>+0.009 -0.000</b>	<b>+0.015 -0.000</b>
1"	10006500	6 - 1/2	8 - 1/2	1	1.100	8.500	8.496	6.500	6.500	6.504	8.500
	10006500150			1 - 1/2	1.650						
	10007000	7	9	1	1.100	9.000	8.996	7.000	7.000	7.004	9.000
	10007000150			1 - 1/2	1.650						
	10007500	7 - 1/2	9 - 1/2	1	1.100	9.500	9.496	7.500	7.500	7.504	9.500
	10007500150			1 - 1/2	1.650						
	10008000	8	10	1	1.100	10.000	9.996	8.000	8.000	8.004	10.000
	10008000150			1 - 1/2	1.650						
	10008500	8 - 1/2	10 - 1/2	1	1.100	10.500	10.496	8.500	8.500	8.504	10.500
	10008500150			1 - 1/2	1.650						
	10009000	9	11	1	1.100	11.000	10.996	9.000	9.000	9.004	11.000
	10009000150			1 - 1/2	1.650						
	10009500	9 - 1/2	11 - 1/2	1	1.100	11.500	11.496	9.500	9.500	9.504	11.500
	10009500150			1 - 1/2	1.650						
	100010000	10	12	1	1.100	12.000	11.996	10.000	10.000	10.004	12.000
	100010000150			1 - 1/2	1.650						
	100010500	10 - 1/2	12 - 1/2	1	1.100	12.500	12.496	10.500	10.500	10.504	12.500
	100010500150			1 - 1/2	1.650						
	100011000	11	13	1	1.100	13.000	12.996	11.000	11.000	11.004	13.000
	100011000150			1 - 1/2	1.650						
	100011500	11 - 1/2	13 - 1/2	1	1.100	13.500	13.496	11.500	11.500	11.504	13.500
	100011500150			1 - 1/2	1.650						
	100012000	12	14	1	1.100	14.000	13.996	12.000	12.000	12.004	14.000
	100012000150			1 - 1/2	1.650						
	100012500	12 - 1/2	14 - 1/2	1	1.100	14.500	14.496	12.500	12.500	12.504	14.500
	100012500150			1 - 1/2	1.650						
	100013000	13	15	1	1.100	15.000	14.996	13.000	13.000	13.004	15.000
	100013000150			1 - 1/2	1.650						
	100013500	13 - 1/2	15 - 1/2	1	1.100	15.500	15.496	13.500	13.500	13.504	15.500
	100013500150			1 - 1/2	1.650						
	100014000	14	16	1	1.100	16.000	15.996	14.000	14.000	14.004	16.000
	100014000150			1 - 1/2	1.650						
	100014500	14 - 1/2	16 - 1/2	1	1.100	16.500	16.496	14.500	14.500	14.504	16.500
	100014500150			1 - 1/2	1.650						
	100015000	15	17	1	1.100	17.000	16.996	15.000	15.000	15.004	17.000
	100015000150			1 - 1/2	1.650						
	100015500	15 - 1/2	17 - 1/2	1	1.100	17.500	17.496	15.500	15.500	15.504	17.500
	100015500150			1 - 1/2	1.650						
	100016000	16	18	1	1.100	18.000	17.996	16.000	16.000	16.004	18.000
	100016000150			1 - 1/2	1.650						
	100016500	16 - 1/2	18 - 1/2	1	1.100	18.500	18.496	16.500	16.500	16.504	18.500
	100016500150			1 - 1/2	1.650						
	100017000	17	19	1	1.100	19.000	18.996	17.000	17.000	17.004	19.000
	100017000150			1 - 1/2	1.650						
	100017500	17 - 1/2	19 - 1/2	1	1.100	19.500	19.496	17.500	17.500	17.504	19.500
	100017500150			1 - 1/2	1.650						

Loaded U-Cups

# Loaded U-Cups

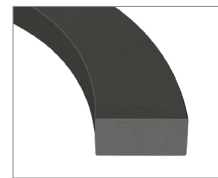
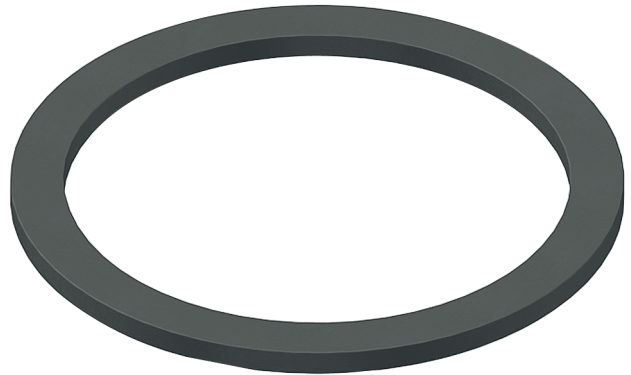
IMPERIAL SEALS

C/S (Width)	Size Number	Nom I.D.	Nom O.D.	Nom Height	C Groove Width	Piston Applications			Shaft Applications			
						A Bore Dia.	D Piston Dia.	B Groove Dia.	E Shaft Dia.	F Throat Dia.	G Groove Dia.	
						<b>+0.010</b> <b>-0.000</b>	<b>+0.009</b> <b>-0.000</b>	<b>+0.000</b> <b>-0.005</b>	<b>+0.000</b> <b>-0.015</b>	<b>+0.000</b> <b>-0.005</b>	<b>+0.009</b> <b>-0.000</b>	<b>+0.015</b> <b>-0.000</b>
1"	100018000	18	20	1	1.100	20.000	19.996	18.000	18.000	18.004	20.000	
	100018000150			1 - 1/2	1.650							
	100018500	18 - 1/2	20 - 1/2	1	1.100	20.500	20.496	18.500	18.500	18.504	20.500	
	100018500150			1 - 1/2	1.650							
	100019000	19	21	1	1.100	21.000	20.996	19.000	19.000	19.004	21.000	
	100019000150			1 - 1/2	1.650							
	100019500	19 - 1/2	21 - 1/2	1	1.100	21.500	21.496	19.500	19.500	19.504	21.500	
	100019500150			1 - 1/2	1.650							
	100020000	20	22	1	1.100	22.000	21.996	20.000	20.000	20.004	22.000	
	100020000150			1 - 1/2	1.650							
	100022000	22	24	1	1.100	24.000	23.996	22.000	22.000	22.004	24.000	
	100022000150			1 - 1/2	1.650							
	100024000	24	26	1	1.100	26.000	25.996	24.000	24.000	24.004	26.000	
	100024000150			1 - 1/2	1.650							
	100026000	26	28	1	1.100	28.000	27.996	26.000	26.000	26.004	28.000	
	100026000150			1 - 1/2	1.650							
	100028000	28	30	1	1.100	30.000	29.996	28.000	28.000	28.004	30.000	
	100028000150			1 - 1/2	1.650							
	100030000	30	32	1	1.100	32.000	31.996	30.000	30.000	30.004	32.000	
	100030000150			1 - 1/2	1.650							
	100032000	32	34	1	1.100	34.000	33.996	32.000	32.000	32.004	34.000	
	100032000150			1 - 1/2	1.650							

Custom sizes available upon request. For more information, contact a Hi-Tech Seals representative.

# Pressure Inverting Pedestal

Materials	Temp. Range		
Urethane	-54°C	to	105°C
Hytrel®	-54°C	to	149°C
Nylon	-30°C	to	93°C
Hydrogenated Nitrile	-40°C	to	160°C
Nitrile	-40°C	to	120°C
Viton™/Fluorocarbon	-26°C	to	204°C
PTFE	-260 °C	to	260°C



LIP



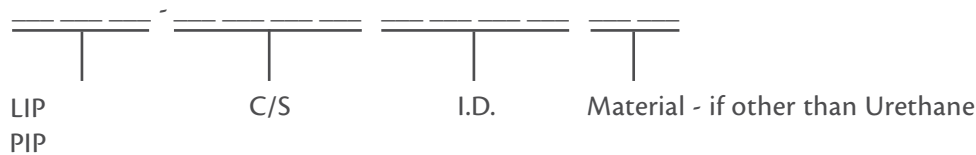
PIP

## Product Description

Pressure inverting pedestals are designed to convert a loaded U-cup into a bi-directional seal for high pressure applications. The LIP profile is rectangular in shape which makes it compatible with both quad loaded and O-ring loaded U-cups. The PIP ring design is only functional in conjunction with an O-ring loaded U-cup. For gland dimension and design information, contact a Hi-Tech Seals representative.

PTFE back-up rings can function as a LIP ring for beveled loaded U-cups in low to medium pressure applications. Consult a Hi-Tech Seals representative before substituting.

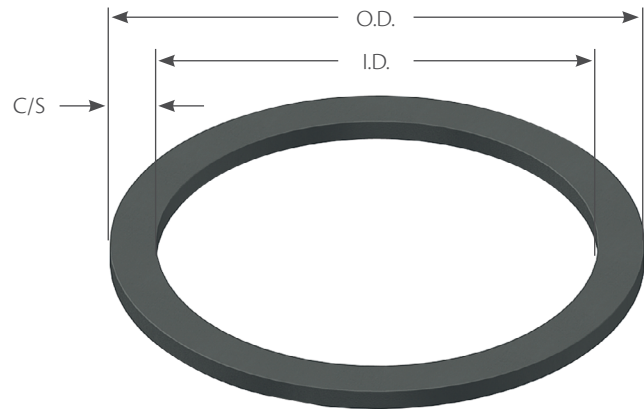
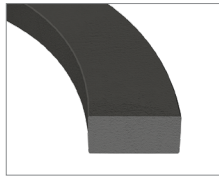
## Part Numbers:



**Example:** PIP 2500 3000 - Urethane PIP Ring, 1/4" C/S, 3" I.D., 3 - 1/2" O.D.

# LIP Rings

IMPERIAL SEALS



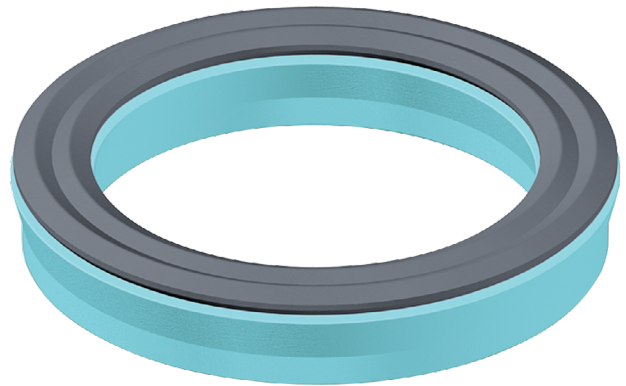
PIP style rings are available in the below sizes and are represented with the prefix PIP.

Part Number	I.D.	O.D.	C/S
LIP 12500437	7/16	11/16	1/8
LIP 12500500	1/2	3/4	1/8
LIP 12500750	3/4	1	1/8
LIP 12501000	1	1 - 1/4	1/8
LIP 12501125	1 - 1/8	1 - 3/8	1/8
LIP 12501250	1 - 1/4	1 - 1/2	1/8
LIP 12501500	1 - 1/2	1 - 3/4	1/8
LIP 12501750	1 - 3/4	2	1/8
LIP 12502000	2	2 - 1/4	1/8
LIP 18700625	5/8	1	3/16
LIP 18700750	3/4	1 - 1/8	3/16
LIP 18700875	7/8	1 - 1/4	3/16
LIP 18700937	15/16	1 - 5/16	3/16
LIP 18701000	1	1 - 3/8	3/16
LIP 18701125	1 - 1/8	1 - 1/2	3/16
LIP 18701250	1 - 1/4	1 - 5/8	3/16
LIP 18701375	1 - 3/8	1 - 3/4	3/16
LIP 18701500	1 - 1/2	1 - 7/8	3/16
LIP 18701625	1 - 5/8	2	3/16
LIP 18701750	1 - 3/4	2 - 1/8	3/16
LIP 18702000	2	2 - 3/8	3/16
LIP 18702375	2 - 3/8	2 - 3/4	3/16
LIP 18702500	2 - 1/2	2 - 7/8	3/16
LIP 18702625	2 - 5/8	3	3/16
LIP 18702750	2 - 3/4	3 - 1/8	3/16
LIP 18703000	3	3 - 3/8	3/16
LIP 18703125	3 - 1/8	3 - 1/2	3/16
LIP 18703250	3 - 1/4	3 - 5/8	3/16
LIP 18703375	3 - 3/8	3 - 3/4	3/16
LIP 18703625	3 - 5/8	4	3/16
LIP 18704000	4	4 - 3/8	3/16
LIP 25001000	1	1 - 1/2	1/4
LIP 25001250	1 - 1/4	1 - 3/4	1/4
LIP 25001500	1 - 1/2	2	1/4
LIP 25001750	1 - 3/4	2 - 1/4	1/4

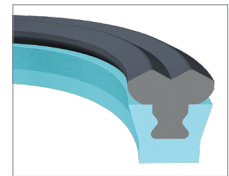
Part Number	I.D.	O.D.	C/S
LIP 25001937	1 - 15/16	2 - 7/16	1/4
LIP 25002000	2	2 - 1/2	1/4
LIP 25002250	2 - 1/4	2 - 3/4	1/4
LIP 25002500	2 - 1/2	3	1/4
LIP 25002750	2 - 3/4	3 - 1/4	1/4
LIP 25002875	2 - 7/8	3 - 3/8	1/4
LIP 25003000	3	3 - 1/2	1/4
LIP 25003250	3 - 1/4	3 - 3/4	1/4
LIP 25003500	3 - 1/2	4	1/4
LIP 25003750	3 - 3/4	4 - 1/4	1/4
LIP 25004000	4	4 - 1/2	1/4
LIP 25004250	4 - 1/4	4 - 3/4	1/4
LIP 25004500	4 - 1/2	5	1/4
LIP 25005000	5	5 - 1/2	1/4
LIP 25005250	5 - 1/4	5 - 3/4	1/4
LIP 25005500	5 - 1/2	6	1/4
LIP 25006000	6	6 - 1/2	1/4
LIP 25006500	6 - 1/2	7	1/4
LIP 25007000	7	7 - 1/2	1/4
LIP 31201875	1 - 7/8	2 - 1/2	5/16
LIP 31202375	2 - 3/8	3	5/16
LIP 31203375	3 - 3/8	4	5/16
LIP 31204375	4 - 3/8	5	5/16
LIP 31204500	4 - 1/2	5 - 1/8	5/16
LIP 31205500	5 - 1/2	6 - 1/8	5/16
LIP 31206375	6 - 3/8	7	5/16
LIP 37502000	2	2 - 3/4	3/8
LIP 37502250	2 - 1/4	3	3/8
LIP 37502500	2 - 1/2	3 - 1/4	3/8
LIP 37502750	2 - 3/4	3 - 1/2	3/8
LIP 37503250	3 - 1/4	4	3/8
LIP 37503500	3 - 1/2	4 - 1/4	3/8
LIP 37503750	3 - 3/4	4 - 1/2	3/8
LIP 37504000	4	4 - 3/4	3/8
LIP 37504250	4 - 1/4	5	3/8

Part Number	I.D.	O.D.	C/S
LIP 37504750	4 - 3/4	5 - 1/2	3/8
LIP 37505250	5 - 1/4	6	3/8
LIP 37505500	5 - 1/2	6 - 1/4	3/8
LIP 37505750	5 - 3/4	6 - 1/2	3/8
LIP 37506250	6 - 1/4	7	3/8
LIP 37506750	6 - 3/4	7 - 1/2	3/8
LIP 37507250	7 - 1/4	8	3/8
LIP 37508250	8 - 1/4	9	3/8
LIP 37508500	8 - 1/2	9 - 1/4	3/8
LIP 37508750	8 - 3/4	9 - 1/2	3/8
LIP 375014250	14 - 1/4	15	3/8
LIP 375019250	19 - 1/4	20	3/8
LIP 50003500	3 - 1/2	4 - 1/2	1/2
LIP 50004000	4	5	1/2
LIP 50005000	5	6	1/2
LIP 50005250	5 - 1/4	6 - 1/4	1/2
LIP 50006000	6	7	1/2
LIP 50007000	7	8	1/2
LIP 50008000	8	9	1/2
LIP 50009000	9	10	1/2
LIP 50009500	9 - 1/2	10 - 1/2	1/2
LIP 500011000	11	12	1/2
LIP 500011875	11 - 7/8	12 - 7/8	1/2
LIP 500014000	14	15	1/2
LIP 500015000	15	16	1/2
LIP 500019000	19	20	1/2
LIP 500020000	20	21	1/2
LIP 500020250	20 - 1/4	21 - 1/4	1/2
LIP 500021000	21	22	1/2
LIP 500024500	24 - 1/2	25 - 1/2	1/2
LIP 500026500	26 - 1/2	27 - 1/2	1/2
LIP 62507000	7	8 - 1/4	5/8
LIP 62507250	7 - 1/4	8 - 1/2	5/8
LIP 62507500	7 - 1/2	8 - 3/4	5/8

Seal Materials	Temp. Range
Nitrile	-40°C to 120°C
Low Temp. Nitrile	-54°C to 116°C
Viton™/Fluorocarbon	-26°C to 204°C
Base Materials	
Urethane	-54°C to 105°C
Hytrel®	-54°C to 149°C



Additional compounds are available upon request, including: carboxylated nitrile, hydrogenated nitrile, EPDM, TFE/P, and PTFE.



## Product Description

DZ seals, also known as deep Z-seals, are primarily used for heavy-duty rod applications. These seals combine excellent sealability, low compression set, and superior anti-extrusion characteristics compared to other lip seals. Under low-pressure conditions, the sealing provides its own compressive seal force. As the pressure increases, hydrostatic pressure is mechanically transmitted through the elastomer seal element into the anti-extrusion base. The applied force then deflects radially in a controlled manner, closing the extrusion gap behind the sealing lip. DZ seals are also effective in compensating for high shock loads, such as bucket impacts.

DZ seals have various configurations designed to accommodate standard grooves and dimensions within normal manufacturing tolerances. These seals fit into standard deep-loaded U-cup glands. For groove dimensions, please refer to the loaded U-cup section.

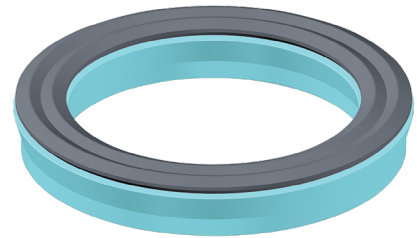
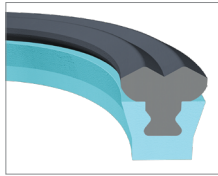
## Part Numbers:



**Example:** Z 5000 3000 750 - Urethane Base, Nitrile Seal Lip, Deep Z-Seal, ½” C/S, 3” I.D., ¾” Height

# DZ Seals

IMPERIAL SEALS



DZ seal part numbers are based on a nitrile sealing lip and a urethane base.

C/S	Part Number	Nominal		Height
		I.D.	O.D.	
1/8"	Z 12500125250	1/8	3/8	1/4
	Z 12500187250	3/16	7/16	1/4
	Z 12500250250	1/4	1/2	1/4
	Z 12500312250	5/16	9/16	1/4
	Z 12500375250	3/8	5/8	1/4
	Z 12500437250	7/16	11/16	1/4
	Z 12500500250	1/2	3/4	1/4
	Z 12500562250	9/16	13/16	1/4
	Z 12500625250	5/8	7/8	1/4
	Z 12500687250	11/16	15/16	1/4
	Z 12500750250	3/4	1	1/4
	Z 12500812250	13/16	1 - 1/16	1/4
	Z 12500875250	7/8	1 - 1/8	1/4
	Z 12500937250	15/16	1 - 3/16	1/4
	Z 12501000250	1	1 - 1/4	1/4
	Z 12501062250	1 - 1/16	1 - 5/16	1/4
	Z 12501125250	1 - 1/8	1 - 3/8	1/4
	Z 12501187250	1 - 3/16	1 - 7/16	1/4
	Z 12501250250	1 - 1/4	1 - 1/2	1/4
	Z 12501312250	1 - 5/16	1 - 9/16	1/4
Z 12501375250	1 - 3/8	1 - 5/8	1/4	
Z 12501437250	1 - 7/16	1 - 11/16	1/4	
Z 12501500250	1 - 1/2	1 - 3/4	1/4	
Z 12501625250	1 - 5/8	1 - 7/8	1/4	
Z 12501750250	1 - 3/4	2	1/4	
Z 12501875250	1 - 7/8	2 - 1/8	1/4	
Z 12502000250	2	2 - 1/4	1/4	
Z 12502125250	2 - 1/8	2 - 3/8	1/4	
Z 12502250250	2 - 1/4	2 - 1/2	1/4	
Z 12502375250	2 - 3/8	2 - 5/8	1/4	
Z 12502500250	2 - 1/2	2 - 3/4	1/4	
3/16"	Z 18700187312	3/16	9/16	5/16
	Z 18700250312	1/4	5/8	5/16
	Z 18700312312	5/16	11/16	5/16
	Z 18700375312	3/8	3/4	5/16

C/S	Part Number	Nominal		Height
		I.D.	O.D.	
3/16"	Z 18700437312	7/16	13/16	5/16
	Z 18700500312	1/2	7/8	5/16
	Z 18700562312	9/16	15/16	5/16
	Z 18700625312	5/8	1	5/16
	Z 18700687312	11/16	1 - 1/16	5/16
	Z 18700750312	3/4	1 - 1/8	5/16
	Z 18700812312	13/16	1 - 3/16	5/16
	Z 18700875312	7/8	1 - 1/4	5/16
	Z 18700937312	15/16	1 - 5/16	5/16
	Z 18701000312	1	1 - 3/8	5/16
	Z 18701062312	1 - 1/16	1 - 7/16	5/16
	Z 18701125312	1 - 1/8	1 - 1/2	5/16
	Z 18701187312	1 - 3/16	1 - 9/16	5/16
	Z 18701250312	1 - 1/4	1 - 5/8	5/16
	Z 18701312312	1 - 5/16	1 - 11/16	5/16
	Z 18701375312	1 - 3/8	1 - 3/4	5/16
	Z 18701437312	1 - 7/16	1 - 13/16	5/16
	Z 18701500375	1 - 1/2	1 - 7/8	3/8
	Z 18701625375	1 - 5/8	2	3/8
	Z 18701687375	1 - 11/16	2 - 1/16	3/8
	Z 18701750375	1 - 3/4	2 - 1/8	3/8
	Z 18701875375	1 - 7/8	2 - 1/4	3/8
	Z 18702000375	2	2 - 3/8	3/8
	Z 18702125375	2 - 1/8	2 - 1/2	3/8
	Z 18702250375	2 - 1/4	2 - 5/8	3/8
	Z 18702375375	2 - 3/8	2 - 3/4	3/8
	Z 18702500375	2 - 1/2	2 - 7/8	3/8
	Z 18702625375	2 - 5/8	3	3/8
	Z 18702750375	2 - 3/4	3 - 1/8	3/8
	Z 18702875375	2 - 7/8	3 - 1/4	3/8
Z 18703000375	3	3 - 3/8	3/8	
Z 18703125375	3 - 1/8	3 - 1/2	3/8	
Z 18703250375	3 - 1/4	3 - 5/8	3/8	
Z 18703375375	3 - 3/8	3 - 3/4	3/8	
Z 18703500375	3 - 1/2	3 - 7/8	3/8	

C/S	Part Number	Nominal		Height	
		I.D.	O.D.		
3/16"	Z 18703625375	3 - 5/8	4	3/8	
	Z 18703750375	3 - 3/4	4 - 1/8	3/8	
	Z 18703875375	3 - 7/8	4 - 1/4	3/8	
	Z 18704000375	4	4 - 3/8	3/8	
	Z 18704125375	4 - 1/8	4 - 1/2	3/8	
	Z 18704250375	4 - 1/4	4 - 5/8	3/8	
	Z 18704375375	4 - 3/8	4 - 3/4	3/8	
	Z 18704500375	4 - 1/2	4 - 7/8	3/8	
	1/4"	Z 25000250375	1/4	3/4	3/8
		Z 25000312375	5/16	13/16	3/8
Z 25000375375		3/8	7/8	3/8	
Z 25000437375		7/16	15/16	3/8	
Z 25000500375		1/2	1	3/8	
Z 25000562375		9/16	1 - 1/16	3/8	
Z 25000625375		5/8	1 - 1/8	3/8	
Z 25000687375		11/16	1 - 3/16	3/8	
Z 25000750375		3/4	1 - 1/4	3/8	
Z 25000812375		13/16	1 - 5/16	3/8	
Z 25000875375		7/8	1 - 3/8	3/8	
Z 25000937375		15/16	1 - 7/16	3/8	
Z 25001000375		1	1 - 1/2	3/8	
Z 25001062375		1 - 1/16	1 - 9/16	3/8	
Z 25001125375		1 - 1/8	1 - 5/8	3/8	
Z 25001187375		1 - 3/16	1 - 11/16	3/8	
Z 25001250375		1 - 1/4	1 - 3/4	3/8	
Z 25001312375		1 - 5/16	1 - 13/16	3/8	
Z 25001375375		1 - 3/8	1 - 7/8	3/8	
Z 25001437375		1 - 7/16	1 - 15/16	3/8	
Z 25001500375		1 - 1/2	2	3/8	
Z 25001625375		1 - 5/8	2 - 1/8	3/8	
Z 25001750375		1 - 3/4	2 - 1/4	3/8	
Z 25001875375		1 - 7/8	2 - 3/8	3/8	
Z 25002000375		2	2 - 1/2	3/8	
Z 25002125375		2 - 1/8	2 - 5/8	3/8	
Z 25002250375		2 - 1/4	2 - 3/4	3/8	
Z 25002375375		2 - 3/8	2 - 7/8	3/8	
Z 25002500375		2 - 1/2	3	3/8	
Z 25002625375		2 - 5/8	3 - 1/8	3/8	
Z 25002750375		2 - 3/4	3 - 1/4	3/8	
Z 25003250375		3 - 1/4	3 - 3/4	3/8	
Z 25003375375		3 - 3/8	3 - 7/8	3/8	
Z 25003500375		3 - 1/2	4	3/8	
Z 25003625375		3 - 5/8	4 - 1/8	3/8	

C/S	Part Number	Nominal		Height	
		I.D.	O.D.		
1/4"	Z 25003750375	3 - 3/4	4 - 1/4	3/8	
	Z 25004000562	4	4 - 1/2	9/16	
	Z 25004125562	4 - 1/8	4 - 5/8	9/16	
	Z 25004250562	4 - 1/4	4 - 3/4	9/16	
	Z 25004375562	4 - 3/8	4 - 7/8	9/16	
	Z 25004500562	4 - 1/2	5	9/16	
	Z 25004625562	4 - 5/8	5 - 1/8	9/16	
	Z 25004750562	4 - 3/4	5 - 1/4	9/16	
	Z 25004875562	4 - 7/8	5 - 3/8	9/16	
	Z 25005000562	5	5 - 1/2	9/16	
	Z 25005125562	5 - 1/8	5 - 5/8	9/16	
	Z 25005250562	5 - 1/4	5 - 3/4	9/16	
	Z 25005375562	5 - 3/8	5 - 7/8	9/16	
	Z 25005500562	5 - 1/2	6	9/16	
	Z 25005625562	5 - 5/8	6 - 1/8	9/16	
	Z 25005750562	5 - 3/4	6 - 1/4	9/16	
	Z 25005875562	5 - 7/8	6 - 3/8	9/16	
	Z 25006000562	6	6 - 1/2	9/16	
	Z 25006250562	6 - 1/4	6 - 3/4	9/16	
	Z 25006500562	6 - 1/2	7	9/16	
	Z 25006750562	6 - 3/4	7 - 1/4	9/16	
	Z 25007000562	7	7 - 1/2	9/16	
	Z 25007250562	7 - 1/4	7 - 3/4	9/16	
	Z 25007500562	7 - 1/2	8	9/16	
	Z 25007750562	7 - 3/4	8 - 1/4	9/16	
	Z 25008000562	8	8 - 1/2	9/16	
	Z 25008250562	8 - 1/4	8 - 3/4	9/16	
	Z 25008500562	8 - 1/2	9	9/16	
	Z 25008750562	8 - 3/4	9 - 1/4	9/16	
	Z 25009000562	9	9 - 1/2	9/16	
	Z 25009250562	9 - 1/4	9 - 3/4	9/16	
	Z 25009500562	9 - 1/2	10	9/16	
	Z 25009750562	9 - 3/4	10 - 1/4	9/16	
	Z 250010000562	10	10 - 1/2	9/16	
	5/16"	Z 31200375500	3/8	1	1/2
		Z 31200437500	7/16	1 - 1/16	1/2
		Z 31200500500	1/2	1 - 1/8	1/2
		Z 31200562500	9/16	1 - 3/16	1/2
		Z 31200625500	5/8	1 - 1/4	1/2
		Z 31200687500	11/16	1 - 5/16	1/2
Z 31200750500		3/4	1 - 3/8	1/2	
Z 31200812500		13/16	1 - 7/16	1/2	
Z 31200875500	7/8	1 - 1/2	1/2		

C/S	Part Number	Nominal		
		I.D.	O.D.	Height
5/16"	Z 31200937500	15/16	1 - 9/16	1/2
	Z 31201000500	1	1 - 5/8	1/2
	Z 31201062500	1 - 1/16	1 - 11/16	1/2
	Z 31201125500	1 - 1/8	1 - 3/4	1/2
	Z 31201187500	1 - 3/16	1 - 13/16	1/2
	Z 31201250500	1 - 1/4	1 - 7/8	1/2
	Z 31201312500	1 - 5/16	1 - 15/16	1/2
	Z 31201375500	1 - 3/8	2	1/2
	Z 31201437500	1 - 7/16	2 - 1/16	1/2
	Z 31201500500	1 - 1/2	2 - 1/8	1/2
	Z 31201625500	1 - 5/8	2 - 1/4	1/2
	Z 31201750500	1 - 3/4	2 - 3/8	1/2
	Z 31201875500	1 - 7/8	2 - 1/2	1/2
	Z 31202000500	2	2 - 5/8	1/2
	Z 31202125500	2 - 1/8	2 - 3/4	1/2
	Z 31202250500	2 - 1/4	2 - 7/8	1/2
	Z 31202375500	2 - 3/8	3	1/2
	Z 31202500500	2 - 1/2	3 - 1/8	1/2
	Z 31202625500	2 - 5/8	3 - 1/4	1/2
	Z 31202750500	2 - 3/4	3 - 3/8	1/2
	Z 31202875500	2 - 7/8	3 - 1/2	1/2
	Z 31203000500	3	3 - 5/8	1/2
	Z 31203125500	3 - 1/8	3 - 3/4	1/2
	Z 31203250500	3 - 1/4	3 - 7/8	1/2
	Z 31203375500	3 - 3/8	4	1/2
	Z 31203500500	3 - 1/2	4 - 1/8	1/2
	Z 31203625500	3 - 5/8	4 - 1/4	1/2
	Z 31203750500	3 - 3/4	4 - 3/8	1/2
	Z 31203875500	3 - 7/8	4 - 1/2	1/2
	Z 31204000562	4	4 - 5/8	9/16
	Z 31204125562	4 - 1/8	4 - 3/4	9/16
	Z 31204250562	4 - 1/4	4 - 7/8	9/16
	Z 31204375562	4 - 3/8	5	9/16
	Z 31204500625	4 - 1/2	5 - 1/8	5/8
	Z 31204625625	4 - 5/8	5 - 1/4	5/8
	Z 31204750625	4 - 3/4	5 - 3/8	5/8
	Z 31204875625	4 - 7/8	5 - 1/2	5/8
	Z 31205000625	5	5 - 5/8	5/8
	Z 31205125625	5 - 1/8	5 - 3/4	5/8
	Z 31205250625	5 - 1/4	5 - 7/8	5/8
	Z 31205375625	5 - 3/8	6	5/8
	Z 31205500625	5 - 1/2	6 - 1/8	5/8
	Z 31205625625	5 - 5/8	6 - 1/4	5/8

C/S	Part Number	Nominal		
		I.D.	O.D.	Height
5/16"	Z 31205750625	5 - 3/4	6 - 3/8	5/8
	Z 31205875625	5 - 7/8	6 - 1/2	5/8
	Z 31206000625	6	6 - 5/8	5/8
	Z 31206125625	6 - 1/8	6 - 3/4	5/8
	Z 31206250625	6 - 1/4	6 - 7/8	5/8
	Z 31206375625	6 - 3/8	7	5/8
	Z 31206500625	6 - 1/2	7 - 1/8	5/8
	Z 31206625625	6 - 5/8	7 - 1/4	5/8
	Z 31206750625	6 - 3/4	7 - 3/8	5/8
	Z 31206875625	6 - 7/8	7 - 1/2	5/8
	Z 31207000625	7	7 - 5/8	5/8
	Z 31207125625	7 - 1/8	7 - 3/4	5/8
	Z 31207250625	7 - 1/4	7 - 7/8	5/8
	Z 31207375625	7 - 3/8	8	5/8
3/8"	Z 37500500625	1/2	1 - 1/4	5/8
	Z 37500562625	9/16	1 - 5/16	5/8
	Z 37500625625	5/8	1 - 3/8	5/8
	Z 37500687625	11/16	1 - 7/16	5/8
	Z 37500750625	3/4	1 - 1/2	5/8
	Z 37500812625	13/16	1 - 9/16	5/8
	Z 37500875625	7/8	1 - 5/8	5/8
	Z 37500937625	15/16	1 - 11/16	5/8
	Z 37501000625	1	1 - 3/4	5/8
	Z 37501062625	1 - 1/16	1 - 13/16	5/8
	Z 37501125625	1 - 1/8	1 - 7/8	5/8
	Z 37501187625	1 - 3/16	1 - 15/16	5/8
	Z 37501250625	1 - 1/4	2	5/8
	Z 37501312625	1 - 5/16	2 - 1/16	5/8
	Z 37501375625	1 - 3/8	2 - 1/8	5/8
	Z 37501437625	1 - 7/16	2 - 3/16	5/8
	Z 37501500625	1 - 1/2	2 - 1/4	5/8
	Z 37501625625	1 - 5/8	2 - 3/8	5/8
	Z 37501750625	1 - 3/4	2 - 1/2	5/8
	Z 37501875625	1 - 7/8	2 - 5/8	5/8
	Z 37502000625	2	2 - 3/4	5/8
	Z 37502125625	2 - 1/8	2 - 7/8	5/8
	Z 37502250625	2 - 1/4	3	5/8
	Z 37502375625	2 - 3/8	3 - 1/8	5/8
	Z 37502500625	2 - 1/2	3 - 1/4	5/8
	Z 37502625625	2 - 5/8	3 - 3/8	5/8
	Z 37502750625	2 - 3/4	3 - 1/2	5/8
	Z 37502875625	2 - 7/8	3 - 5/8	5/8
	Z 37503000625	3	3 - 3/4	5/8



C/S	Part Number	Nominal		
		I.D.	O.D.	Height
3/8"	Z 37503125625	3 - 1/8	3 - 7/8	5/8
	Z 37503250625	3 - 1/4	4	5/8
	Z 37503375625	3 - 3/8	4 - 1/8	5/8
	Z 37503500625	3 - 1/2	4 - 1/4	5/8
	Z 37503625625	3 - 5/8	4 - 3/8	5/8
	Z 37503750625	3 - 3/4	4 - 1/2	5/8
	Z 37503875625	3 - 7/8	4 - 5/8	5/8
	Z 37504000625	4	4 - 3/4	5/8
	Z 37504125625	4 - 1/8	4 - 7/8	5/8
	Z 37504250625	4 - 1/4	5	5/8
	Z 37504375625	4 - 3/8	5 - 1/8	5/8
	Z 37504500625	4 - 1/2	5 - 1/4	5/8
	Z 37504625625	4 - 5/8	5 - 3/8	5/8
	Z 37504750625	4 - 3/4	5 - 1/2	5/8
	Z 37504875625	4 - 7/8	5 - 5/8	5/8
	Z 37505000625	5	5 - 3/4	5/8
	Z 37505125625	5 - 1/8	5 - 7/8	5/8
	Z 37505250625	5 - 1/4	6	5/8
	Z 37505375625	5 - 3/8	6 - 1/8	5/8
	Z 37505500625	5 - 1/2	6 - 1/4	5/8
	Z 37505625625	5 - 5/8	6 - 3/8	5/8
	Z 37505750625	5 - 3/4	6 - 1/2	5/8
	Z 37505875625	5 - 7/8	6 - 5/8	5/8
	Z 37506000625	6	6 - 3/4	5/8
	Z 37506250625	6 - 1/4	7	5/8
	Z 37506500625	6 - 1/2	7 - 1/4	5/8
	Z 37506750625	6 - 3/4	7 - 1/2	5/8
	Z 37507000625	7	7 - 3/4	5/8
	Z 37507250625	7 - 1/4	8	5/8
	Z 37507500625	7 - 1/2	8 - 1/4	5/8
	Z 37507750625	7 - 3/4	8 - 1/2	5/8
	Z 37508000625	8	8 - 3/4	5/8
	Z 37508250625	8 - 1/4	9	5/8
	Z 37508500625	8 - 1/2	9 - 1/4	5/8
	Z 37508750625	8 - 3/4	9 - 1/2	5/8
	Z 37509000625	9	9 - 3/4	5/8
	Z 37509250625	9 - 1/4	10	5/8
	Z 37509500625	9 - 1/2	10 - 1/4	5/8
	Z 37509750625	9 - 3/4	10 - 1/2	5/8
	Z 37510000625	10	10 - 3/4	5/8
	Z 37510250625	10 - 1/4	11	5/8
	Z 37510500625	10 - 1/2	11 - 1/4	5/8
	Z 37510750625	10 - 3/4	11 - 1/2	5/8

C/S	Part Number	Nominal		
		I.D.	O.D.	Height
3/8"	Z 375011000625	11	11 - 3/4	5/8
	Z 375011250625	11 - 1/4	12	5/8
	Z 375011500625	11 - 1/2	12 - 1/4	5/8
	Z 375011750625	11 - 3/4	12 - 1/2	5/8
	Z 375012000625	12	12 - 3/4	5/8
1/2"	Z 50001000750	1	2	3/4
	Z 50001250750	1 - 1/4	2 - 1/4	3/4
	Z 50001375750	1 - 3/8	2 - 3/8	3/4
	Z 50001500750	1 - 1/2	2 - 1/2	3/4
	Z 50001750750	1 - 3/4	2 - 3/4	3/4
	Z 50002000750	2	3	3/4
	Z 50002250750	2 - 1/4	3 - 1/4	3/4
	Z 50002375750	2 - 3/8	3 - 3/8	3/4
	Z 50002500750	2 - 1/2	3 - 1/2	3/4
	Z 50002750750	2 - 3/4	3 - 3/4	3/4
	Z 50003000750	3	4	3/4
	Z 50003250750	3 - 1/4	4 - 1/4	3/4
	Z 50003500750	3 - 1/2	4 - 1/2	3/4
	Z 50003750750	3 - 3/4	4 - 3/4	3/4
	Z 50004000750	4	5	3/4
	Z 50004250750	4 - 1/4	5 - 1/4	3/4
	Z 50004375750	4 - 3/8	5 - 3/8	3/4
	Z 50004500750	4 - 1/2	5 - 1/2	3/4
	Z 50004750750	4 - 3/4	5 - 3/4	3/4
	Z 50005000750	5	6	3/4
	Z 50005250750	5 - 1/4	6 - 1/4	3/4
	Z 50005375750	5 - 3/8	6 - 3/8	3/4
	Z 50005500750	5 - 1/2	6 - 1/2	3/4
	Z 50005750750	5 - 3/4	6 - 3/4	3/4
	Z 50006000750	6	7	3/4
	Z 50006250750	6 - 1/4	7 - 1/4	3/4
	Z 50006500750	6 - 1/2	7 - 1/2	3/4
	Z 50006750750	6 - 3/4	7 - 3/4	3/4
	Z 50007000750	7	8	3/4
	Z 50007250750	7 - 1/4	8 - 1/4	3/4
	Z 50007500750	7 - 1/2	8 - 1/2	3/4
	Z 50007750750	7 - 3/4	8 - 3/4	3/4
	Z 50008000750	8	9	3/4
	Z 50008250750	8 - 1/4	9 - 1/4	3/4
	Z 50008500750	8 - 1/2	9 - 1/2	3/4
	Z 50008750750	8 - 3/4	9 - 3/4	3/4
	Z 50009000750	9	10	3/4
	Z 50009250750	9 - 1/4	10 - 1/4	3/4

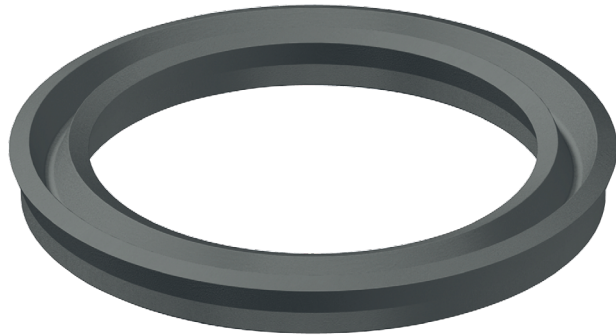
C/S	Part Number	Nominal		
		I.D.	O.D.	Height
1/2"	Z 50009500750	9 - 1/2	10 - 1/2	3/4
	Z 50009750750	9 - 3/4	10 - 3/4	3/4
	Z 500010000750	10	11	3/4
	Z 500010500750	10 - 1/2	11 - 1/2	3/4
	Z 500011000750	11	12	3/4
	Z 500011500750	11 - 1/2	12 - 1/2	3/4
	Z 500012000750	12	13	3/4
	Z 500012500750	12 - 1/2	13 - 1/2	3/4
	Z 500013000750	13	14	3/4
	Z 500013500750	13 - 1/2	14 - 1/2	3/4
	Z 500014000750	14	15	3/4
	Z 500014500750	14 - 1/2	15 - 1/2	3/4
	Z 500015000750	15	16	3/4
5/8"	Z 62501250100	1 - 1/4	2 - 1/2	1
	Z 62501375100	1 - 3/8	2 - 5/8	1
	Z 62501500100	1 - 1/2	2 - 3/4	1
	Z 62501750100	1 - 3/4	3	1
	Z 62502000100	2	3 - 1/4	1
	Z 62502250100	2 - 1/4	3 - 1/2	1
	Z 62502500100	2 - 1/2	3 - 3/4	1
	Z 62502750100	2 - 3/4	4	1
	Z 62503000100	3	4 - 1/4	1
	Z 62503250100	3 - 1/4	4 - 1/2	1
	Z 62503500100	3 - 1/2	4 - 3/4	1
	Z 62503750100	3 - 3/4	5	1
	Z 62504000100	4	5 - 1/4	1
	Z 62504250100	4 - 1/4	5 - 1/2	1
	Z 62504500100	4 - 1/2	5 - 3/4	1
	Z 62504750100	4 - 3/4	6	1
	Z 62505000100	5	6 - 1/4	1
	Z 62505250100	5 - 1/4	6 - 1/2	1
	Z 62505500100	5 - 1/2	6 - 3/4	1
	Z 62505750100	5 - 3/4	7	1
	Z 62506000100	6	7 - 1/4	1
	Z 62506250100	6 - 1/4	7 - 1/2	1
	Z 62506500100	6 - 1/2	7 - 3/4	1
	Z 62506750100	6 - 3/4	8	1
	Z 62507000100	7	8 - 1/4	1
	Z 62507250100	7 - 1/4	8 - 1/2	1
	Z 62507500100	7 - 1/2	8 - 3/4	1
	Z 62507750100	7 - 3/4	9	1
	Z 62508000100	8	9 - 1/4	1
	Z 62508250100	8 - 1/4	9 - 1/2	1

C/S	Part Number	Nominal		
		I.D.	O.D.	Height
5/8"	Z 62508500100	8 - 1/2	9 - 3/4	1
	Z 62508750100	8 - 3/4	10	1
	Z 62509000100	9	10 - 1/4	1
	Z 62509250100	9 - 1/4	10 - 1/2	1
	Z 62509500100	9 - 1/2	10 - 3/4	1
	Z 62509750100	9 - 3/4	11	1
	Z 625010000100	10	11 - 1/4	1
	Z 625010250100	10 - 1/4	11 - 1/2	1
	Z 625010500100	10 - 1/2	11 - 3/4	1
	Z 625010750100	10 - 3/4	12	1
	Z 625011000100	11	12 - 1/4	1
	Z 625011250100	11 - 1/4	12 - 1/2	1
	Z 625011500100	11 - 1/2	12 - 3/4	1
	Z 625011750100	11 - 3/4	13	1
	Z 625012000100	12	13 - 1/4	1
	Z 625012250100	12 - 1/4	13 - 1/2	1
	Z 625012500100	12 - 1/2	13 - 3/4	1
	Z 625012750100	12 - 3/4	14	1
	Z 625013000100	13	14 - 1/4	1
	Z 625013250100	13 - 1/4	14 - 1/2	1
	Z 625013500100	13 - 1/2	14 - 3/4	1
	Z 625013750100	13 - 3/4	15	1
	Z 625014000100	14	15 - 1/4	1
	Z 625014250100	14 - 1/4	15 - 1/2	1
	Z 625014500100	14 - 1/2	15 - 3/4	1
	Z 625014750100	14 - 3/4	16	1
	Z 625015000100	15	16 - 1/4	1
	Z 625015500100	15 - 1/2	16 - 3/4	1
	Z 625016000100	16	17 - 1/4	1
	Z 625016500100	16 - 1/2	17 - 3/4	1
	Z 625017000100	17	18 - 1/4	1
	Z 625017500100	17 - 1/2	18 - 3/4	1
	Z 625018000100	18	19 - 1/4	1
3/4"	Z 75003000125	3	4 - 1/2	1 - 1/4
	Z 75003250125	3 - 1/4	4 - 3/4	1 - 1/4
	Z 75003500125	3 - 1/2	5	1 - 1/4
	Z 75003750125	3 - 3/4	5 - 1/4	1 - 1/4
	Z 75004000125	4	5 - 1/2	1 - 1/4
	Z 75004250125	4 - 1/4	5 - 3/4	1 - 1/4
	Z 75004500125	4 - 1/2	6	1 - 1/4
	Z 75004750125	4 - 3/4	6 - 1/4	1 - 1/4
	Z 75005000125	5	6 - 1/2	1 - 1/4
	Z 75005250125	5 - 1/4	6 - 3/4	1 - 1/4

C/S	Part Number	Nominal		
		I.D.	O.D.	Height
3/4"	Z 75005500125	5 - 1/2	7	1 - 1/4
	Z 75005750125	5 - 3/4	7 - 1/4	1 - 1/4
	Z 75006000125	6	7 - 1/2	1 - 1/4
	Z 75006250125	6 - 1/4	7 - 3/4	1 - 1/4
	Z 75006500125	6 - 1/2	8	1 - 1/4
	Z 75006750125	6 - 3/4	8 - 1/4	1 - 1/4
	Z 75007000125	7	8 - 1/2	1 - 1/4
	Z 75007250125	7 - 1/4	8 - 3/4	1 - 1/4
	Z 75007500125	7 - 1/2	9	1 - 1/4
	Z 75007750125	7 - 3/4	9 - 1/4	1 - 1/4
	Z 75008000125	8	9 - 1/2	1 - 1/4
	Z 75008250125	8 - 1/4	9 - 3/4	1 - 1/4
	Z 75008500125	8 - 1/2	10	1 - 1/4
	Z 75008750125	8 - 3/4	10 - 1/4	1 - 1/4
	Z 75009000125	9	10 - 1/2	1 - 1/4
	Z 75009250125	9 - 1/4	10 - 3/4	1 - 1/4
	Z 75009500125	9 - 1/2	11	1 - 1/4
	Z 75009750125	9 - 3/4	11 - 1/4	1 - 1/4
	Z 750010000125	10	11 - 1/2	1 - 1/4
	Z 750010500125	10 - 1/2	12	1 - 1/4
	Z 750011000125	11	12 - 1/2	1 - 1/4
	Z 750011500125	11 - 1/2	13	1 - 1/4
	Z 750012000125	12	13 - 1/2	1 - 1/4
	Z 750012500125	12 - 1/2	14	1 - 1/4
	Z 750013000125	13	14 - 1/2	1 - 1/4
	Z 750013500125	13 - 1/2	15	1 - 1/4
	Z 750014000125	14	15 - 1/2	1 - 1/4
	Z 750014500125	14 - 1/2	16	1 - 1/4
	Z 750015000125	15	16 - 1/2	1 - 1/4
	Z 750015500125	15 - 1/2	17	1 - 1/4
	Z 750016000125	16	17 - 1/2	1 - 1/4
	Z 750016500125	16 - 1/2	18	1 - 1/4
	Z 750017000125	17	18 - 1/2	1 - 1/4
	Z 750017500125	17 - 1/2	19	1 - 1/4
	Z 750018000125	18	19 - 1/2	1 - 1/4
	Z 750018500125	18 - 1/2	20	1 - 1/4
	Z 750019000125	19	20 - 1/2	1 - 1/4
	Z 750019500125	19 - 1/2	21	1 - 1/4
	Z 750020000125	20	21 - 1/2	1 - 1/4
1"	Z 10003000150	3	5	1 - 1/2
	Z 10003500150	3 - 1/2	5 - 1/2	1 - 1/2
	Z 10004000150	4	6	1 - 1/2
	Z 10004500150	4 - 1/2	6 - 1/2	1 - 1/2

C/S	Part Number	Nominal		
		I.D.	O.D.	Height
1"	Z 10005000150	5	7	1 - 1/2
	Z 10005500150	5 - 1/2	7 - 1/2	1 - 1/2
	Z 10006000150	6	8	1 - 1/2
	Z 10006500150	6 - 1/2	8 - 1/2	1 - 1/2
	Z 10007000150	7	9	1 - 1/2
	Z 10007500150	7 - 1/2	9 - 1/2	1 - 1/2
	Z 10008000150	8	10	1 - 1/2
	Z 10008500150	8 - 1/2	10 - 1/2	1 - 1/2
	Z 10009000150	9	11	1 - 1/2
	Z 10009500150	9 - 1/2	11 - 1/2	1 - 1/2
	Z 100010000150	10	12	1 - 1/2
	Z 100010500150	10 - 1/2	12 - 1/2	1 - 1/2
	Z 100011000150	11	13	1 - 1/2
	Z 100011500150	11 - 1/2	13 - 1/2	1 - 1/2
	Z 100012000150	12	14	1 - 1/2
	Z 100012500150	12 - 1/2	14 - 1/2	1 - 1/2
	Z 100013000150	13	15	1 - 1/2
	Z 100013500150	13 - 1/2	15 - 1/2	1 - 1/2
	Z 100014000150	14	16	1 - 1/2
	Z 100014500150	14 - 1/2	16 - 1/2	1 - 1/2
	Z 100015000150	15	17	1 - 1/2
	Z 100015500150	15 - 1/2	17 - 1/2	1 - 1/2
	Z 100016000150	16	18	1 - 1/2
	Z 100016500150	16 - 1/2	18 - 1/2	1 - 1/2
	Z 100017000150	17	19	1 - 1/2
	Z 100017500150	17 - 1/2	19 - 1/2	1 - 1/2
	Z 100018000150	18	20	1 - 1/2
	Z 100018500150	18 - 1/2	20 - 1/2	1 - 1/2
	Z 100019000150	19	21	1 - 1/2
	Z 100019500150	19 - 1/2	21 - 1/2	1 - 1/2
	Z 100020000150	20	22	1 - 1/2
	Z 100022000150	22	24	1 - 1/2
	Z 100024000150	24	26	1 - 1/2
	Z 100026000150	26	28	1 - 1/2
	Z 100028000150	28	30	1 - 1/2
	Z 100030000150	30	32	1 - 1/2
	Z 100032000150	32	34	1 - 1/2

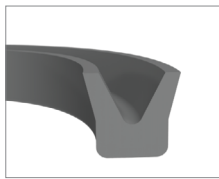
# Homogenous U-Cups



Materials	Temp. Range		
Nitrile (NBR)	-40°C	to	120°C
Hydrogenated Nitrile (HNBR)	-40°C	to	160°C
Viton™/Fluorocarbon (FKM)	-26°C	to	204°C
Chloroprene (CR)	-40°C	to	121°C
Silicone (VMQ)	-65°C	to	232°C
Ethylene Propylene (EPDM)	-54°C	to	150°C



Block Vee



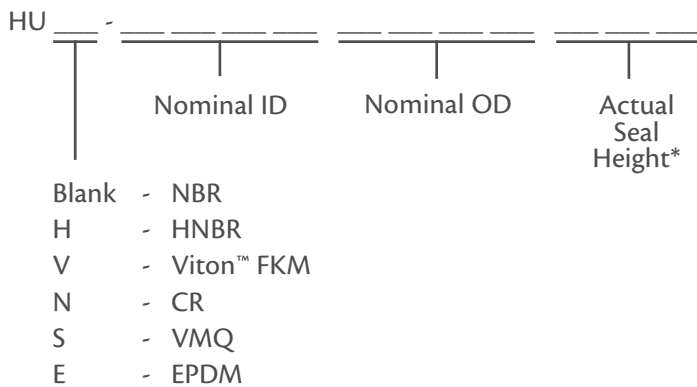
AN 6226

## Product Description

Homogenous U-cups (HU) are non-loaded U-cups. They are a popular seal in low pressure applications where a low friction seal is beneficial. HU seals are most commonly used in pneumatic applications as a rod or piston seal. The design is suited for situations where space is limited. HU seals are typically made from 70A or 80A durometer NBR materials.

As pressure is applied to the HU, there is an increase in sealing force until the seal reaches the maximum pressure it is able to handle. These seals can withstand pressures of up to 250 PSI in pneumatic applications, and up to 1,250 PSI in hydraulic applications.

## Part Numbers:

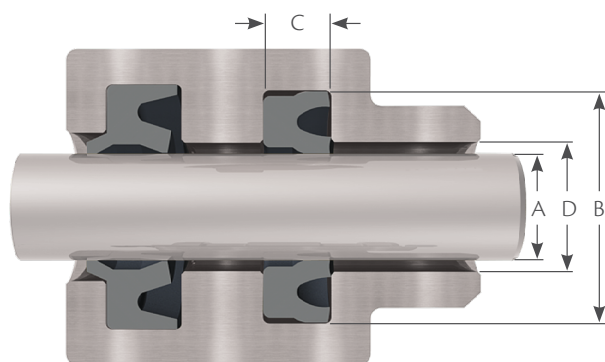


\* Height is only listed if the axial height is greater than the cross-section.

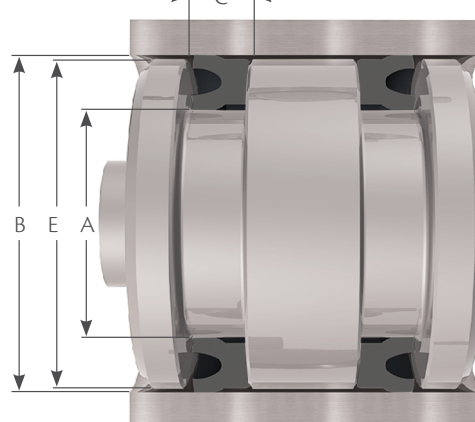
**Example:** HU 0375 0625 - Homogenous, U-Cup, NBR, 3/8" Nominal ID, 5/8" Nominal OD

# Homogenous U-Cups

Rod Gland



Piston Gland



Rod Gland Application

A Rod Diameter		Seal C/S	B Groove Diameter		C Groove Width +0.015/ -0.000	D Throat Diameter	
Range	Tolerance		Calculation	Tolerance		Calculation	Tolerance
0.125 - 0.249	+0.000/ -0.002	02/32 (0.062)	Dia. A + 0.125	+0.002/ -0.000	0.093	Dia. A + 0.001	+0.002/ -0.000
0.250 - 0.374	+0.000/ -0.002	03/32 (0.094)	Dia. A + 0.187	+0.002/ -0.000	0.125	Dia. A + 0.001	+0.002/ -0.000
0.375 - 1.124	+0.000/ -0.002	04/32 (0.125)	Dia. A + 0.250	+0.002/ -0.000	0.156	Dia. A + 0.001	+0.002/ -0.000
1.125 - 1.624	+0.000/ -0.002	05/32 (0.156)	Dia. A + 0.312	+0.002/ -0.000	0.188	Dia. A + 0.001	+0.002/ -0.000
1.625 - 3.249	+0.000/ -0.002	06/32 (0.187)	Dia. A + 0.375	+0.002/ -0.000	0.218	Dia. A + 0.001	+0.002/ -0.000
3.250 - 4.999	+0.000/ -0.003	08/32 (0.250)	Dia. A + 0.500	+0.003/ -0.000	0.281	Dia. A + 0.002	+0.003/ -0.000
5.000 - 5.499	+0.000/ -0.003	09/32 (0.281)	Dia. A + 0.562	+0.003/ -0.000	0.312	Dia. A + 0.002	+0.003/ -0.000
5.500 - 8.999	+0.000/ -0.003	10/32 (0.312)	Dia. A + 0.625	+0.004/ -0.000	0.344	Dia. A + 0.002	+0.003/ -0.000
9.000 +	+0.000/ -0.004	12/32 (0.375)	Dia. A + 0.750	+0.005/ -0.000	0.406	Dia. A + 0.002	+0.004/ -0.000

Piston Gland Application

B Bore Diameter		Seal C/S	A Groove Diameter		C Groove Width +0.015/ -0.000	E Piston Diameter	
Range	Tolerance		Calculation	Tolerance		Calculation	Tolerance
0.250 - 0.436	+0.002/ -0.000	02/32 (0.062)	Dia. B - 0.125	+0.000/ -0.002	0.093	Dia. B - 0.001	+0.000/ -0.001
0.437 - 0.624	+0.002/ -0.000	03/32 (0.094)	Dia. B - 0.187	+0.000/ -0.002	0.125	Dia. B - 0.001	+0.000/ -0.001
0.625 - 1.374	+0.002/ -0.000	04/32 (0.125)	Dia. B - 0.250	+0.000/ -0.002	0.156	Dia. B - 0.001	+0.000/ -0.001
1.375 - 1.749	+0.002/ -0.000	05/32 (0.156)	Dia. B - 0.312	+0.000/ -0.002	0.188	Dia. B - 0.001	+0.000/ -0.001
1.750 - 2.999	+0.002/ -0.000	06/32 (0.187)	Dia. B - 0.375	+0.000/ -0.002	0.218	Dia. B - 0.001	+0.000/ -0.002
3.000 - 3.999	+0.003/ -0.000	07/32 (0.219)	Dia. B - 0.437	+0.000/ -0.003	0.250	Dia. B - 0.001	+0.000/ -0.002
4.000 - 5.499	+0.003/ -0.000	08/32 (0.250)	Dia. B - 0.500	+0.000/ -0.003	0.281	Dia. B - 0.001	+0.000/ -0.002
5.500 - 6.999	+0.003/ -0.000	09/32 (0.281)	Dia. B - 0.562	+0.000/ -0.003	0.312	Dia. B - 0.002	+0.000/ -0.002
7.000 - 9.999	+0.003/ -0.000	10/32 (0.312)	Dia. B - 0.625	+0.000/ -0.004	0.344	Dia. B - 0.002	+0.000/ -0.002
10.000 - 11.999	+0.004/ -0.000	11/32 (0.344)	Dia. B - 0.687	+0.000/ -0.004	0.375	Dia. B - 0.002	+0.000/ -0.002
12.000 - 13.999	+0.004/ -0.000	12/32 (0.375)	Dia. B - 0.750	+0.000/ -0.005	0.406	Dia. B - 0.002	+0.000/ -0.002
14.000 - 17.999	+0.004/ -0.000	13/32 (0.406)	Dia. B - 0.812	+0.000/ -0.005	0.437	Dia. B - 0.002	+0.000/ -0.002
18.000 +	+0.005/ -0.000	14/32 (0.437)	Dia. B - 0.875	+0.000/ -0.006	0.469	Dia. B - 0.002	+0.000/ -0.002

Homogenous U-Cups

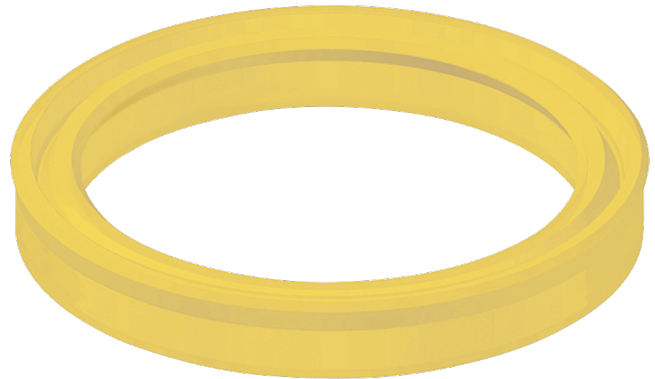
# Homogenous U-Cups

IMPERIAL SEALS

Part Number	Nominal		C/S
	A	D	
	Shaft/Piston Groove Dia.	Bore/Rod Groove Dia.	
HU 04370812	7/16	13/16	3/16
HU 04370937	7/16	15/16	1/4
HU 05000625	1/2	5/8	1/16
HU 05000687	1/2	11/16	3/32
HU 05000750	1/2	3/4	1/8
HU 05000812	1/2	13/16	5/32
HU 05000875	1/2	7/8	3/16
HU 05001000	1/2	1	1/4
HU 05620750	9/16	3/4	3/32
HU 05620813	9/16	13/16	1/8
HU 05621062	9/16	1 - 1/16	1/4
HU 05930844	19/32	27/32	1/8
HU 06250813	5/8	13/16	3/32
HU 06250875	5/8	7/8	1/8
HU 06251000	5/8	1	3/16
HU 06251125	5/8	1 - 1/8	1/4
HU 06870875	11/16	7/8	3/32
HU 06870937	11/16	15/16	1/8
HU 06871062	11/16	1 - 1/16	3/16
HU 06871187	11/16	1 - 3/16	1/4
HU 07500937	3/4	15/16	3/32
HU 07501000	3/4	1	1/8
HU 07501125	3/4	1 - 1/8	3/16
HU 07501250	3/4	1 - 1/4	1/4
HU 08121000	13/16	1	3/32
HU 08121062	13/16	1 - 1/16	1/8
HU 08121125	13/16	1 - 1/8	5/32
HU 08121312	13/16	1 - 5/16	1/4
HU 08751000	7/8	1	1/16
HU 08751062	7/8	1 - 1/16	3/32
HU 08751125	7/8	1 - 1/8	1/8
HU 08751187	7/8	1 - 3/16	5/32
HU 08751250	7/8	1 - 1/4	3/16
HU 08751375	7/8	1 - 3/8	1/4
HU 09371187	15/16	1 - 3/16	1/8
HU 09371250	15/16	1 - 1/4	5/32
HU 09371437	15/16	1 - 7/16	1/4
HU 10001187	1	1 - 3/16	3/32
HU 10001250	1	1 - 1/4	1/8
HU 10001312	1	1 - 5/16	5/32
HU 10001375	1	1 - 3/8	3/16
HU 10001500	1	1 - 1/2	1/4
HU 10621375	1 - 1/16	1 - 3/8	5/32
HU 10621562	1 - 1/16	1 - 9/16	1/4
HU 11251375	1 - 1/8	1 - 3/8	1/8
HU 11251437	1 - 1/8	1 - 7/16	5/32
HU 11251500	1 - 1/8	1 - 1/2	3/16
HU 11251625	1 - 1/8	1 - 5/8	1/4
HU 11871437	1 - 3/16	1 - 7/16	1/8

Part Number	Nominal		C/S
	A	D	
	Shaft/Piston Groove Dia.	Bore/Rod Groove Dia.	
HU 11871687	1 - 3/16	1 - 11/16	1/4
HU 12501500	1 - 1/4	1 - 1/2	1/8
HU 12501562	1 - 1/4	1 - 9/16	5/32
HU 12501625	1 - 1/4	1 - 5/8	3/16
HU 12501750	1 - 1/4	1 - 3/4	1/4
HU 13121562	1 - 5/16	1 - 9/16	1/8
HU 13121625	1 - 5/16	1 - 5/8	5/32
HU 13751625	1 - 3/8	1 - 5/8	1/8
HU 13751688	1 - 3/8	1 - 11/16	5/32
HU 13751750	1 - 3/8	1 - 3/4	3/16
HU 14371750	1 - 7/16	1 - 3/4	5/32
HU 15001750	1 - 1/2	1 - 3/4	1/8
HU 15001812	1 - 1/2	1 - 13/16	5/32
HU 15001875	1 - 1/2	1 - 7/8	3/16
HU 16251812	1 - 5/8	1 - 13/16	3/32
HU 16251875	1 - 5/8	1 - 7/8	1/8
HU 16251937	1 - 5/8	1 - 15/16	5/32
HU 16252000	1 - 5/8	2	3/16
HU 17502000	1 - 3/4	2	1/8
HU 17502062	1 - 3/4	2 - 1/16	5/32
HU 17502125	1 - 3/4	2 - 1/8	3/16
HU 18752250	1 - 7/8	2 - 1/4	3/16
HU 20002250	2	2 - 1/4	1/8
HU 20002375	2	2 - 3/8	3/16
HU 21252500	2 - 1/8	2 - 1/2	3/16
HU 22502625	2 - 1/4	2 - 5/8	3/16
HU 23752750	2 - 3/8	2 - 3/4	3/16
HU 25002875	2 - 1/2	2 - 7/8	3/16
HU 25002937	2 - 1/2	2 - 15/16	7/32
HU 25623000	2 - 9/16	3	7/32
HU 26253000	2 - 5/8	3	3/16
HU 26873125	2 - 11/16	3 - 1/8	7/32
HU 27503125	2 - 3/4	3 - 1/8	3/16
HU 27503187	2 - 3/4	3 - 3/16	7/32
HU 28123250	2 - 13/16	3 - 1/4	7/32
HU 28753250	2 - 7/8	3 - 1/4	3/16
HU 30003375	3	3 - 3/8	3/16
HU 30003437	3	3 - 7/16	7/32
HU 30623500	3 - 1/16	3 - 1/2	7/32
HU 31253500	3 - 1/8	3 - 1/2	3/16
HU 32503625	3 - 1/4	3 - 5/8	3/16
HU 33123750	3 - 5/16	3 - 3/4	7/32
HU 33753750	3 - 3/8	3 - 3/4	3/16
HU 35003875	3 - 1/2	3 - 7/8	3/16
HU 35624000	3 - 9/16	4	7/32
HU 36254000	3 - 5/8	4	3/16
HU 47505000	4 - 3/4	5	1/8
HU 62506500	6 - 1/4	6 - 1/2	1/8

Material	Temp. Range
Urethane	-54°C to 105°C



Rod (RO)  
Standard Lip (STD)



Rod (RO)  
Double Lip (DL)



Symmetrical (SY)



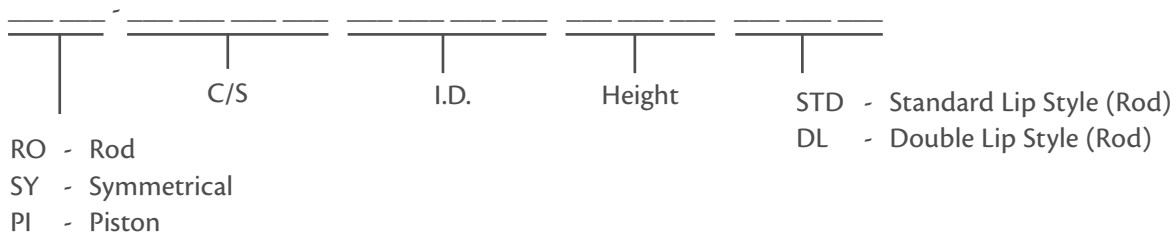
Piston (PI)

## Product Description

Urethane U-cups are designed to provide an excellent heavy duty seal for both piston and rod applications. Urethane U-cups work in both static and dynamic applications.

The non-symmetric urethane U-cups provide customers with additional benefits including reduced seal movement, increased stability in static applications, and protection of the dynamic lip during installation. Rod styles provide improved sealability on the I.D., while piston styles provide improved sealability on the O.D.

## Part Numbers:

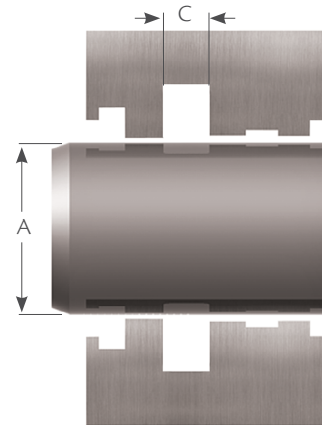


**Example:** RO 1870 0625 375 DL - Rod Style, Double Lip Seal, 3/16" C/S, 5/8" I.D., 3/8" Height

# Urethane U-Cups

IMPERIAL SEALS

## Rod Style



Urethane U-cups fit into standard and deep loaded U-cup glands. For groove dimensions please reference the loaded U-cup section, which starts on page 39.

\* Can be used for RO and SY

Part Number	C/S	A Shaft Diameter	C Groove Width
RO 12500375187DL	1/8	3/8	3/16
RO 12500500187STD	1/8	1/2	3/16
RO 12500625187DL	1/8	5/8	3/16
RO 12500625250STD	1/8	5/8	1/4
RO 12500750187DL	1/8	3/4	3/16
RO 12500750250STD	1/8	3/4	1/4
RO 12501000187DL	1/8	1	3/16
RO 12501000250STD	1/8	1	1/4
RO 12501000250DL	1/8	1	1/4
RO 12501062187DL	1/8	1 - 1/16	3/16
RO 12501062250DL	1/8	1 - 1/16	1/4
RO 12501125187DL	1/8	1 - 1/8	3/16
RO 12501125250DL	1/8	1 - 1/8	1/4
RO 12501250187DL	1/8	1 - 1/4	3/16
RO 12501375250DL	1/8	1 - 3/8	1/4
RO 12501500250DL	1/8	1 - 1/2	1/4
RO 12501625250DL	1/8	1 - 5/8	1/4
RO 12501750250DL	1/8	1 - 3/4	1/4
RO 15601500312DL	5/32	1 - 1/2	5/16
RO 18700500312DL	3/16	1/2	5/16
RO 18700625250STD	3/16	5/8	1/4
RO 18700625375DL	3/16	5/8	3/8
RO 18700750312DL	3/16	3/4	5/16
RO 18700875312DL	3/16	7/8	5/16
RO 18701125312STD	3/16	1 - 1/8	5/16
RO 18701125312DL	3/16	1 - 1/8	5/16
RO 18701250250STD	3/16	1 - 1/4	1/4
RO 18701250250DL	3/16	1 - 1/4	1/4
RO 18701250312STD	3/16	1 - 1/4	5/16
RO 18701250375DL	3/16	1 - 1/4	3/8
RO 18701375312DL	3/16	1 - 3/8	5/16
RO 18701500250DL	3/16	1 - 1/2	1/4
RO 18701500250DL	3/16	1 - 1/2	1/4

Part Number	C/S	A Shaft Diameter	C Groove Width
RO 18701750250DL	3/16	1 - 3/4	1/4
RO 18701750312DL	3/16	1 - 3/4	5/16
RO 18701750375STD	3/16	1 - 3/4	3/8
RO 18701750375DL	3/16	1 - 3/4	3/8
RO 18701875375DL	3/16	1 - 7/8	3/8
RO 18702000187DL	3/16	2	3/16
RO 18702000312STD	3/16	2	5/16
RO 18702000375DL	3/16	2	3/8
RO 18702125375DL	3/16	2 - 1/8	3/8
RO 18702250312STD	3/16	2 - 1/4	5/16
RO 18702250312DL	3/16	2 - 1/4	5/16
RO 18702500312STD	3/16	2 - 1/2	5/16
RO 18702500375DL	3/16	2 - 1/2	3/8
RO 18703000375DL	3/16	3	3/8
RO 18703500375DL	3/16	3 - 1/2	3/8
RO 18704000375DL	3/16	4	3/8
RO 18704500375DL	3/16	4 - 1/2	3/8
RO 18705000375DL	3/16	5	3/8
RO 25001000250STD	1/4	1	1/4
RO 25001125375STD	1/4	1 - 1/8	3/8
RO 25001125375DL	1/4	1 - 1/8	3/8
RO 25001375375DL	1/4	1 - 3/8	3/8
RO 25001500312STD	1/4	1 - 1/2	5/16
RO 25001500375DL	1/4	1 - 1/2	3/8
RO 25001750375STD	1/4	1 - 3/4	3/8
RO 25001750375DL	1/4	1 - 3/4	3/8
RO 25001875375DL	1/4	1 - 7/8	3/8
RO 25002000375STD	1/4	2	3/8
RO 25002000375DL	1/4	2	3/8
RO 25002250375DL	1/4	2 - 1/4	3/8
RO 25002500375STD	1/4	2 - 1/2	3/8
RO 25002500375DL	1/4	2 - 1/2	3/8
RO 25002625375DL	1/4	2 - 5/8	3/8



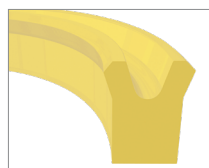
# Urethane U-Cups

## Rod Style

Part Number	C/S	A Shaft Diameter	C Groove Width
RO 18701500312STD	3/16	1 - 1/2	5/16
RO 18701500312DL	3/16	1 - 1/2	5/16
RO 18701500375DL	3/16	1 - 1/2	3/8
RO 25003500375STD	1/4	3 - 1/2	3/8
RO 25004000562DL	1/4	4	9/16
RO 25004500375DL	1/4	4 - 1/2	3/8
RO 25004500562STD	1/4	4 - 1/2	9/16
RO 25005500562STD	1/4	5 - 1/2	9/16
RO 31202000500DL	5/16	2	1/2
RO 31202375375STD	5/16	2 - 3/8	3/8
RO 31202500500DL	5/16	2 - 1/2	1/2
RO 31202625500DL	5/16	2 - 5/8	1/2
RO 31202750625DL	5/16	2 - 3/4	5/8
RO 31203000500DL	5/16	3	1/2
RO 31203375562DL	5/16	3 - 3/8	9/16
RO 31203500500DL	5/16	3 - 1/2	1/2

Part Number	C/S	A Shaft Diameter	C Groove Width
RO 25002625500DL	1/4	2 - 5/8	1/2
RO 25002750375DL	1/4	2 - 3/4	3/8
RO 25003000375STD	1/4	3	3/8
RO 31205250625DL	5/16	5 - 1/4	5/8
RO 31205750625STD	5/16	5 - 3/4	5/8
RO 37502000625DL	3/8	2	5/8
RO 37502500625DL	3/8	2 - 1/2	5/8
RO 37503000500STD	3/8	3	1/2
RO 37503000625DL	3/8	3	5/8
RO 37503500500DL	3/8	3 - 1/2	1/2
RO 37503500625STD	3/8	3 - 1/2	5/8
RO 37503500625DL	3/8	3 - 1/2	5/8
RO 37504000625DL	3/8	4	5/8
RO 37505000500DL	3/8	5	1/2
RO 37506750625DL	3/8	6 - 3/4	5/8

## Symmetrical Style



Part Number	C/S	A Shaft/Groove Diameter	C Groove Width
SY 12500312250	1/8	5/16	1/4
SY 12500500187	1/8	1/2	3/16
SY 12500750250	1/8	3/4	1/4
SY 12500875250	1/8	7/8	1/4
SY 15601375250	5/32	1 - 3/8	1/4
SY 18700625312	3/16	5/8	5/16
SY 18700750312	3/16	3/4	5/16
SY 18700875312	3/16	7/8	5/16
SY 18701000250	3/16	1	1/4
SY 18701125312	3/16	1 - 1/8	5/16
SY 18701500312	3/16	1 - 1/2	5/16
SY 18702125375	3/16	2 - 1/8	3/8
SY 18705125312	3/16	5 - 1/8	5/16
SY 21800500250	7/32	1/2	1/4
SY 21802500375	7/32	2 - 1/2	3/8
SY 25000812375	1/4	13/16	3/8
SY 25000937375	1/4	15/16	3/8
SY 25001125375	1/4	1 - 1/8	3/8
SY 25001250375	1/4	1 - 1/4	3/8

\* Can be used in place of an RO and PI

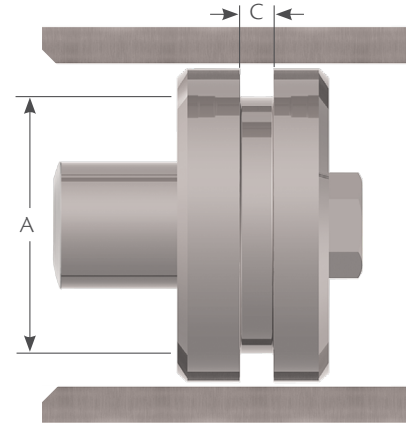
Part Number	C/S	A Shaft/Groove Diameter	C Groove Width
SY 25001500375	1/4	1 - 1/2	3/8
SY 25002000375	1/4	2	3/8
SY 25002000562	1/4	2	9/16
SY 25002375375	1/4	2 - 3/8	3/8
SY 25004750625	1/4	4 - 3/4	5/8
SY 25005500750	1/4	5 - 1/2	3/4
SY 31202625625	5/16	2 - 5/8	5/8
SY 31203750625	5/16	3 - 3/4	5/8
SY 31203750875	5/16	3 - 3/4	7/8
SY 31204750875	5/16	4 - 3/4	7/8
SY 31205750875	5/16	5 - 3/4	7/8
SY 31206750625	5/16	6 - 3/4	5/8
SY 37502750375	3/8	2 - 3/4	3/8
SY 37502750625	3/8	2 - 3/4	5/8
SY 37503500625	3/8	3 - 1/2	5/8
SY 37507500562	3/8	7 - 1/2	9/16
SY 43703875750	7/16	3 - 7/8	3/4
SY 50007875100	1/2	7 - 7/8	1

Urethane U-Cups

# Urethane U-Cups

IMPERIAL SEALS

## Piston Style



Urethane U-cups fit into standard and deep loaded U-cup glands. For groove dimensions please reference the loaded U-cup section, which starts on page 39.

\* Can be used for PI and SY

Part Number	C/S	A Groove Diameter	C Groove Width
PI 18700875312	3/16	7/8	5/16
PI 18701125312	3/16	1 - 1/8	5/16
PI 18701375312	3/16	1 - 3/8	5/16
PI 18701625312	3/16	1 - 5/8	5/16
PI 18702125312	3/16	2 - 1/8	5/16
PI 25000750375	1/4	3/4	3/8
PI 25001000375	1/4	1	3/8
PI 25001250375	1/4	1 - 1/4	3/8
PI 25001500375	1/4	1 - 1/2	3/8
PI 25001750375	1/4	1 - 3/4	3/8
PI 25002000375	1/4	2	3/8
PI 25002250375	1/4	2 - 1/4	3/8
PI 25002500375	1/4	2 - 1/2	3/8
PI 25002750375	1/4	2 - 3/4	3/8
PI 25003000375	1/4	3	3/8
PI 25003250375	1/4	3 - 1/4	3/8
PI 25003500375	1/4	3 - 1/2	3/8
PI 25004000375	1/4	4	3/8
PI 25004500375	1/4	4 - 1/2	3/8
PI 25005000375	1/4	5	3/8

Part Number	C/S	A Groove Diameter	C Groove Width
PI 25005500375	1/4	5 - 1/2	3/8
PI 31201375500	5/16	1 - 3/8	1/2
PI 31201875500	5/16	1 - 7/8	1/2
PI 31202375500	5/16	2 - 3/8	1/2
PI 31202875500	5/16	2 - 7/8	1/2
PI 31203375500	5/16	3 - 3/8	1/2
PI 31203875500	5/16	3 - 7/8	1/2
PI 31205375500	5/16	5 - 3/8	1/2
PI 37501750625	3/8	1 - 3/4	5/8
PI 37502250625	3/8	2 - 1/4	5/8
PI 37502500625	3/8	2 - 1/2	5/8
PI 37502750625	3/8	2 - 3/4	5/8
PI 37503250625	3/8	3 - 1/4	5/8
PI 37503750625	3/8	3 - 3/4	5/8
PI 37504250625	3/8	4 - 1/4	5/8
PI 37504750625	3/8	4 - 3/4	5/8
PI 37505250625	3/8	5 - 1/4	5/8
PI 37505750625	3/8	5 - 3/4	5/8
PI 37506250625	3/8	6 - 1/4	5/8
PI 37507250625	3/8	7 - 1/4	5/8

For custom size urethane U-cups, please contact a Hi-Tech Seals representative.

# Spring Energized Seals

Spring Energized Seals

Seal Materials	Temp. Range		
Polytetrafluoroethylene (PTFE)	-260°C	to	260°C
Carbon/Graphite Reinforced PTFE	-260°C	to	260°C
Glass/Moly Reinforced PTFE	-260°C	to	260°C
Bronze Reinforced PTFE	-260°C	to	260°C
Carbon Reinforced PTFE	-260°C	to	260°C
KasPex™ PEEK	-70°C	to	260°C
UHMW-PE	-250°C	to	80°C



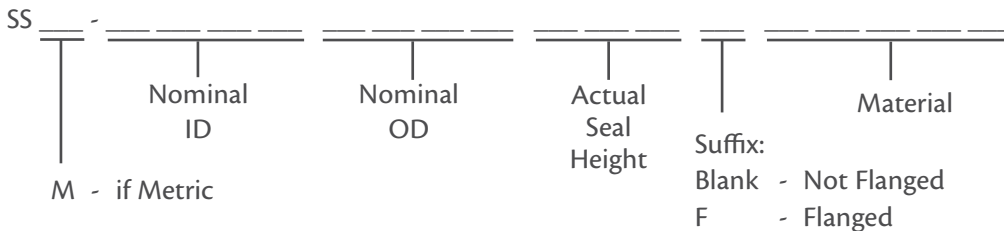
Our standard spring loader material is SS301. Other materials are available upon request.

## Product Description

Spring energized seals are lip seals that incorporate a metal or composite spring into the seal design. The spring energizes the seal lip against the mating hardware, creating a seal capable of compensating for movement in a dynamic application. They are used in single acting dynamic applications and should be oriented with the spring towards the pressure side.

Spring energized seals are primarily used in extreme environments where a standard moulded elastomers or thermoplastics cannot meet the application requirements due to the material limitations. As these seals are designed to meet varying applications and high-performance requirements, Hi-Tech Seals mainly stocks custom design seals.

## Part Numbers:



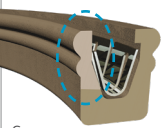
### Materials:

- Blank - Virgin PTFE
- NYLON - PA
- UHMW - UHMW-PE
- PEEK - KasPex™ PEEK

- TCF - Carbon Reinforced PTFE
- TCG - Carbon Graphite Reinforced PTFE
- TBF - Bronze Reinforced PTFE
- TMG - Moly Glass Reinforced PTFE

## Designing an Spring Energized Seal

1. Select a dynamic lip configuration that suits application needs:

Seal Type	Advantages	Disadvantages
 <p>A</p>	<ul style="list-style-type: none"> <li>• Low wear rate</li> <li>• Preferred design for oscillatory, slow rotary applications</li> <li>• Radius lip reduces probability of seal lip damage during installation</li> </ul>	<ul style="list-style-type: none"> <li>• Should not be used for dynamic sealing of abrasive media</li> <li>• May weep in high speed reciprocating applications due to seal lip hydroplaning</li> </ul>
 <p>B</p>	<ul style="list-style-type: none"> <li>• Improved sealability</li> <li>• Preferred design for dynamic sealing of gas and vapor</li> <li>• Beveled lip reduces probability of seal lip damage during installation</li> </ul>	<ul style="list-style-type: none"> <li>• Should not be used for dynamic sealing of abrasive media</li> <li>• May weep in high speed reciprocating applications due to seal lip hydroplaning</li> </ul>
 <p>D</p>	<ul style="list-style-type: none"> <li>• Locks seal into reduced glands</li> <li>• Reduced probability of seal lip hydroplaning</li> <li>• Low wear rate</li> <li>• Good excluder for debris and contaminants</li> </ul>	<ul style="list-style-type: none"> <li>• Requires good lead-in chamfer if hardware is installed lip first</li> <li>• Possible weepage of light fluids or gases</li> </ul>
 <p>S</p>	<ul style="list-style-type: none"> <li>• Low wear rate</li> <li>• Redundant seal lip design</li> <li>• Trapped fluid between contact points provides added lubrication to seal</li> </ul>	<ul style="list-style-type: none"> <li>• Should not be used for dynamic sealing of abrasive media</li> <li>• May weep in high speed reciprocating applications due to seal lip hydroplaning</li> </ul>
 <p>X</p>	<ul style="list-style-type: none"> <li>• Improved sealability over D style lip</li> <li>• Preferred lip design for dynamic sealing of abrasive media</li> <li>• Reduced probability of seal lip hydroplaning</li> </ul>	<ul style="list-style-type: none"> <li>• Requires good lead-in chamfer if hardware is installed lip first</li> <li>• Lip design must be used in combination with other lip style</li> </ul>
 <p>H</p>	<ul style="list-style-type: none"> <li>• High load of helical wound spring improves sealability</li> <li>• Suitable for sealing cryogenic gases and fluids</li> <li>• Radius lip reduces probability of seal lip damage during installation</li> </ul>	<ul style="list-style-type: none"> <li>• Should not be used for dynamic sealing of abrasive media</li> <li>• May weep in high speed reciprocating applications due to seal lip hydroplaning</li> </ul>
 <p>W</p>	<ul style="list-style-type: none"> <li>• High load of helical wound spring improves sealability</li> <li>• Preferred lip design for dynamic sealing of abrasive media</li> <li>• Reduced probability of seal lip hydroplaning</li> </ul>	<ul style="list-style-type: none"> <li>• Requires good lead-in chamfer if hardware is installed lip first</li> <li>• Lip design must be used in combination with radius lip style</li> </ul>

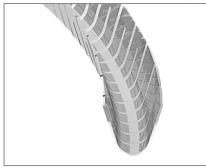
Images are depicted with a bronze reinforced PTFE material.

2. Determine if the same sealing lip is appropriate for the static lip. spring energized seals do not have to be symmetrical.

3. When determining which jacket material is required for your application, variables to consider include:

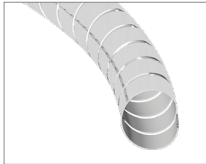
- Temperature
- Chemical
- Pressure
- Velocity
- Cost

4. When manufacturing spring energized seals we typically use cantilever springs, though helical wound and slanted/canted coil springs are available upon request.



### Cantilever Spring (V-Spring or Finger Spring)

A cantilever spring is recommended for dynamic, medium load applications where low friction is desired. The V-shape spring provides constant compression load and is further energized by system pressure.



### Helical Wound Spring

A helical wound spring is made from a metal ribbon, which is coiled into a helix. The spring compresses radially producing a very high load versus deflection. The helical wound spring is preferred for static applications or in applications where sealability is of a higher concern than friction.

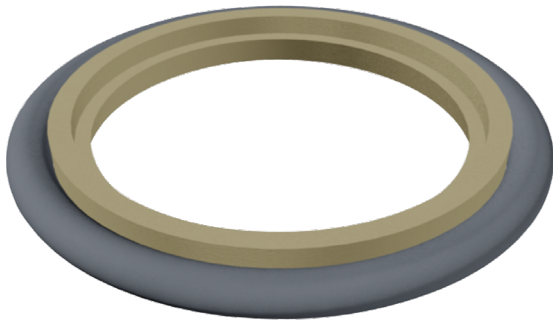


### Slanted/Canted Coil Spring

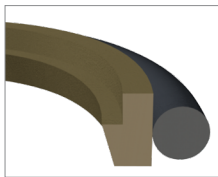
A slanted coil spring, also known as a canted coil spring, is manufactured from a round wire that is coiled and angled. The process creates a compression force in the radial direction. The canted coil design is suited for dynamic applications where low friction is critical.

5. The most common spring material is stainless steel. Hastelloy®, Inconel, and Elgiloy are available for applications that require additional corrosion resistance.

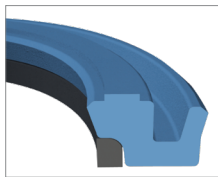
# Buffer Seals



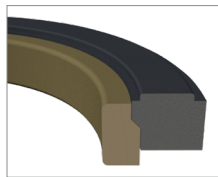
Seal Materials	Temp. Range		
40% Bronze Reinforced PTFE	-260°C	to	260°C
15% Glass, 5% Moly Reinforced PTFE	-260°C	to	260°C
Nylon/Polyamide (PA)	-30°C	to	93°C
Nitrile (NBR)	-40°C	to	120°C
Viton™/Fluorocarbon (FKM)	-26°C	to	204°C
Urethane (TPU)	-54°C	to	105°C



R

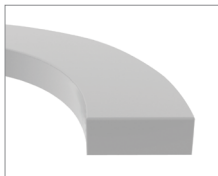


HBY

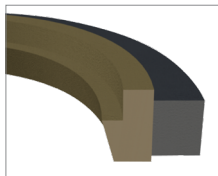


RS

## Caterpillar Equivalent Styles



Solid (One Piece)

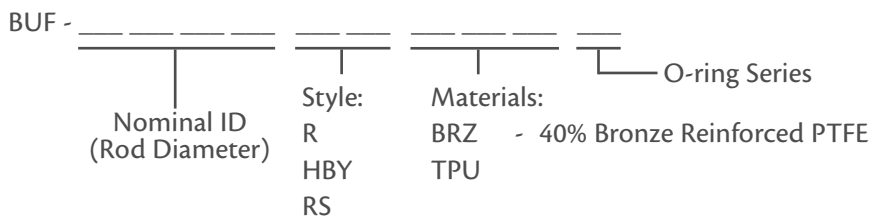


CAT R (Two Piece)

## Product Description

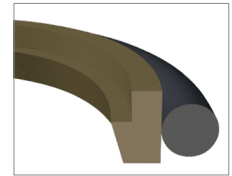
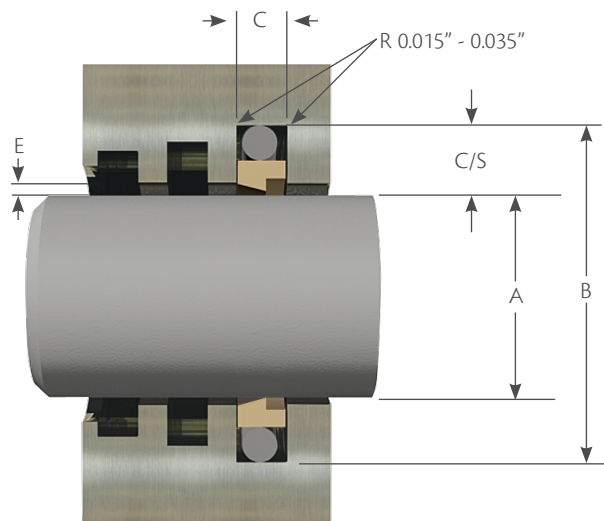
Buffer seals are commonly used in combination with another rod or piston seal, typically a U-cup style seal. Buffer seals in rod applications are designed to absorb pressure fluctuations when working under high-load conditions, this increases the lifespan of a rod seal.

## Part Numbers:



**Example:** BUF 1250RBRZ1 - R Style Buffer, 40% Bronze Reinforced PTFE, NBR loader, 1.250" Rod, N70 126 O-Ring

## Design Information



E is the maximum extrusion gap, which is the largest gap permitted by tolerances and eccentricity.

Rendering represents an R-Style Buffer Seal.

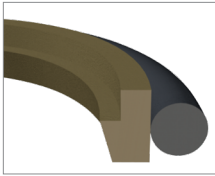
Style:	Description	Common Material(s)
R	Standard design. Suitable up to 5800 psi.	40% Bronze Reinforced PTFE, NBR Loader
HBY	Suitable up to 10 000 psi.	High Temperature TPU, PA Back-Up
RS	Suitable up to 5800 psi.	40% Bronze Reinforced PTFE, NBR Loader
Solid	One piece CAT Buffer Seal	TPU
CAT R	Two piece CAT Buffer Seal	40% Bronze Reinforced PTFE, NBR Loader

Information is intended as a guide only; contact a Hi-Tech Seals representative when designing a new application or altering a current application.

# Buffer Seals

IMPERIAL SEALS

R-Style



Maximum extrusion gap (e)

Groove Depth C/S	O-Ring Series	e <sub>max</sub> at 80°C (175°F)		
		2300 psi	3600 psi	5080 psi
0.149"	100	0.014	0.010	0.006
0.212"	200	0.016	0.012	0.008
0.308"	300	0.020	0.014	0.010
0.415"	400	0.024	0.018	0.014

Part Number	A		O-Ring C/S	B		C Groove Width +0.010/-0.000	C/S Groove Depth
	Shaft Diameter	Tol.		Groove Diameter	Tol.		
BUF 1000RBRZ1	1.000	+0.000/-0.002	3/32	1.298	+0.003/-0.000	0.126	0.149
BUF 1000RBRZ2	1.000	+0.000/-0.003	1/8	1.424	+0.004/-0.000	0.166	0.212
BUF 1250RBRZ1	1.250	+0.000/-0.002	3/32	1.548	+0.003/-0.000	0.126	0.149
BUF 1250RBRZ2	1.250	+0.000/-0.003	1/8	1.674	+0.004/-0.000	0.166	0.212
BUF 1500RBRZ1	1.500	+0.000/-0.002	3/32	1.798	+0.003/-0.000	0.126	0.149
BUF 1500RBRZ2	1.500	+0.000/-0.003	1/8	1.924	+0.004/-0.000	0.166	0.212
BUF 1500RBRZ3	1.500	+0.000/-0.004	3/16	2.116	+0.005/-0.000	0.247	0.308
BUF 1750RBRZ2	1.750	+0.000/-0.003	1/8	2.174	+0.004/-0.000	0.166	0.212
BUF 1750RBRZ3	1.750	+0.000/-0.004	3/16	2.366	+0.005/-0.000	0.247	0.308
BUF 2000RBRZ2	2.000	+0.000/-0.003	1/8	2.424	+0.004/-0.000	0.166	0.212
BUF 2000RBRZ3	2.000	+0.000/-0.004	3/16	2.616	+0.005/-0.000	0.247	0.308
BUF 2250RBRZ2	2.250	+0.000/-0.003	1/8	2.674	+0.004/-0.000	0.166	0.212
BUF 2250RBRZ3	2.250	+0.000/-0.004	3/16	2.866	+0.005/-0.000	0.247	0.308
BUF 2500RBRZ2	2.500	+0.000/-0.003	1/8	2.924	+0.004/-0.000	0.166	0.212
BUF 2500RBRZ3	2.500	+0.000/-0.004	3/16	3.116	+0.005/-0.000	0.247	0.308
BUF 2750RBRZ2	2.750	+0.000/-0.003	1/8	3.174	+0.004/-0.000	0.166	0.212
BUF 2750RBRZ3	2.750	+0.000/-0.004	3/16	3.366	+0.005/-0.000	0.247	0.308
BUF 3000RBRZ2	3.000	+0.000/-0.003	1/8	3.424	+0.004/-0.000	0.166	0.212
BUF 3000RBRZ3	3.000	+0.000/-0.004	3/16	3.616	+0.005/-0.000	0.247	0.308
BUF 3250RBRZ3	3.250	+0.000/-0.004	3/16	3.866	+0.005/-0.000	0.247	0.308
BUF 3500RBRZ3	3.500	+0.000/-0.004	3/16	4.116	+0.005/-0.000	0.247	0.308
BUF 3750RBRZ3	3.750	+0.000/-0.004	3/16	4.366	+0.005/-0.000	0.247	0.308
BUF 4000RBRZ3	4.000	+0.000/-0.004	3/16	4.616	+0.005/-0.000	0.247	0.308
BUF 4000RBRZ4	4.000	+0.000/-0.005	1/4	4.830	+0.006/-0.000	0.320	0.415
BUF 4250RBRZ3	4.250	+0.000/-0.004	3/16	4.866	+0.005/-0.000	0.247	0.308
BUF 4250RBRZ4	4.250	+0.000/-0.005	1/4	5.080	+0.006/-0.000	0.320	0.415
BUF 4500RBRZ3	4.500	+0.000/-0.004	3/16	5.116	+0.005/-0.000	0.247	0.308
BUF 4500RBRZ4	4.500	+0.000/-0.005	1/4	5.330	+0.006/-0.000	0.320	0.415

Buffer Seals

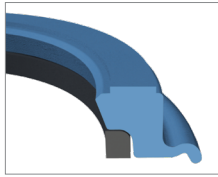


Part Number	A		O-Ring C/S	B		C	C/S
	Shaft Diameter	Tol.		Groove Diameter	Tol.		
BUF 4750RBRZ3	4.750	+0.000/-0.004	3/16	5.366	+0.005/-0.000	0.247	0.308
BUF 4750RBRZ4	4.750	+0.000/-0.005	1/4	5.580	+0.006/-0.000	0.320	0.415
BUF 5000RBRZ3	5.000	+0.000/-0.004	3/16	5.616	+0.005/-0.000	0.247	0.308
BUF 5000RBRZ4	5.000	+0.000/-0.005	1/4	5.830	+0.006/-0.000	0.320	0.415
BUF 5250RBRZ3	5.250	+0.000/-0.004	3/16	5.866	+0.005/-0.000	0.247	0.308
BUF 5250RBRZ4	5.250	+0.000/-0.005	1/4	6.080	+0.006/-0.000	0.320	0.415
BUF 5500RBRZ3	5.500	+0.000/-0.004	3/16	6.116	+0.005/-0.000	0.247	0.308
BUF 5500RBRZ4	5.500	+0.000/-0.005	1/4	6.330	+0.006/-0.000	0.320	0.415
BUF 5750RBRZ3	5.750	+0.000/-0.004	3/16	6.366	+0.005/-0.000	0.247	0.308
BUF 5750RBRZ4	5.750	+0.000/-0.005	1/4	6.580	+0.006/-0.000	0.320	0.415
BUF 6000RBRZ3	6.000	+0.000/-0.004	3/16	6.616	+0.005/-0.000	0.247	0.308
BUF 6000RBRZ4	6.000	+0.000/-0.005	1/4	6.830	+0.006/-0.000	0.320	0.415
BUF 6250RBRZ3	6.250	+0.000/-0.004	3/16	6.866	+0.005/-0.000	0.247	0.308
BUF 6250RBRZ4	6.250	+0.000/-0.005	1/4	7.080	+0.006/-0.000	0.320	0.415
BUF 6500RBRZ3	6.500	+0.000/-0.004	3/16	7.116	+0.005/-0.000	0.247	0.308
BUF 6500RBRZ4	6.500	+0.000/-0.005	1/4	7.330	+0.006/-0.000	0.320	0.415
BUF 6750RBRZ3	6.750	+0.000/-0.004	3/16	7.366	+0.005/-0.000	0.247	0.308
BUF 6750RBRZ4	6.750	+0.000/-0.005	1/4	7.580	+0.006/-0.000	0.320	0.415
BUF 7000RBRZ3	7.000	+0.000/-0.004	3/16	7.616	+0.005/-0.000	0.247	0.308
BUF 7000RBRZ4	7.000	+0.000/-0.005	1/4	7.830	+0.006/-0.000	0.320	0.415
BUF 7250RBRZ3	7.250	+0.000/-0.004	3/16	7.866	+0.005/-0.000	0.247	0.308
BUF 7250RBRZ4	7.250	+0.000/-0.005	1/4	8.080	+0.006/-0.000	0.320	0.415
BUF 7500RBRZ3	7.500	+0.000/-0.004	3/16	8.116	+0.005/-0.000	0.247	0.308
BUF 7500RBRZ4	7.500	+0.000/-0.005	1/4	8.330	+0.006/-0.000	0.320	0.415
BUF 7750RBRZ3	7.750	+0.000/-0.004	3/16	8.366	+0.005/-0.000	0.247	0.308
BUF 7750RBRZ4	7.750	+0.000/-0.005	1/4	8.580	+0.006/-0.000	0.320	0.415
BUF 8000RBRZ3	8.000	+0.000/-0.004	3/16	8.616	+0.005/-0.000	0.247	0.308
BUF 8000RBRZ4	8.000	+0.000/-0.005	1/4	8.830	+0.006/-0.000	0.320	0.415
BUF 8500RBRZ4	8.500	+0.000/-0.005	1/4	9.330	+0.006/-0.000	0.320	0.415
BUF 9000RBRZ4	9.000	+0.000/-0.005	1/4	9.830	+0.006/-0.000	0.320	0.415
BUF 9500RBRZ4	9.500	+0.000/-0.005	1/4	10.330	+0.006/-0.000	0.320	0.415
BUF 10000RBRZ4	10.000	+0.000/-0.005	1/4	10.830	+0.006/-0.000	0.320	0.415
BUF 10500RBRZ4	10.500	+0.000/-0.005	1/4	11.330	+0.006/-0.000	0.320	0.415
BUF 11000RBRZ4	11.000	+0.000/-0.005	1/4	11.830	+0.006/-0.000	0.320	0.415
BUF 11500RBRZ4	11.500	+0.000/-0.005	1/4	12.330	+0.006/-0.000	0.320	0.415
BUF 12000RBRZ4	12.000	+0.000/-0.005	1/4	12.830	+0.006/-0.000	0.320	0.415

# Buffer Seals

IMPERIAL SEALS

RM-Style



## Max. Diametrical Clearance (E)

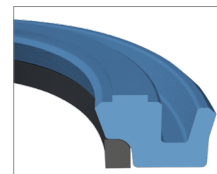
O-Ring C/S	@1000 PSI	@3000 PSI	@5000 PSI	Above 5000 PSI
1/8	0.022	0.018	0.012	Consult HTS
3/16	0.030	0.022	0.018	Consult HTS

Part Number	A		O-Ring C/S	B		C Groove Width +0.010/-0.000	D Groove Depth
	Shaft Diameter	Tol.		Groove Diameter	Tol.		
BUF 1000RM	1.000	+0.000/-0.003	1/8	1.424	+0.004/-0.000	0.166	0.212
BUF 1250RM	1.250	+0.000/-0.003	1/8	1.674	+0.004/-0.000	0.166	0.212
BUF 1500RM	1.500	+0.000/-0.003	1/8	1.924	+0.004/-0.000	0.166	0.212
BUF 1500RM1	1.500	+0.000/-0.004	3/16	2.116	+0.005/-0.000	0.247	0.308
BUF 1750RM	1.750	+0.000/-0.003	1/8	2.174	+0.004/-0.000	0.166	0.212
BUF 1750RM1	1.750	+0.000/-0.004	3/16	2.366	+0.005/-0.000	0.247	0.308
BUF 2000RM	2.000	+0.000/-0.003	1/8	2.424	+0.004/-0.000	0.166	0.212
BUF 2000RM1	2.000	+0.000/-0.004	3/16	2.616	+0.005/-0.000	0.247	0.308
BUF 2250RM	2.250	+0.000/-0.003	1/8	2.674	+0.004/-0.000	0.166	0.212
BUF 2250RM1	2.250	+0.000/-0.004	3/16	2.866	+0.005/-0.000	0.247	0.308
BUF 2500RM	2.500	+0.000/-0.003	1/8	2.924	+0.004/-0.000	0.166	0.212
BUF 2500RM1	2.500	+0.000/-0.004	3/16	3.116	+0.005/-0.000	0.247	0.308
BUF 2750RM	2.750	+0.000/-0.003	1/8	3.174	+0.004/-0.000	0.166	0.212
BUF 2750RM1	2.750	+0.000/-0.004	3/16	3.366	+0.005/-0.000	0.247	0.308
BUF 3000RM	3.000	+0.000/-0.003	1/8	3.424	+0.004/-0.000	0.166	0.212
BUF 3000RM1	3.000	+0.000/-0.004	3/16	3.616	+0.005/-0.000	0.247	0.308

RB-Style

**Max. Diametrical Clearance (E)**

O-Ring C/S	@1000 PSI	@3000 PSI	@5000 PSI	Above 5000 PSI
3/16	0.030	0.022	0.018	Consult HTS



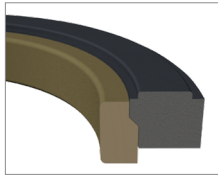
Buffer Seals

Part Number	A		O-Ring C/S	B		C Groove Width +0.010/-0.000	D Groove Depth
	Shaft Diameter	Tol.		Groove Diameter	Tol.		
BUF 1750RB	1.750	+0.000/-0.004	3/16	2.366	+0.005/-0.000	0.247	0.308
BUF 2250RB	2.250	+0.000/-0.004	3/16	2.866	+0.005/-0.000	0.247	0.308
BUF 2500RB	2.500	+0.000/-0.004	3/16	3.116	+0.005/-0.000	0.247	0.308
BUF 2750RB	2.750	+0.000/-0.004	3/16	3.366	+0.005/-0.000	0.247	0.308
BUF 3000RB	3.000	+0.000/-0.004	3/16	3.616	+0.005/-0.000	0.247	0.308
BUF 3500RB	3.500	+0.000/-0.004	3/16	4.116	+0.005/-0.000	0.247	0.308
BUF 4000RB	4.000	+0.000/-0.004	3/16	4.616	+0.005/-0.000	0.247	0.308
BUF 4250RB	4.250	+0.000/-0.004	3/16	4.866	+0.005/-0.000	0.247	0.308
BUF 4500RB	4.500	+0.000/-0.004	3/16	5.116	+0.005/-0.000	0.247	0.308
BUF 4750RB	4.750	+0.000/-0.004	3/16	5.366	+0.005/-0.000	0.247	0.308
BUF 5000RB	5.000	+0.000/-0.004	3/16	5.616	+0.005/-0.000	0.247	0.308
BUF 5250RB	5.250	+0.000/-0.004	3/16	5.866	+0.005/-0.000	0.247	0.308
BUF 5500RB	5.500	+0.000/-0.004	3/16	6.116	+0.005/-0.000	0.247	0.308
BUF 5750RB	5.750	+0.000/-0.004	3/16	6.366	+0.005/-0.000	0.247	0.308
BUF 6000RB	6.000	+0.000/-0.004	3/16	6.616	+0.005/-0.000	0.247	0.308
BUF 6250RB	6.250	+0.000/-0.004	3/16	6.866	+0.005/-0.000	0.247	0.308
BUF 6500RB	6.500	+0.000/-0.004	3/16	7.116	+0.005/-0.000	0.247	0.308
BUF 6750RB	6.750	+0.000/-0.004	3/16	7.366	+0.005/-0.000	0.247	0.308
BUF 7000RB	7.000	+0.000/-0.004	3/16	7.616	+0.005/-0.000	0.247	0.308
BUF 7250RB	7.250	+0.000/-0.004	3/16	7.866	+0.005/-0.000	0.247	0.308
BUF 7500RB	7.500	+0.000/-0.004	3/16	8.116	+0.005/-0.000	0.247	0.308
BUF 7750RB	7.750	+0.000/-0.004	3/16	8.366	+0.005/-0.000	0.247	0.308
BUF 8000RB	8.000	+0.000/-0.004	3/16	8.616	+0.005/-0.000	0.247	0.308

# Buffer Seals

IMPERIAL SEALS

RS-Style



## Max. Diametrical Clearance (E)

O-Ring C/S	@1000 PSI	@3000 PSI	@5000 PSI	Above 5000 PSI
3/16	0.040	0.030	0.024	Consult HTS
1/4	0.046	0.036	0.030	Consult HTS

Part Number	A		O-Ring C/S	B		C Groove Width +0.010/-0.000	D Groove Depth
	Shaft Diameter	Tol.		Groove Diameter	Tol.		
BUF 3000RS	3.000	+0.000/-0.004	3/16	3.616	+0.005/-0.000	0.247	0.308
BUF 3250RS	3.250	+0.000/-0.004	3/16	3.866	+0.005/-0.000	0.247	0.308
BUF 3500RS	3.500	+0.000/-0.004	3/16	4.116	+0.005/-0.000	0.247	0.308
BUF 3750RS	3.750	+0.000/-0.004	3/16	4.366	+0.005/-0.000	0.247	0.308
BUF 4000RS	4.000	+0.000/-0.004	3/16	4.616	+0.005/-0.000	0.247	0.308
BUF 4000RS1	4.000	+0.000/-0.005	1/4	4.830	+0.006/-0.000	0.320	0.415
BUF 4250RS	4.250	+0.000/-0.004	3/16	4.866	+0.005/-0.000	0.247	0.308
BUF 4250RS1	4.250	+0.000/-0.005	1/4	5.080	+0.006/-0.000	0.320	0.415
BUF 4500RS	4.500	+0.000/-0.004	3/16	5.116	+0.005/-0.000	0.247	0.308
BUF 4500RS1	4.500	+0.000/-0.005	1/4	5.330	+0.006/-0.000	0.320	0.415
BUF 4750RS	4.750	+0.000/-0.004	3/16	5.366	+0.005/-0.000	0.247	0.308
BUF 4750RS1	4.750	+0.000/-0.005	1/4	5.580	+0.006/-0.000	0.320	0.415
BUF 5000RS	5.000	+0.000/-0.004	3/16	5.616	+0.005/-0.000	0.247	0.308
BUF 5000RS1	5.000	+0.000/-0.005	1/4	5.830	+0.006/-0.000	0.320	0.415
BUF 5250RS	5.250	+0.000/-0.004	3/16	5.866	+0.005/-0.000	0.247	0.308
BUF 5250RS1	5.250	+0.000/-0.005	1/4	6.080	+0.006/-0.000	0.320	0.415
BUF 5500RS	5.500	+0.000/-0.004	3/16	6.116	+0.005/-0.000	0.247	0.308
BUF 5500RS1	5.500	+0.000/-0.005	1/4	6.330	+0.006/-0.000	0.320	0.415
BUF 5750RS	5.750	+0.000/-0.004	3/16	6.366	+0.005/-0.000	0.247	0.308
BUF 5750RS1	5.750	+0.000/-0.005	1/4	6.580	+0.006/-0.000	0.320	0.415
BUF 6000RS	6.000	+0.000/-0.004	3/16	6.616	+0.005/-0.000	0.247	0.308

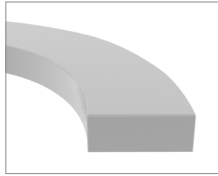
Buffer Seals

RS-Style

Part Number	A		O-Ring C/S	B		C Groove Width +0.010/-0.000	D Groove Depth
	Shaft Diameter	Tol.		Groove Diameter	Tol.		
BUF 6000RS1	6.000	+0.000/-0.005	1/4	6.830	+0.006/-0.000	0.320	0.415
BUF 6250RS	6.250	+0.000/-0.004	3/16	6.866	+0.005/-0.000	0.247	0.308
BUF 6250RS1	6.250	+0.000/-0.005	1/4	7.080	+0.006/-0.000	0.320	0.415
BUF 6500RS	6.500	+0.000/-0.004	3/16	7.116	+0.005/-0.000	0.247	0.308
BUF 6500RS1	6.500	+0.000/-0.005	1/4	7.330	+0.006/-0.000	0.320	0.415
BUF 6750RS	6.750	+0.000/-0.004	3/16	7.366	+0.005/-0.000	0.247	0.308
BUF 6750RS1	6.750	+0.000/-0.005	1/4	7.580	+0.006/-0.000	0.320	0.415
BUF 7000RS	7.000	+0.000/-0.004	3/16	7.616	+0.005/-0.000	0.247	0.308
BUF 7000RS1	7.000	+0.000/-0.005	1/4	7.830	+0.006/-0.000	0.320	0.415
BUF 7250RS	7.250	+0.000/-0.004	3/16	7.866	+0.005/-0.000	0.247	0.308
BUF 7250RS1	7.250	+0.000/-0.005	1/4	8.080	+0.006/-0.000	0.320	0.415
BUF 7500RS	7.500	+0.000/-0.004	3/16	8.116	+0.005/-0.000	0.247	0.308
BUF 7500RS1	7.500	+0.000/-0.005	1/4	8.330	+0.006/-0.000	0.320	0.415
BUF 7750RS	7.750	+0.000/-0.004	3/16	8.366	+0.005/-0.000	0.247	0.308
BUF 7750RS1	7.750	+0.000/-0.005	1/4	8.580	+0.006/-0.000	0.320	0.415
BUF 8000RS	8.000	+0.000/-0.004	3/16	8.616	+0.005/-0.000	0.247	0.308
BUF 8000RS1	8.000	+0.000/-0.005	1/4	8.830	+0.006/-0.000	0.320	0.415
BUF 8500RS	8.500	+0.000/-0.005	1/4	9.330	+0.006/-0.000	0.320	0.415
BUF 9000RS	9.000	+0.000/-0.005	1/4	9.830	+0.006/-0.000	0.320	0.415
BUF 9500RS	9.500	+0.000/-0.005	1/4	10.330	+0.006/-0.000	0.320	0.415
BUF 10000RS	10.000	+0.000/-0.005	1/4	10.830	+0.006/-0.000	0.320	0.415
BUF 10500RS	10.500	+0.000/-0.005	1/4	11.330	+0.006/-0.000	0.320	0.415
BUF 11000RS	11.000	+0.000/-0.005	1/4	11.830	+0.006/-0.000	0.320	0.415
BUF 11500RS	11.500	+0.000/-0.005	1/4	12.330	+0.006/-0.000	0.320	0.415
BUF 12000RS	12.000	+0.000/-0.005	1/4	12.830	+0.006/-0.000	0.320	0.415
BUF 12500RS	12.500	+0.000/-0.005	1/4	13.330	+0.006/-0.000	0.320	0.415
BUF 13000RS	13.000	+0.000/-0.005	1/4	13.830	+0.006/-0.000	0.320	0.415
BUF 13500RS	13.500	+0.000/-0.005	1/4	14.330	+0.006/-0.000	0.320	0.415
BUF 14000RS	14.000	+0.000/-0.005	1/4	14.830	+0.006/-0.000	0.320	0.415
BUF 14500RS	14.500	+0.000/-0.005	1/4	15.330	+0.006/-0.000	0.320	0.415
BUF 15000RS	15.000	+0.000/-0.005	1/4	15.830	+0.006/-0.000	0.320	0.415
BUF 15500RS	15.500	+0.000/-0.005	1/4	16.330	+0.006/-0.000	0.320	0.415
BUF 16000RS	16.000	+0.000/-0.005	1/4	16.830	+0.006/-0.000	0.320	0.415

Buffer Seals

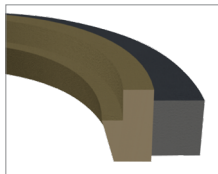
## Caterpillar\* One Piece Style



Part Number	Shaft Diameter	CAT Part Number
BUF 0875	0.875	5P4673
BUF 1250	1.250	9J3497
BUF 1500	1.500	6J9733
BUF 1750	1.750	6J9178
BUF 2000	2.000	6J6917
BUF 2250	2.250	5J3616
BUF 2375	2.375	6J6916
BUF 2500	2.500	5J3620
BUF 2750	2.750	6J6553
BUF 3000	3.000	6J6915
BUF 3250	3.250	6J7167

Part Number	Shaft Diameter	CAT Part Number
BUF 3500	3.500	6J6736
BUF 3750	3.750	8J6070
BUF 4000	4.000	8J4627
BUF 4250	4.250	7J8943
BUF 4375	4.375	3G5055
BUF 4750	4.750	7J9257
BUF 5000	5.000	8J4509
BUF 5500	5.500	8J9449
BUF 5750	5.750	9J5468
BUF 6500	6.500	6J8631
BUF 7000	7.000	9J2495

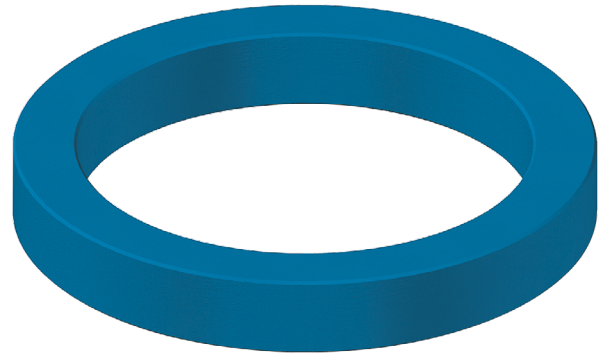
## Caterpillar\* Two Piece Style



Part Number	Shaft Diameter	CAT Part Number
BUF 15001	1.500	8C9122
BUF 17501	1.750	8C9123
BUF 20001	2.000	8C9124
BUF 22501	2.250	8C9125
BUF 23751	2.375	8C9138
BUF 25001	2.500	8C3839
BUF 27501	2.750	8C3841
BUF 30001	3.000	8C9126
BUF 32501	3.250	8C9121
BUF 35001	3.500	8C9127
BUF 37501	3.750	8C9128
BUF 40001	4.000	8C9129

\* Our Caterpillar parts are not original equipment parts. Caterpillar part numbers are only provided as a reference.

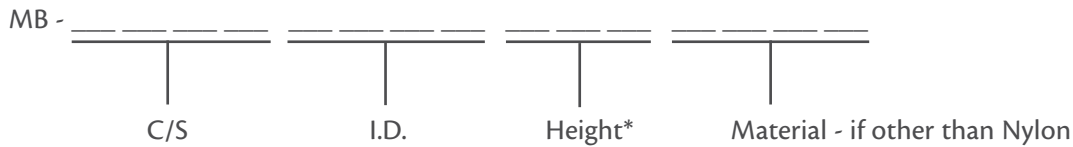
Materials	Temp. Range
Nylon	-30°C to 93°C
Hytrel®	-54°C to 149°C
PTFE	-260°C to 260°C
Urethane	-54°C to 105°C



## Product Description

Modular bearings are used in both rod and piston applications. They act as a wear and load bearing surface to help extend the life of a loaded or unloaded U-cup. The standard material of modular bearings is nylon.

## Part Numbers:

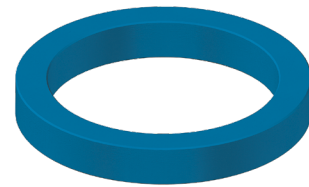
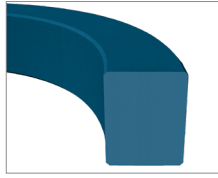


*\* Height is only listed if the axial height is greater than the cross-section.*

**Example:** MB - 25001750 H - Modular Bearing, Hytrel®, 1 - 3/4” Nom. I.D., 2 - 1/4” Nom. O.D., 1/4” Nom. C/S, 1/4” Nom. Height

# Modular Bearings

IMPERIAL SEALS



Part Number	I.D.	O.D.	Height
MB 12500125	1/8	3/8	1/8
MB 12500250	1/4	1/2	1/8
MB 12500312	5/16	9/16	1/8
MB 12500375	3/8	5/8	1/8
MB 12500500	1/2	3/4	1/8
MB 12500625	5/8	7/8	1/8
MB 12500687	11/16	15/16	1/8
MB 12500812	13/16	1 - 1/16	1/8
MB 12500937	15/16	1 - 3/16	1/8
MB 12501000	1	1 - 1/4	1/8
MB 12501062	1 - 1/16	1 - 5/16	1/8
MB 12501250	1 - 1/4	1 - 1/2	1/8
MB 12501375	1 - 3/8	1 - 5/8	1/8
MB 12501500	1 - 1/2	1 - 3/4	1/8
MB 18700500	1/2	7/8	3/16
MB 18700625	5/8	1	3/16
MB 18701000	1	1 - 3/8	3/16
MB 18701250	1 - 1/4	1 - 5/8	3/16
MB 18701312	1 - 5/16	1 - 11/16	3/16
MB 18701500	1 - 1/2	1 - 7/8	3/16
MB 18701625	1 - 5/8	2	3/16
MB 18701875	1 - 7/8	2 - 1/4	3/16
MB 18701937	1 - 15/16	2 - 5/16	3/16
MB 18702000	2	2 - 3/8	3/16
MB 18702125	2 - 1/8	2 - 1/2	3/16
MB 18702500	2 - 1/2	2 - 7/8	3/16
MB 18702625	2 - 5/8	3	3/16
MB 18702750	2 - 3/4	3 - 1/8	3/16
MB 18703000	3	3 - 3/8	3/16
MB 18703125	3 - 1/8	3 - 1/2	3/16
MB 18703250	3 - 1/4	3 - 5/8	3/16
MB 18703500	3 - 1/2	3 - 7/8	3/16
MB 18703625	3 - 5/8	4	3/16
MB 18703875	3 - 7/8	4 - 1/4	3/16
MB 25000500	1/2	1	1/4
MB 25000750	3/4	1 - 1/4	1/4
MB 25000875	7/8	1 - 3/8	1/4
MB 25001000	1	1 - 1/2	1/4
MB 25001062	1 - 1/16	1 - 9/16	1/4
MB 25001250	1 - 1/4	1 - 3/4	1/4
MB 25001312	1 - 5/16	1 - 13/16	1/4
MB 25001375	1 - 3/8	1 - 7/8	1/4
MB 25001500	1 - 1/2	2	1/4

Part Number	I.D.	O.D.	Height
MB 25001750	1 - 3/4	2 - 1/4	1/4
MB 25001875	1 - 7/8	2 - 3/8	1/4
MB 25002000	2	2 - 1/2	1/4
MB 25002250	2 - 1/4	2 - 3/4	1/4
MB 25002500	2 - 1/2	3	1/4
MB 25002625	2 - 5/8	3 - 1/8	1/4
MB 25002750	2 - 3/4	3 - 1/4	1/4
MB 25002875	2 - 7/8	3 - 3/8	1/4
MB 25003000	3	3 - 1/2	1/4
MB 25003250	3 - 1/4	3 - 3/4	1/4
MB 25003375	3 - 3/8	3 - 7/8	1/4
MB 25003500	3 - 1/2	4	1/4
MB 25003750	3 - 3/4	4 - 1/4	1/4
MB 25004000	4	4 - 1/2	1/4
MB 25004125	4 - 1/8	4 - 5/8	1/4
MB 25004250	4 - 1/4	4 - 3/4	1/4
MB 25004500	4 - 1/2	5	1/4
MB 25005000	5	5 - 1/2	1/4
MB 25005250	5 - 1/4	5 - 3/4	1/4
MB 25005500	5 - 1/2	6	1/4
MB 25006000	6	6 - 1/2	1/4
MB 25006250	6 - 1/4	6 - 3/4	1/4
MB 25007250	7 - 1/4	7 - 3/4	1/4
MB 25007500	7 - 1/2	8	1/4
MB 25007750	7 - 3/4	8 - 1/4	1/4
MB 250010000	10	10 - 1/2	1/4
MB 250010750	10 - 3/4	11 - 1/4	1/4
MB 250013000	13	13 - 1/2	1/4
MB 28102250	2 - 1/4	2 - 13/16	9/32
MB 28108000	8	8 - 9/16	9/32
MB 31201250	1 - 1/4	1 - 7/8	5/16
MB 31201375	1 - 3/8	2	5/16
MB 31201500	1 - 1/2	2 - 1/8	5/16
MB 31201625	1 - 5/8	2 - 1/4	5/16
MB 31201750	1 - 3/4	2 - 3/8	5/16
MB 31201875	1 - 7/8	2 - 1/2	5/16
MB 31202000	2	2 - 5/8	5/16
MB 31202250	2 - 1/4	2 - 7/8	5/16
MB 31202375	2 - 3/8	3	5/16
MB 31202500	2 - 1/2	3 - 1/8	5/16
MB 31203000	3	3 - 5/8	5/16
MB 31203125	3 - 1/8	3 - 3/4	5/16
MB 31203500	3 - 1/2	4 - 1/8	5/16



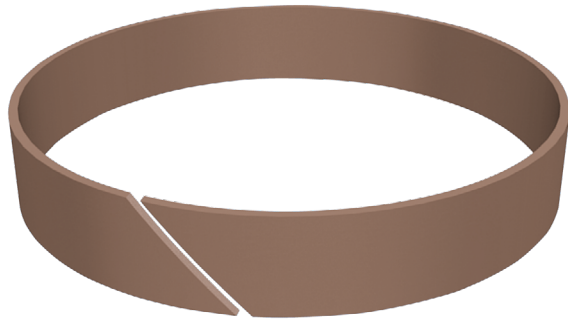
# Modular Bearings

Modular Bearings

Part Number	I.D.	O.D.	Height
MB 31203750	3 - 3/4	4 - 3/8	5/16
MB 31204125	4 - 1/8	4 - 3/4	5/16
MB 31204250	4 - 1/4	4 - 7/8	5/16
MB 31204375	4 - 3/8	5	5/16
MB 31204500	4 - 1/2	5 - 1/8	5/16
MB 31205375	5 - 3/8	6	5/16
MB 31208000	8	8 - 5/8	5/16
MB 37500875	7/8	1 - 5/8	3/8
MB 37501000	1	1 - 3/4	3/8
MB 37501250	1 - 1/4	2	3/8
MB 37501375	1 - 3/8	2 - 1/8	3/8
MB 37501500	1 - 1/2	2 - 1/4	3/8
MB 37501625	1 - 5/8	2 - 3/8	3/8
MB 37501750	1 - 3/4	2 - 1/2	3/8
MB 37501875	1 - 7/8	2 - 5/8	3/8
MB 37502000	2	2 - 3/4	3/8
MB 37502250	2 - 1/4	3	3/8
MB 37502375	2 - 3/8	3 - 1/8	3/8
MB 37502500	2 - 1/2	3 - 1/4	3/8
MB 37502625	2 - 5/8	3 - 3/8	3/8
MB 37502750	2 - 3/4	3 - 1/2	3/8
MB 37503000	3	3 - 3/4	3/8
MB 37503125	3 - 1/8	3 - 7/8	3/8
MB 37503250	3 - 1/4	4	3/8
MB 37503375	3 - 3/8	4 - 1/8	3/8
MB 37503500	3 - 1/2	4 - 1/4	3/8
MB 37503750	3 - 3/4	4 - 1/2	3/8
MB 37503875	3 - 7/8	4 - 5/8	3/8
MB 37504000	4	4 - 3/4	3/8
MB 37504125	4 - 1/8	4 - 7/8	3/8
MB 37504250	4 - 1/4	5	3/8
MB 37504375	4 - 3/8	5 - 1/8	3/8
MB 37504500	4 - 1/2	5 - 1/4	3/8
MB 37504750	4 - 3/4	5 - 1/2	3/8
MB 37504875	4 - 7/8	5 - 5/8	3/8
MB 37505000	5	5 - 3/4	3/8
MB 37505250	5 - 1/4	6	3/8
MB 37505375	5 - 3/8	6 - 1/8	3/8
MB 37505875	5 - 7/8	6 - 5/8	3/8
MB 37506000	6	6 - 3/4	3/8
MB 37506250	6 - 1/4	7	3/8
MB 37506500	6 - 1/2	7 - 1/4	3/8
MB 37507000	7	7 - 3/4	3/8
MB 37507250	7 - 1/4	8	3/8
MB 37507500	7 - 1/2	8 - 1/4	3/8
MB 37507750	7 - 3/4	8 - 1/2	3/8
MB 37509000	9	9 - 3/4	3/8
MB 37509250	9 - 1/4	10	3/8
MB 37509750	9 - 3/4	10 - 1/2	3/8
MB 375010000	10	10 - 3/4	3/8
MB 375010500	10 - 1/2	11 - 1/4	3/8

Part Number	I.D.	O.D.	Height
MB 375011000	11	11 - 3/4	3/8
MB 375011250	11 - 1/4	12	3/8
MB 43701000	1	1 - 7/8	7/16
MB 43702125	2 - 1/8	3	7/16
MB 43705000	5	5 - 7/8	7/16
MB 50002000	2	3	1/2
MB 50002250	2 - 1/4	3 - 1/4	1/2
MB 50002375	2 - 3/8	3 - 3/8	1/2
MB 50002500	2 - 1/2	3 - 1/2	1/2
MB 50002750	2 - 3/4	3 - 3/4	1/2
MB 50003000	3	4	1/2
MB 50003500	3 - 1/2	4 - 1/2	1/2
MB 50003750	3 - 3/4	4 - 3/4	1/2
MB 50004000	4	5	1/2
MB 50004250	4 - 1/4	5 - 1/4	1/2
MB 50004500	4 - 1/2	5 - 1/2	1/2
MB 50005000	5	6	1/2
MB 50005250	5 - 1/4	6 - 1/4	1/2
MB 50005500	5 - 1/2	6 - 1/2	1/2
MB 50006000	6	7	1/2
MB 50006500	6 - 1/2	7 - 1/2	1/2
MB 50006750	6 - 3/4	7 - 3/4	1/2
MB 50007000	7	8	1/2
MB 50008000	8	9	1/2
MB 50008500	8 - 1/2	9 - 1/2	1/2
MB 50009000	9	10	1/2
MB 50009500	9 - 1/2	10 - 1/2	1/2
MB 500010000	10	11	1/2
MB 500010500	10 - 1/2	11 - 1/2	1/2
MB 500011500	11 - 1/2	12 - 1/2	1/2
MB 500012000	12	13	1/2
MB 500013500	13 - 1/2	14 - 1/2	1/2
MB 500015000	15	16	1/2
MB 500017000	17	18	1/2
MB 500019000	19	20	1/2
MB 500021000	21	22	1/2
MB 500029000	29	30	1/2
MB 62502000	2	3 - 1/4	5/8
MB 62502500	2 - 1/2	3 - 3/4	5/8
MB 62502750	2 - 3/4	4	5/8
MB 62503000	3	4 - 1/4	5/8
MB 62503250	3 - 1/4	4 - 1/2	5/8
MB 62504625	4 - 5/8	5 - 7/8	5/8
MB 62504750	4 - 3/4	6	5/8
MB 62506750	6 - 3/4	8	5/8
MB 62507000	7	8 - 1/4	5/8
MB 625012750	12 - 3/4	14	5/8
MB 625030000	30	31 - 1/4	5/8
MB 75006500	6 - 1/2	8	3/4
MB 75007500	7 - 1/2	9	3/4
MB 75008000	8	9 - 1/2	3/4




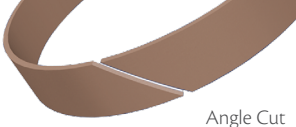





# Wear Rings



Materials	Temp. Range
Bronze filled PTFE	-260°C to 260°C
Carbon Graphite filled PTFE	-260°C to 260°C
Glass filled Nylon	-240°C to 121°C
Glass filled PTFE	-260°C to 260°C
Phenolic	-60°C to 130°C
PEEK	-70°C to 260°C

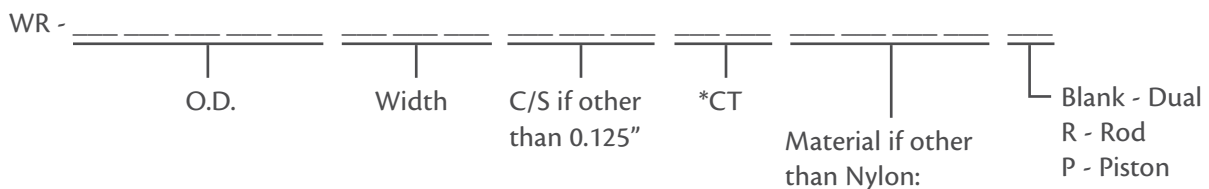
## Product Description

The function of a wear ring is to help keep the piston centred, which allows for even wear and pressure distribution on the seals. We provide wear rings in a variety of materials, our standard material is a glass filled nylon. Wear rings are used in both piston and rod applications. The tolerance for standard wear rings cross-section is 0.120 +0.005”/-0.000” (0.120” to 0.125”), and for close tolerance wear rings, it’s 0.124” ±0.001 (0.123” to 0.125”).

Style	Advantages	Installation	Performance
 <p>Butt Cut</p>	Easiest cut style to install in most applications.	 <p>Easy More Complex</p>	 <p>Good Best</p>
 <p>Angle Cut</p>	Improves bearing stress at the gap.	 <p>Easy More Complex</p>	 <p>Good Best</p>
 <p>Step Cut</p>	Improves bearing stress at gap. Better resistance to contaminants & spike loads.	 <p>Easy More Complex</p>	 <p>Good Best</p>

3/16th Cross-section is not available in Step Cut style.

## Part Numbers:



\*CT, close tolerance, indicates a tolerance of +0.000/-0.002

- BRZ - Bronze filled PTFE
- TGF - Glass filled PTFE
- TCG - Carbon Graphite filled PTFE
- PH - Phenolic
- PEEK - PEEK

Listed parts have a 0.125" actual target cross-section. Wear rings can be manufactured with custom cross-sections upon request.

Part Number	Bore Dia.	Seal Height
WR 1000187	1.000	0.187
WR 1000250	1.000	0.250
WR 1000312	1.000	0.312
WR 1000375	1.000	0.375
WR 1000500	1.000	0.500
WR 1000625	1.000	0.625
WR 1000750	1.000	0.750
WR 1000875	1.000	0.875
WR 1000100	1.000	1.000
WR 1000125	1.000	1.250
WR 1000150	1.000	1.500
WR 1000175	1.000	1.750
WR 1000200	1.000	2.000
WR 1125187	1.125	0.187
WR 1125250	1.125	0.250
WR 1125312	1.125	0.312
WR 1125375	1.125	0.375
WR 1125500	1.125	0.500
WR 1125625	1.125	0.625
WR 1125750	1.125	0.750
WR 1125875	1.125	0.875
WR 1125100	1.125	1.000
WR 1125125	1.125	1.250
WR 1125150	1.125	1.500
WR 1125175	1.125	1.750
WR 1125200	1.125	2.000
WR 1250187	1.250	0.187
WR 1250250	1.250	0.250
WR 1250312	1.250	0.312
WR 1250375	1.250	0.375
WR 1250500	1.250	0.500
WR 1250625	1.250	0.625
WR 1250750	1.250	0.750
WR 1250875	1.250	0.875
WR 1250100	1.250	1.000

Part Number	Bore Dia.	Seal Height
WR 1250125	1.250	1.250
WR 1250150	1.250	1.500
WR 1250175	1.250	1.750
WR 1250200	1.250	2.000
WR 1500187	1.500	0.187
WR 1500250	1.500	0.250
WR 1500312	1.500	0.312
WR 1500375	1.500	0.375
WR 1500500	1.500	0.500
WR 1500625	1.500	0.625
WR 1500750	1.500	0.750
WR 1500875	1.500	0.875
WR 1500100	1.500	1.000
WR 1500125	1.500	1.250
WR 1500150	1.500	1.500
WR 1500175	1.500	1.750
WR 1500200	1.500	2.000
WR 1750187	1.750	0.187
WR 1750250	1.750	0.250
WR 1750312	1.750	0.312
WR 1750375	1.750	0.375
WR 1750500	1.750	0.500
WR 1750625	1.750	0.625
WR 1750750	1.750	0.750
WR 1750875	1.750	0.875
WR 1750100	1.750	1.000
WR 1750125	1.750	1.250
WR 1750150	1.750	1.500
WR 1750175	1.750	1.750
WR 1750200	1.750	2.000
WR 2000250	2.000	0.250
WR 2000312	2.000	0.312
WR 2000375	2.000	0.375
WR 2000500	2.000	0.500
WR 2000625	2.000	0.625

Part Number	Bore Dia.	Seal Height
WR 2000750	2.000	0.750
WR 2000875	2.000	0.875
WR 2000100	2.000	1.000
WR 2000125	2.000	1.250
WR 2000150	2.000	1.500
WR 2000175	2.000	1.750
WR 2000200	2.000	2.000
WR 2500187	2.500	0.187
WR 2500250	2.500	0.250
WR 2500312	2.500	0.312
WR 2500375	2.500	0.375
WR 2500500	2.500	0.500
WR 2500625	2.500	0.625
WR 2500750	2.500	0.750
WR 2500875	2.500	0.875
WR 2500100	2.500	1.000
WR 2500125	2.500	1.250
WR 2500150	2.500	1.500
WR 2500175	2.500	1.750
WR 2500200	2.500	2.000
WR 2625187	2.625	0.187
WR 2625250	2.625	0.250
WR 2625312	2.625	0.312
WR 2625375	2.625	0.375
WR 2625500	2.625	0.500
WR 2625625	2.625	0.625
WR 2625750	2.625	0.750
WR 2625875	2.625	0.875
WR 2625100	2.625	1.000
WR 2625125	2.625	1.250
WR 2625150	2.625	1.500
WR 2625175	2.625	1.750
WR 2625200	2.625	2.000
WR 2750187	2.750	0.187
WR 2750250	2.750	0.250

# Wear Rings

IMPERIAL SEALS

Wear Rings

Part Number	Bore Dia.	Seal Height
WR 2750312	2.750	0.312
WR 2750375	2.750	0.375
WR 2750500	2.750	0.500
WR 2750625	2.750	0.625
WR 2750750	2.750	0.750
WR 2750875	2.750	0.875
WR 2750100	2.750	1.000
WR 2750125	2.750	1.250
WR 2750150	2.750	1.500
WR 2750175	2.750	1.750
WR 2750200	2.750	2.000
WR 3000187	3.000	0.187
WR 3000250	3.000	0.250
WR 3000312	3.000	0.312
WR 3000375	3.000	0.375
WR 3000500	3.000	0.500
WR 3000625	3.000	0.625
WR 3000750	3.000	0.750
WR 3000875	3.000	0.875
WR 3000100	3.000	1.000
WR 3000125	3.000	1.250
WR 3000150	3.000	1.500
WR 3000175	3.000	1.750
WR 3000200	3.000	2.000
WR 3250187	3.250	0.187
WR 3250250	3.250	0.250
WR 3250312	3.250	0.312
WR 3250375	3.250	0.375
WR 3250500	3.250	0.500
WR 3250625	3.250	0.625
WR 3250750	3.250	0.750
WR 3250875	3.250	0.875
WR 3250100	3.250	1.000
WR 3250125	3.250	1.250
WR 3250150	3.250	1.500

Part Number	Bore Dia.	Seal Height
WR 3250175	3.250	1.750
WR 3250200	3.250	2.000
WR 3500187	3.500	0.187
WR 3500250	3.500	0.250
WR 3500312	3.500	0.312
WR 3500375	3.500	0.375
WR 3500500	3.500	0.500
WR 3500625	3.500	0.625
WR 3500750	3.500	0.750
WR 3500875	3.500	0.875
WR 3500100	3.500	1.000
WR 3500125	3.500	1.250
WR 3500150	3.500	1.500
WR 3500175	3.500	1.750
WR 3500200	3.500	2.000
WR 3750187	3.750	0.187
WR 3750250	3.750	0.250
WR 3750312	3.750	0.312
WR 3750375	3.750	0.375
WR 3750500	3.750	0.500
WR 3750625	3.750	0.625
WR 3750750	3.750	0.750
WR 3750875	3.750	0.875
WR 3750100	3.750	1.000
WR 3750125	3.750	1.250
WR 3750150	3.750	1.500
WR 3750175	3.750	1.750
WR 3750200	3.750	2.000
WR 3875187	3.875	0.187
WR 3875250	3.875	0.250
WR 3875312	3.875	0.312
WR 3875375	3.875	0.375
WR 3875500	3.875	0.500
WR 3875625	3.875	0.625
WR 3875750	3.875	0.750

Part Number	Bore Dia.	Seal Height
WR 3875875	3.875	0.875
WR 3875100	3.875	1.000
WR 3875125	3.875	1.250
WR 3875150	3.875	1.500
WR 3875175	3.875	1.750
WR 3875200	3.875	2.000
WR 4000187	4.000	0.187
WR 4000250	4.000	0.250
WR 4000312	4.000	0.312
WR 4000375	4.000	0.375
WR 4000500	4.000	0.500
WR 4000625	4.000	0.625
WR 4000750	4.000	0.750
WR 4000875	4.000	0.875
WR 4000100	4.000	1.000
WR 4000125	4.000	1.250
WR 4000150	4.000	1.500
WR 4000175	4.000	1.750
WR 4000200	4.000	2.000
WR 4250187	4.250	0.187
WR 4250250	4.250	0.250
WR 4250312	4.250	0.312
WR 4250375	4.250	0.375
WR 4250500	4.250	0.500
WR 4250625	4.250	0.625
WR 4250750	4.250	0.750
WR 4250875	4.250	0.875
WR 4250100	4.250	1.000
WR 4250125	4.250	1.250
WR 4250150	4.250	1.500
WR 4250175	4.250	1.750
WR 4250200	4.250	2.000
WR 4500187	4.500	0.187
WR 4500250	4.500	0.250
WR 4500312	4.500	0.312

Part Number	Bore Dia.	Seal Height
WR 4500375	4.500	0.375
WR 4500500	4.500	0.500
WR 4500625	4.500	0.625
WR 4500750	4.500	0.750
WR 4500875	4.500	0.875
WR 4500100	4.500	1.000
WR 4500125	4.500	1.250
WR 4500150	4.500	1.500
WR 4500175	4.500	1.750
WR 4500200	4.500	2.000
WR 4750187	4.750	0.187
WR 4750250	4.750	0.250
WR 4750312	4.750	0.312
WR 4750375	4.750	0.375
WR 4750500	4.750	0.500
WR 4750625	4.750	0.625
WR 4750750	4.750	0.750
WR 4750875	4.750	0.875
WR 4750100	4.750	1.000
WR 4750125	4.750	1.250
WR 4750150	4.750	1.500
WR 4750175	4.750	1.750
WR 4750200	4.750	2.000
WR 4875187	4.875	0.187
WR 4875250	4.875	0.250
WR 4875312	4.875	0.312
WR 4875375	4.875	0.375
WR 4875500	4.875	0.500
WR 4875625	4.875	0.625
WR 4875750	4.875	0.750
WR 4875875	4.875	0.875
WR 4875100	4.875	1.000
WR 4875125	4.875	1.250
WR 4875150	4.875	1.500
WR 4875175	4.875	1.750

Part Number	Bore Dia.	Seal Height
WR 4875200	4.875	2.000
WR 5000250	5.000	0.250
WR 5000312	5.000	0.312
WR 5000375	5.000	0.375
WR 5000500	5.000	0.500
WR 5000625	5.000	0.625
WR 5000750	5.000	0.750
WR 5000875	5.000	0.875
WR 5000100	5.000	1.000
WR 5000125	5.000	1.250
WR 5000150	5.000	1.500
WR 5000175	5.000	1.750
WR 5000200	5.000	2.000
WR 5250250	5.250	0.250
WR 5250312	5.250	0.312
WR 5250375	5.250	0.375
WR 5250500	5.250	0.500
WR 5250625	5.250	0.625
WR 5250750	5.250	0.750
WR 5250875	5.250	0.875
WR 5250100	5.250	1.000
WR 5250125	5.250	1.250
WR 5250150	5.250	1.500
WR 5250175	5.250	1.750
WR 5250200	5.250	2.000
WR 5250225	5.250	2.250
WR 5500250	5.500	0.250
WR 5500312	5.500	0.312
WR 5500375	5.500	0.375
WR 5500500	5.500	0.500
WR 5500625	5.500	0.625
WR 5500750	5.500	0.750
WR 5500875	5.500	0.875
WR 5500100	5.500	1.000
WR 5500125	5.500	1.250

Part Number	Bore Dia.	Seal Height
WR 5500150	5.500	1.500
WR 5500175	5.500	1.750
WR 5500200	5.500	2.000
WR 5625250	5.625	0.250
WR 5625312	5.625	0.312
WR 5625375	5.625	0.375
WR 5625500	5.625	0.500
WR 5625625	5.625	0.625
WR 5625750	5.625	0.750
WR 5625875	5.625	0.875
WR 5625100	5.625	1.000
WR 5625125	5.625	1.250
WR 5625150	5.625	1.500
WR 5625175	5.625	1.750
WR 5625200	5.625	2.000
WR 5750250	5.750	0.250
WR 5750312	5.750	0.312
WR 5750375	5.750	0.375
WR 5750500	5.750	0.500
WR 5750625	5.750	0.625
WR 5750750	5.750	0.750
WR 5750875	5.750	0.875
WR 5750100	5.750	1.000
WR 5750125	5.750	1.250
WR 5750150	5.750	1.500
WR 5750175	5.750	1.750
WR 5750200	5.750	2.000
WR 6000250	6.000	0.250
WR 6000312	6.000	0.312
WR 6000375	6.000	0.375
WR 6000500	6.000	0.500
WR 6000625	6.000	0.625
WR 6000750	6.000	0.750
WR 6000875	6.000	0.875
WR 6000100	6.000	1.000

# Wear Rings

IMPERIAL SEALS

Wear Rings

Part Number	Bore Dia.	Seal Height
WR 6000125	6.000	1.250
WR 6000150	6.000	1.500
WR 6000175	6.000	1.750
WR 6000200	6.000	2.000
WR 6250250	6.250	0.250
WR 6250312	6.250	0.312
WR 6250375	6.250	0.375
WR 6250500	6.250	0.500
WR 6250625	6.250	0.625
WR 6250750	6.250	0.750
WR 6250875	6.250	0.875
WR 6250100	6.250	1.000
WR 6250125	6.250	1.250
WR 6250150	6.250	1.500
WR 6250175	6.250	1.750
WR 6250200	6.250	2.000
WR 6500250	6.500	0.250
WR 6500312	6.500	0.312
WR 6500375	6.500	0.375
WR 6500500	6.500	0.500
WR 6500625	6.500	0.625
WR 6500750	6.500	0.750
WR 6500875	6.500	0.875
WR 6500100	6.500	1.000
WR 6500125	6.500	1.250
WR 6500150	6.500	1.500
WR 6500175	6.500	1.750
WR 6500200	6.500	2.000
WR 6750250	6.750	0.250
WR 6750312	6.750	0.312
WR 6750375	6.750	0.375
WR 6750500	6.750	0.500
WR 6750625	6.750	0.625
WR 6750750	6.750	0.750
WR 6750875	6.750	0.875

Part Number	Bore Dia.	Seal Height
WR 6750100	6.750	1.000
WR 6750125	6.750	1.250
WR 6750150	6.750	1.500
WR 6750175	6.750	1.750
WR 6750200	6.750	2.000
WR 7000250	7.000	0.250
WR 7000312	7.000	0.312
WR 7000375	7.000	0.375
WR 7000500	7.000	0.500
WR 7000625	7.000	0.625
WR 7000750	7.000	0.750
WR 7000875	7.000	0.875
WR 7000100	7.000	1.000
WR 7000125	7.000	1.250
WR 7000150	7.000	1.500
WR 7000175	7.000	1.750
WR 7000200	7.000	2.000
WR 7250250	7.250	0.250
WR 7250312	7.250	0.312
WR 7250375	7.250	0.375
WR 7250500	7.250	0.500
WR 7250625	7.250	0.625
WR 7250750	7.250	0.750
WR 7250875	7.250	0.875
WR 7250100	7.250	1.000
WR 7250125	7.250	1.250
WR 7250150	7.250	1.500
WR 7250175	7.250	1.750
WR 7250200	7.250	2.000
WR 7500250	7.500	0.250
WR 7500312	7.500	0.312
WR 7500375	7.500	0.375
WR 7500500	7.500	0.500
WR 7500625	7.500	0.625
WR 7500750	7.500	0.750

Part Number	Bore Dia.	Seal Height
WR 7500875	7.500	0.875
WR 7500100	7.500	1.000
WR 7500125	7.500	1.250
WR 7500150	7.500	1.500
WR 7500175	7.500	1.750
WR 7500200	7.500	2.000
WR 7750250	7.750	0.250
WR 7750312	7.750	0.312
WR 7750375	7.750	0.375
WR 7750500	7.750	0.500
WR 7750625	7.750	0.625
WR 7750750	7.750	0.750
WR 7750875	7.750	0.875
WR 7750100	7.750	1.000
WR 7750125	7.750	1.250
WR 7750150	7.750	1.500
WR 7750175	7.750	1.750
WR 7750200	7.750	2.000
WR 8000250	8.000	0.250
WR 8000312	8.000	0.312
WR 8000375	8.000	0.375
WR 8000500	8.000	0.500
WR 8000625	8.000	0.625
WR 8000750	8.000	0.750
WR 8000875	8.000	0.875
WR 8000100	8.000	1.000
WR 8000125	8.000	1.250
WR 8000150	8.000	1.500
WR 8000175	8.000	1.750
WR 8000200	8.000	2.000
WR 8250250	8.250	0.250
WR 8250312	8.250	0.312
WR 8250375	8.250	0.375
WR 8250500	8.250	0.500
WR 8250625	8.250	0.625

Part Number	Bore Dia.	Seal Height
WR 8250750	8.250	0.750
WR 8250875	8.250	0.875
WR 8250100	8.250	1.000
WR 8250125	8.250	1.250
WR 8250150	8.250	1.500
WR 8250175	8.250	1.750
WR 8250200	8.250	2.000
WR 8500250	8.500	0.250
WR 8500312	8.500	0.312
WR 8500375	8.500	0.375
WR 8500500	8.500	0.500
WR 8500625	8.500	0.625
WR 8500750	8.500	0.750
WR 8500875	8.500	0.875
WR 8500100	8.500	1.000
WR 8500125	8.500	1.250
WR 8500150	8.500	1.500
WR 8500175	8.500	1.750
WR 8500200	8.500	2.000
WR 8750250	8.750	0.250
WR 8750312	8.750	0.312
WR 8750375	8.750	0.375
WR 8750500	8.750	0.500
WR 8750625	8.750	0.625
WR 8750750	8.750	0.750
WR 8750875	8.750	0.875
WR 8750100	8.750	1.000
WR 8750125	8.750	1.250
WR 8750150	8.750	1.500
WR 8750175	8.750	1.750
WR 8750200	8.750	2.000
WR 9000250	9.000	0.250
WR 9000312	9.000	0.312
WR 9000375	9.000	0.375
WR 9000500	9.000	0.500

Part Number	Bore Dia.	Seal Height
WR 9000625	9.000	0.625
WR 9000750	9.000	0.750
WR 9000875	9.000	0.875
WR 9000100	9.000	1.000
WR 9000125	9.000	1.250
WR 9000150	9.000	1.500
WR 9000175	9.000	1.750
WR 9000200	9.000	2.000
WR 9250250	9.250	0.250
WR 9250312	9.250	0.312
WR 9250375	9.250	0.375
WR 9250500	9.250	0.500
WR 9250625	9.250	0.625
WR 9250750	9.250	0.750
WR 9250875	9.250	0.875
WR 9250100	9.250	1.000
WR 9250125	9.250	1.250
WR 9250150	9.250	1.500
WR 9250175	9.250	1.750
WR 9250200	9.250	2.000
WR 9500250	9.500	0.250
WR 9500312	9.500	0.312
WR 9500375	9.500	0.375
WR 9500500	9.500	0.500
WR 9500625	9.500	0.625
WR 9500750	9.500	0.750
WR 9500875	9.500	0.875
WR 9500100	9.500	1.000
WR 9500125	9.500	1.250
WR 9500150	9.500	1.500
WR 9500175	9.500	1.750
WR 9500200	9.500	2.000
WR 9750250	9.750	0.250
WR 9750312	9.750	0.312
WR 9750375	9.750	0.375

Part Number	Bore Dia.	Seal Height
WR 9750500	9.750	0.500
WR 9750625	9.750	0.625
WR 9750750	9.750	0.750
WR 9750875	9.750	0.875
WR 9750100	9.750	1.000
WR 9750125	9.750	1.250
WR 9750150	9.750	1.500
WR 9750175	9.750	1.750
WR 9750200	9.750	2.000
WR 10000500	10.000	0.500
WR 10000625	10.000	0.625
WR 10000750	10.000	0.750
WR 10000875	10.000	0.875
WR 10000100	10.000	1.000
WR 10000125	10.000	1.250
WR 10000150	10.000	1.500
WR 10000175	10.000	1.750
WR 10000200	10.000	2.000
WR 10000225	10.000	2.250
WR 10500500	10.500	0.500
WR 10500625	10.500	0.625
WR 10500750	10.500	0.750
WR 10500875	10.500	0.875
WR 10500100	10.500	1.000
WR 10500125	10.500	1.250
WR 10500150	10.500	1.500
WR 10500175	10.500	1.750
WR 10500200	10.500	2.000



## Product Description

Dry sliding bearings are composed of a unique combination of materials, consisting of a carbon steel backing, an intermediate layer of sintered bronze, and self-lubricating polytetrafluoroethylene (PTFE) sliding lining. This combination offers a resilient centralization device, preventing metal on metal contact in dynamic, high load applications. Dry sliding bearings also have good wear resistance, excellent heat conductivity, low thermal expansion, and a low friction over a wide range of loads, speeds, and temperatures. They are suitable for reciprocating, oscillating, rotating, and sliding movements.

Depending on your unique applications, we offer a range of dry sliding bearing materials and design options to meet the performance requirements. The most commonly utilized designs are made from carbon steel, sintered bronze, and either a filled or loaded PTFE. Dry Sliding bearings are used in a wide variety of industries, including:

- Oil Exploration
- Agriculture
- Hydraulics & Valves
- Automotive
- Material Handling
- All Terrain Vehicles (ATVs)
- Lawn & Outdoor Equipment
- Medical & Dental

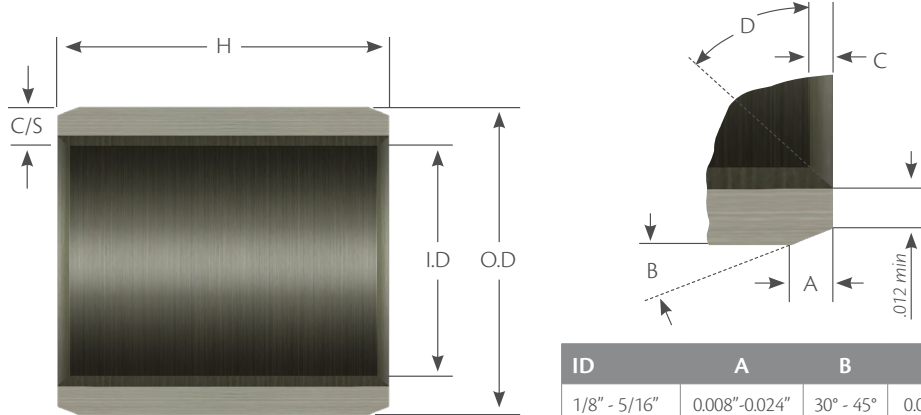
## Part Numbers:

DSB -        HT         
          |                  |  
      Nom. I.D.          Height

**Example:** DU 56HT56, Dry Slide Bearing, 3-1/2" Nominal ID, 3-1/2" Height



# Dry Slide Bearings



ID	A	B	C	D
1/8" - 5/16"	0.008"-0.024"	30° - 45°	0.004" - 0.012"	30° - 45°
3/8" - 11/16"	0.020"-0.040"	20° - 30°	0.005" - 0.025"	40° - 55°
3/4" - 7"	0.020" - 0.040"	15° - 25°	0.005" - 0.0025"	40° - 50°

Part Number	Nominal Dimensions				Groove Dimensions				Actual ID										
	ID	OD	H	C/S	Shaft		Housing		Min.	Max									
			±0.010		Min.	Max.	Min.	Max.											
02HT02	1/8	3/16	1/8	0.0305	0.0315	0.1236	0.1243	0.1873	0.1878	0.1243	0.1268								
02HT03			3/16																
02SHT025	5/32	7/32	5/32																
02SHT04			1/4																
03HT03	3/16	1/4	3/16																
03HT04			1/4																
03HT06			3/8																
04HT04	1/4	5/16	1/4									0.0461	0.0471	0.4980	0.4990	0.5934	0.5941	0.4992	0.5019
04HT06			3/8																
05HT06	5/16	3/8	3/8																
05HT08			1/2																
06HT06	3/8	15/32	3/8																
06HT08			1/2																
06HT12			3/4																
07HT08	7/16	17/32	1/2	0.0461	0.0471	0.5605	0.5615	0.6559	0.6566	0.5617	0.5644								
07HT12			3/4																
08HT06	1/2	19/32	3/8																
08HT08			1/2																
08HT10			5/8																
08HT14			7/8																
09HT08	9/16	21/32	1/2									0.0461	0.0471	0.6230	0.6240	0.7184	0.7192	0.6242	0.6270
09HT12			3/4																
10HT08	5/8	23/32	1/2																
10HT10			5/8																
10HT12			3/4																
10HT14			7/8																

Dry Slide Bearings

# Dry Slide Bearings

IMPERIAL SEALS

Dry Slide Bearings

Part Number	Nominal Dimensions			C/S		Groove Dimensions				Actual ID	
	ID	OD	H ±0.010	Min.	Max.	Shaft		Housing		Min.	Max.
						Min.	Max.	Min.	Max.		
11HT14	11/16	25/32	7/8	0.0461	0.0471	0.6855	0.6865	0.7809	0.7817	0.6867	0.6895
12HT08	3/4	7/8	1/2	0.0615	0.0627	0.7479	0.7491	0.8747	0.8755	0.7493	0.7525
12HT12			3/4								
12HT16			1								
14HT12	7/8	1	3/4	0.0615	0.0627	0.8729	0.8741	0.9997	1.0005	0.8743	0.8775
14HT14			7/8								
14HT16			1								
16HT12	1	1 - 1/8	3/4	0.0615	0.0627	0.9979	0.9991	1.1246	1.1256	0.9992	1.0026
16HT16			1								
16HT24			1 - 1/2								
18HT12	1 - 1/8	19/32	3/4	0.0615	0.0627	1.1226	1.1238	1.2808	1.2818	1.1240	1.1278
18HT16			1								
20HT12	1 - 1/4	1 - 13/32	3/4	0.0615	0.0627	1.2472	1.2488	1.4058	1.4068	1.2490	1.2528
20HT16			1								
20HT20			1 - 1/4								
20HT28			1 - 3/4								
22HT16	1 - 3/8	1 - 17/32	1	0.0770	0.0784	1.3722	1.3738	1.5308	1.5318	1.3740	1.3778
22HT22			1 - 3/8								
22HT28			1 - 3/4								
24HT16	1 - 1/2	1 - 21/32	1	0.0615	0.0627	1.4972	1.4988	1.6558	1.6568	1.4990	1.5028
24HT20			1 - 1/4								
24HT24			1 - 1/2								
24HT32			2								
26HT16	1 - 5/8	1 - 25/32	1	0.0615	0.0627	1.6222	1.6238	1.7808	1.7818	1.6240	1.6278
26HT24			1 - 1/2								
28HT16	1 - 3/4	1 - 15/16	1	0.0923	0.0941	1.7471	1.7487	1.9371	1.9381	1.7489	1.7535
28HT24			1 - 1/2								
28HT28			1 - 3/4								
28HT32			2								
30HT16	1 - 7/8	2 - 1/16	1	0.0923	0.0941	1.8721	1.8737	2.0621	2.0633	1.8739	1.8787
30HT30			1 - 7/8								
30HT36			2 - 1/4								
32HT16	2	2 - 3/16	1	0.0923	0.0941	1.9969	1.9987	2.1871	2.1883	1.9989	2.0037
32HT24			1 - 1/2								
32HT32			2								
32HT40			2 - 1/2								
36HT32	2 - 1/4	2 - 7/16	2	0.0902	0.0928	2.2489	2.2507	2.4365	2.4377	2.2509	2.2573
36HT36			2 - 1/4								

# Dry Slide Bearings

Part Number	Nominal Dimensions			C/S		Groove Dimensions				Actual ID	
	ID	OD	H	Min.	Max.	Shaft		Housing		Min.	Max.
			±0.010			Min.	Max.	Min.	Max.		
36HT40	2 - 1/4	2 - 7/16	2 - 1/2	0.0902	0.0928	2.2489	2.2507	2.4365	2.4377	2.2509	2.2573
36HT48			3								
40HT32	2 - 1/2	2 - 11/16	2			2.4993	2.5011	2.6869	2.6881	2.5013	2.5077
40HT40			2 - 1/2								
40HT48			3								
40HT56			3 - 1/2								
44HT32	2 - 3/4	2 - 15/16	2			2.7482	2.7500	2.9358	2.9370	2.7502	2.7566
44HT40			2 - 1/2								
44HT48			3								
44HT56			3 - 1/2								
48HT32	3	3 - 3/16	2 - 1/2			2.9982	3.0000	3.1858	3.1872	3.0002	3.0068
48HT48			3								
48HT60			3 - 3/4								
56HT40	3 - 1/2	3 - 11/16	2 - 1/2			3.4978	3.5000	3.6858	3.6872	3.5002	3.5068
56HT48			3								
56HT60			3 - 3/4								
64HT48	4	4 - 3/16	3	3.9978	4.0000	4.1858	4.1872	4.0002	4.0068		
64HT60			3 - 3/4								
64HT76			4 - 3/4								
80HT48	5	5 - 3/16	3	4.9961	4.9986	5.1844	5.1860	4.9988	5.0056		
80HT60			3 - 3/4								
96HT48	6	6 - 3/16	3	5.9975	6.0000	6.1858	6.1874	6.0002	6.0070		
96HT60			3 - 3/4								
112HT60	7	7 - 3/16	3 - 3/4	6.9929	6.9954	7.1812	7.1830	6.9956	7.0026		

Dry Slide Bearings



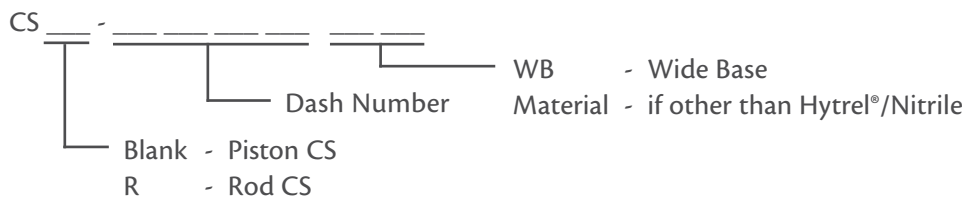
Crown Seal Materials	Temp. Range
Hytrel®	-54°C to 149°C
Urethane	-54°C to 105°C
PTFE	-260°C to 260°C
Loader Materials	
Nitrile	-40°C to 120°C
Viton™/Fluorocarbon	-26°C to 204°C
Ethylene Propylene	-54°C to 150°C
Chloroprene	-40°C to 121°C

## Product Description

Crown seals are a double acting piston squeeze-type seal. When inserted into a piston groove, the O-ring will rest on the static surface of the piston. Due to a crown seals narrow single seal, the sealing point creates a positive seal for both a vacuum and high pressure applications. The crown seal side legs act as an anti-extrusion device for the O-ring and provides additional stability to the seal.

Our standard crown seal material is Hytrel®, however, we stock a large amount of urethane in common sizes. The crown seal can be directly interchanged with T-seals, O-rings and quad rings. To promote the longevity of the crown seal we suggest a wear ring be used on the piston. The wear ring helps keep the piston centred which allows for even wear and pressure distribution on the crown seals sealing surface; a close tolerance wear ring will also help reduce bending of the rod.

## Part Numbers:

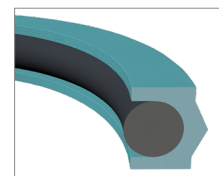
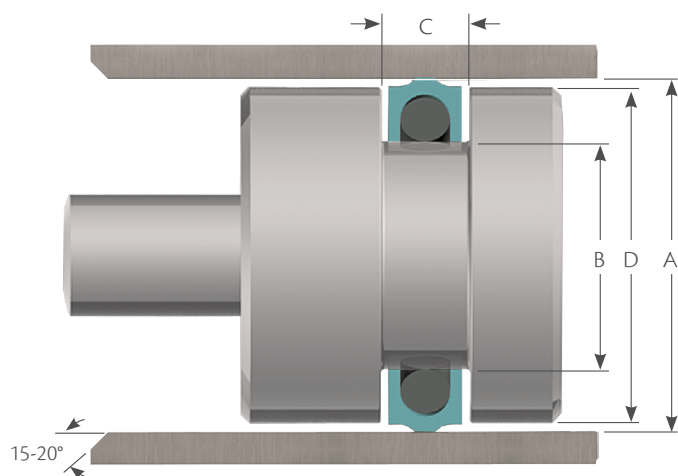


Contact us for rod crown seal information. The rod version of the crown seal follows the same nominal reference sizing, but contains different gland information.

**Example:** CS 214 - Crown Seal, Hytrel®, Nitrile loader, 1” Nom. I.D., 1 - 1/4” Nom. O.D., 1/8” Nom. C/S

# Crown Seals

*Piston Style*



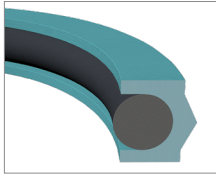
Crown Seals

Part Number	Nominal Reference Sizes			A	B	C	D
	I.D.	O.D.	C/S	Bore Diameter	Groove Diameter	Groove Width	Piston Diameter
CS 106	3/16	3/8	3/32	0.374 +0.002/-0.000	0.188 +0.000/-0.002	0.150 +0.005/-0.000	0.372 +0.000/-0.002
CS 108	1/4	7/16	3/32	0.436 +0.002/-0.000	0.250 +0.000/-0.002	0.150 +0.005/-0.000	0.434 +0.000/-0.002
CS 109	5/16	1/2	3/32	0.499 +0.002/-0.000	0.313 +0.000/-0.002	0.150 +0.005/-0.000	0.497 +0.000/-0.002
CS 203	5/16	9/16	1/8	0.561 +0.002/-0.000	0.315 +0.000/-0.002	0.185 +0.005/-0.000	0.559 +0.000/-0.002
CS 204	3/8	5/8	1/8	0.624 +0.002/-0.000	0.378 +0.000/-0.002	0.185 +0.005/-0.000	0.622 +0.000/-0.002
CS 205	7/16	11/16	1/8	0.686 +0.002/-0.000	0.440 +0.000/-0.002	0.185 +0.005/-0.000	0.684 +0.000/-0.002
CS 206	1/2	3/4	1/8	0.749 +0.002/-0.000	0.503 +0.000/-0.002	0.185 +0.005/-0.000	0.747 +0.000/-0.002
CS 207	9/16	13/16	1/8	0.811 +0.002/-0.000	0.565 +0.000/-0.002	0.185 +0.005/-0.000	0.809 +0.000/-0.002
CS 208	5/8	7/8	1/8	0.874 +0.002/-0.000	0.628 +0.000/-0.002	0.185 +0.005/-0.000	0.872 +0.000/-0.002
CS 209	11/16	15/16	1/8	0.936 +0.002/-0.000	0.690 +0.000/-0.002	0.185 +0.005/-0.000	0.934 +0.000/-0.002
CS 210	3/4	1	1/8	1.000 +0.002/-0.000	0.754 +0.000/-0.002	0.185 +0.005/-0.000	0.998 +0.000/-0.002
CS 211	13/16	1 - 1/16	1/8	1.062 +0.002/-0.000	0.816 +0.000/-0.002	0.185 +0.005/-0.000	1.060 +0.000/-0.002
CS 212	7/8	1 - 1/8	1/8	1.125 +0.002/-0.000	0.879 +0.000/-0.002	0.185 +0.005/-0.000	1.123 +0.000/-0.002
CS 213	15/16	1 - 3/16	1/8	1.187 +0.002/-0.000	0.941 +0.000/-0.002	0.185 +0.005/-0.000	1.185 +0.000/-0.002
CS 214	1	1 - 1/4	1/8	1.250 +0.002/-0.000	1.004 +0.000/-0.002	0.185 +0.005/-0.000	1.248 +0.000/-0.002
CS 215	1 - 1/16	1 - 5/16	1/8	1.312 +0.002/-0.000	1.066 +0.000/-0.002	0.185 +0.005/-0.000	1.310 +0.000/-0.002
CS 216	1 - 1/8	1 - 3/8	1/8	1.375 +0.002/-0.000	1.129 +0.000/-0.002	0.185 +0.005/-0.000	1.373 +0.000/-0.002
CS 217	1 - 3/16	1 - 7/16	1/8	1.437 +0.002/-0.000	1.191 +0.000/-0.002	0.185 +0.005/-0.000	1.435 +0.000/-0.002
CS 218	1 - 1/4	1 - 1/2	1/8	1.500 +0.002/-0.000	1.254 +0.000/-0.002	0.185 +0.005/-0.000	1.498 +0.000/-0.002
CS 219	1 - 5/16	1 - 9/16	1/8	1.562 +0.002/-0.000	1.316 +0.000/-0.002	0.185 +0.005/-0.000	1.560 +0.000/-0.002
CS 220	1 - 3/8	1 - 5/8	1/8	1.625 +0.002/-0.000	1.379 +0.000/-0.002	0.185 +0.005/-0.000	1.623 +0.000/-0.002
CS 222	1 - 1/2	1 - 3/4	1/8	1.750 +0.002/-0.000	1.504 +0.000/-0.002	0.185 +0.005/-0.000	1.748 +0.000/-0.002
CS 222WB	1 - 1/2	1 - 3/4	1/8	1.750 +0.002/-0.000	1.504 +0.000/-0.002	0.304 +0.005/-0.000	1.748 +0.000/-0.002
CS 325	1 - 1/2	1 - 7/8	3/16	1.875 +0.002/-0.000	1.500 +0.000/-0.002	0.280 +0.005/-0.000	1.873 +0.000/-0.002
CS 326	1 - 5/8	2	3/16	2.000 +0.002/-0.000	1.625 +0.000/-0.002	0.280 +0.005/-0.000	1.998 +0.000/-0.002
CS 326WB	1 - 5/8	2	3/16	2.000 +0.002/-0.000	1.625 +0.000/-0.002	0.424 +0.005/-0.000	1.998 +0.000/-0.002
CS 327	1 - 3/4	2 - 1/8	3/16	2.125 +0.002/-0.000	1.750 +0.000/-0.002	0.280 +0.005/-0.000	2.123 +0.000/-0.002

# Crown Seals

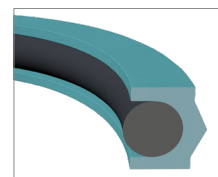
IMPERIAL SEALS

## Piston Style



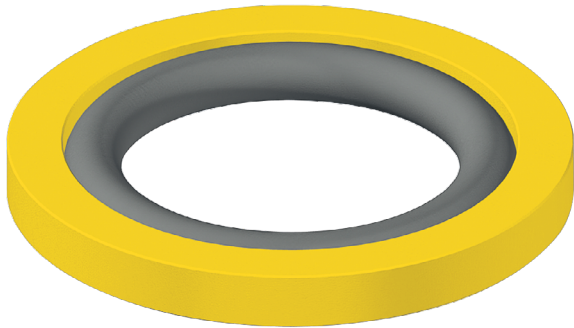
Part Number	Nominal Reference Sizes			A		B		C		D	
	I.D.	O.D.	C/S	Bore Diameter		Groove Diameter		Groove Width		Piston Diameter	
CS 328	1 - 7/8	2 - 1/4	3/16	2.250	+0.002/-0.000	1.875	+0.000/-0.002	0.280	+0.005/-0.000	2.248	+0.000/-0.002
CS 329	2	2 - 3/8	3/16	2.375	+0.002/-0.000	2.000	+0.000/-0.002	0.280	+0.005/-0.000	2.373	+0.000/-0.002
CS 330	2 - 1/8	2 - 1/2	3/16	2.500	+0.002/-0.000	2.125	+0.000/-0.002	0.280	+0.005/-0.000	2.498	+0.000/-0.002
CS 330WB	2 - 1/8	2 - 1/2	3/16	2.500	+0.002/-0.000	2.125	+0.000/-0.002	0.424	+0.005/-0.000	2.498	+0.000/-0.002
CS 331	2 - 1/4	2 - 5/8	3/16	2.625	+0.002/-0.000	2.250	+0.000/-0.002	0.280	+0.005/-0.000	2.622	+0.000/-0.002
CS 332	2 - 3/8	2 - 3/4	3/16	2.749	+0.004/-0.000	2.374	+0.000/-0.004	0.280	+0.005/-0.000	2.747	+0.000/-0.004
CS 333	2 - 1/2	2 - 7/8	3/16	2.874	+0.004/-0.000	2.499	+0.000/-0.004	0.280	+0.005/-0.000	2.872	+0.000/-0.004
CS 334	2 - 5/8	3	3/16	2.999	+0.004/-0.000	2.624	+0.000/-0.002	0.280	+0.005/-0.000	2.997	+0.000/-0.004
CS 335	2 - 3/4	3 - 1/8	3/16	3.124	+0.004/-0.000	2.749	+0.000/-0.004	0.280	+0.005/-0.000	3.122	+0.000/-0.004
CS 336	2 - 7/8	3 - 1/4	3/16	3.249	+0.004/-0.000	2.874	+0.000/-0.004	0.280	+0.005/-0.000	3.247	+0.000/-0.004
CS 337	3	3 - 3/8	3/16	3.375	+0.004/-0.000	3.000	+0.000/-0.004	0.280	+0.005/-0.000	3.373	+0.000/-0.004
CS 338	3 - 1/8	3 - 1/2	3/16	3.500	+0.004/-0.000	3.125	+0.000/-0.004	0.280	+0.005/-0.000	3.498	+0.000/-0.004
CS 338WB	3 - 1/8	3 - 1/2	3/16	3.500	+0.004/-0.000	3.125	+0.000/-0.004	0.424	+0.005/-0.000	3.498	+0.000/-0.004
CS 339	3 - 1/4	3 - 5/8	3/16	3.625	+0.004/-0.000	3.250	+0.000/-0.004	0.280	+0.005/-0.000	3.623	+0.000/-0.004
CS 340	3 - 3/8	3 - 3/4	3/16	3.750	+0.004/-0.000	3.375	+0.000/-0.004	0.280	+0.005/-0.000	3.748	+0.000/-0.004
CS 341	3 - 1/2	3 - 7/8	3/16	3.875	+0.004/-0.000	3.500	+0.000/-0.004	0.280	+0.005/-0.000	3.873	+0.000/-0.004
CS 341WB	3 - 1/2	3 - 7/8	3/16	3.875	+0.004/-0.000	3.500	+0.000/-0.004	0.424	+0.005/-0.000	3.873	+0.000/-0.004
CS 342	3 - 5/8	4	3/16	4.000	+0.004/-0.000	3.625	+0.000/-0.004	0.280	+0.005/-0.000	3.998	+0.000/-0.004
CS 342WB	3 - 5/8	4	3/16	4.000	+0.004/-0.000	3.625	+0.000/-0.004	0.424	+0.005/-0.000	3.998	+0.000/-0.004
CS 343	3 - 3/4	4 - 1/8	3/16	4.125	+0.004/-0.000	3.750	+0.000/-0.004	0.280	+0.005/-0.000	4.123	+0.000/-0.004
CS 344	3 - 7/8	4 - 1/4	3/16	4.250	+0.004/-0.000	3.875	+0.000/-0.004	0.280	+0.005/-0.000	4.248	+0.000/-0.004
CS 344WB	3 - 7/8	4 - 1/4	3/16	4.250	+0.004/-0.000	3.875	+0.000/-0.004	0.424	+0.005/-0.000	4.248	+0.000/-0.004
CS 345	4	4 - 3/8	3/16	4.375	+0.004/-0.000	4.000	+0.000/-0.004	0.280	+0.005/-0.000	4.373	+0.000/-0.004
CS 346	4 - 1/8	4 - 1/2	3/16	4.500	+0.004/-0.000	4.125	+0.000/-0.004	0.280	+0.005/-0.000	4.498	+0.000/-0.004
CS 346WB	4 - 1/8	4 - 1/2	3/16	4.500	+0.004/-0.000	4.125	+0.000/-0.004	0.424	+0.005/-0.000	4.498	+0.000/-0.004
CS 347	4 - 1/4	4 - 5/8	3/16	4.625	+0.004/-0.000	4.250	+0.000/-0.004	0.280	+0.005/-0.000	4.623	+0.000/-0.004
CS 348	4 - 3/8	4 - 3/4	3/16	4.750	+0.004/-0.000	4.375	+0.000/-0.004	0.280	+0.005/-0.000	4.748	+0.000/-0.004
CS 348WB	4 - 3/8	4 - 3/4	3/16	4.750	+0.004/-0.000	4.375	+0.000/-0.004	0.424	+0.005/-0.000	4.748	+0.000/-0.004
CS 349	4 - 1/2	4 - 7/8	3/16	4.875	+0.004/-0.000	4.500	+0.000/-0.004	0.280	+0.005/-0.000	4.873	+0.000/-0.004
CS 350	4 - 5/8	5	3/16	5.001	+0.004/-0.000	4.626	+0.000/-0.004	0.280	+0.005/-0.000	4.999	+0.000/-0.004
CS 350WB	4 - 5/8	5	3/16	5.001	+0.004/-0.000	4.626	+0.000/-0.004	0.424	+0.005/-0.000	4.999	+0.000/-0.004
CS 425WB	4 - 1/2	5	1/4	5.000	+0.004/-0.000	4.524	+0.000/-0.004	0.579	+0.006/-0.000	4.998	+0.000/-0.004
CS 426	4 - 5/8	5 - 1/8	1/4	5.125	+0.004/-0.000	4.646	+0.000/-0.004	0.365	+0.006/-0.000	5.124	+0.000/-0.004
CS 427	4 - 3/4	5 - 1/4	1/4	5.251	+0.004/-0.000	4.770	+0.000/-0.004	0.365	+0.006/-0.000	5.249	+0.000/-0.004
CS 428	4 - 7/8	5 - 3/8	1/4	5.376	+0.004/-0.000	4.896	+0.000/-0.004	0.365	+0.006/-0.000	5.374	+0.000/-0.004
CS 429	5	5 - 1/2	1/4	5.501	+0.004/-0.000	5.021	+0.000/-0.004	0.365	+0.006/-0.000	4.499	+0.000/-0.004
CS 430	5 - 1/8	5 - 5/8	1/4	5.626	+0.004/-0.000	5.146	+0.000/-0.004	0.365	+0.006/-0.000	5.624	+0.000/-0.004

*Piston Style*

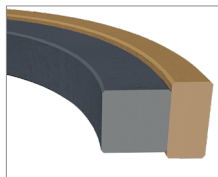


Part Number	Nominal Reference Sizes			A	B	C	D
	I.D.	O.D.	C/S	Bore Diameter	Groove Diameter	Groove Width	Piston Diameter
CS 431	5 - 1/4	5 - 3/4	1/4	5.751 +0.004/-0.000	5.271 +0.000/-0.004	0.365 +0.006/-0.000	5.749 +0.000/-0.004
CS 432	5 - 3/8	5 - 7/8	1/4	5.876 +0.004/-0.000	5.396 +0.000/-0.004	0.365 +0.006/-0.000	5.874 +0.000/-0.004
CS 433	5 - 1/2	6	1/4	6.001 +0.004/-0.000	5.521 +0.000/-0.004	0.365 +0.006/-0.000	5.999 +0.000/-0.004
CS 433WB	5 - 1/2	6	1/4	6.001 +0.004/-0.000	5.521 +0.000/-0.004	0.579 +0.006/-0.000	5.999 +0.000/-0.004
CS 434	5 - 5/8	6 - 1/8	1/4	6.126 +0.004/-0.000	5.646 +0.000/-0.004	0.365 +0.006/-0.000	6.124 +0.000/-0.004
CS 435	5 - 3/4	6 - 1/4	1/4	6.251 +0.004/-0.000	5.771 +0.000/-0.004	0.365 +0.006/-0.000	6.249 +0.000/-0.004
CS 437	6	6 - 1/2	1/4	6.500 +0.006/-0.000	6.020 +0.000/-0.006	0.365 +0.006/-0.000	6.498 +0.000/-0.006
CS 438	6 - 1/4	6 - 3/4	1/4	6.750 +0.006/-0.000	6.270 +0.000/-0.006	0.365 +0.006/-0.000	6.748 +0.000/-0.006
CS 439	6 - 1/2	7	1/4	7.000 +0.006/-0.000	6.520 +0.000/-0.006	0.365 +0.006/-0.000	6.998 +0.000/-0.006
CS 440	6 - 3/4	7 - 1/4	1/4	7.250 +0.006/-0.000	6.770 +0.000/-0.006	0.365 +0.006/-0.000	7.248 +0.000/-0.006
CS 441	7	7 - 1/2	1/4	7.500 +0.006/-0.000	7.020 +0.000/-0.006	0.365 +0.006/-0.000	7.498 +0.000/-0.006
CS 442	7 - 1/4	7 - 3/4	1/4	7.750 +0.006/-0.000	7.270 +0.000/-0.006	0.365 +0.006/-0.000	7.748 +0.000/-0.006
CS 443	7 - 1/2	8	1/4	8.000 +0.006/-0.000	7.520 +0.000/-0.006	0.365 +0.006/-0.000	7.998 +0.000/-0.006
CS 443WB	7 - 1/2	8	1/4	8.000 +0.006/-0.000	7.520 +0.000/-0.006	0.579 +0.006/-0.000	7.998 +0.000/-0.006
CS 444	7 - 3/4	8 - 1/4	1/4	8.250 +0.006/-0.000	7.770 +0.000/-0.006	0.365 +0.006/-0.000	8.248 +0.000/-0.006
CS 445	8	8 - 1/2	1/4	8.500 +0.006/-0.000	8.020 +0.000/-0.006	0.365 +0.006/-0.000	8.498 +0.000/-0.006
CS 446	8 - 1/2	9	1/4	9.000 +0.006/-0.000	8.520 +0.000/-0.006	0.365 +0.006/-0.000	8.998 +0.000/-0.006
CS 447	9	9 - 1/2	1/4	9.500 +0.006/-0.000	9.020 +0.000/-0.006	0.365 +0.006/-0.000	9.498 +0.000/-0.006
CS 448	9 - 1/2	10	1/4	10.000 +0.006/-0.000	9.520 +0.000/-0.006	0.365 +0.006/-0.000	9.998 +0.000/-0.006
CS 449	10	10 - 1/2	1/4	10.500 +0.006/-0.000	10.020 +0.000/-0.006	0.365 +0.006/-0.000	10.498 +0.000/-0.006
CS 450	10 - 1/2	11	1/4	11.000 +0.006/-0.000	10.520 +0.000/-0.006	0.365 +0.006/-0.000	10.998 +0.000/-0.006
CS 451	11	11 - 1/2	1/4	11.500 +0.006/-0.000	11.020 +0.000/-0.006	0.365 +0.006/-0.000	11.498 +0.000/-0.006
CS 452	11 - 1/2	12	1/4	12.000 +0.006/-0.000	11.520 +0.000/-0.006	0.365 +0.006/-0.000	11.998 +0.000/-0.006

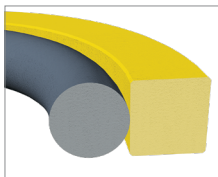
# Piston Rings



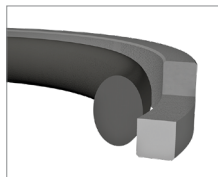
Ring Materials	Temp. Range
15% Glass filled PTFE	-260°C to 260°C
40% Bronze filled PTFE	-260°C to 260°C
15% Graphite filled PTFE	-260°C to 260°C
15% Glass, 5% Moly filled PTFE	-260°C to 260°C
25% Carbon Graphite filled PTFE	-260°C to 260°C
40% Glass filled Nylon	-240°C to 149°C
Loader Materials	
Nitrile	-40°C to 120°C
Viton™/Fluorocarbon	-26°C to 204°C



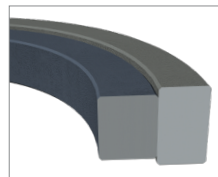
Rectangular (RPS)



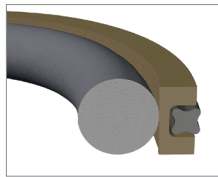
Square (SPS)



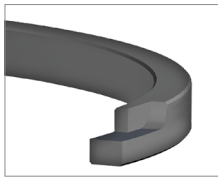
Step Cut (SCP)



CAT\* 2 Piece



AQ Seal



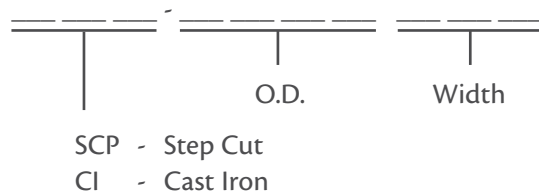
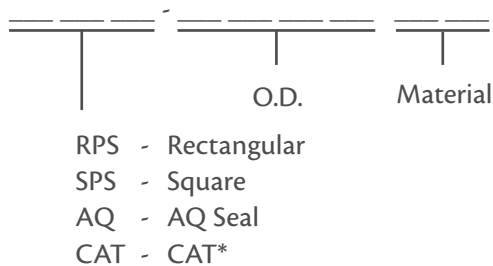
Cast Iron (CI)

\*Caterpillar equivalent style

## Product Description

Piston rings are excellent for sealing in hydraulic and pneumatic cylinder applications. The piston ring provides excellent low friction and a strong chemical resistance. By changing the piston seals material, the temperature range, frictional characteristics, extrusion resistance, and wearability can be altered.

## Part Numbers:

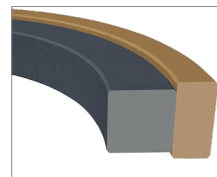
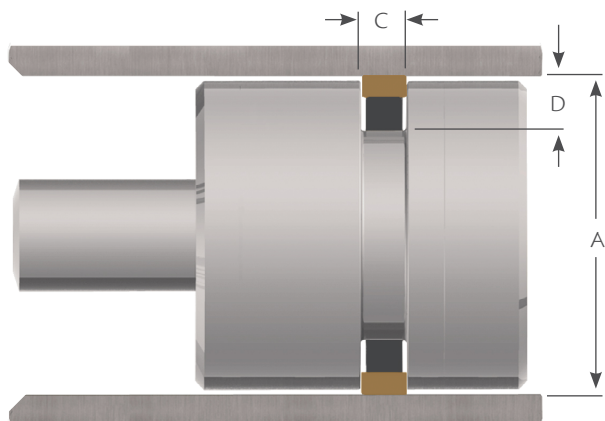


**Example:** SPS 4000 - 4.000" O.D., Square Piston Seal, Glass Filled PTFE, 153 Nitrile O-Ring Loader



# Piston Rings

Rectangular



Our standard RPS style rings are composed of a bronze filled PTFE ring with a nitrile loader. RPS Style rings are used in medium duty applications.

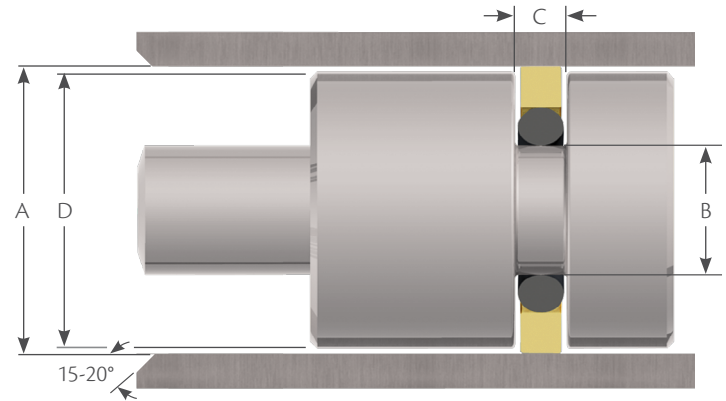
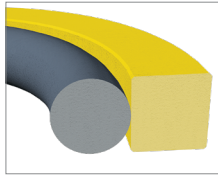
Part Number	Groove Dimensions			Ring Dimensions			Loader Dash No.
	A Bore Diameter +0.025/-0.000	C Groove Width	D Groove Depth	O.D.	Width	C/S	
RPS 1000	1.000	0.125 - 0.128	0.155 - 0.157	1.030 - 1.036	0.116 - 0.121	0.067 - 0.073	-115
RPS 1250	1.250	0.125 - 0.128	0.155 - 0.157	1.280 - 1.287	0.116 - 0.121	0.067 - 0.073	-119
RPS 1500	1.500	0.125 - 0.128	0.155 - 0.157	1.530 - 1.539	0.116 - 0.121	0.067 - 0.073	-123
RPS 1750	1.750	0.125 - 0.128	0.155 - 0.157	1.780 - 1.790	0.116 - 0.121	0.067 - 0.073	-127
RPS 2000	2.000	0.125 - 0.128	0.155 - 0.157	2.030 - 2.042	0.116 - 0.121	0.067 - 0.073	-131
RPS 2250	2.250	0.125 - 0.128	0.155 - 0.157	2.280 - 2.293	0.116 - 0.121	0.067 - 0.073	-135
RPS 2500	2.500	0.125 - 0.128	0.155 - 0.157	2.530 - 2.547	0.116 - 0.121	0.067 - 0.073	-139
RPS 2750	2.750	0.125 - 0.128	0.155 - 0.157	2.780 - 2.796	0.116 - 0.121	0.067 - 0.073	-143
RPS 3000	3.000	0.278 - 0.280	0.278 - 0.280	3.030 - 3.048	0.269 - 0.274	0.087 - 0.093	-333
RPS 3250	3.250	0.278 - 0.280	0.278 - 0.280	3.280 - 3.299	0.269 - 0.274	0.087 - 0.093	-335
RPS 3500	3.500	0.278 - 0.280	0.278 - 0.280	3.530 - 3.551	0.269 - 0.274	0.087 - 0.093	-337
RPS 3750	3.750	0.278 - 0.280	0.278 - 0.280	3.780 - 3.802	0.269 - 0.274	0.087 - 0.093	-339
RPS 4000	4.000	0.278 - 0.280	0.278 - 0.280	4.030 - 4.054	0.269 - 0.274	0.087 - 0.093	-341
RPS 4250	4.250	0.278 - 0.280	0.278 - 0.280	4.280 - 4.305	0.269 - 0.274	0.087 - 0.093	-343
RPS 4500	4.500	0.278 - 0.280	0.278 - 0.280	4.530 - 4.557	0.269 - 0.274	0.087 - 0.093	-345
RPS 4750	4.750	0.278 - 0.280	0.278 - 0.280	4.780 - 4.809	0.269 - 0.274	0.087 - 0.093	-347
RPS 5000	5.000	0.278 - 0.280	0.278 - 0.280	5.030 - 5.060	0.269 - 0.274	0.087 - 0.093	-349
RPS 5250	5.250	0.375 - 0.380	0.387 - 0.392	5.280 - 5.311	0.362 - 0.367	0.137 - 0.147	-425
RPS 5500	5.500	0.375 - 0.380	0.387 - 0.392	5.530 - 5.563	0.362 - 0.367	0.137 - 0.147	-427
RPS 5750	5.750	0.375 - 0.380	0.387 - 0.392	5.780 - 5.814	0.362 - 0.367	0.137 - 0.147	-429
RPS 6000	6.000	0.375 - 0.380	0.387 - 0.392	6.030 - 6.066	0.362 - 0.367	0.137 - 0.147	-431
RPS 6500	6.500	0.375 - 0.380	0.387 - 0.392	6.530 - 6.569	0.362 - 0.367	0.137 - 0.147	-435
RPS 7000	7.000	0.375 - 0.380	0.387 - 0.392	7.030 - 7.073	0.362 - 0.367	0.137 - 0.147	-438
RPS 7500	7.500	0.375 - 0.380	0.387 - 0.392	7.530 - 7.575	0.362 - 0.367	0.137 - 0.147	-440
RPS 8000	8.000	0.375 - 0.380	0.387 - 0.392	8.030 - 8.078	0.362 - 0.367	0.137 - 0.147	-442
RPS 8500	8.500	0.375 - 0.380	0.387 - 0.392	8.530 - 8.581	0.362 - 0.367	0.137 - 0.147	-444
RPS 9000	9.000	0.375 - 0.380	0.445 - 0.450	9.030 - 9.081	0.362 - 0.367	0.195 - 0.210	-445
RPS 9500	9.500	0.375 - 0.380	0.445 - 0.450	9.530 - 9.587	0.362 - 0.367	0.195 - 0.210	-446
RPS 10000	10.000	0.375 - 0.380	0.445 - 0.450	10.030 - 10.090	0.362 - 0.367	0.195 - 0.210	-447
RPS 11000	11.000	0.375 - 0.380	0.445 - 0.450	11.030 - 11.096	0.362 - 0.367	0.195 - 0.210	-449
RPS 12000	12.000	0.375 - 0.380	0.445 - 0.450	12.030 - 12.102	0.362 - 0.367	0.195 - 0.210	-451

Loader information is available in the O-ring section, starting on page 1.

# Piston Rings

IMPERIAL SEALS

## Square



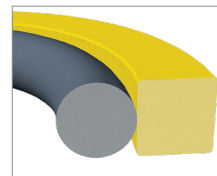
Our standard SPS are composed of glass filled PTFE ring with a nitrile loader. SPS style rings are used in light duty applications.

Part Number	Groove Dimensions			Ring Dimensions			
	A Bore Diameter ± 0.001	B Groove Diameter ± 0.002	D Piston Diameter ± 0.002	C Groove Width ± 0.002	O.D. ± 0.5%	C/S ± 0.010	Loader Dash No.
SPS 0500	0.500	0.241	0.497	0.083	0.511	0.070*	-009
SPS 0750	0.750	0.491	0.747	0.083	0.761	0.070*	-013
SPS 1000	1.000	0.741	0.997	0.083	1.011	0.070*	-017
SPS 1250	1.250	0.991	1.247	0.083	1.261	0.070*	-022
SPS 1500	1.500	1.241	1.497	0.083	1.511	0.070*	-025
SPS 1750	1.750	1.360	1.747	0.122	1.771	0.109	-125
SPS 2000	2.000	1.606	1.996	0.130	2.024	0.115	-129
SPS 2250	2.250	1.856	2.246	0.130	2.274	0.115	-133
SPS 2500	2.500	2.106	2.496	0.130	2.524	0.115	-137
SPS 2750	2.750	2.356	2.746	0.130	2.774	0.115	-141
SPS 3000	3.000	2.606	2.996	0.130	3.026	0.115	-145
SPS 3250	3.250	2.856	3.246	0.130	3.276	0.115	-149
SPS 3500	3.500	3.106	3.496	0.130	3.526	0.115	-151
SPS 3750	3.750	3.356	3.746	0.130	3.776	0.115	-152
SPS 4000	4.000	3.606	3.996	0.130	4.026	0.115	-153
SPS 4250	4.250	3.856	4.246	0.130	4.278	0.115	-154
SPS 4500	4.500	4.106	4.496	0.130	4.528	0.115	-155
SPS 4750	4.750	4.356	4.746	0.130	4.778	0.115	-156
SPS 5000	5.000	4.606	4.996	0.130	5.028	0.115	-157
SPS 5250	5.250	4.856	5.246	0.130	5.280	0.115	-158
SPS 5500	5.500	5.106	5.496	0.130	5.530	0.115	-159
SPS 5750	5.750	5.232	5.746	0.159	5.780	0.143	-251
SPS 6000	6.000	5.482	5.996	0.159	6.030	0.143	-253
SPS 6250	6.250	5.732	6.246	0.159	6.282	0.143	-255
SPS 6500	6.500	5.982	6.496	0.159	6.532	0.143	-257
SPS 6750	6.750	6.232	6.746	0.159	6.782	0.143	-258
SPS 7000	7.000	6.482	6.996	0.159	7.037	0.143	-259

Loader information is available in the O-ring section, which starts on page 1.

# Piston Rings

Square



Piston Rings

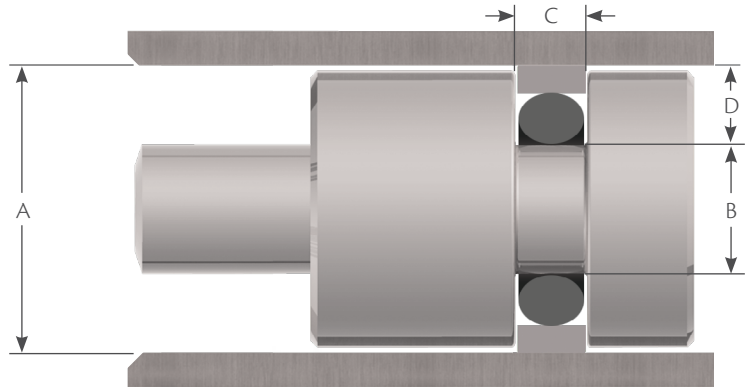
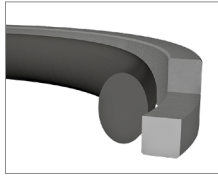
Part Number	Groove Dimensions				Ring Dimensions		
	A Bore Diameter ± 0.001	B Groove Diameter ± 0.002	D Piston Diameter ± 0.002	C Groove Width ± 0.002	O.D. ± 0.5%	C/S ± 0.010	Loader Dash No.
SPS 7500	7.500	6.982	7.496	0.159	7.537	0.143	-261
SPS 7750	7.750	7.232	7.746	0.159	7.789	0.143	-262
SPS 8000	8.000	7.482	7.996	0.159	8.040	0.143	-263
SPS 8250	8.250	7.732	8.246	0.159	8.291	0.143	-264
SPS 8500	8.500	7.982	8.496	0.159	8.543	0.143	-265
SPS 8750	8.750	8.232	8.746	0.159	8.794	0.143	-266
SPS 9000	9.000	8.482	8.996	0.159	9.045	0.143	-267
SPS 9250	9.250	8.732	9.246	0.159	9.296	0.143	-268
SPS 9500	9.500	8.982	9.496	0.159	9.546	0.143	-269
SPS 9750	9.750	9.232	9.746	0.159	9.799	0.143	-270
SPS 10000	10.000	9.482	9.996	0.159	10.050	0.143	-271
SPS 10250	10.250	9.732	10.246	0.159	10.301	0.143	-272
SPS 10500	10.500	9.982	10.496	0.159	10.550	0.143	-273
SPS 10750	10.750	10.232	10.746	0.159	10.804	0.143	-274
SPS 11000	11.000	10.482	10.996	0.159	11.055	0.143	-275
SPS 11500	11.500	10.982	11.496	0.159	11.558	0.143	-276
SPS 12000	12.000	11.482	11.996	0.159	12.060	0.143	-277
SPS 13000	13.000	12.482	12.996	0.159	13.065	0.143	-278

Loader information is available in the O-ring section, starting on page 1.

# Piston Rings

IMPERIAL SEALS

## Step Cut



Our standard SCP is composed of a glass filled nylon ring and a 90 durometer peroxide cured nitrile oval ring.

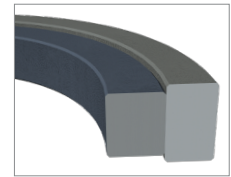
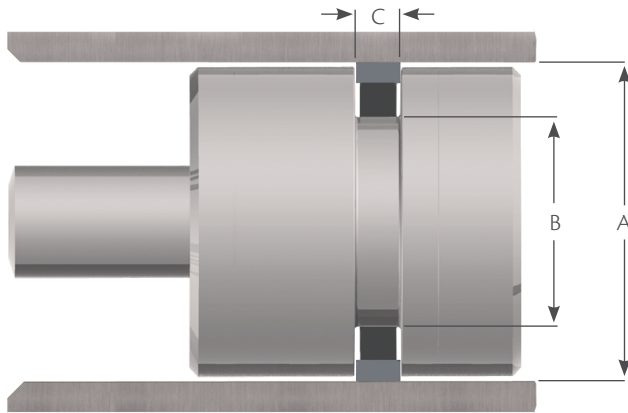
SCP style piston rings can withstand a higher pressure than RPS and SPS designs. Additionally, they are easier to install due to their split profile.

Part Number	A Bore Dia.	B Groove Dia.	C Groove Width +0.002 -0.000	D Groove Depth
<b>Tolerance</b>	<b>+0.002 -0.000</b>	<b>+0.000 -0.002</b>		
SCP 2000282	2	1.462	0.282	0.269
SCP 2250282	2 - 1/4	1.712	0.282	0.269
<b>Tolerance</b>	<b>+0.003 -0.000</b>	<b>+0.000 -0.002</b>		
SCP 2500282	2 - 1/2	1.962	0.282	0.269
SCP 2500312	2 - 1/2	1.908	0.312	0.296
SCP 2750282	2 - 3/4	2.212	0.282	0.269
SCP 3000312	3	2.408	0.312	0.296
<b>Tolerance</b>	<b>+0.003 -0.000</b>	<b>+0.000 -0.003</b>		
SCP 3000282	3	2.442	0.282	0.279
SCP 3250282	3 - 1/4	2.692	0.282	0.279
SCP 3500282	3 - 1/2	2.942	0.282	0.279
SCP 3500312	3 - 1/2	2.908	0.312	0.296
SCP 3750282	3 - 3/4	3.192	0.282	0.279
SCP 4000282	4	3.442	0.282	0.279
SCP 4000312	4	3.408	0.312	0.296
SCP 4250282	4 - 1/4	3.692	0.282	0.279
SCP 4500282	4 - 1/2	3.942	0.282	0.279
SCP 4500312	4 - 1/2	3.908	0.312	0.296
SCP 4500375	4 - 1/2	3.740	0.377	0.380

Part Number	A Bore Dia.	B Groove Dia.	C Groove Width +0.002 -0.000	D Groove Depth
<b>Tolerance</b>	<b>+0.003 -0.000</b>	<b>+0.000 -0.004</b>		
SCP 4750282	4 - 3/4	4.192	0.282	0.279
SCP 4750375	4 - 3/4	3.990	0.377	0.380
<b>Tolerance</b>	<b>+0.004 -0.000</b>	<b>+0.000 -0.004</b>		
SCP 5000282	5	4.442	0.282	0.279
SCP 5000375	5	4.240	0.377	0.380
SCP 5250375	5 - 1/4	4.490	0.377	0.380
SCP 5500375	5 - 1/2	4.740	0.377	0.380
SCP 5750375	5 - 3/4	4.990	0.377	0.380
SCP 6000375	6	5.240	0.377	0.380
SCP 6500375	6 - 1/2	5.740	0.377	0.380
SCP 7000375	7	6.240	0.377	0.380
SCP 7500375	7 - 1/2	6.740	0.377	0.380
SCP 8000375	8	7.240	0.377	0.380
SCP 8500375	8 - 1/2	7.740	0.377	0.380
SCP 9000375	9	8.124	0.377	0.438
SCP 9500375	9 - 1/2	8.624	0.377	0.438
SCP 10000375	10	9.124	0.377	0.438
SCP 12000375	12	11.124	0.377	0.438

# Piston Rings

CAT



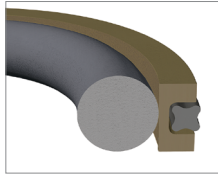
Piston Rings

Part Number	CAT Part Number	A Bore Diameter	B Groove Diameter	C Groove Width
CAT 2000	5J7004	2.000	1.625	0.192
CAT 2500	8J6213	2.500	2.125	0.192
CAT 2750	5J7010	2.750	2.375	0.192
CAT 3000	6J1972	3.000	2.460	0.192
CAT 3250	6J0793	3.250	2.710	0.192
CAT 3500	5J7013	3.500	2.960	0.192
CAT 3750	5J8011	3.750	3.210	0.192
CAT 4000	5J5402	4.000	3.335	0.255
CAT 4250	5J7854	4.250	3.585	0.255
CAT 4500	5J4986	4.500	3.835	0.255
CAT 4750	5J4987	4.750	4.085	0.255
CAT 5000	5J5020	5.000	4.225	0.380
CAT 5250	5J7234	5.250	4.475	0.380
CAT 5500	5J4988	5.500	4.725	0.380
CAT 6000	5J4989	6.000	5.095	0.380
CAT 6250	5J4990	6.250	5.345	0.380
CAT 6500	5J4991	6.500	5.595	0.380
CAT 7000	5J4997	7.000	6.095	0.380
CAT 7250	5J4993	7.250	6.345	0.380
CAT 7500	9J7117	7.500	6.595	0.380
CAT 7750	5J7016	7.750	6.845	0.380
CAT 8250	5J5559	8.250	7.255	0.380
CAT 8500	6J9385	8.500	7.505	0.380

*Our' Caterpillar parts are not original equipment parts. Caterpillar part numbers are only provided as a reference.*

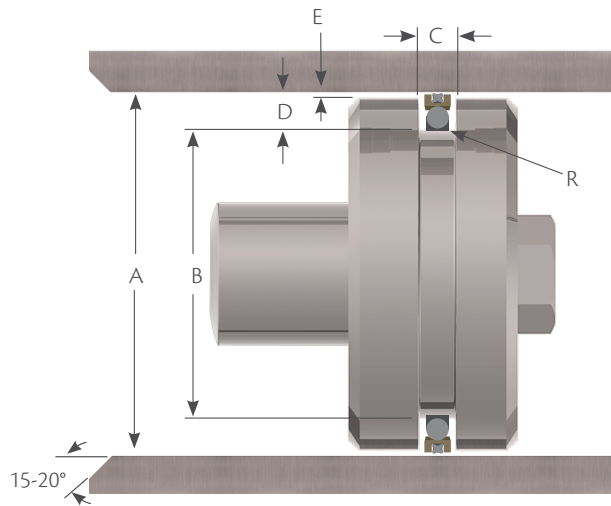
# Piston Rings

## AQ Seals



Our Standard AQ seals are composed of a bronze filled PTFE ring, an internal O-ring, and an external quad ring.

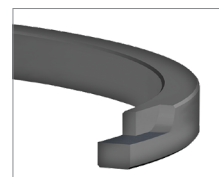
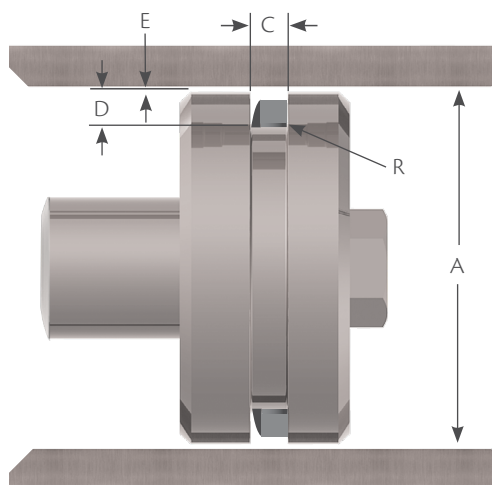
AQ Seal are commonly used in piston accumulators and medium duty hydraulic cylinders.



Part Number*	A Bore Dia.	Seal Dimensions		Dash No.		Gland Dimensions				E Diametrical Clearance		
		C/S ± 0.003	Height (Axial)	O.D. Loader	I.D. Loader	B Groove Dia.	C Groove Width +0.005 -0.000	D Groove Depth	R Radius	1000 PSI	3000 PSI	5075 PSI
AQ 2000	2	0.130	0.285	-133	-324	1.384	0.288	0.308	0.025	0.024	0.008	0.005
AQ 2250	2 - 1/4	0.130	0.285	-137	-326	1.634	0.288	0.308	0.025	0.024	0.008	0.005
AQ 2500	2 - 1/2	0.130	0.285	-141	-328	1.884	0.288	0.308	0.025	0.024	0.008	0.005
AQ 2750	2 - 3/4	0.130	0.285	-145	-330	2.134	0.288	0.308	0.025	0.024	0.008	0.005
AQ 3000	3	0.130	0.285	-149	-332	2.384	0.288	0.308	0.025	0.024	0.008	0.005
AQ 3500	3 - 1/2	0.130	0.285	-152	-336	2.884	0.288	0.308	0.025	0.024	0.008	0.005
AQ 4000	4	0.130	0.285	-154	-340	3.384	0.288	0.308	0.025	0.024	0.008	0.005
AQ 4500	4 - 1/2	0.130	0.285	-155	-344	3.884	0.288	0.308	0.025	0.024	0.008	0.005
AQ 5000	5	0.130	0.285	-158	-348	4.384	0.288	0.308	0.025	0.024	0.008	0.005
AQ 5500	5 - 1/2	0.187	0.370	-252	-426	4.660	0.375	0.420	0.035	0.030	0.010	0.006
AQ 6000	6	0.187	0.370	-256	-430	5.160	0.375	0.420	0.035	0.030	0.010	0.006
AQ 6500	6 - 1/2	0.187	0.370	-259	-434	5.660	0.375	0.420	0.035	0.030	0.010	0.006
AQ 7000	7	0.187	0.370	-261	-437	6.160	0.375	0.420	0.035	0.030	0.010	0.006
AQ 7500	7 - 1/2	0.187	0.370	-263	-439	6.660	0.375	0.420	0.035	0.030	0.010	0.006
AQ 8000	8	0.187	0.370	-265	-441	7.160	0.375	0.420	0.035	0.030	0.010	0.006
AQ 8500	8 - 1/2	0.187	0.370	-267	-443	7.660	0.375	0.420	0.035	0.030	0.010	0.006
AQ 9000	9	0.187	0.370	-269	-445	8.160	0.375	0.420	0.035	0.030	0.010	0.006
AQ 9500	9 - 1/2	0.187	0.370	-271	-446	8.660	0.375	0.420	0.035	0.030	0.010	0.006
AQ 10000	10	0.187	0.370	-273	-447	9.160	0.375	0.420	0.035	0.030	0.010	0.006

# Piston Rings

Cast Iron



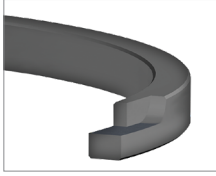
Piston Rings

Part Number	A		Seal Height		Seal C/S		Split Gap		C		D	R	E
	Bore Diameter		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Groove Depth Min.	Radius	Max. Extrusion Gap
CI 1500	1.500		0.123	0.124	0.052	0.067	0.005	0.015	0.126	0.128	0.082	0.010	0.018
CI 1625	1.625		0.123	0.124	0.056	0.071	0.005	0.015	0.126	0.128	0.086	0.010	0.019
CI 1750	1.750		0.123	0.124	0.060	0.075	0.005	0.015	0.126	0.128	0.090	0.010	0.020
CI 1875	1.875		0.123	0.124	0.060	0.075	0.005	0.015	0.126	0.128	0.090	0.010	0.020
CI 2000	2.000		0.123	0.124	0.060	0.075	0.005	0.015	0.126	0.128	0.090	0.010	0.020
CI 2250	2.250		0.186	0.187	0.070	0.085	0.005	0.015	0.189	0.191	0.100	0.010	0.023
CI 2375187	2.375		0.186	0.187	0.076	0.091	0.005	0.015	0.189	0.191	0.106	0.010	0.025
CI 2500	2.500		0.186	0.187	0.082	0.097	0.005	0.015	0.189	0.191	0.112	0.010	0.027
CI 2500125	2.500		0.123	0.124	0.082	0.097	0.005	0.015	0.126	0.128	0.112	0.010	0.027
CI 2625	2.625		0.186	0.187	0.087	0.102	0.005	0.015	0.189	0.191	0.117	0.010	0.028
CI 2750	2.750		0.186	0.187	0.091	0.106	0.005	0.015	0.189	0.191	0.121	0.010	0.030
CI 2750125	2.750		0.123	0.124	0.091	0.106	0.005	0.015	0.126	0.128	0.121	0.010	0.030
CI 2875	2.875		0.186	0.187	0.093	0.108	0.005	0.015	0.189	0.191	0.123	0.010	0.030
CI 3000	3.000		0.186	0.187	0.095	0.110	0.005	0.015	0.189	0.191	0.125	0.010	0.031
CI 3000125	3.000		0.123	0.124	0.095	0.110	0.005	0.015	0.126	0.128	0.125	0.010	0.031
CI 3000250	3.000		0.248	0.249	0.095	0.110	0.005	0.015	0.251	0.253	0.125	0.010	0.031
CI 3000312	3.000		0.310	0.311	0.095	0.110	0.005	0.015	0.313	0.315	0.125	0.010	0.031
CI 3250	3.250		0.186	0.187	0.103	0.118	0.005	0.015	0.189	0.191	0.133	0.010	0.033
CI 3250125	3.250		0.123	0.124	0.103	0.118	0.005	0.015	0.126	0.128	0.133	0.010	0.033
CI 3500	3.500		0.186	0.187	0.109	0.124	0.005	0.015	0.189	0.191	0.139	0.010	0.035
CI 3502	3.500		0.123	0.124	0.109	0.124	0.005	0.015	0.126	0.128	0.139	0.010	0.035
CI 3750	3.750		0.248	0.249	0.115	0.130	0.005	0.015	0.251	0.253	0.145	0.010	0.037
CI 3875	3.875		0.248	0.249	0.123	0.138	0.005	0.015	0.251	0.253	0.153	0.010	0.039
CI 4000	4.000		0.248	0.249	0.127	0.142	0.005	0.015	0.251	0.253	0.157	0.010	0.040

# Piston Rings

IMPERIAL SEALS

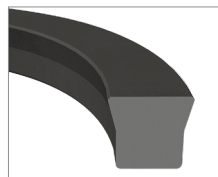
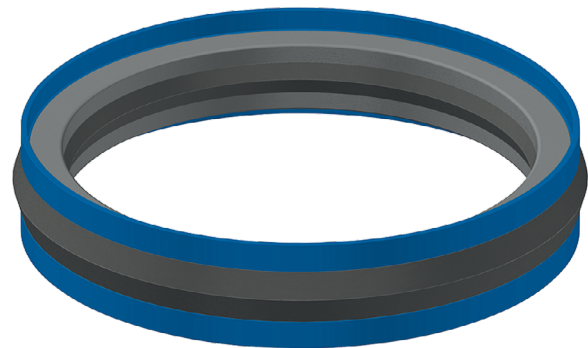
## Cast Iron



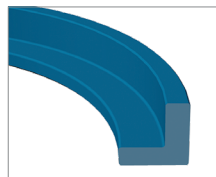
Part Number	A Bore Diameter		Seal Height		Seal C/S		Split Gap		C Groove Width		D Groove Depth	R Radius	E Max. Extrusion Gap
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
CI 4000187	4.000	0.186	0.187	0.127	0.142	0.005	0.015	0.189	0.191	0.157	0.010	0.040	
CI 4000312	4.000	0.310	0.311	0.127	0.142	0.005	0.015	0.313	0.315	0.157	0.010	0.040	
CI 4250	4.250	0.248	0.249	0.135	0.150	0.005	0.015	0.251	0.253	0.165	0.010	0.043	
CI 4250187	4.250	0.186	0.187	0.135	0.150	0.005	0.015	0.189	0.191	0.165	0.010	0.043	
CI 4500	4.500	0.248	0.249	0.145	0.160	0.005	0.015	0.251	0.253	0.175	0.010	0.046	
CI 4500187	4.500	0.186	0.187	0.145	0.160	0.005	0.015	0.189	0.191	0.175	0.010	0.046	
CI 4750	4.750	0.248	0.249	0.152	0.167	0.010	0.020	0.251	0.253	0.182	0.010	0.048	
CI 5000	5.000	0.248	0.249	0.160	0.175	0.010	0.020	0.251	0.253	0.190	0.010	0.050	
CI 5000187	5.000	0.186	0.186	0.160	0.175	0.010	0.020	0.189	0.191	0.190	0.010	0.050	
CI 5000312	5.000	0.310	0.311	0.160	0.175	0.010	0.020	0.313	0.315	0.190	0.010	0.050	
CI 5250	5.250	0.248	0.249	0.166	0.181	0.010	0.020	0.251	0.253	0.196	0.010	0.052	
CI 5500	5.500	0.248	0.249	0.175	0.190	0.010	0.020	0.251	0.253	0.205	0.010	0.055	
CI 550187	5.500	0.186	0.187	0.175	0.190	0.010	0.020	0.189	0.191	0.205	0.010	0.055	
CI 6000	6.000	0.310	0.311	0.191	0.206	0.010	0.020	0.313	0.315	0.221	0.010	0.060	
CI 6000250	6.000	0.248	0.249	0.191	0.206	0.010	0.020	0.251	0.253	0.221	0.010	0.060	
CI 6500	6.500	0.310	0.311	0.211	0.226	0.010	0.020	0.313	0.315	0.241	0.010	0.066	
CI 6750250	6.750	0.248	0.249	0.219	0.234	0.010	0.020	0.251	0.253	0.249	0.010	0.068	
CI 7000	7.000	0.310	0.311	0.228	0.243	0.010	0.200	0.313	0.315	0.258	0.010	0.071	
CI 7500250	7.500	0.248	0.249	0.244	0.259	0.010	0.020	0.251	0.253	0.274	0.010	0.075	
CI 8000	8.000	0.372	0.373	0.260	0.275	0.010	0.020	0.375	0.377	0.290	0.010	0.080	
CI 8000312	8.000	0.310	0.311	0.260	0.275	0.010	0.020	0.313	0.315	0.290	0.010	0.080	
CI 8500250	8.500	0.248	0.249	0.275	0.290	0.010	0.020	0.251	0.253	0.305	0.010	0.085	
CI 9000	9.000	0.372	0.373	0.294	0.309	0.010	0.020	0.375	0.377	0.324	0.010	0.090	
CI 9000500	9.000	0.497	0.498	0.294	0.309	0.010	0.020	0.500	0.502	0.324	0.010	0.090	
CI 10000	10.000	0.371	0.373	0.317	0.332	0.010	0.020	0.375	0.377	0.347	0.010	0.097	
CI 12500500	12.500	0.496	0.498	0.389	0.419	0.010	0.020	0.500	0.502	0.434	0.010	0.121	



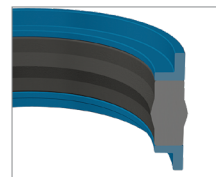
Elastomer Materials	Temp. Range
Nitrile	-40°C to 120°C
Viton™/Fluorocarbon	-26°C to 204°C
EPDM	-54°C to 150°C
Chloroprene	-40°C to 121°C
Aflas® FEPM	-9°C to 232°C
Anti - Extrusion Material	
Acetal	-40°C to 100°C



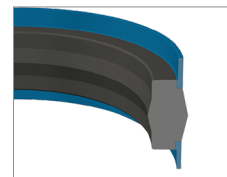
Single Acting  
(SAF)



Single Acting Wear Ring  
(WR)



Double Acting Loose  
(L/W)



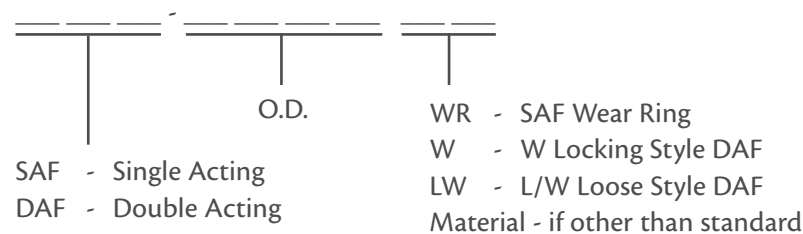
Double Acting Locking  
(L/W)

## Product Description

Single acting fluid seals can work both as a piston or rod seal. A single acting fluid seals standard material is a nitrile sealing element with a fabric reinforced base. Corresponding wear rings are sold separately. Contact us for dimension information of single acting fluid seals with a wear ring.

Our double acting fluid seals are designed for use on split pistons. They are composed of a nitrile sealing element, fabric reinforced base and two acetal wear rings.

## Part Numbers:

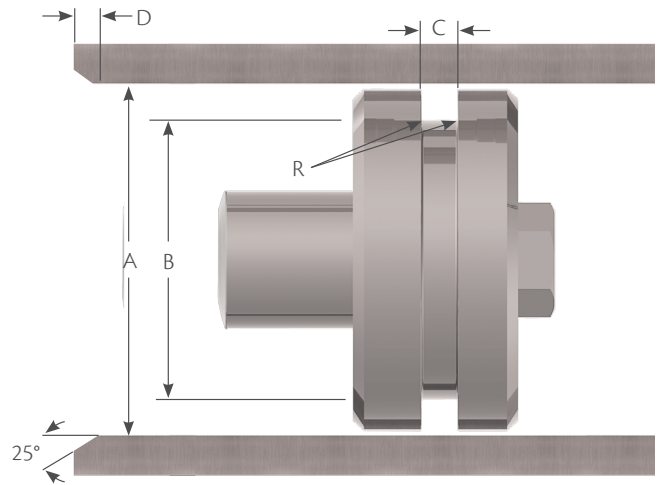
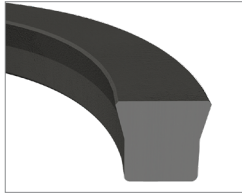


**Example:** DAF 2500LW - Double Acting Fluid Seal, Loose Wear Rings, 2.500" O.D., 1.875" I.D., 0.937 Height

# Fluid Seals

IMPERIAL SEALS

## Single Acting Style

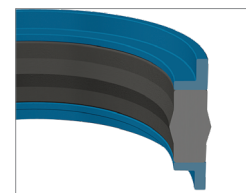
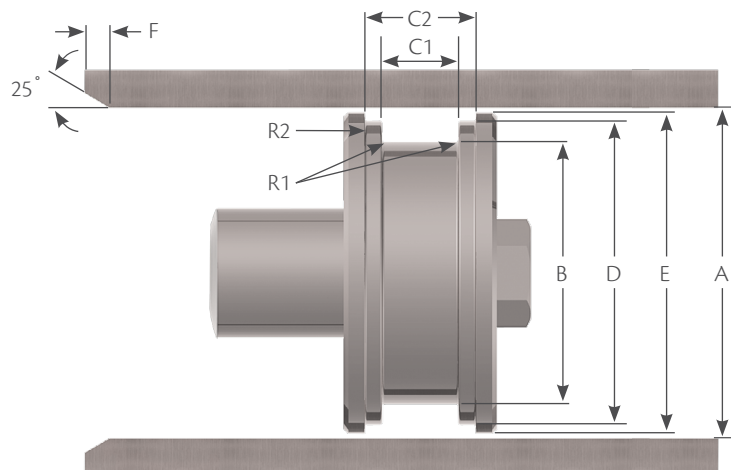


Part Number	A Bore Dia.	B Groove Dia.	C Groove Width	D	R Radius
SAF 1250	1.250	0.750	0.375	0.125	0.015
SAF 1625	1.625	1.000	0.437	0.156	0.015
SAF 1750	1.750	1.125	0.437	0.156	0.015
SAF 1875	1.875	1.250	0.437	0.156	0.015
SAF 2000	2.000	1.375	0.437	0.156	0.015
SAF 2125	2.125	1.500	0.437	0.156	0.015
SAF 2250	2.250	1.625	0.437	0.156	0.015
SAF 2375	2.375	1.750	0.437	0.156	0.015
SAF 2500	2.500	1.875	0.437	0.156	0.015
SAF 2625	2.625	2.000	0.437	0.156	0.015
SAF 2750	2.750	2.000	0.562	0.187	0.032
SAF 2875	2.875	2.125	0.562	0.187	0.032
SAF 3000	3.000	2.250	0.562	0.187	0.032
SAF 3125	3.125	2.375	0.562	0.187	0.032
SAF 3250	3.250	2.500	0.562	0.187	0.032
SAF 3375	3.375	2.625	0.562	0.187	0.032
SAF 3500	3.500	2.750	0.562	0.187	0.032
SAF 3625	3.625	2.875	0.562	0.187	0.032
SAF 3750	3.750	3.000	0.562	0.187	0.032

Part Number	A Bore Dia.	B Groove Dia.	C Groove Width	D	R Radius
SAF 4002	4.000	3.000	0.625	0.250	0.032
SAF 4001	4.000	3.250	0.562	0.187	0.032
SAF 4000	4.000	3.250	0.500	0.187	0.032
SAF 4125	4.125	3.375	0.562	0.187	0.032
SAF 4250	4.250	3.500	0.562	0.187	0.032
SAF 4500	4.500	3.500	0.562	0.250	0.032
SAF 4625	4.625	3.625	0.750	0.250	0.032
SAF 4750	4.750	3.750	0.750	0.250	0.032
SAF 5000	5.000	4.250	0.562	0.187	0.032
SAF 5250	5.250	4.250	0.750	0.250	0.032
SAF 5500	5.500	4.500	0.750	0.250	0.032
SAF 5750	5.750	4.750	0.750	0.250	0.032
SAF 6000	6.000	5.250	0.562	0.250	0.032
SAF 6250	6.250	5.250	0.875	0.250	0.032
SAF 6500	6.500	5.500	0.750	0.250	0.032
SAF 6750	6.750	5.750	0.750	0.250	0.032
SAF 7000	7.000	6.000	0.750	0.250	0.032
SAF 7750	7.750	6.500	1.000	0.250	0.046
SAF 8000	8.000	7.000	0.875	0.250	0.032

Additional sizes are available upon request. Contact us for further information.

## Double Acting L/W Style



Fluid Seals

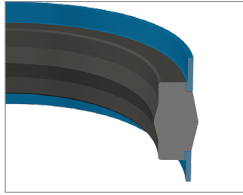
Part Number	A Bore Diameter	B Groove Diameter	D Groove Step Dia.	E Piston Diameter	C1 Groove Widths	C2	F Min.	R1 Radius	R2 Max
DAF 0750LW	0.750	0.375	0.615	0.718	0.593	0.957	0.093	0.008	0.008
DAF 1000LW	1.000	0.625	0.865	0.968	0.593	0.957	0.093	0.008	0.008
DAF 1125LW	1.125	0.625	0.990	1.093	0.750	1.232	0.125	0.008	0.008
DAF 1250LW	1.250	0.750	1.115	1.218	0.750	1.240	0.125	0.008	0.008
DAF 1375LW	1.375	0.875	1.241	1.343	0.750	1.240	0.125	0.008	0.008
DAF 1500LW	1.500	1.000	1.365	1.468	0.750	1.240	0.125	0.008	0.008
DAF 1625LW	1.625	1.000	1.428	1.562	0.937	1.427	0.156	0.008	0.008
DAF 1750LW	1.750	1.125	1.552	1.687	0.937	1.427	0.156	0.008	0.008
DAF 2000LW	2.000	1.375	1.802	1.937	0.937	1.427	0.156	0.008	0.008
DAF 2250LW	2.250	1.625	2.052	2.187	0.937	1.427	0.156	0.008	0.008
DAF 2375LW	2.375	1.750	2.177	2.312	0.937	1.427	0.156	0.008	0.008
DAF 2500LW	2.500	1.875	2.302	2.437	0.937	1.427	0.156	0.008	0.008
DAF 2625LW	2.625	2.000	2.428	2.562	0.937	1.427	0.156	0.008	0.008
DAF 2750LW	2.750	2.000	2.482	2.687	1.187	1.677	0.187	0.008	0.008
DAF 3000LW	3.000	2.250	2.732	2.937	1.187	1.677	0.187	0.008	0.008
DAF 3250LW	3.250	2.500	2.982	3.187	1.187	1.677	0.187	0.008	0.008
DAF 3500LW	3.500	2.750	3.232	3.437	1.187	1.677	0.187	0.008	0.008
DAF 3750LW	3.750	3.000	3.482	3.687	1.187	1.677	0.187	0.008	0.008
DAF 4000LW	4.000	3.250	3.732	3.937	1.187	1.677	0.187	0.008	0.008
DAF 4250LW	4.250	3.500	3.982	4.187	1.187	1.677	0.187	0.008	0.008
DAF 4500LW	4.500	3.500	4.232	4.437	1.500	2.240	0.218	0.015	0.015
DAF 4750LW	4.750	3.750	4.482	4.687	1.500	2.240	0.218	0.015	0.015
DAF 5000LW	5.000	4.000	4.732	4.937	1.500	2.240	0.218	0.015	0.015
DAF 5250LW	5.250	4.250	4.982	5.187	1.500	2.240	0.218	0.015	0.015
DAF 5500LW	5.500	4.500	5.232	5.437	1.500	2.240	0.218	0.015	0.015
DAF 6000LW	6.000	5.000	5.732	5.937	1.500	2.240	0.218	0.015	0.015
DAF 6500LW	6.500	5.500	6.232	6.437	1.500	2.240	0.218	0.015	0.015
DAF 7000LW	7.000	6.000	6.732	6.937	1.500	2.240	0.218	0.015	0.015

Contact us for tolerance limits.

# Fluid Seals

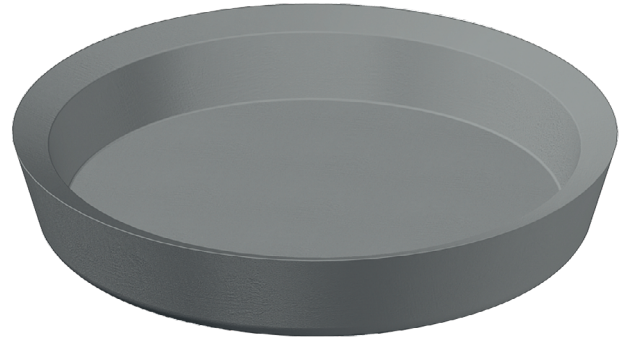
IMPERIAL SEALS

## Double Acting W Style



Part Number	A	B	D	E	C1	C2	F	R1	R2
	Bore Diameter	Groove Diameter	Groove Step Dia.	Piston Diameter	Groove Widths		Min.	Radius Max	
DAF 1000W	1.000	0.625	0.883	0.964	0.468	0.968	0.093	0.008	0.008
DAF 1125W	1.125	0.625	0.986	1.083	0.500	1.000	0.125	0.015	0.008
DAF 1250W	1.250	0.750	1.111	1.208	0.625	1.125	0.125	0.015	0.008
DAF 1500W	1.500	1.000	1.360	1.458	0.625	1.125	0.125	0.015	0.008
DAF 1500W1	1.500	1.000	1.360	1.458	0.625	1.000	0.125	0.015	0.008
DAF 1625W	1.625	1.125	1.485	1.583	0.625	1.125	0.125	0.015	0.008
DAF 1750W	1.750	1.125	1.570	1.698	0.750	1.250	0.156	0.025	0.008
DAF 2000W	2.000	1.375	1.820	1.948	0.750	1.250	0.156	0.025	0.008
DAF 2125W	2.125	1.500	1.944	2.074	0.750	1.250	0.156	0.025	0.008
DAF 2250W	2.250	1.625	2.069	2.197	0.750	1.250	0.156	0.025	0.008
DAF 2375W	2.375	1.750	2.194	2.322	0.750	1.250	0.156	0.025	0.008
DAF 2500W	2.500	1.875	2.319	2.446	0.750	1.250	0.156	0.025	0.008
DAF 2500W1	2.500	1.875	2.302	2.437	0.937	1.437	0.156	0.025	0.008
DAF 2625W	2.625	2.000	2.443	2.571	0.750	1.250	0.156	0.025	0.008
DAF 2750W	2.750	2.000	2.522	2.685	0.937	1.437	0.187	0.031	0.008
DAF 3000W	3.000	2.250	2.772	2.935	0.937	1.437	0.187	0.031	0.008
DAF 3000W1	3.000	2.250	2.772	2.935	1.125	1.625	0.187	0.031	0.008
DAF 3125W	3.125	2.375	2.896	3.060	0.937	1.437	0.187	0.031	0.008
DAF 3250W	3.250	2.500	3.021	3.184	0.937	1.437	0.187	0.031	0.008
DAF 3500W	3.500	2.750	3.271	3.434	0.937	1.437	0.187	0.031	0.008
DAF 3750W	3.750	3.000	3.520	3.683	0.937	1.437	0.187	0.031	0.008
DAF 3875W	3.875	3.125	3.646	3.809	0.937	1.437	0.187	0.031	0.008
DAF 4000W	4.000	3.250	3.770	3.933	0.937	1.437	0.187	0.031	0.008
DAF 4250W	4.250	3.500	4.019	4.182	0.937	1.437	0.187	0.031	0.008
DAF 4500W	4.500	3.500	4.229	4.422	1.250	1.750	0.218	0.046	0.015
DAF 4500W1	4.500	3.500	4.229	4.422	1.500	2.000	0.218	0.046	0.015
DAF 4750W	4.750	3.750	4.478	4.671	1.250	1.750	0.218	0.046	0.015
DAF 5000W	5.000	4.000	4.728	4.921	1.250	1.750	0.218	0.046	0.015
DAF 5250W	5.250	4.250	4.977	5.170	1.250	1.750	0.218	0.046	0.015
DAF 5500W	5.500	4.500	5.227	5.420	1.250	1.750	0.218	0.046	0.015
DAF 5500W1	5.500	4.500	5.232	5.437	1.500	2.240	0.218	0.046	0.015
DAF 5750W	5.750	4.750	5.475	5.669	1.250	1.750	0.218	0.046	0.015
DAF 6000W	6.000	5.000	5.726	5.919	1.250	1.750	0.218	0.046	0.015
DAF 6500W	6.500	5.500	6.226	6.419	1.250	1.750	0.218	0.046	0.015
DAF 7000W	7.000	6.000	6.724	6.917	1.250	1.750	0.218	0.046	0.015
DAF 8000W	8.000	7.000	7.723	7.915	1.250	1.750	0.218	0.046	0.015
DAF 9500W	9.500	8.500	9.225	9.418	1.250	1.750	0.218	0.046	0.015

Materials	Temp. Range
Nitrile	-40°C to 120°C
Viton™/Fluorocarbon	-26°C to 204°C
Hydrogenated Nitrile	-40°C to 160°C
Urethane	-54°C to 105°C
PTFE	-260°C to 260°C

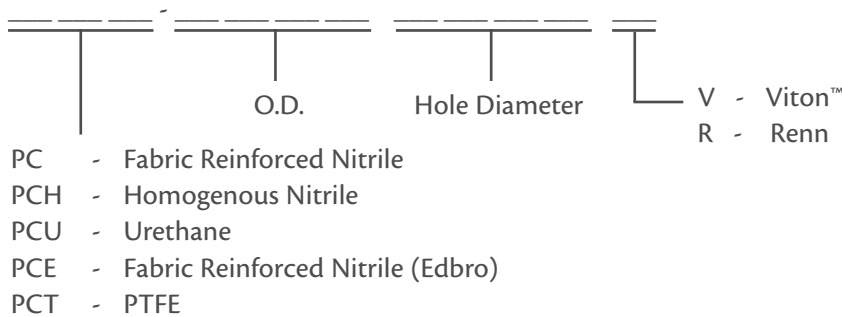


## Product Description

Piston cups seal on their outer lip and are held in place by a follower plate. To maximize product availability, our piston cups do not come with a pre-cut bolt hole. Our machining department can quickly cut the appropriate hole size for an application.

We also stock Edbro and Renn piston cups in unique sizes. Contact us for more information.

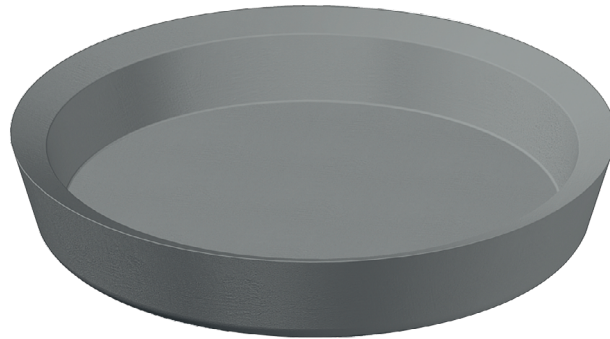
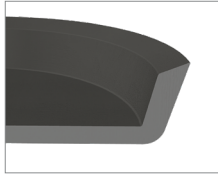
## Part Numbers:



**Example:** PCH 2500 - Homogenous Piston Cup, Nitrile, 2 - 1/2" Nom. O.D.

# Piston Cups

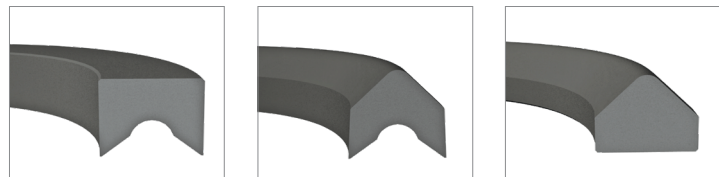
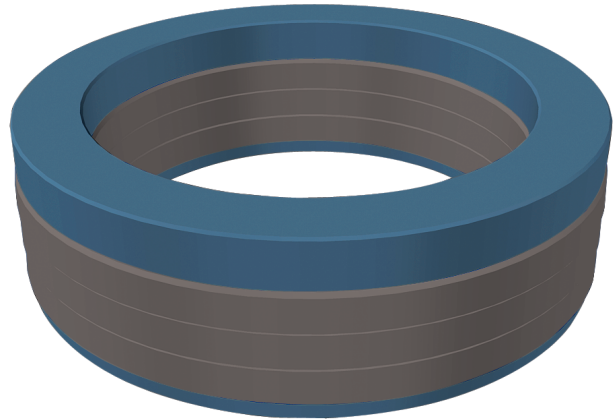
IMPERIAL SEALS



Part Number	Nominal Seal Dimensions		
	O.D.	Height	C/S
PC 0375	3/8	1/4	3/32
PC 0500	1/2	7/16	3/32
PC 0562	9/16	5/16	3/32
PC 0625	5/8	9/32	3/32
PC 0687	11/16	5/16	3/32
PC 0750	3/4	7/16	3/32
PC 0812	13/16	5/16	3/32
PC 0875	7/8	3/8	3/32
PC 0937	15/16	5/16	3/32
PC 1000	1	7/16	3/32
PC 1125	1 - 1/8	7/16	3/32
PC 1250	1 - 1/4	7/16	3/32
PC 1375	1 - 3/8	7/16	3/32
PC 1437	1 - 7/16	1/2	1/8
PC 1500	1 - 1/2	1/2	1/8
PC 1562	1 - 9/16	1/2	1/8
PC 1625	1 - 5/8	1/2	1/8
PC 1750	1 - 3/4	1/2	1/8
PC 1812	1 - 13/16	1/2	1/8
PC 1875	1 - 7/8	1/2	1/8
PC 2000	2	1/2	1/8
PC 2125	2 - 1/8	1/2	1/8
PC 2250	2 - 1/4	1/2	1/8
PC 2375	2 - 3/8	1/2	1/8
PC 2500	2 - 1/2	1/2	1/8
PC 2625	2 - 5/8	1/2	1/8
PC 2750	2 - 3/4	1/2	1/8
PC 2875	2 - 7/8	1/2	1/8
PC 3000	3	5/8	5/32
PC 3125	3 - 1/8	5/8	5/32
PC 3250	3 - 1/4	5/8	5/32
PC 3375	3 - 3/8	5/8	5/32
PC 3500	3 - 1/2	5/8	5/32
PC 3625	3 - 5/8	5/8	5/32

Part Number	Nominal Seal Dimensions		
	O.D.	Height	C/S
PC 3750	3 - 3/4	5/8	5/32
PC 3875	3 - 7/8	5/8	5/32
PC 4000	4	5/8	5/32
PC 4250	4 - 1/4	5/8	5/32
PC 4500	4 - 1/2	5/8	5/32
PC 4750	4 - 3/4	5/8	5/32
PC 5000	5	3/4	3/16
PC 5250	5 - 1/4	3/4	3/16
PC 5500	5 - 1/2	3/4	3/16
PC 5750	5 - 3/4	3/4	3/16
PC 6000	6	3/4	3/16
PC 6125	6 - 1/8	3/4	3/16
PC 6250	6 - 1/4	3/4	3/16
PC 6500	6 - 1/2	3/4	3/16
PC 6750	6 - 3/4	3/4	3/16
PC 7000	7	3/4	3/16
PC 7250	7 - 1/4	3/4	3/16
PC 7500	7 - 1/2	3/4	3/16
PC 7750	7 - 3/4	3/4	3/16
PC 8000	8	1	3/16
PC 8500	8 - 1/2	1	3/16
PC 9000	9	1	3/16
PC 9500	9 - 1/2	1	3/16
PC 9750	9 - 3/4	1	3/16
PC 10000	10	1	3/16
PC 10500	10 - 1/2	1	3/16
PC 11000	11	1	3/16
PC 11500	11 - 1/2	1	3/16
PC 11562	11 - 9/16	1	3/16
PC 12000	12	1	3/16
PC 12500	12 - 1/2	1	3/16
PC 14000	14	1	3/16
PC 14250	14 - 1/4	1	3/16
PC 16750	16 - 3/4	1	1/4

Elastomer Materials	Temp. Range
Nitrile	-40°C to 120°C
Chloroprene	-40°C to 121°C
Viton™/Fluorocarbon	-26°C to 204°C
EPDM	-54°C to 150°C
Hydrogenated Nitrile	-40°C to 160°C
Aflas® FEPM	-9°C to 232°C
Plastic Materials	
Nylon	-30°C to 93°C
Hytrel®	-54°C to 149°C
PEEK	-70°C to 260°C
PTFE	-260°C to 260°C



Top (1)

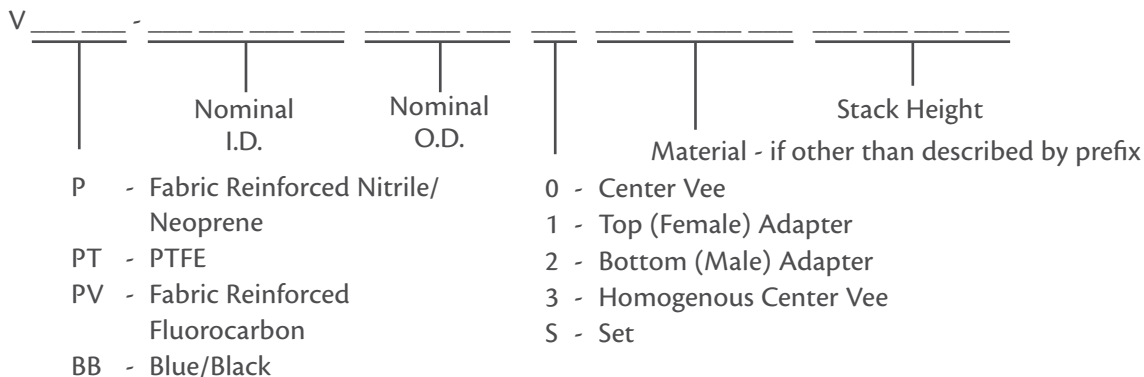
Center (0)

Bottom (2)

## Product Description

Vee packing is a popular, highly adaptable sealing product. It is typically used in adjustable gland applications such as telescoping truck hoists, pumps, and valves. Vee packing sets are composed of a top and bottom component with a varying number of center vees. Vee packing can be optimized by altering materials to accommodate different chemicals, temperatures, and pressures.

## Part Numbers:



**Example:** VP 0187-075-1 - Top (Female) Adapter, Fabric Reinforced NBR, 3/16" I.D., 3/4" O.D.

# Vee Packing



The following vee packing sizes are also available in PTFE (VPT) and Viton™/Fluorocarbon (VPV).

Part numbers ending with a 0, from the list below, represent center vees. To indicate top (female) adapters replace 0 with a 1, and to indicate bottom (male) adapters replace 0 with a 2.

**Example:** VP 0187-075-0 (Center Vee) - VP 0187-075-1 (Top) - VP 0187-075-2 (Bottom)

# of Center Pieces	Rubber System Pressure (PSI)	Fabric Reinforced System Pressure (PSI)
3	1000	1500
4	2000	3000
5	3000	5000
6	5000	10000

Part Number	I.D.	O.D.
VP 01870750	3/16	3/4
VP 02500620	1/4	5/8
VP 02500870	1/4	7/8
VP 03750750	3/8	3/4
VP 03750870	3/8	7/8
VP 03751000	3/8	1
VP 05000870	1/2	7/8
VP 05001000	1/2	1
VP 06251000	5/8	1
VP 06251120	5/8	1 - 1/8
VP 06251250	5/8	1 - 1/4
VP 07501120	3/4	1 - 1/8
VP 07501250	3/4	1 - 1/4
VP 07501370	3/4	1 - 3/8
VP 07501500	3/4	1 - 1/2

Part Number	I.D.	O.D.
VP 08121310	13/16	1 - 5/16
VP 08751250	7/8	1 - 1/4
VP 08751370	7/8	1 - 3/8
VP 08751500	7/8	1 - 1/2
VP 10001370	1	1 - 3/8
VP 10001500	1	1 - 1/2
VP 10001620	1	1 - 5/8
VP 10001750	1	1 - 3/4
VP 11251620	1 - 1/8	1 - 5/8
VP 11251750	1 - 1/8	1 - 3/4
VP 11871560	1 - 3/16	1 - 9/16
VP 12501620	1 - 1/4	1 - 5/8
VP 12501750	1 - 1/4	1 - 3/4
VP 12501870	1 - 1/4	1 - 7/8
VP 12502000	1 - 1/4	2

Part Number	I.D.	O.D.
VP 12502250	1 - 1/4	2 - 1/4
VP 13121810	1 - 5/16	1 - 13/16
VP 13751870	1 - 3/8	1 - 7/8
VP 13752000	1 - 3/8	2
VP 13752120	1 - 3/8	2 - 1/8
VP 15001870	1 - 1/2	1 - 7/8
VP 15002000	1 - 1/2	2
VP 15002120	1 - 1/2	2 - 1/8
VP 15002250	1 - 1/2	2 - 1/4
VP 15002500	1 - 1/2	2 - 1/2
VP 16252120	1 - 5/8	2 - 1/8
VP 16252250	1 - 5/8	2 - 1/4
VP 16252375	1 - 5/8	2 - 3/8
VP 17502250	1 - 3/4	2 - 1/4
VP 17502310	1 - 3/4	2 - 5/16



# Vee Packing



Vee Packing

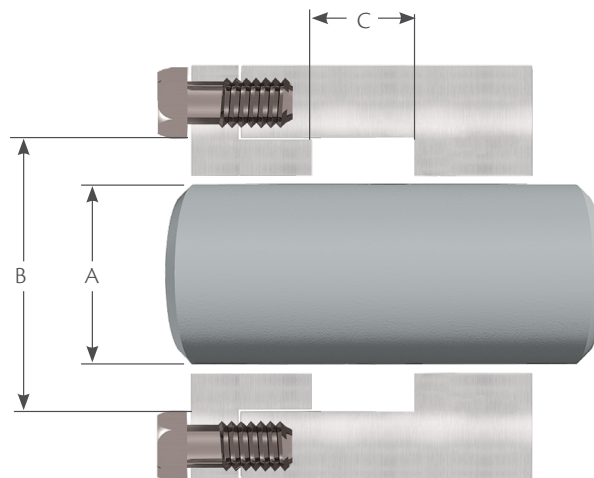
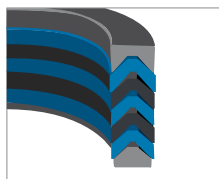
Part Number	I.D.	O.D.
VP 17502370	1 - 3/4	2 - 3/8
VP 17502500	1 - 3/4	2 - 1/2
VP 17502750	1 - 3/4	2 - 3/4
VP 18752370	1 - 7/8	2 - 3/8
VP 18752500	1 - 7/8	2 - 1/2
VP 18752625	1 - 7/8	2 - 5/8
VP 19372430	1 - 15/16	2 - 7/16
VP 20002500	2	2 - 1/2
VP 20002620	2	2 - 5/8
VP 20002750	2	2 - 3/4
VP 20003000	2	3
VP 21252620	2 - 1/8	2 - 5/8
VP 21252750	2 - 1/8	2 - 3/4
VP 21253000	2 - 1/8	3
VP 22502750	2 - 1/4	2 - 3/4
VP 22502870	2 - 1/4	2 - 7/8
VP 22503000	2 - 1/4	3
VP 22503250	2 - 1/4	3 - 1/4
VP 23752870	2 - 3/8	2 - 7/8
VP 23753000	2 - 3/8	3
VP 23753120	2 - 3/8	3 - 1/8
VP 24373310	2 - 7/16	3 - 5/16
VP 25002870	2 - 1/2	2 - 7/8
VP 25003000	2 - 1/2	3
VP 25003120	2 - 1/2	3 - 1/8
VP 25003250	2 - 1/2	3 - 1/4
VP 25003500	2 - 1/2	3 - 1/2
VP 26253120	2 - 5/8	3 - 1/8
VP 26253250	2 - 5/8	3 - 1/4
VP 27503250	2 - 3/4	3 - 1/4
VP 27503370	2 - 3/4	3 - 3/8
VP 27503500	2 - 3/4	3 - 1/2
VP 27503750	2 - 3/4	3 - 3/4
VP 28753370	2 - 7/8	3 - 3/8
VP 28753500	2 - 7/8	3 - 1/2
VP 28753620	2 - 7/8	3 - 5/8
VP 30003500	3	3 - 1/2
VP 30003620	3	3 - 5/8
VP 30003750	3	3 - 3/4
VP 30004000	3	4
VP 31253500	3 - 1/8	3 - 1/2

Part Number	I.D.	O.D.
VP 31253750	3 - 1/8	3 - 3/4
VP 32503620	3 - 1/4	3 - 5/8
VP 32503750	3 - 1/4	3 - 3/4
VP 32504000	3 - 1/4	4
VP 32504250	3 - 1/4	4 - 1/4
VP 32504500	3 - 1/4	4 - 1/2
VP 33753870	3 - 3/8	3 - 7/8
VP 33754000	3 - 3/8	4
VP 33754120	3 - 3/8	4 - 1/8
VP 35004000	3 - 1/2	4
VP 35004250	3 - 1/2	4 - 1/4
VP 35004500	3 - 1/2	4 - 1/2
VP 35004750	3 - 1/2	4 - 3/4
VP 35005000	3 - 1/2	5
VP 37504250	3 - 3/4	4 - 1/4
VP 37504370	3 - 3/4	4 - 3/8
VP 37504500	3 - 3/4	4 - 1/2
VP 37504750	3 - 3/4	4 - 3/4
VP 38754500	3 - 7/8	4 - 1/2
VP 40004500	4	4 - 1/2
VP 40004750	4	4 - 3/4
VP 40004870	4	4 - 7/8
VP 40005000	4	5
VP 40005120	4	5 - 1/8
VP 42504750	4 - 1/4	4 - 3/4
VP 42505000	4 - 1/4	5
VP 42505120	4 - 1/4	5 - 1/8
VP 42505250	4 - 1/4	5 - 1/4
VP 45005000	4 - 1/2	5
VP 45005120	4 - 1/2	5 - 1/8
VP 45005250	4 - 1/2	5 - 1/4
VP 45005370	4 - 1/2	5 - 3/8
VP 45005500	4 - 1/2	5 - 1/2
VP 46255250	4 - 5/8	5 - 1/4
VP 47505250	4 - 3/4	5 - 1/4
VP 47505370	4 - 3/4	5 - 3/8
VP 47505500	4 - 3/4	5 - 1/2
VP 58755500	4 - 7/8	5 - 1/2
VP 48705625	4 - 7/8	5 - 5/8
VP 50005500	5	5 - 1/2
VP 50005750	5	5 - 3/4

Part Number	I.D.	O.D.
VP 50005870	5	5 - 7/8
VP 50006000	5	6
VP 50006500	5	6 - 1/2
VP 51255620	5 - 1/8	5 - 5/8
VP 52505750	5 - 1/4	5 - 3/4
VP 52506000	5 - 1/4	6
VP 52506250	5 - 1/4	6 - 1/4
VP 55006000	5 - 1/2	6
VP 55006250	5 - 1/2	6 - 1/4
VP 55006500	5 - 1/2	6 - 1/2
VP 55007000	5 - 1/2	7
VP 57506370	5 - 3/4	6 - 3/8
VP 57506500	5 - 3/4	6 - 1/2
VP 57506750	5 - 3/4	6 - 3/4
VP 60006500	6	6 - 1/2
VP 60006750	6	6 - 3/4
VP 60007000	6	7
VP 62507000	6 - 1/4	7
VP 65007000	6 - 1/2	7
VP 65007250	6 - 1/2	7 - 1/4
VP 62507500	6 - 1/2	7 - 1/2
VP 65007750	6 - 1/2	7 - 3/4
VP 65008000	6 - 1/2	8
VP 67507250	6 - 3/4	7 - 1/4
VP 67507370	6 - 3/4	7 - 3/8
VP 67507500	6 - 3/4	7 - 1/2
VP 70007500	7	7 - 1/2
VP 70007750	7	7 - 3/4
VP 70008000	7	8
VP 75008000	7 - 1/2	8
VP 75008250	7 - 1/2	8 - 1/4
VP 75008500	7 - 1/2	8 - 1/2
VP 80008500	8	8 - 1/2
VP 80009000	8	9
VP 82509000	8 - 1/4	9
VP 90009500	9	9 - 1/2
VP 937510000	9 - 3/8	10
VP 975010500	9 - 3/4	10 - 1/2
VP 1000010750	10	10 - 3/4
VP 1100011750	11	11 - 3/4

# Vee Packing

## Blue/Black Sets



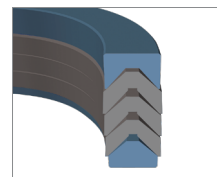
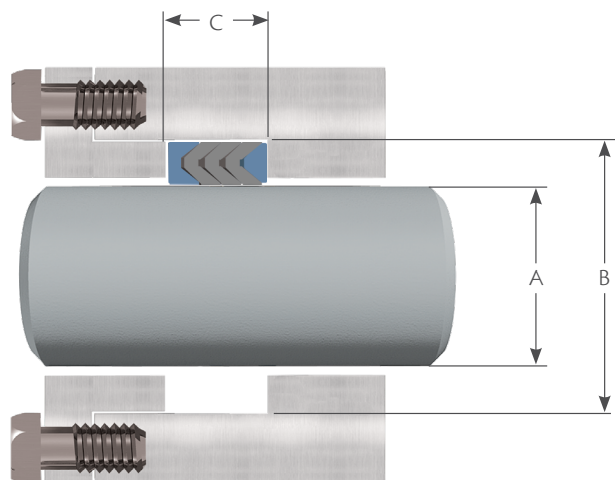
Our Blue/Black Vee packing sets are constructed of Hytrel® (blue) and nylon (black) Vees. The sets' material properties make it ideal for operation in fire resistant fluids. Blue/Black Vee packing sets are commonly used in heavy equipment and mining applications.

Sets ending with a G include the guidelock component. Guidelocks can also be purchased separately through us. Additional sizes and sets are available upon request.

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width	Top Vee Height	Set
VBB 15002000	1 - 1/2	2	1	1/4	1 - 5 - 1
VBB 20002500	2	2 - 1/2	1	1/4	1 - 5 - 1
VBB 20002500175G	2	2 - 1/2	1 - 3/4	1	1 - 5 - 1
VBB 22502750	2 - 1/4	2 - 3/4	1	1/4	1 - 5 - 1
VBB 22502750175	2 - 1/4	2 - 3/4	1 - 3/4	1	1 - 5 - 1
VBB 250030001750	2 - 1/2	3	1 - 3/4	1	1 - 5 - 1
VBB 30003500	3	3 - 1/2	1	1/4	1 - 5 - 1
VBB 30003500175	3	3 - 1/2	1 - 3/4	1	1 - 5 - 1
VBB 35004000G75	3 - 1/2	4	3/4	1/4	1 - 3 - 1
VBB 35004000G	3 - 1/2	4	1	1/4	1 - 5 - 1
VBB 40004500G	4	4 - 1/2	1	1/4	1 - 5 - 1
VBB 450050001125	4 - 1/2	5	1 - 1/8	1/2	1 - 4 - 1
VBB 45005000	4 - 1/2	5	1	1/4	1 - 5 - 1
VBB 50005500G	5	5 - 1/2	1	1/4	1 - 5 - 1
VBB 550060001125	5 - 1/2	6	1 - 1/8	1/2	1 - 4 - 1
VBB 55006000	5 - 1/2	6	1	1/4	1 - 5 - 1
VBB 60006500G	6	6 - 1/2	1	1/4	1 - 5 - 1
VBB 60006500125	6	6 - 1/2	1 - 1/4	1/2	1 - 5 - 1

# Vee Packing

## Chemical Injection Sets

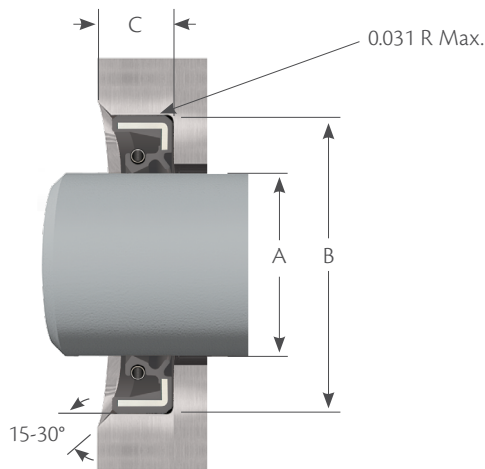


Vee Packing

Part Number	A Shaft Dia.	B Groove Dia.	C Groove Width	Material
VP 0187075S	3/16	3/4	1.05	Nitrile
VP 0250087S	1/4	7/8	1	Nitrile
VP 0250087S1	1/4	7/8	1.12	Nitrile
VP 0375087S	3/8	7/8	1.12	Nitrile
VP 0500100S1090	1/2	1	1.09	Nitrile
VP 0750125S1	3/4	1 - 1/4	1	Nitrile
VP 0875137S	7/8	1 - 3/8	1	Nitrile
VP 0875137S1	7/8	1 - 3/8	1.12	Nitrile
VP 1000150S	1	1 - 1/2	1.12	Nitrile
VP 1250175S	1 1/4	1 - 3/4	1.12	Nitrile
VP 0250087SROCK	1/4	7/8	1.12	Nitrile Hard
VP 0375087SROCK	3/8	7/8	1	Nitrile Hard
VP 0500100SROCK	1/2	1	1	Nitrile Hard
VP 0750125SROCK	3/4	1 - 1/4	1.375	Nitrile Hard
VPT 01870750S1066	3/16	3/4	1.06	PTFE
VPT 01870750S1010	3/16	3/4	1.01	PTFE

Part Number	A Shaft Dia.	B Groove Dia.	C Groove Width	Material
VPT 0250087S1080	1/4	7/8	1.08	PTFE
VPT 0375087S0975	3/8	7/8	0.975	PTFE
VPT 0500100S0955	1/2	1	0.955	PTFE
VPT 07501250S1135	3/4	1 - 1/4	1.135	PTFE
VPT 10001500S1066	1	1 - 1/2	1.066	PTFE
VPT 1250175S1055	1 - 1/4	1 - 3/4	1.055	PTFE
VPT 1250187S1175	1 - 1/4	1 - 3/4	1.175	PTFE
VPV 0250087S1100	1/4	7/8	1.12	Viton™
VPV 0375087S1000	3/8	7/8	1	Viton™
VPV 0500100S	1/2	1	1	Viton™
VPV 1000150S	1	1 - 1/2	1.375	Viton™
VPV 1250175S2	1 - 1/4	1 - 3/4	1.125	Viton™
VP 0187075SF	3/16		1.06	Fluorosilicone
VP 0250087SF	1/4	7/8	1.17	Fluorosilicone
VP 0375087SF	3/8	7/8	1.17	Fluorosilicone
VP 0500100SF	1/2	1	1.17	Fluorosilicone





\* Available in single and double lip (DL) styles.

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 02500500125	1/4	1/2	1/8
O 02500750250	1/4	3/4	1/4
O 03120687312	5/16	11/16	5/16
O 03120750250	5/16	3/4	1/4
O 03120875250	5/16	7/8	1/4
O 03750563094	3/8	9/16	3/32
O 03750750250	3/8	3/4	1/4
O 03750875250DL	3/8	7/8	1/4
O 04370875250DL	7/16	7/8	1/4
O 04371000250	7/16	1	1/4
O 04371125375	7/16	1 1/8	3/8
O 05000875250*	1/2	7/8	1/4
O 05001000187	1/2	1	3/16
O 05001000250DL	1/2	1	1/4
O 05001000312DL	1/2	1	5/16
O 05001000375	1/2	1	3/8
O 05001125250DL	1/2	1 - 1/8	1/4
O 05001125312	1/2	1 - 1/8	5/16
O 05001125375	1/2	1 - 1/8	3/8
O 05001250250	1/2	1 - 1/4	1/4
O 05621000250DL	9/16	1	1/4
O 05621125250DL	9/16	1 - 1/8	1/4
O 06250937187	5/8	15/16	3/16
O 06251000187	5/8	1	3/16
O 06251000250	5/8	1	1/4
O 06251125250*	5/8	1 - 1/8	1/4

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 06251125312	5/8	1 - 1/8	5/16
O 06251125375	5/8	1 - 1/8	3/8
O 06251250250*	5/8	1 - 1/4	1/4
O 06251250312	5/8	1 - 1/4	5/16
O 06251250375	5/8	1 - 1/4	3/8
O 06251375250	5/8	1 - 3/8	1/4
O 06251375312	5/8	1 - 3/8	5/16
O 06251500250	5/8	1 - 1/2	1/4
O 06251500375	5/8	1 - 1/2	3/8
O 06871125250	11/16	1 - 1/8	1/4
O 06871250250	11/16	1 - 1/4	1/4
O 06871375375	11/16	1 - 3/8	3/8
O 07501000187	3/4	1	3/16
O 07501125187	3/4	1 - 1/8	3/16
O 07501125250DL	3/4	1 - 1/8	1/4
O 07501187250	3/4	1 - 3/16	1/4
O 07501250250*	3/4	1 - 1/4	1/4
O 07501250312DL	3/4	1 - 1/4	5/16
O 07501312250	3/4	1 - 5/16	1/4
O 07501375250	3/4	1 - 3/8	1/4
O 07501375312	3/4	1 - 3/8	5/16
O 07501375375	3/4	1 - 3/8	3/8
O 07501500250	3/4	1 - 1/2	1/4
O 07501500312DL	3/4	1 - 1/2	5/16
O 07501500375	3/4	1 - 1/2	3/8
O 07501625312	3/4	1 - 5/8	5/16

# Oil Seals

IMPERIAL SEALS

\*Available in single and double lip (DL) styles.

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 07501625375	3/4	1 - 5/8	3/8
O 07501750312	3/4	1 - 3/4	5/16
O 08121187250	13/16	1 - 3/16	1/4
O 08121375250	13/16	1 - 3/8	1/4
O 08121375312	13/16	1 - 3/8	5/16
O 08121375375	13/16	1 - 3/8	3/8
O 08121500250	13/16	1 - 1/2	1/4
O 08751250187	7/8	1 - 1/4	3/16
O 08751250250	7/8	1 - 1/4	1/4
O 08751375375	7/8	1 - 3/8	3/8
O 08751500250	7/8	1 - 1/2	1/4
O 08751500375	7/8	1 - 1/2	3/8
O 08751625375	7/8	1 - 5/8	3/8
O 08751750375	7/8	1 - 3/4	3/8
O 08751875375	7/8	1 - 7/8	3/8
O 09371500375*	15/16	1 - 1/2	3/8
O 09371625375	15/16	1 - 5/8	3/8
O 09371750375	15/16	1 - 3/4	3/8
O 10001250125	1	1 - 1/4	1/8
O 10001375187	1	1 - 3/8	3/16
O 10001375250DL	1	1 - 3/8	1/4
O 10001437250	1	1 - 7/16	1/4
O 10001500250DL	1	1 - 1/2	1/4
O 10001500312	1	1 - 1/2	5/16
O 10001500375DL	1	1 - 1/2	3/8
O 10001625250	1	1 - 5/8	1/4
O 10001625312	1	1 - 5/8	5/16
O 10001625375	1	1 - 5/8	3/8
O 10001750250*	1	1 - 3/4	1/4
O 10001750375	1	1 - 3/4	3/8
O 10001875250	1	1 - 7/8	1/4
O 10001875375	1	1 - 7/8	3/8
O 10002000250	1	2	1/4
O 10002000375DL	1	2	3/8
O 10002000500	1	2	1/2
O 10002250375	1	2 - 1/4	3/8
O 11251500250	1 - 1/8	1 - 1/2	1/4
O 11251563375	1 - 1/8	1 - 9/16	3/8
O 11251625250*	1 - 1/8	1 - 5/8	1/4
O 11251625312*	1 - 1/8	1 - 5/8	5/16
O 11251625375	1 - 1/8	1 - 5/8	3/8

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 11251687250DL	1 - 1/8	1 - 11/16	1/4
O 11251750312	1 - 1/8	1 - 3/4	5/16
O 11251750375*	1 - 1/8	1 - 3/4	3/8
O 11251875250	1 - 1/8	1 - 7/8	1/4
O 11251875375DL	1 - 1/8	1 - 7/8	3/8
O 11252000250DL	1 - 1/8	2	1/4
O 11252000375DL	1 - 1/8	2	3/8
O 11252000500	1 - 1/8	2	1/2
O 11252062375	1 - 1/8	2 - 1/16	3/8
O 11252125375	1 - 1/8	2 - 1/8	3/8
O 11252250375	1 - 1/8	2 - 1/4	3/8
O 11871687375	1 - 3/16	1 - 11/16	3/8
O 11871750187	1 - 3/16	1 - 3/4	3/16
O 11871750250	1 - 3/16	1 - 3/4	1/4
O 11871875312	1 - 3/16	1 - 7/8	5/16
O 11872000250	1 - 3/16	2	1/4
O 11872000312	1 - 3/16	2	5/16
O 11872000375DL	1 - 3/16	2	3/8
O 12501625250DL	1 - 1/4	1 - 5/8	1/4
O 12501687250DL	1 - 1/4	1 - 11/16	1/4
O 12501687375	1 - 1/4	1 - 11/16	3/8
O 12501750250DL	1 - 1/4	1 - 3/4	1/4
O 12501750375DL	1 - 1/4	1 - 3/4	3/8
O 12501875250	1 - 1/4	1 - 7/8	1/4
O 12501875312	1 - 1/4	1 - 7/8	5/16
O 12501875375	1 - 1/4	1 - 7/8	3/8
O 12502000250*	1 - 1/4	2	1/4
O 12502000312DL	1 - 1/4	2	5/16
O 12502000375	1 - 1/4	2	3/8
O 12502000500DL	1 - 1/4	2	1/2
O 12502062375	1 - 1/4	2 - 1/16	3/8
O 12502125312	1 - 1/4	2 - 1/8	5/16
O 12502125375DL	1 - 1/4	2 - 1/8	3/8
O 12502187437	1 - 1/4	2 - 3/16	7/16
O 12502250312	1 - 1/4	2 - 1/4	5/16
O 12502250375*	1 - 1/4	2 - 1/4	3/8
O 12502250500	1 - 1/4	2 - 1/4	1/2
O 12502375375	1 - 1/4	2 - 3/8	3/8
O 12502500375	1 - 1/4	2 - 1/2	3/8
O 13121875312	1 - 5/16	1 - 7/8	5/16
O 13121937187	1 - 5/16	1 - 15/16	3/16

\* Available in single and double lip (DL) styles.

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 13122062312	1 - 5/16	2 - 1/16	5/16
O 13751875250*	1 - 3/8	1 - 7/8	1/4
O 13751875312	1 - 3/8	1 - 7/8	5/16
O 13752000312	1 - 3/8	2	5/16
O 13752000375DL	1 - 3/8	2	3/8
O 13752000500	1 - 3/8	2	1/2
O 13752062250	1 - 3/8	2 - 1/16	1/4
O 13752062375	1 - 3/8	2 - 1/16	3/8
O 13752062500	1 - 3/8	2 - 1/16	1/2
O 13752250312DL	1 - 3/8	2 - 1/4	5/16
O 13752250375DL	1 - 3/8	2 - 1/4	3/8
O 13752250500	1 - 3/8	2 - 1/4	1/2
O 13752375375DL	1 - 3/8	2 - 3/8	3/8
O 13752375500	1 - 3/8	2 - 3/8	1/2
O 13752500375DL	1 - 3/8	2 - 1/2	3/8
O 13752500500	1 - 3/8	2 - 1/2	1/2
O 13752625375	1 - 3/8	2 - 5/8	3/8
O 14372000312DL	1 - 7/16	2	5/16
O 14372062312DL	1 - 7/16	2 - 1/16	5/16
O 14372250375	1 - 7/16	2 - 1/4	3/8
O 14372500500	1 - 7/16	2 - 1/2	1/2
O 15002000187	1 - 1/2	2	3/16
O 15002000250	1 - 1/2	2	1/4
O 15002000500	1 - 1/2	2	1/2
O 15002062250	1 - 1/2	2 - 1/16	1/4
O 15002062312	1 - 1/2	2 - 1/16	5/16
O 15002125375*	1 - 1/2	2 - 1/8	3/8
O 15002187375	1 - 1/2	2 - 3/16	3/8
O 15002250250	1 - 1/2	2 - 1/4	1/4
O 15002250312*	1 - 1/2	2 - 1/4	5/16
O 15002250375DL	1 - 1/2	2 - 1/4	3/8
O 15002375375DL	1 - 1/2	2 - 3/8	3/8
O 15002375437	1 - 1/2	2 - 3/8	7/16
O 15002375500	1 - 1/2	2 - 3/8	1/2
O 15002500312	1 - 1/2	2 - 1/2	5/16
O 15002500375DL	1 - 1/2	2 - 1/2	3/8
O 15002500500	1 - 1/2	2 - 1/2	1/2
O 15002750375DL	1 - 1/2	2 - 3/4	3/8
O 15002750500DL	1 - 1/2	2 - 3/4	1/2
O 15622250375	1 - 9/16	2 - 1/4	3/8
O 15622375375	1 - 9/16	2 - 3/8	3/8

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 15622500312	1 - 9/16	2 - 1/2	5/16
O 15622500375	1 - 9/16	2 - 1/2	3/8
O 15622500500DL	1 - 9/16	2 - 1/2	1/2
O 16252000500	1 - 5/8	2	1/2
O 16252125250	1 - 5/8	2 - 1/8	1/4
O 16252187375	1 - 5/8	2 - 3/16	3/8
O 16252250312	1 - 5/8	2 - 1/4	5/16
O 16252250375DL	1 - 5/8	2 - 1/4	3/8
O 16252375312	1 - 5/8	2 - 3/8	5/16
O 16252375375*	1 - 5/8	2 - 3/8	3/8
O 16252437500	1 - 5/8	2 - 7/16	1/2
O 16252500375DL	1 - 5/8	2 - 1/2	3/8
O 16252500500*	1 - 5/8	2 - 1/2	1/2
O 16252625375DL	1 - 5/8	2 - 5/8	3/8
O 16252750375	1 - 5/8	2 - 3/4	3/8
O 16252750500	1 - 5/8	2 - 3/4	1/2
O 16252875312	1 - 5/8	2 - 7/8	5/16
O 16872500375	1 - 11/16	2 - 1/2	3/8
O 16872500500	1 - 11/16	2 - 1/2	1/2
O 16872687500	1 - 11/16	2 - 11/16	1/2
O 17502125187	1 - 3/4	2 - 1/8	3/16
O 17502250312	1 - 3/4	2 - 1/4	5/16
O 17502250375DL	1 - 3/4	2 - 1/4	3/8
O 17502312250DL	1 - 3/4	2 - 5/16	1/4
O 17502375312*	1 - 3/4	2 - 3/8	5/16
O 17502375375	1 - 3/4	2 - 3/8	3/8
O 17502437312	1 - 3/4	2 - 7/16	5/16
O 17502437375	1 - 3/4	2 - 7/16	3/8
O 17502500312*	1 - 3/4	2 - 1/2	5/16
O 17502500375DL	1 - 3/4	2 - 1/2	3/8
O 17502500500	1 - 3/4	2 - 1/2	1/2
O 17502562312	1 - 3/4	2 - 9/16	5/16
O 17502625375DL	1 - 3/4	2 - 5/8	3/8
O 17502625500	1 - 3/4	2 - 5/8	1/2
O 17502687437	1 - 3/4	2 - 11/16	7/16
O 17502750375DL	1 - 3/4	2 - 3/4	3/8
O 17502750500DL	1 - 3/4	2 - 3/4	1/2
O 17502875375DL	1 - 3/4	2 - 7/8	3/8
O 17502875500	1 - 3/4	2 - 7/8	1/2
O 17503000375DL	1 - 3/4	3	3/8
O 17503187500	1 - 3/4	3 - 3/16	1/2

# Oil Seals

IMPERIAL SEALS

\*Available in single and double lip (DL) styles.

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 18122500250	1 - 13/16	2 - 1/2	1/4
O 18122500375	1 - 13/16	2 - 1/2	3/8
O 18122625375	1 - 13/16	2 - 5/8	3/8
O 18123000375	1 - 13/16	3	3/8
O 18752500312	1 - 7/8	2 - 1/2	5/16
O 18752500375DL	1 - 7/8	2 - 1/2	3/8
O 18752500500	1 - 7/8	2 - 1/2	1/2
O 18752625375DL	1 - 7/8	2 - 5/8	3/8
O 18752625500	1 - 7/8	2 - 5/8	1/2
O 18752750375DL	1 - 7/8	2 - 3/4	3/8
O 18752750500DL	1 - 7/8	2 - 3/4	1/2
O 18752875375DL	1 - 7/8	2 - 7/8	3/8
O 18752875500	1 - 7/8	2 - 7/8	1/2
O 18753000375DL	1 - 7/8	3	3/8
O 19372500375DL	1 - 15/16	2 - 1/2	3/8
O 19372750375DL	1 - 15/16	2 - 3/4	3/8
O 19373000500DL	1 - 15/16	3	1/2
O 20002500250*	2	2 - 1/2	1/4
O 20002625375DL	2	2 - 5/8	3/8
O 20002687375	2	2 - 11/16	3/8
O 20002687500	2	2 - 11/16	1/2
O 20002750250	2	2 - 3/4	1/4
O 20002750375DL	2	2 - 3/4	3/8
O 20002750437DL	2	2 - 3/4	7/16
O 20002875375DL	2	2 - 7/8	3/8
O 20002875500	2	2 - 7/8	1/2
O 20003000375DL	2	3	3/8
O 20003000500DL	2	3	1/2
O 21252750312	2 - 1/8	2 - 3/4	5/16
O 21252875375*	2 - 1/8	2 - 7/8	3/8
O 21253000375*	2 - 1/8	3	3/8
O 21253000500DL	2 - 1/8	3	1/2
O 21253250375DL	2 - 1/8	3 - 1/4	3/8
O 21253375500	2 - 1/8	3 - 3/8	1/2
O 21253500500	2 - 1/8	3 - 1/2	1/2
O 21872875375	2 - 3/16	2 - 7/8	3/8
O 21873000375DL	2 - 3/16	3	3/8
O 22502875375	2 - 1/4	2 - 7/8	3/8
O 22503000375DL	2 - 1/4	3	3/8
O 22503000500	2 - 1/4	3	1/2
O 22503125375	2 - 1/4	3 - 1/8	3/8

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 22503187500	2 - 1/4	3 - 3/16	1/2
O 22503250500	2 - 1/4	3 - 1/4	1/2
O 22503375375	2 - 1/4	3 - 3/8	3/8
O 22503375500DL	2 - 1/4	3 - 3/8	1/2
O 22503500500DL	2 - 1/4	3 - 1/2	1/2
O 22503625500DL	2 - 1/4	3 - 5/8	1/2
O 23123125375	2 - 5/16	3 - 1/8	3/8
O 23752875312DL	2 - 3/8	2 - 7/8	5/16
O 23753000375DL	2 - 3/8	3	3/8
O 23753125375DL	2 - 3/8	3 - 1/8	3/8
O 23753250375DL	2 - 3/8	3 - 1/4	3/8
O 23753250500	2 - 3/8	3 - 1/4	1/2
O 23753375500DL	2 - 3/8	3 - 3/8	1/2
O 23753500375	2 - 3/8	3 - 1/2	3/8
O 23753500437	2 - 3/8	3 - 1/2	7/16
O 23753500500DL	2 - 3/8	3 - 1/2	1/2
O 24373250375	2 - 7/16	3 - 1/4	3/8
O 25003187375DL	2 - 1/2	3 - 3/16	3/8
O 25003250375*	2 - 1/2	3 - 1/4	3/8
O 25003250500	2 - 1/2	3 - 1/4	1/2
O 25003375500	2 - 1/2	3 - 3/8	1/2
O 25003500250	2 - 1/2	3 - 1/2	1/4
O 25003500375	2 - 1/2	3 - 1/2	3/8
O 25003500437	2 - 1/2	3 - 1/2	7/16
O 25003500500DL	2 - 1/2	3 - 1/2	1/2
O 25003625500	2 - 1/2	3 - 5/8	1/2
O 26253375312	2 - 5/8	3 - 3/8	5/16
O 26253375375DL	2 - 5/8	3 - 3/8	3/8
O 26253500500DL	2 - 5/8	3 - 1/2	1/2
O 26253625375	2 - 5/8	3 - 5/8	3/8
O 26253625500DL	2 - 5/8	3 - 5/8	1/2
O 26253750500DL	2 - 5/8	3 - 3/4	1/2
O 26254000500	2 - 5/8	4	1/2
O 27503500375*	2 - 3/4	3 - 1/2	3/8
O 27503750375DL	2 - 3/4	3 - 3/4	3/8
O 27503750500DL	2 - 3/4	3 - 3/4	1/2
O 27503875500	2 - 3/4	3 - 7/8	1/2
O 27504000500DL	2 - 3/4	4	1/2
O 28753625375DL	2 - 7/8	3 - 5/8	3/8
O 28753750375DL	2 - 7/8	3 - 3/4	3/8
O 28753750500DL	2 - 7/8	3 - 3/4	1/2



\*Available in single and double lip (DL) styles.

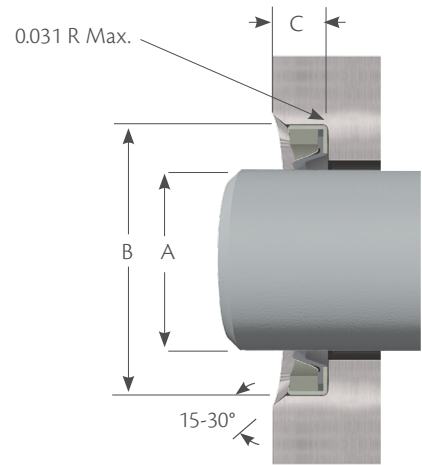
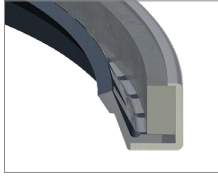
Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 28753875500DL	2 - 7/8	3 - 7/8	1/2
O 28754000500DL	2 - 7/8	4	1/2
O 29373750375	2 - 15/16	3 - 3/4	3/8
O 30003750375DL	3	3 - 3/4	3/8
O 30003875375	3	3 - 7/8	3/8
O 30004000375DL	3	4	3/8
O 30004000437	3	4	7/16
O 30004000500DL	3	4	1/2
O 30004375500DL	3	4 - 3/8	1/2
O 30004500500DL	3	4 - 1/2	1/2
O 30004000500DL	3	4	1/2
O 31254000500	3 - 1/8	4	1/2
O 31254125500	3 - 1/8	4 - 1/8	1/2
O 31254500500	3 - 1/8	4 - 1/2	1/2
O 31254500625	3 - 1/8	4 - 1/2	5/8
O 32504000500DL	3 - 1/4	4	1/2
O 32504250250	3 - 1/4	4 - 1/4	1/4
O 32504250437	3 - 1/4	4 - 1/4	7/16
O 32504250500DL	3 - 1/4	4 - 1/4	1/2
O 32504500438DL	3 - 1/4	4 - 1/2	7/16
O 32504750500DL	3 - 1/4	4 - 3/4	1/2
O 33124500437DL	3 - 5/16	4 - 1/2	7/16
O 33754000500	3 - 3/8	4	1/2
O 33754375375DL	3 - 3/8	4 - 3/8	3/8
O 33754375500	3 - 3/8	4 - 3/8	1/2
O 33754500500	3 - 3/8	4 - 1/2	1/2
O 35004125375	3 - 1/2	4 - 1/8	3/8
O 35004250500	3 - 1/2	4 - 1/4	1/2
O 35004375500DL	3 - 1/2	4 - 3/8	1/2
O 35004500375*	3 - 1/2	4 - 1/2	3/8
O 35004500500	3 - 1/2	4 - 1/2	1/2
O 35004750500DL	3 - 1/2	4 - 3/4	1/2
O 35005000500	3 - 1/2	5	1/2
O 36254625500	3 - 5/8	4 - 5/8	1/2
O 36254750500	3 - 5/8	4 - 3/4	1/2
O 37504500500DL	3 - 3/4	4 - 1/2	1/2
O 37504750500DL	3 - 3/4	4 - 3/4	1/2
O 37505000500	3 - 3/4	5	1/2
O 37505250500	3 - 3/4	5 - 1/4	1/2
O 38754875500	3 - 7/8	4 - 7/8	1/2
O 38755000500DL	3 - 7/8	5	1/2

Part Number	A Shaft Diameter	B Groove Diameter	C Groove Width
O 40004875625DL	4	4 - 7/8	5/8
O 40005000375	4	5	3/8
O 40005000500DL	4	5	1/2
O 40005125500DL	4	5 - 1/8	1/2
O 40005250438DL	4	5 - 1/4	7/16
O 40005250500	4	5 - 1/4	1/2
O 40005375437	4	5 - 3/8	7/16
O 40005500500	4	5 - 1/2	1/2
O 42504875375DL	4 - 1/4	4 - 7/8	3/8
O 42505250500DL	4 - 1/4	5 - 1/4	1/2
O 42505375500	4 - 1/4	5 - 3/8	1/2
O 42505500500DL	4 - 1/4	5 - 1/2	1/2
O 43755375500	4 - 3/8	5 - 3/8	1/2
O 43755500500	4 - 3/8	5 - 1/2	1/2
O 45005250437	4 - 1/2	5 - 1/4	7/16
O 45005375437	4 - 1/2	5 - 3/8	7/16
O 45005500437	4 - 1/2	5 - 1/2	7/16
O 45005500500DL	4 - 1/2	5 - 1/2	1/2
O 45005750500	4 - 1/2	5 - 3/4	1/2
O 45006125562DL	4 - 1/2	6 - 1/8	9/16
O 46255625500	4 - 5/8	5 - 5/8	1/2
O 47505500375	4 - 3/4	5 - 1/2	3/8
O 47505750500DL	4 - 3/4	5 - 3/4	1/2
O 47506000562DL	4 - 3/4	6	9/16
O 47506250500	4 - 3/4	6 - 1/4	1/2
O 49376000500	4 - 15/16	6	1/2
O 50005750437	5	5 - 3/4	7/16
O 50005750500*	5	5 - 3/4	1/2
O 50006000500DL	5	6	1/2
O 50006250500*	5	6 - 1/4	1/2
O 52506250500	5 - 1/4	6 - 1/4	1/2
O 55006750625DL	5 - 1/2	6 - 3/4	5/8
O 58756875500DL	5 - 7/8	6 - 7/8	1/2
O 62508000500DL	6 - 1/4	8	1/2
O 65007500625	6 - 1/2	7 - 1/2	5/8
O 70008000500*	7	8	1/2
O 70008000625	7	8	5/8
O 72508750562	7 - 1/4	8 - 3/4	9/16
O 72508750625	7 - 1/4	8 - 3/4	5/8
O 80009000500	8	9	1/2
O 80009000625	8	9	5/8

# Oil Seals

IMPERIAL SEALS

## L1M



Hi-Tech Seals standard L1M is composed of a steel outer case, a steel filler ring, a stainless steel finger spring, and a nitrile/PTFE sealing element. The sealing element is also available in hydrogenated nitrile/ PTFE, silicone/ PTFE, and fluorocarbon/PTFE.

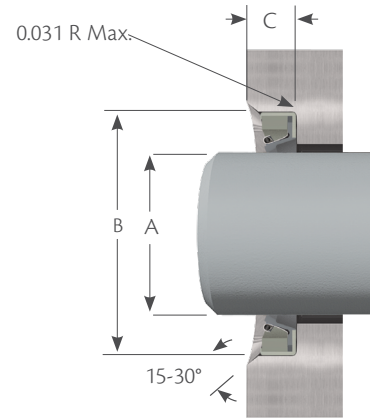
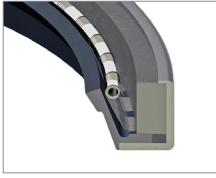
Part Number	Imperial			Metric Equivalent			Garlock Ref. #
	A Shaft Dia.	B Groove Dia.	C Groove Width	A Shaft Dia.	B Groove Dia.	C Groove Width	
O 38754875500L1M	3.875	4.875	0.500	98.42	123.82	12.70	53X-2501
O 40635125500L1M	4.063	5.125	0.500	103.20	130.17	12.70	53X-2570
O 43755375500L1M	4.375	5.375	0.500	111.12	136.52	12.70	53X-2708
O 46875750500L1M	4.687	5.750	0.500	119.04	146.05	12.70	53X-2819
O 48756000500L1M	4.875	6.000	0.500	123.82	152.40	12.70	53X-2873
O 50006250562L1M	5.000	6.250	0.562	127.00	158.75	14.27	53X-2922
O 55007000500L1M	5.500	7.000	0.500	139.70	177.80	12.70	53X-3188
O 56226785625L1M	5.622	6.874	0.625	142.80	174.60	15.87	53X-3192
O 57506875500L1M	5.750	6.875	0.500	146.05	174.62	12.70	53X-3278
O 57507000500L1M	5.750	7.000	0.500	146.05	177.80	12.70	53X-3293
O 58756875500L1M	5.875	6.875	0.500	149.23	174.62	12.70	53X-3316
O 58757000500L1M	5.875	7.000	0.500	149.23	177.80	12.70	53X-3319
O 58757125500L1M	5.875	7.125	0.500	149.23	180.98	12.70	53X-3322
O 60007000500L1M	6.000	7.000	0.500	152.40	177.80	12.70	53X-3355
O 60007250504L1M	6.000	7.250	0.504	152.40	184.15	12.80	53X-3361
O 60007250625L1M	6.000	7.250	0.625	152.40	184.15	15.87	53X-3363
O 60007500500L1M	6.000	7.500	0.500	152.40	190.50	12.70	53X-3367
O 62507750750L1M	6.250	7.750	0.750	158.75	196.85	19.05	53X-3405
O 65007500625L1M	6.500	7.500	0.625	165.10	190.50	15.87	53X-3426
O 65008000625L1M	6.500	8.000	0.625	165.10	203.20	15.87	53X-3434
O 66257743625L1M	6.625	7.743	0.625	168.27	196.67	15.87	53X-3436
O 67507750625L1M	6.750	7.750	0.625	171.45	196.85	15.87	53X-3456
O 67508000625L1M	6.750	8.000	0.625	171.45	203.20	15.87	53X-3460
O 70008000625L1M	7.000	8.000	0.625	177.80	203.20	15.87	53X-3492
O 70008500625L1M	7.000	8.500	0.625	177.80	215.90	15.87	53X-3500
O 71258250625L1M	7.125	8.250	0.625	180.97	209.55	15.87	53X-3508
O 72508500625L1M	7.250	8.500	0.625	184.15	215.90	15.87	53X-3522
O 72508750625L1M	7.250	8.750	0.625	184.15	222.25	15.88	53X-3526
O 78759375687L1M	7.875	9.375	0.687	200.02	238.12	17.45	53X-9176
O 79379125625L1M	7.937	9.125	0.625	201.59	231.77	15.87	53X-3590
O 80009000625L1M	8.000	9.000	0.625	203.20	228.60	15.87	53X-3592

Part Number	Imperial			Metric Equivalent			Garlock Ref. #
	A Shaft Dia.	B Groove Dia.	C Groove Width	A Shaft Dia.	B Groove Dia.	C Groove Width	
O 80009500625L1M	8.000	9.500	0.625	203.20	241.30	15.87	53X-3600
O 80009500687L1M	8.000	9.500	0.687	203.20	241.30	17.45	53X-3921
O 80009500750L1M	8.000	9.500	0.750	203.20	241.30	19.05	53X-3601
O 800010000687L1M	8.000	10.000	0.687	203.20	254.00	17.45	53X-3924
O 825010250812L1M	8.250	10.250	0.812	209.55	260.35	20.62	53X-4499
O 83759875687L1M	8.375	9.875	0.687	212.72	250.82	17.45	53X-3933
O 850010000687L1M	8.500	10.000	0.687	215.90	254.00	17.45	53X-8453
O 850010500100L1M	8.500	10.500	1.000	215.90	266.70	25.40	53X-3610
O 862510125687L1M	8.625	10.125	0.687	219.07	257.17	17.45	53X-3939
O 875010250687L1M	8.750	10.250	0.687	222.25	260.35	17.45	53X-3946
O 875010250750L1M	8.750	10.250	0.750	222.25	260.35	19.05	53X-3104
O 900010500687L1M	9.000	10.500	0.687	228.60	266.70	17.45	53X-3954
O 900010500750L1M	9.000	10.500	0.750	228.60	266.70	19.05	53X-3619
O 900010507625L1M	9.000	10.507	0.625	228.60	266.87	15.87	53X-3620
O 900011000750L1M	9.000	11.000	0.750	228.60	279.40	19.05	53X-3623
O 900011000812L1M	9.000	11.000	0.812	228.60	279.40	20.63	53X-3122
O 912510625687L1M	9.125	10.625	0.687	231.77	269.87	17.45	53X-3957
O 912510750750L1M	9.125	10.750	0.750	231.77	273.05	19.05	53X-3959
O 925010500625L1M	9.250	10.500	0.625	234.95	266.70	15.87	53X-4511
O 925010750687L1M	9.250	10.750	0.687	234.95	273.05	17.45	53X-3963
O 937511000750L1M	9.375	11.000	0.750	238.12	279.40	19.05	53X-3972
O 937511375812L1M	9.375	11.375	0.812	238.12	288.92	20.62	53X-4610
O 950010500625L1M	9.500	10.500	0.625	241.30	266.70	15.87	53X-3977
O 950011250750L1M	9.500	11.250	0.750	241.30	285.75	19.05	53X-3981
O 950011500812L1M	9.500	11.500	0.812	241.30	292.10	20.62	53X-3984
O 975010750625L1M	9.750	10.750	0.625	247.65	273.05	15.87	53X-4513
O 975011250687L1M	9.750	11.250	0.687	247.65	285.75	17.45	53X-3985
O 1000011000562L1M	10.000	11.000	0.562	254.00	279.40	14.28	53X-3660
O 1000011500687L1M	10.000	11.500	0.687	254.00	292.10	17.45	53X-3992
O 1000011500750L1M	10.000	11.500	0.750	254.00	292.10	19.05	53X-3672
O 1000011750750L1M	10.000	11.750	0.750	254.00	298.45	19.05	53X-3994
O 1000011969100L1M	10.000	11.969	1.000	254.00	304.00	25.40	53X-3673
O 1000012000812L1M	10.000	12.000	0.812	254.00	304.80	20.62	53X-3997
O 1000012250812L1M	10.000	12.250	0.812	254.00	311.15	20.62	53X-3669
O 1012511625687L1M	10.125	11.625	0.687	257.17	295.27	17.45	53X-3999
O 1012511750687L1M	10.125	11.750	0.687	257.17	298.45	17.45	53X-5989
O 1025011750623L1M	10.250	11.750	0.623	260.35	298.45	15.82	53X-3123
O 1025011750687L1M	10.250	11.750	0.687	260.35	298.45	17.45	53X-4004
O 1025011750750L1M	10.250	11.750	0.750	260.35	298.45	19.05	53X-4005
O 1050012000687L1M	10.500	12.000	0.687	266.70	304.80	17.45	53X-4011
O 1050012000750L1M	10.500	12.000	0.750	266.70	304.80	19.05	53X-4012
O 1050012500750L1M	10.500	12.500	0.750	266.70	317.50	19.05	53X-3041
O 1050012500812L1M	10.500	12.500	0.812	266.70	317.50	20.62	53X-4017
O 1075012250562L1M	10.750	12.250	0.562	273.05	311.15	14.28	53X-3685

# Oil Seals

IMPERIAL SEALS

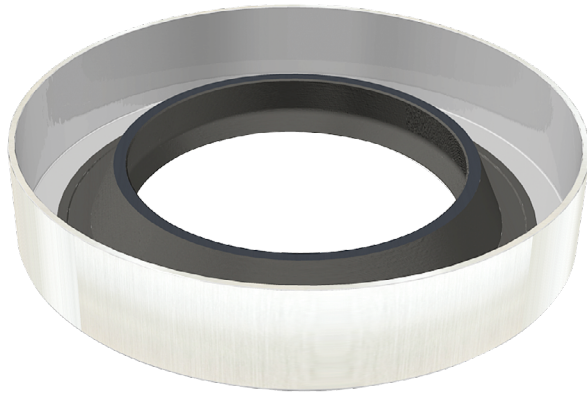
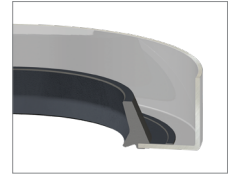
## L2M



Hi-Tech Seals standard L2M is composed of a steel case with a stainless steel spring, and a nitrile lip. The L2M seal is also available in Viton™ and silicone.

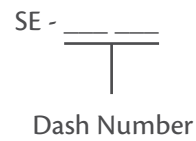
Part Number	Imperial			Metric Equivalent			Garlock Ref. #
	A Shaft Dia.	B Groove Dia.	C Groove Width	A Shaft Dia.	B Groove Dia.	C Groove Width	
O 78759375687L2M	7.875	9.375	0.687	200.02	238.12	17.45	21238-64X-9176
O 80009500687L2M	8.000	9.500	0.687	203.20	241.30	17.45	21238-64X-3921
O 825010250812L2M	8.250	10.250	0.812	209.55	260.35	20.62	21238-64X-4499
O 83759875687L2M	8.375	9.875	0.687	212.72	250.82	17.45	21238-64X-3933
O 850010000687L2M	8.500	10.000	0.687	215.90	254.00	17.45	21238-64X-8453
O 862510125687L2M	8.625	10.125	0.687	219.07	257.17	17.45	21238-64X-3939
O 875010250687L2M	8.750	10.250	0.687	222.25	260.35	17.45	21238-64X-3946
O 900010500687L2M	9.000	10.500	0.687	228.60	266.70	17.45	21238-64X-3954
O 912510625687L2M	9.125	10.625	0.687	231.77	269.87	17.45	21238-64X-3957
O 925010750687L2M	9.250	10.750	0.687	234.95	273.05	17.45	21238-64X-3963
O 937511375812L2M	9.375	11.375	0.812	238.12	288.92	20.62	21238-64X-4610
O 950011250750L2M	9.500	11.250	0.750	241.30	285.75	19.05	21238-64X-3981
O 950011500812L2M	9.500	11.500	0.812	241.30	292.10	20.62	21238-64X-3984
O 975011250687L2M	9.750	11.250	0.687	247.65	285.75	17.45	21238-64X-3985
O 975011750687L2M	9.750	11.750	0.687	247.65	298.45	17.45	21238-64X-9425
O 1000011500687L2M	10.000	11.500	0.687	254.00	292.10	17.45	21238-64X-3992
O 1000012000812L2M	10.000	12.000	0.812	254.00	304.80	20.62	21238-64X-3997
O 1000012250812L2M	10.000	12.250	0.812	254.00	311.15	20.62	21238-64X-3669
O 1012511625687L2M	10.125	11.625	0.687	257.17	295.27	17.45	21238-64X-3999
O 1012511750687L2M	10.125	11.750	0.687	257.17	298.45	17.45	21238-64X-5989
O 1025011750687L2M	10.250	11.750	0.687	260.35	298.45	17.45	21238-64X-4004
O 1050012000687L2M	10.500	12.000	0.687	266.70	304.80	17.45	21238-64X-4011
O 1050012500812L2M	10.500	12.500	0.812	266.70	317.50	20.62	21238-64X-4017
O 1075012250687L2M	10.750	12.250	0.687	273.05	311.15	17.45	21238-64X-4023
O 1075012500875L2M	10.750	12.500	0.875	273.05	317.50	22.22	21238-64X-4033
O 1075012750625L2M	10.750	12.750	0.625	273.05	323.85	15.87	21238-64X-3014
O 1087512375687L2M	10.875	12.375	0.687	276.22	314.32	17.45	21238-64X-4027
O 1087512500687L2M	10.875	12.500	0.687	276.22	317.50	17.45	21238-64X-4028
O 1100012500687L2M	11.000	12.500	0.687	279.40	317.50	17.45	21238-64X-4611
O 1100013500687L2M	11.000	13.500	0.687	279.40	342.90	17.45	21238-64X-3060
O 1125012750750L2M	11.250	12.750	0.750	285.75	323.85	19.05	21238-64X-4046
O 1125012750687L2M	11.250	12.750	0.687	285.75	323.85	17.45	21238-64X-4527

*Agricultural*



Oil Seals

Part Number	I.D.	O.D.	Height
SE 10	1.219	1.979	0.406
SE 11	1.500	2.328	0.500
SE 12	1.625	2.328	0.438
SE 13	1.750	2.718	0.359
SE 14	1.625	2.562	0.250
SE 16	2.000	3.623	0.250
SE 17	2.500	3.876	0.438
SE 18	2.125	3.371	0.375
SE 19	1.000	1.781	0.469
SE 24	2.094	2.718	0.359
SE 26	2.250	3.375	0.437
SE 28	1.500	2.623	0.250
SE 29	2.000	3.148	0.250
SE 30	2.000	3.543	0.438





Braided Packing



Braided Packing  
Extractors

## Product Description:

Braided packing is a rope like material which is cut into rings that wrap around the rod. Once installed the compression force generated by tightening of the gland produces radial pressure. Since braided packing expands radially when compressed, the gland tolerances can be more flexible than when using vee packing.

Braided packing It is also referred to as compression packing and rope packing. It is usually produced in a square or rectangular cross section and is available in range of materials. Hi-Tech Seals distributes braided packing based on weight, measured in pounds. To request a quote, contact one of our sealing professionals today.

## Part Numbers:

PKG	_____	_____	_____
	C/S	Material	Weight:
			Blank – 1 lb
			5LB – 5 lbs
			10LB – 10 lbs

**Example:** PKG 375 530L 10LB – 3/8" C/S, Braided Packing style # 530L, 10lbs package.

# Braided Packing

Braided Packing

Style #	Description	Temp. Rating (°C (°F))	pH Rating	Speed Rating (FPM)	Pressure Rating (PSI)	
PTFE	100B	Braided from 100% PTFE filament and impregnated with a PTFE suspensoidal blocking agent. 100B offers a long service life, good chemical resistance, minimal water absorption, and an extremely low coefficient of friction. 100B is recommended for static conditions and is ideal for chemical processing applications.	260 (500)	0 - 14	N/A	2000 (static)
	100BL	Braided from 100% PTFE filament and impregnated with a PTFE suspensoidal blocking agent and break in lubricant. 100BL is ideal for high-speed rotary shaft services. This soft, yet dense and stable packing offers good chemical resistance and very low shaft friction. Can be used in reciprocating applications and various pump services.	260 (500)	0 - 14	1500	300
	100F	Manufactured from 100% PTFE yarn that complies with all FDA requirements. This packing is designed for use in the food and beverage, chemical, and pharmaceutical industries, or in critical applications where the contamination is a concern.	260 (500)	0 - 14	1500	300
	100FL	Made from white hybrid PTFE yarn with a lubricant that complies with FDA requirements. 100FL offers extended service life and minimal shaft friction and scoring. High speed PTFE packing for food service, pharmaceutical, pulp and paper, and chemical industries.	260 (500)	0 - 14	3000	300
	130L	Composed of lubricated PTFE and graphite filaments with self lubricating properties. 130L offers low friction, high heat dissipation, and good chemical resistance. Suited for most general service rotating equipment applications.	288 (550)	0 - 14	4000	300 - Pump 2000 - Valve
	132L	Composed of PTFE and graphite filament yarn, encapsulated in a PTFE matrix; the matrix helps eliminate graphite migration, while the aramid reinforced corners increase abrasion resistance. Suited for valves, pumps, corrosive media, and abrasive environments.	260 (500)	2 - 12	2500	500
Aramid Fibre	210L	Composed from continuous aramid fibres thoroughly impregnated with PTFE and an inert lubricant. 210L packing provides high tensile strength and good abrasion resistance, while also offering excellent braid retention. This packing is non-staining and non-contaminating with good dimensional stability and extrusion resistance. Ideal for various abrasive and slurry services where aggressive media is present.	260 (500)	2 - 12	2500	500
	221L	Manufactured from continuous Meta-aramid filament and impregnated with PTFE and an inert break in lubricant. 221L offers good heat dissipation and abrasion resistance. This packing is non-staining, non-glazing, and non-contaminating. Suited for applications where low leakage and high durability packing is required, such as agitators, mixers, and stock pumps.	260 (500)	1 - 12	2000	300
Graphite	300	Manufactured from high purity graphite, 300 offers maximum sealability under gland pressure and is essentially leak free. 300 is a self-lubricating packing that offers low friction and good heat dissipation. Often used in high temperature pump and valve applications.	*455 (850) **649 (1200) ***3315 (6000)	0 - 14	4000	500 - Pump 3000 - Valve
	307	Made from expanded flexible graphite yarn and reinforced with high strength carbon filaments. 307 is easy to install, durable, self-lubricating, and offers low leakage with increased extrusion resistance. The material blend allows for low shaft wear while maintaining great heat dissipation. Suited for high temperature and high pressure pump and valve applications.	*455 (850) **649 (1200) ***3315 (6000)	0 - 14	4000	500 - Pump 3000 - Valve
	377	Composed of high purity expanded flexible graphite reinforced with high strength carbon filament. This material combination allows for low wear while maintaining good heat dissipation. 377 is highly durable, self-lubricating, and offers superior extrusion resistance. Often used in high temperature, high speed, and high pressure applications.	*455 (850) **649 (1200) ***3315 (6000)	0 - 14	4800	500 - Pump 5000 - Valve
	310	Made from high purity graphite with a PTFE dispersion. 310 packing is easy to install, offers good extrusion resistance, and is self-lubricating. The material combination allows for low wear and good durability, while maintaining good heat dissipation. Suited for almost all pump and valve applications.	288 (550)	0 - 14	4000	500

\*Air \*\*Steam \*\*\*Non-Oxidizing Atmosphere

# Braided Packing

IMPERIAL SEALS

Braided Packing

Style #	Description	Temp. Rating (°C (°F))	pH Rating	Speed Rating (FPM)	Pressure Rating (PSI)	
310L	Braided from high quality graphite and PTFE filament yarn. A high speed lubricant is added for quick break in and low friction during operation. 310L is easy to install, offers good extrusion, and chemical resistance. Suitable for valves, centrifugal pumps, high-speed rotary pumps, and reciprocating pumps.	288 (550)	0 - 14	4900	300	
312	Braided using a combination of graphite and PTFE fibre filament yarn and aramid reinforced corners. This packing offers extrusion and abrasion resistance that is ideal for an extensive range of abrasive and chemical services. 312 maintains good dimensional stability in various valve and pump applications.	260 (500)	2 - 12	2500	500	
330	Made from industrial grade graphite filament and coated with a graphite blend. 330 is an economical substitute for most carbon packings. It offers a low coefficient of friction and high thermal conductivity. Suited for application with aggressive media or high shaft speed. Ideal for valves, centrifugal pumps, rotary pumps, and reciprocating pumps.	*455 (850) **649 (1200) ***3315 (6000)	0 - 14	4000	500 - Pump 4000 - Valve	
330B	A high performance graphite packing that is impregnated with a blocking agent. 330B has a low coefficient of friction and high thermal conductivity. In addition, it offers good chemical resistance and dimensional stability. This packing can withstand extreme pressure and temperatures in environments with aggressive media. Suitable for agitators, pumps, valves, filters, and more.	*455 (850) **649 (1200) ***3315 (6000)	0 - 14	4000	500 - Pump 2500 - Valve	
330N	Made from nuclear grade graphite filament and coated with a graphite blend. 330N is designed for nuclear applications, capable of withstanding extreme temperature and pressures while maintaining low friction. This style offers high thermal conductivity and fraying resistance when cut. Can be used in valves, centrifugal pumps, rotary pumps, and reciprocating pumps.	*455 (850) **649 (1200) ***3315 (6000)	0 - 14	4000	500 - Pump 4000 - Valve	
3X0	Braided from 98% purity flexible graphite and Inconel® reinforced. Meets API 589/607 fire test standards. Offers reduced stem friction with high heat extrusion resistance.	*455 (850) **649 (1200) ***1093 (2000)	0 - 14	N/A	4500	
3X0IE	Composed of an Inconel® jacketed, 98% purity flexible graphite. Meets 589/607 API fire test standards and far surpasses API 622 standard for emission requirements. 3X0IE is a certified low leakage and ultra low fugitive emission packing. With unique corrosion inhibitors, self-lubricating, and non-scoring qualities, it is a great solution for high temperature and high pressure valve services and Leak Detection and Repair (LDAR) programs.	*455 (850) **649 (1200) ***1093 (2000)	0 - 14	N/A	6500	
410	Composed of a 100% GFO™ fibre within a PTFE matrix to eliminate graphite migration. 410 offers a long service life with a low coefficient of friction. This packing has good water efficiency, thermal conductivity, and great chemical resistance. Suitable for mixers, agitators, valves, centrifugal pumps, rotary pumps, and reciprocating pumps.	288 (550)	0 - 14	4300	300 - Pump 2000 - Valve	
Acrylic	510	Composed of acrylic blend that is impregnated with PTFE. 510 is a cost effective, durable, general purpose packing that possesses good chemical resistance and excellent dimensional stability. Designed to withstand a range of fluids in various temperatures, pressures, and speeds. Often used in centrifugal pumps, rotary pumps, and reciprocating pumps.	260 (500)	0 - 12	2200	500
	510L	Composed of an acrylic blended fibre impregnated with PTFE and an inert lubricant for extremely low friction. 510L is durable, non-staining, and non-contaminating. This packing provides good chemical resistance and offers great heat dissipation. Designed to withstand a range of fluids in various temperatures, pressures, and speeds. Often used in valves, centrifugal pumps, rotary pumps, and reciprocating pumps.	260 (500)	0 - 12	2500	500
	512L	Made from acrylic blended fibre and reinforced with durable aramid corners. 512L is impregnated with PTFE and a lubricant. This packing offers a long service life and excellent abrasion resistance. Ideal for applications with abrasive slurry in valves and pumps.	260 (500)	2 - 12	2200	500
	530L	Made from acrylic fibre this packing is impregnated with graphite flakes and high temperature lubricants. 530L is a cost effective packing with low wear. This packing handles a wide range of fluids at various pressures and speeds. Used as a general service packing in steam, water, oil, and other mild environments.	260 (500)	4 - 10	1500	300

\*Air \*\*Steam \*\*\*Non-Oxidizing Atmosphere



# Braided Packing

Braided Packing

Style #		Description	Temp. Rating (°C (°F))	pH Rating	Speed Rating (FPM)	Pressure Rating (PSI)
Phenolic	610L	610L is made from KYNOL™ filaments and is impregnated with PTFE and an inert break in lubricant. The phenolic fibres help reduce shaft wear and leakage. This packing is suitable for a range of purposes where durable packing is required.	260 (500)	1 - 13	2000	500
	700B	Composed of carbon yarn and impregnated with a blocking agent. 700B offers a good service life and the ability to maintain good heat dissipation. This packing has good chemical resistance, low shaft wear, and offers low abrasion. Ideal for pumps or valves in caustic or corrosive media and is suitable for almost any high speed and high temperature pump or valve application.	315 (600)	0 - 14	3000	500 - Pump 3600 - Valve
Carbon	730B	Composed of carbon yarn and impregnated with a blocking agent and high purity graphite. 730B offers low shaft wear, low leakage, excellent heat dissipation, and good chemical resistance. Often used in caustic or corrosive environments and is suitable for almost any high speed and high temperature pump or valve application.	*455 (850) **649 (1200) ***3315 (6000)	0 - 14	4000	500 - Pump 4350 - Valve
Vegetable Fibre	800L	Braided from a long lasting blend of flax and ramie fibres and thoroughly lubricated with a blend of tallow and wax. 800L packing provides an economical low friction solution for water pumps, stern tubes, and rudder posts. This packing offers good resistance to cold water, seawater, and cold oils. Often used in pulp and paper, marine, and wastewater markets.	104 (220)	5 - 9	1200	150
	810L	Composed of high quality flax and ramie yarns which offer corrosion resistance, good braid retention, and a long service life. 810L is impregnated with PTFE and an inert lubricant. Suited for most saltwater and freshwater applications.	121 (250)	5 - 9	1200	200
	830L	Braided from a blend of flax and ramie fibres, this packing is further enhanced with a tallow and wax blend lubricant and then coated with a high purity graphite to further reduce friction. 830L is resistant to cold water, seawater, and cold oils. Used in water pumps, rudder posts, marine applications, pulp and paper, and wastewater markets.	104 (220)	5 - 9	1200	150
Metallic	9A0L	Manufactured from aluminum alloy and lubricated with high viscosity light oil and high purity flake graphite. This packing is designed for services that require low friction and high strength packing. Typically used in boiler feed pumps, heat transfer pumps, and oil charge pumps.	537 (1000)	4 - 10	2000	1000
	9A6L	High quality packing that is composed of aluminum alloy over a soft, high-temperature fibreglass core. 9A6L is lubricated with an oil and flake graphite blend for low friction. 9A6L is a high strength, compressible packing that is available in coil form only. Often used in applications such as boiler pumps, heat transfer pumps, and oil charge pumps.	537 (1000)	4 - 10	2000	1000
	9C0	Made from soft annealed copper. This packing is dense yet flexible which allows for easy installation. 9C0 is designed for use as an anti-extrusion ring.	816 (1500)	4 - 10	1000	1000
	9X6I	9X6I is composed of Inconel® wire inserted fibreglass wrapped over a core. The packing is further enhanced with corrosion inhibitors and a graphite blend coating. 9X6I is an economical solution compared to other more expensive steam packings. Used as a high temperature and high pressure valve stem or expansion joint packing.	649 (1200)	2 - 13	N/A	3000
	9L0L	Composed of an anti-friction lead alloy and impregnated with low friction lubricant, which reduces shaft wear and increases heat dissipation. 9L0L is great for high pressure applications and for use as end rings or anti-extrusion rings. These qualities make it well suited for high pressure boiler feeders, reciprocating pumps, and rotating pumps.	232 (450)	4 - 10	3600	1000
	9L6L	Composed from anti-friction lead alloy over a fibreglass core. The packing is impregnated with a low friction lubricant to help reduce shaft wear and increase heat dissipation. 9L6L is great for high pressure applications and for use as end rings or anti-extrusion rings. These qualities make it well suited for high pressure boiler feeders, reciprocating pumps, and rotating pumps.	232 (450)	4 - 10	3600	1000

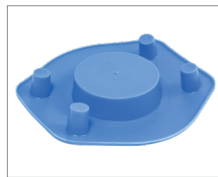
\*Air \*\*Steam \*\*\*Non-Oxidizing Atmosphere



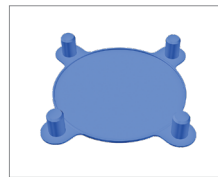
Material	Temp. Range		
Low Density Polyethylene	-70°C	to	80°C
High Density Polyethylene	-70°C	to	80°C



Caps & Plugs (CP)



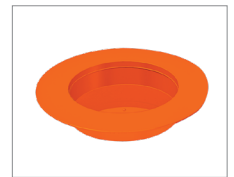
Bolted Flange Protector (BFP)



Stud Hole Flange Protector (FC)



Stud Hole Flange Protector (FC)



Valve Flange Protector (FP)



Locking Cap (SW)



Wedge Cap (KSW)



Telescopic Cap (TSW)



Bolt Cap (BM)

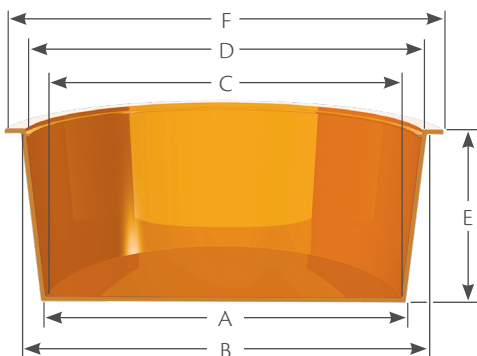


Bolt Thread Cap (B)

## Product Description

Hi-Tech Seals offers an extensive range of protector products. Our protectors offer excellent protection against damage, dirt, and moisture that can occur during storage or shipping. They are made from low-density or high-density materials as polyethylene. Our specialty low density polyethylene compound contains volatile corrosion inhibitors (VCI), which provides improved corrosion resistance.

## Caps & Plugs



Composed of low density polyethylene.

Part Number	Dimensions					
	A	B	C	D	E	F
CP 0	0.174	0.241	0.110	0.177	0.410	0.380
CP 1	0.239	0.303	0.175	0.239	0.380	0.470
CP 1X	0.267	0.335	0.205	0.273	0.410	0.470
CP 2	0.299	0.367	0.235	0.303	0.410	0.500
CP 2X	0.331	0.397	0.267	0.333	0.380	0.560
CP 3	0.362	0.428	0.298	0.364	0.410	0.560
CP 3X	0.392	0.459	0.328	0.395	0.410	0.590
CP 4	0.422	0.486	0.358	0.422	0.410	0.620
CP 4X	0.448	0.512	0.384	0.448	0.410	0.660
CP 5	0.472	0.548	0.408	0.484	0.470	0.690
CP 5X	0.500	0.568	0.436	0.504	0.470	0.720
CP 6	0.533	0.608	0.469	0.544	0.470	0.750
CP 6X	0.551	0.633	0.487	0.569	0.500	0.780
CP 241S	0.552	0.612	0.490	0.550	0.340	0.750
CP 7	0.580	0.668	0.518	0.606	0.530	0.840
CP 7X	0.610	0.695	0.549	0.634	0.530	0.840
CP 8	0.642	0.729	0.578	0.665	0.500	0.880
CP 8X	0.678	0.755	0.614	0.691	0.530	0.880
CP 9	0.691	0.787	0.627	0.723	0.590	0.940
CP 9X	0.727	0.825	0.663	0.761	0.590	1.000
CP 710	0.750	0.805	0.688	0.743	0.190	0.860
CP 10	0.752	0.849	0.688	0.785	0.590	1.000
CP 11	0.803	0.912	0.739	8.480	0.660	1.060
CP 11x	0.819	0.933	0.755	0.869	0.620	1.130
CP 12	0.869	0.973	0.805	0.909	0.660	1.130
CP 12X	0.915	1.040	0.855	0.980	0.720	1.160
CP 13	0.967	1.092	0.903	1.028	0.780	1.250
CP 249W	0.975	1.104	0.918	1.047	0.750	1.440
CP 13B	0.980	1.049	0.916	0.985	0.500	1.250
CP 13X	0.997	1.144	0.933	1.080	0.780	1.310
CP 14	1.093	1.219	1.029	1.155	0.780	1.410
CP 14X	1.179	1.286	1.115	1.222	0.750	1.440
CP 15	1.226	1.354	1.162	1.290	0.750	1.500
CP 15X	1.233	1.358	1.175	1.300	0.840	1.500

# Protectors

IMPERIAL SEALS

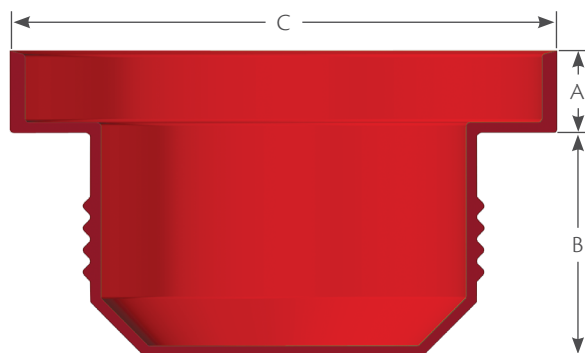
## Caps & Plugs



Composed of high density polyethylene.

Part Number	Dimensions					
	A	B	C	D	E	F
CP 16	1.312	1.465	1.248	1.401	0.750	1.620
CP 17B	1.344	1.507	1.282	1.445	0.940	1.770
CP 17	1.451	1.601	1.387	1.537	0.750	1.750
CP 17S	1.519	1.602	1.455	1.538	0.750	1.750
CP 18	1.560	1.682	1.498	1.620	0.780	1.880
CP 18X	1.633	1.750	1.569	1.690	0.750	1.840
CP 19	1.752	1.882	1.688	1.818	0.780	2.000
CP 20	1.807	1.938	1.743	1.874	1.000	2.160
CP 210	1.847	2.000	1.783	1.936	1.030	2.130
CP 21	1.903	2.078	1.839	2.014	1.030	2.250
CP 220	1.981	2.133	1.917	2.069	1.000	2.250
CP 22S	2.017	2.147	1.953	2.083	0.750	2.310
CP 221	2.070	2.244	2.000	2.174	1.040	2.470
CP 230	2.136	2.312	2.074	2.250	1.030	2.560
CP 240	2.300	2.464	2.236	2.400	1.030	2.620
CP 33A	2.311	2.650	2.247	2.586	1.000	2.780
CP 250	2.396	2.604	2.332	2.540	1.160	2.810
CP 43A	2.457	2.750	2.395	2.688	1.000	2.880
CP 33A1	2.482	2.645	2.418	2.581	0.660	2.780
CP 44	2.641	2.790	2.579	2.728	0.784	2.970
CP 45A	2.720	2.990	2.656	2.926	1.000	3.130
CP 500	2.850	2.982	2.786	2.918	0.750	3.250
CP 55A	2.980	3.244	2.910	3.174	1.000	3.380
CP 53	2.996	3.159	2.916	3.079	0.470	3.410
CP 96A	3.270	3.562	3.200	3.492	1.120	3.690
CP 501	3.320	3.452	3.250	3.382	0.750	3.630
CP 1050	3.466	3.602	3.406	3.542	0.750	3.880
CP 341	3.552	3.732	3.478	3.658	1.000	4.000
CP 1052	3.676	3.802	3.596	3.722	0.750	4.000
CP 1063	3.928	4.074	3.848	3.994	0.750	4.380
CP 1070	4.214	4.459	4.134	4.379	1.000	4.940
CP 1072	4.368	4.622	4.288	4.542	1.000	5.000
CP 407	4.980	5.100	4.900	5.020	0.690	5.440
CP 344	5.326	5.494	5.217	5.385	0.880	5.880
CP 345	5.470	5.620	5.390	5.540	1.000	6.130
CP 351	6.008	6.184	5.918	6.094	1.000	6.630
CP 352	6.398	6.564	6.329	6.500	0.880	6.940
CP 365	6.668	6.774	6.562	6.668	1.500	7.190
CP 367	7.338	7.656	7.253	7.575	1.000	7.940
CP 368	7.658	7.846	7.574	7.762	1.000	8.120
CP 369	7.968	8.146	7.877	8.120	1.000	8.380

## Hydraulic Fittings



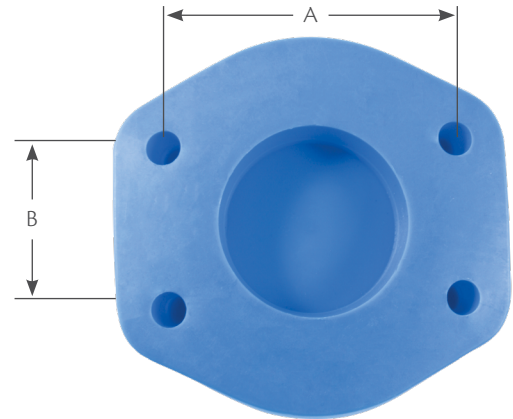
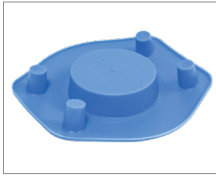
HF -           
 |  
 Dash Number

Composed of high density polyethylene.

Part Number	Thread Size	Suited For		Dimensions		
		Tubing Size	SAE/JIC Fitting	A	B	C
HF 4	3/8 - 24	3/16	3	0.180	0.460	0.560
HF 6	7/16 - 20	1/4	4	0.220	0.500	0.720
HF 8	1/2 - 20	5/16	5	0.250	0.530	0.810
HF 10	9/16 - 18	3/8	6	0.280	0.530	0.880
HF 11	5/8 - 18	3/8	-	0.250	0.590	0.940
HF 12	3/4 - 16	1/2	8	0.280	0.750	1.060
HF 14	7/8 - 14	5/8	10	0.280	0.840	1.250
HF 16	1 1/16 - 12	3/4	12	0.250	0.860	1.410
HF 17	1 1/16 - 14	3/4	-	0.250	0.860	1.410
HF 18	1 3/16 - 12	7/8	-	0.250	0.930	1.500
HF 20	1 5/16 - 12	1	16	0.250	0.910	1.750
HF 22	1 1/2 - 12	-	-	0.310	0.930	1.810
HF 24	1 5/8 - 12	1 - 1/4	-	0.340	0.940	2.220
HF 26	1 3/4 - 12	-	-	0.340	0.970	2.310
HF 28	1 7/8 - 12	1 - 1/2	-	0.380	1.060	2.470
HF 30	2 1/4 - 12	1 - 3/4	-	0.380	1.310	2.750
HF 32	2 1/2 - 12	2	-	0.380	1.310	3.090

# Protectors

## Bolt Flange Protectors



BFP -                    
 |                    |  
 Nom. Pipe Size      Blank - 3,000 PSI  
                             6000 - 6,000 PSI

Composed of low density polyethylene. Bolt flange protectors are sized for SAE code 61 3000 PSI.

For 3000 PSI

Part Number	Nominal Pipe Size	A	B
BFP 0500	1/2	1.500	0.688
BFP 0750	3/4	1.875	0.875
BFP 1000	1	2.062	1.031
BFP 1250	1 - 1/4	2.312	1.188
BFP 1500	1 - 1/2	2.750	1.406
BFP 2000	2	3.062	1.688
BFP 2500	2 - 1/2	3.500	2.000

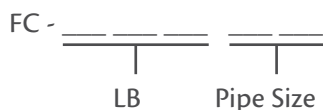
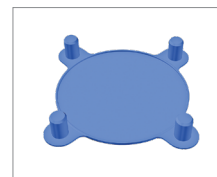


Composed of low density Polyethylene. Bolt flange protectors are sized for SAE code 62 6000 PSI.

For 6000 PSI

Part Number	Nominal Pipe Size	A	B
BFP 07506000	3/4	2.000	0.937
BFP 10006000	1	2.250	1.093
BFP 12506000	1 - 1/4	2.625	1.250
BFP 15006000	1 - 1/2	3.125	1.437
BFP 20006000	2	3.812	1.750

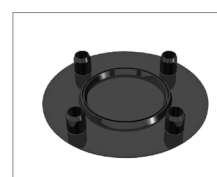
## Stud-Hole Flange Protectors



Pressure represents ASA standard. For additional sizes and API pressure ratings, please contact a Hi-Tech Seals representative.

Part Number	LB	Nominal Pipe Size
FC 1501	150	1"
FC 15015	150	1 - 1/2"
FC 1502	150	2"
FC 1503	150	3"
FC 1504	150	4"
FC 1506	150	6"
FC 1508	150	8"
FC 15010	150	10"
FC 15012	150	12"

Part Number	LB	Nominal Pipe Size
FC 3001	300	1"
FC 30015	300	1 - 1/2"
FC 3002	300	2"
FC 3003	300	3"
FC 3004	300	4"
FC 3006	300	6"
FC 30010	300	10"
FC 30012	300	12"



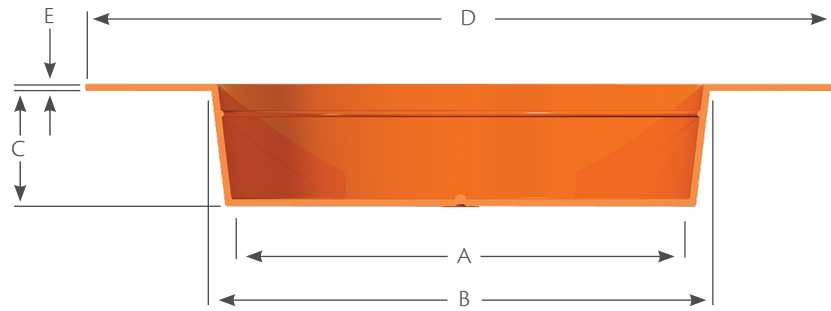
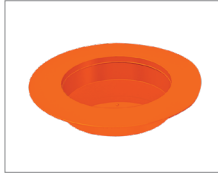
Part Number	LB	Nominal Pipe Size
FC 3008	300	8"
FC 6002	600	2"
FC 6004	600	4"
FC 6006	600	6"
FC 6008	600	8"
FC 60010	600	10"

Part Number	LB	Nominal Pipe Size
FC 60012	600	12"
FC 9003	900	3"
FC 9004	900	4"
FC 9006	900	6"
FC 15002	1500	2"
FC 15003	1500	3"

# Protectors

IMPERIAL SEALS

## Valve-Flange Protectors



Part Number	Nominal Pipe Size	Dimensions				
		A	B	C	D	E
FP 109	1/2	0.540	0.585	0.500	1.440	0.0250
FP 110	3/4	0.720	0.750	0.500	1.688	0.0030
FP 111	1	0.940	0.970	0.625	2.000	0.0030
FP 112	1 - 1/4	1.360	1.400	0.625	2.560	0.0040
FP 113	1 - 1/2	1.600	1.640	0.750	2.875	0.0040
FP 114	2	2.040	2.100	0.750	3.625	0.0050
FP 115	2 - 1/2	2.440	2.500	0.750	4.125	0.0050
FP 1151	2 - 1/2	2.440	2.500	0.750	5.125	0.0050
FP 116	3	3.014	3.150	0.730	6.050	0.0050
FP 117	3 - 1/2	3.510	3.635	0.750	5.590	0.0060
FP 118	4	4.000	4.140	0.980	6.310	0.0060
FP 119	5	5.020	5.080	1.000	7.312	0.0060
FP 120	6	6.040	6.100	1.000	8.500	0.0060



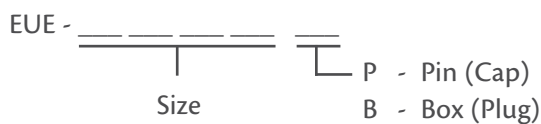
## Tool Joint Protectors



Part Number	Size	Thread Type	Type
TJP 2375IFP	2 - 3/8	IF	PIN
TJP 2375IFB	2 - 3/8	IF	BOX
TJP 2375MWJJP	2 - 3/8	Mayhew JR	PIN
TJP 2375MWJJB	2 - 3/8	Mayhew JR	BOX
TJP 2375PACP	2 - 3/8	PAC	PIN
TJP 2375PACB	2 - 3/8	PAC	BOX
TJP 2375REGP	2 - 3/8	REG	PIN
TJP 2375REGB	2 - 3/8	REG	BOX
TJP 2875H90P	2 - 7/8	H90	PIN
TJP 2875H90B	2 - 7/8	H90	BOX
TJP 2875IFP	2 - 7/8	IF	PIN
TJP 2875IFB	2 - 7/8	IF	BOX
TJP 2875REGP	2 - 7/8	REG	PIN
TJP 2875REGB	2 - 7/8	REG	BOX
TJP 2875PACP	2 - 7/8	PAC	PIN
TJP 2875PACB	2 - 7/8	PAC	BOX
TJP 3500REGP	3 - 1/2	REG	PIN
TJP 3500REGB	3 - 1/2	REG	BOX
TJP 3500IFP	3 - 1/2	IF	PIN
TJP 3500IFB	3 - 1/2	IF	BOX
TJP 4000H90P	4	H90	PIN
TJP 4000H90B	4	H90	BOX

Part Number	Size	Thread Type	Type
TJP 4500REGP	4 - 1/2	REG	PIN
TJP 4500REGB	4 - 1/2	REG	BOX
TJP 4500H90P	4 - 1/2	H90	PIN
TJP 4500H90B	4 - 1/2	H90	BOX
TJP 5000H90P	5	H90	PIN
TJP 5000H90B	5	H90	BOX
TJP 5500REGP	5 - 1/2	REG	PIN
TJP 5500REGB	5 - 1/2	REG	BOX
TJP 5500IFP	5 - 1/2	IF	PIN
TJP 5500IFB	5 - 1/2	IF	BOX
TJP 5500H90P	5 - 1/2	H90	PIN
TJP 5500H90B	5 - 1/2	H90	BOX
TJP 6625IFP	6 - 5/8	IF	PIN
TJP 6625IFB	6 - 5/8	IF	BOX
TJP 6625H90P	6 - 5/8	H90	PIN
TJP 6625H90B	6 - 5/8	H90	BOX
TJP 6625REGP	6 - 5/8	REG	PIN
TJP 6625REGB	6 - 5/8	REG	BOX
TJP 7625REGP	7 - 5/8	REG	PIN
TJP 7625REGB	7 - 5/8	REG	BOX
TJP 7625H90P	7 - 5/8	H90	PIN
TJP 7625H90B	7 - 5/8	H90	BOX

## EUE Style

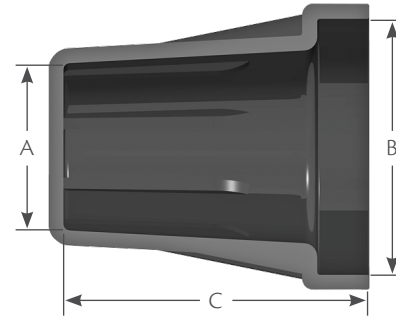
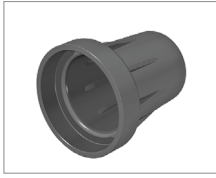


Part Number	Size	Type
EUE 1500B	1 - 1/2	BOX
EUE 1500P	1 - 1/2	PIN
EUE 2375B	2 - 3/8	BOX
EUE 2375P	2 - 3/8	PIN
EUE 2875B	2 - 7/8	BOX
EUE 2875P	2 - 7/8	PIN

Part Number	Size	Type
EUE 3500B	3 - 1/2	BOX
EUE 3500P	3 - 1/2	PIN
EUE 4000B	4	BOX
EUE 4000P	4	PIN
EUE 4500B	4 - 1/2	BOX
EUE 4500P	4 - 1/2	PIN

# Protectors

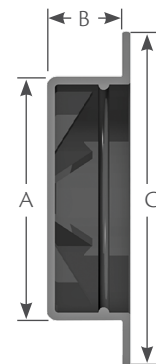
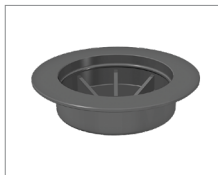
## Sucker Rod Caps



Part Number	Shaft Size	Dimensions		
		A	B	C
SR 5	5/8	0.935	1.240	1.680
SR 6	3/4	1.062	1.500	1.940
SR 7	7/8	1.188	1.630	2.160
SR 8	1	1.375	2.000	2.470
SR 9	1 - 1/8	1.563	2.250	2.750

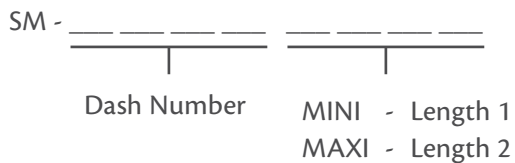
Sucker rod caps are also available in push style.

## Sucker Rod Plugs



Part Number	Coupling Size	Dimensions		
		A	B	C
FPS 5	5/8	0.975	0.380	1.380
FPS 6	3/4	1.100	0.380	1.500
FPS 7	7/8	1.225	0.380	1.690
FPS 8	1	1.415	0.380	2.000

## Sleeve Mesh



Protectors

Part Number	I.D. Fits	Colour	Feet/Unit
SM 014MINI	1/4 to 1/2	Yellow	650
SM 014MAXI			3000
SM 05MINI	1/2 to 1	Blue	550
SM 05MAXI			2750
SM 10MINI	1 to 1 - 1/2	Red	340
SM 10MAXI			1700
SM 1000MINI	1 to 2	Yellow	500
SM 1000MAXI			2500
SM 15MINI	1 - 1/2 to 2	Black	180
SM 15MAXI			900
SM 20MINI	2 to 2 - 1/2	White	160
SM 20MAXI			800
SM 2000MINI	2 to 4	Red	300
SM 2000MAXI			1500
SM 25MINI	2 - 1/2 to 3	Yellow	120
SM 25MAXI			600
SM 30MINI	3 to 4	Green	90
SM 30MAXI			450
SM 40MINI	4 to 5	Orange	80
SM 40MAXI			400
SM 50MINI	5	Brown	50
SM 50MAXI			400
SM 60MINI	6	Blue	50
SM 70MINI	7	Clear	40

Composed of Nylon weaved into a strong diamond pattern.

# Retaining Rings



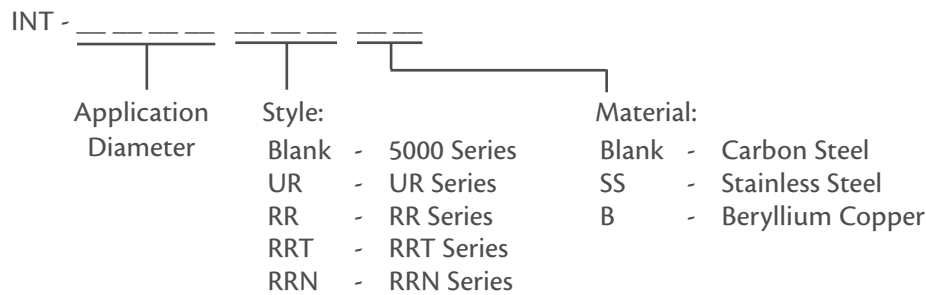
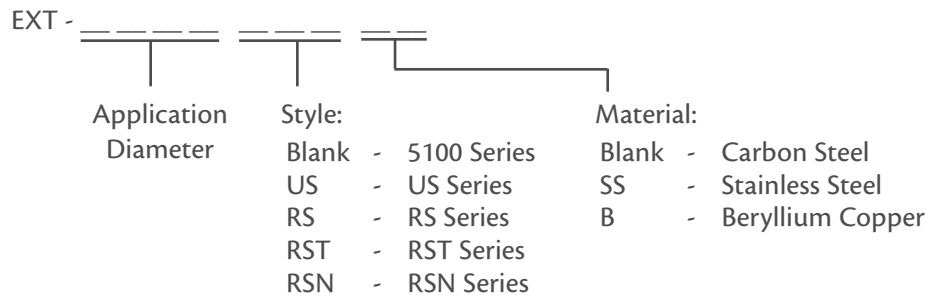
Retaining Rings with Lugs	Temp. Range
Carbon Steel (SAE 1060-1090)	-73°C to 260°C
Stainless Steel 15-7 MO (AMS 5520)	-73°C to 482°C
Beryllium Copper	-184°C to 343°C
Spiral Retaining Rings	
Carbon Steel (SAE 1060-1090)	-73°C to 260°C
Stainless Steel (AMS 5866)	-73°C to 204°C
Beryllium Copper	-184°C to 340°C

Carbon spring steel retaining rings sizes 306 and up have an increased maximum temperature of 315°C.

## Product Description

Retaining rings, also referred to as snap rings, are typically installed in a groove on the shaft or bore. The retaining ring acts as a shoulder which holds components in place. The retaining ring is held in place by interference on either the I.D. or O.D.


## Part Numbers:






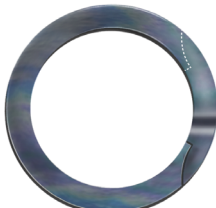




**Example:** EXT 050 US - External Spiral Retaining Ring, 0.500" Application Diameter, US Series, Carbon Steel

**Example:** INT 275 SS - Internal Retaining Ring with Lugs, 2.750" Application Diameter, 5000 Series, Stainless Steel

## Retaining Rings With Lugs

		External		Internal	
	Series	5100		5000	

## Spiral Retaining Rings

Duty		External		Internal	
LIGHT	Series	US		UR	
MEDIUM	Series	RS		RR	
MEDIUM/HEAVY	Series	RST		RRT	
HEAVY	Series	RSN		RRN	

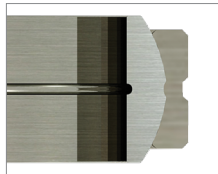


# Spherical Plain Bearings

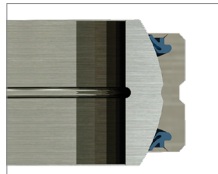


Material	Temp. Range
Steel-On-Steel*	-60°C to 300°C

\* Load carrying capacity is reduced at temperatures exceeding 180°C. Lubricant temperature ranges must also be taken into account. Contact us if an application experiences a high temperature range.



Non-Sealed



Sealed

## Product Description

The standard radial spherical plain bearing is characterized by an outer ring with a single split in the axial direction. The outer and inner ring are made of chrome steel that is hardened and phosphate treated.

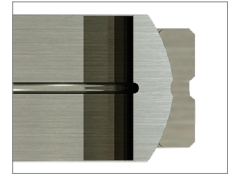
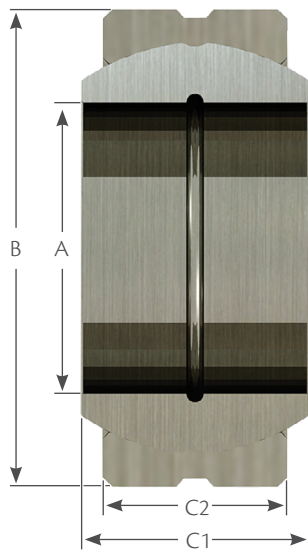
The sliding surface is treated with molybdenum disulfide. In addition to the treated sliding surface, the bearing receives lubrication through ports on the inner and outer bearing wall. Due to the molybdenum disulfide treatment and ability to self-lubricate, these bearings experience high wear resistance. This bearing performs well in applications exposed to dusty environments.

## Part Numbers:

SBB - GEZ \_\_\_\_\_ ES - \_\_\_\_\_  
 |  
 I.D. (mm)  
 Blank - Unsealed Style  
 2RS - Sealed Style

**Example:** SBB GEZ25ES - Spherical Ball Bearing, Steel-On-Steel, Radial, Maintenance Required, 1.000" I.D., 1.625" O.D.

# Spherical Plain Bearings



Additional styles and sizes available upon request.

Non-Sealed SBB Part Number	Sealed SSB Part Number	Bearing Dimensions				Basic Load Rating		IKO Dash Number
		A I.D	B O.D	C1 Height	C2	kN		
						Dynamic	Static	
SBB GEZ12ES	Not Available	0.500	0.875	0.437	0.375	14	41.5	SBB 8
SBB GEZ15ES	Not Available	0.625	1.063	0.547	0.469	21.6	65.5	SBB 10
SBB GEZ19ES	Not Available	0.750	1.250	0.656	0.562	31.5	93	SBB 12
SBB GEZ22ES	Not Available	0.875	1.438	0.765	0.656	42.5	127	SBB 14
SBB GEZ25ES	SBB GEZ25ES-2RS	1.000	1.625	0.875	0.750	56	166	SBB 16 (-2RS)
SBB GEZ31ES	SBB GEZ31ES-2RS	1.250	2.000	1.093	0.937	86.5	260	SBB 20 (-2RS)
SBB GEZ34ES	SBB GEZ34ES-2RS	1.375	2.188	1.187	1.031	104	310	SBB 22 (-2RS)
SBB GEZ38ES	SBB GEZ38ES-2RS	1.500	2.438	1.312	1.125	125	375	SBB 24 (-2RS)
SBB GEZ44ES	SBB GEZ44ES-2RS	1.750	2.813	1.531	1.312	170	510	SBB 28 (-2RS)
SBB GEZ50ES	SBB GEZ50ES-2RS	2.000	3.188	1.750	1.500	224	670	SBB 32 (-2RS)
SBB GEZ57ES	SBB GEZ57ES-2RS	2.250	3.562	1.969	1.687	280	850	SBB 36 (-2RS)
SBB GEZ63ES	SBB GEZ63ES-2RS	2.500	3.938	2.187	1.875	345	1040	SBB 40 (-2RS)
SBB GEZ69ES	SBB GEZ69ES-2RS	2.750	4.375	2.406	2.062	425	1270	SBB 44 (-2RS)
SBB GEZ76ES	SBB GEZ76ES-2RS	3.000	4.750	2.625	2.250	500	1500	SBB 48 (-2RS)
SBB GEZ82ES	SBB GEZ82ES-2RS	3.250	5.125	2.844	2.437	585	1760	SBB 52 (-2RS)
SBB GEZ88ES	SBB GEZ88ES-2RS	3.500	5.500	3.062	2.625	680	2040	SBB 56 (-2RS)
SBB GEZ95ES	SBB GEZ95ES-2RS	3.750	5.875	3.281	2.812	780	2360	SBB 60 (-2RS)
SBB GEZ101ES	SBB GEZ101ES-2RS	4.000	6.250	3.503	3.000	900	2650	SBB 64 (-2RS)
SBB GEZ114ES	SBB GEZ114ES-2RS	4.500	7.000	3.937	3.375	1120	3400	SBB 72 (-2RS)
SBB GEZ127ES	SBB GEZ127ES-2RS	5.000	7.750	4.375	3.750	1400	4150	SBB 80 (-2RS)
SBB GEZ152ES	SBB GEZ152ES-2RS	6.000	8.750	4.750	4.125	1730	5200	SBB 96 (-2RS)



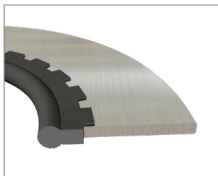
# Bonded Washers



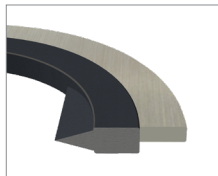
Elastomer Materials	Temp. Range
Nitrile	-40°C to 120°C
Viton™/Fluorocarbon	-26°C to 204°C
Hydrogenated Nitrile	-40°C to 160°C

Temperature ranges are limited by the elastomers performance range. Other materials are available upon request.

Bonded Washers



Fastener Seal  
600 Series (ST)



Thread Seal  
750 Series (TS)

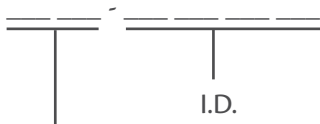


Bonded Seal  
400 Series (BS)

## Product Description

Bonded washers are a modified standard washer. They consist of an outer ring of a hard material, typically steel, and an inner ring of an elastomeric material that acts as a gasket. The bonded washers moulded elastomer lining helps prevent fluids from leaking through bolt holes. Outer rings are also available in brass.

## Part Numbers:



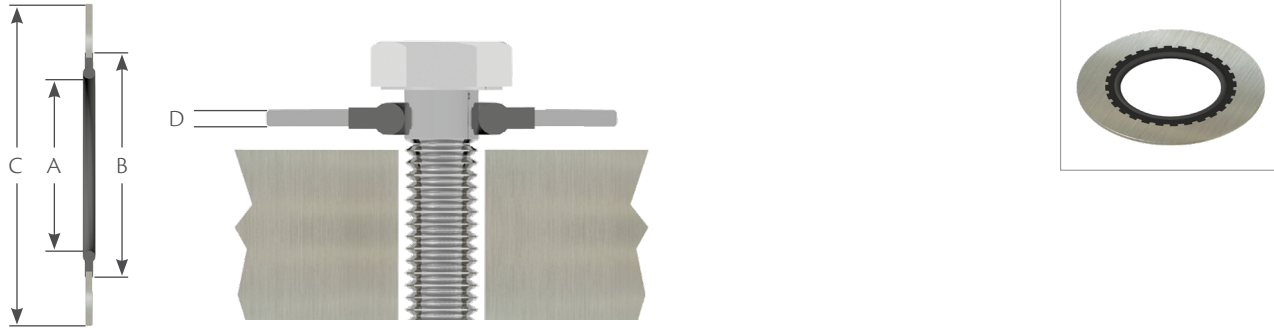
- ST - Fastener Seal
- TS - Threaded Seal
- BS - Bonded Seal

**Example:** ST 1000 - Fastener Seal, Intended for a 1.000" Thread Diameter, 0.988" Seal I.D., 1.760" O.D.

# Bonded Washers

IMPERIAL SEALS

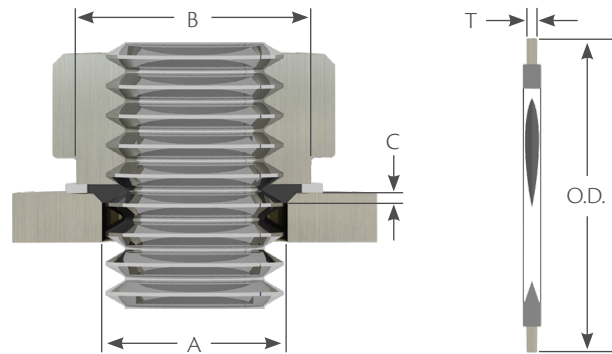
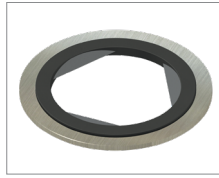
## Fastener Seal - 600 Series



Part Number	Fastener Size	Thread Diameter	A I.D. ± 0.010	B Diameter Max.	C O.D. ± 0.010	D Retainer Thickness
ST 138	#6	0.138	0.130	0.229	0.385	0.040 ± 0.004
ST 164	#8	0.164	0.156	0.255	0.385	0.040 ± 0.004
ST 190	#10	0.190	0.180	0.317	0.443	0.050 ± 0.005
ST 190OS	#10 OS	0.190	0.186	0.365	0.468	0.050 ± 0.005
ST 250	1/4	0.250	0.240	0.381	0.505	0.050 ± 0.005
ST 250OS	1/4 OS	0.250	0.245	0.422	0.531	0.050 ± 0.005
ST 312	5/16	0.312	0.301	0.488	0.603	0.050 ± 0.005
ST 375	3/8	0.375	0.364	0.546	0.666	0.050 ± 0.005
ST 437	7/16	0.438	0.427	0.618	0.760	0.050 ± 0.005
ST 500	1/2	0.500	0.490	0.696	0.880	0.050 ± 0.005
ST 562	9/16	0.562	0.552	0.759	1.067	0.050 ± 0.005
ST 625	5/8	0.625	0.615	0.818	1.193	0.050 ± 0.005
ST 688	11/16	0.688	0.674	0.898	1.260	0.050 ± 0.005
ST 750	3/4	0.750	0.740	0.982	1.322	0.064 ± 0.005
ST 812	13/16	0.812	0.798	1.048	1.416	0.064 ± 0.005
ST 875	7/8	0.875	0.864	1.105	1.510	0.064 ± 0.005
ST 938	15/16	0.938	0.921	1.172	1.635	0.064 ± 0.005
ST 1000	1	1.000	0.988	1.234	1.760	0.064 ± 0.005
ST 1062	1 - 1/16	1.063	1.050	1.290	1.822	0.064 ± 0.005
ST 1125	1 - 1/8	1.125	1.106	1.351	1.885	0.064 ± 0.005
ST 1188	1 - 3/16	1.188	1.167	1.442	1.947	0.064 ± 0.005
ST 1250	1 - 1/4	1.250	1.229	1.474	2.010	0.064 ± 0.005
ST 1312	1 - 5/16	1.313	1.290	1.567	2.072	0.064 ± 0.005
ST 1375	1 - 3/8	1.375	1.352	1.631	2.135	0.064 ± 0.005
ST 1438	1 - 7/16	1.438	1.413	1.693	2.197	0.064 ± 0.005
ST 1500	1 - 1/2	1.500	1.475	1.817	2.260	0.091 ± 0.005
ST 1625	1 - 5/8	1.625	1.600	1.942	2.385	0.091 ± 0.005
ST 1750	1 - 3/4	1.750	1.725	2.067	2.510	0.091 ± 0.005
ST 1875	1 - 7/8	1.875	1.850	2.192	2.635	0.091 ± 0.005
ST 2000	2	2.000	1.975	2.317	2.760	0.091 ± 0.005
ST 3000	3	3.000	2.975	3.430	5.500	0.120 ± 0.005

# Bonded Washers

## Thread Seal - 750 Series



Bonded Washers

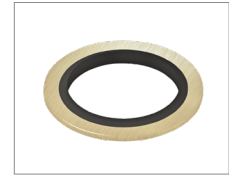
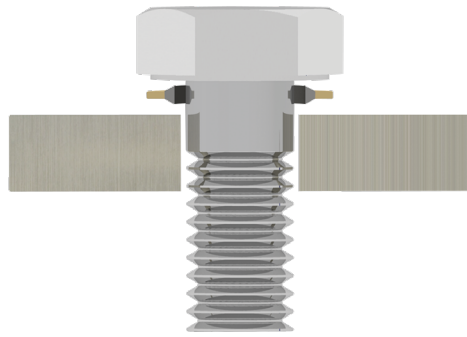
Part Number	UNC (Coarse)	UNF (Fine)	O.D. ± 0.010	T Retainer Thickness ± 0.005	A Clearance Diameter	B Min. Dia. of Mating Surface	C Bore Depth
TS 006	32	40	0.406	0.050	0.143/0.149	3/8	3/64
TS 008	32	36	0.406	0.050	0.170/0.177	3/8	3/64
TS 010	24	32	0.469	0.050	0.198/0.206	3/8	1/16
TS 012	24	28	0.562	0.050	0.224/0.234	7/16	1/16
TS 250	20	28	0.562	0.050	0.260/0.271	7/16	1/16
TS 312	18	24	0.687	0.064	0.327/0.339	1/2	1/16
TS 375	16	24	0.750	0.064	0.392/0.406	5/8	1/16
TS 437	14	20	0.906	0.078	0.458/0.474	11/16	1/16
TS 500	13	20	1.000	0.078	0.523/0.541	3/4	1/16
TS 562	12	18	1.094	0.094	0.589/0.609	7/8	1/16
TS 625	11	18	1.187	0.094	0.654/0.676	1	1/16
TS 750	10	16	1.375	0.109	0.788/0.812	1 - 1/8	3/32
TS 875	9	14	1.562	0.109	0.921/0.947	1 - 1/4	3/32
TS 1000	8	12	1.750	0.120	1.054/1.082	1 - 7/16	3/32
TS 1125	8*	12	1.875	0.120	1.187/1.217	1 - 9/16	3/16
TS 1250	8*	12	2.000	0.120	1.321/1.353	1 - 11/16	3/16
TS 1375	8*	12	2.125	0.120	1.454/1.488	1 - 13/16	3/16
TS 1500	8*	12	2.250	0.120	1.587/1.623	1 - 15/16	3/16
TS 1750	5	N/A	3.375	0.179	1.865/1.920	2 - 7/16	3/8

Size 1 - 1/8 to 1 - 1/2 are not designed for standard coarse threads.

# Bonded Washers

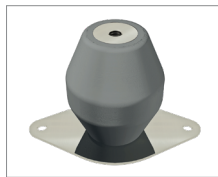
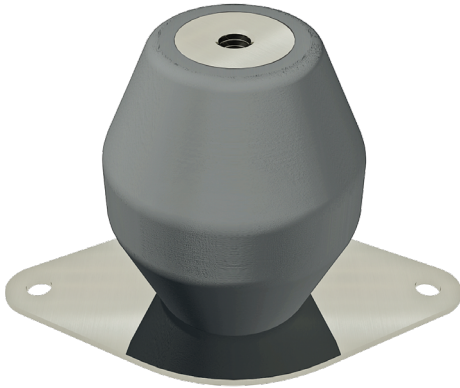
IMPERIAL SEALS

## Bonded Seals - 400 Series

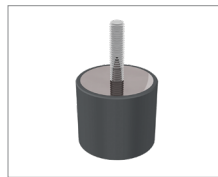


Part Number	Bolt Size	A O.D. + 0.005 - 0.000	B I.D. ±0.004	C Metal Thickness	D Total Height
BS 250	1/4	0.520	0.270	0.051	0.074
BS 312	5/16	0.560	0.340	0.051	0.074
BS 375	3/8	0.625	0.408	0.083	0.113
BS 437	7/16	0.750	0.460	0.083	0.113
BS 500	1/2	0.810	0.541	0.083	0.113
BS 562	9/16	0.875	0.585	0.083	0.113
BS 625	5/8	1.000	0.650	0.083	0.113
BS 687	11/16	1.000	0.715	0.097	0.127
BS 750	3/4	1.060	0.775	0.097	0.127
BS 812	13/16	1.125	0.848	0.097	0.127
BS 875	7/8	1.250	0.925	0.097	0.127
BS 1000	1	1.375	1.065	0.097	0.127
BS 1062	1 - 1/16	1.520	1.095	0.097	0.127
BS 1187	1 - 3/16	1.500	1.213	0.097	0.127
BS 1312	1 - 5/16	1.685	1.334	0.133	0.163
BS 1375	1 - 3/8	1.750	1.415	0.133	0.163
BS 1500	1 - 1/2	1.880	1.534	0.133	0.163
BS 1625	1 - 5/8	2.062	1.690	0.133	0.163
BS 1750	1 - 3/4	2.250	1.905	0.133	0.163
BS 1875	1 - 7/8	2.307	1.907	0.133	0.163
BS 2125	2 - 1/8	2.750	2.161	0.133	0.163
BS 2250	2 - 1/4	2.770	2.285	0.133	0.163

Additional sizes and torque information available through a Hi-Tech Seals representative.



*Evidgom®*



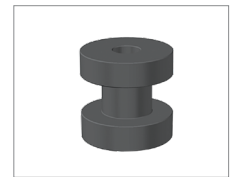
*Radiaflex*



*S.C. Mounting*



*Beca*



*Special Electronics*

## Product Description

With the increased mechanization of facility equipment, it is becoming increasingly essential to use proper vibration and noise reduction components. Paulstra parts help improve working conditions, as well as extend the life of machinery. Their products are used by a diverse group of industries including: Aerospace, Automotive, Civil Engineering, Electronics, Food & Beverage, HVAC, Heavy Machinery Production, Marine, Military, Naval, Power Generation, and Rail Vehicle Systems.

Gain access to engineering support and the full Paulstra family of products through us. For part number and dimension information visit [www.paulstra-industry.com](http://www.paulstra-industry.com).

## Part Numbers:

PAU - \_\_\_\_\_  
 \_\_\_\_\_  
 |  
 Paulstra Reference #

**Example:** PAU 810035 - All Rubber Evidgom Stops

