



# Pressure Seals, Inc.

Phone: (877)-PSI-SEAL Toll Free  
Thousands of Seals, O-Rings, and U-Cups  
World-Class Service since 1976!



## O-Ring Materials

### Definition of an Encapsulated O-Ring

A circular shaped seal with a round cross section, consisting of two components, a Teflon® jacket, and an internal (core) energizer which imparts memory to the seal. The O-ring is intended to close off potential leak paths between mating surfaces in both static and dynamic applications. PSI's encapsulated O-rings are offered in two Teflon® grades, FEP and PFA, with a selection of three different energizers which give the user a choice depending on temperature and operating environment.

### Encapsulation

#### FEP

The most versatile when considering overall corrosion resistance, sealing capability and temperature. Temperature range -450 to +400 °F (-267 to +205 °C).

#### PFA

A fluorocarbon copolymer similar to FEP, but it also offers greatly improved mechanical and creep properties at elevated operating temperatures. Temperature range -450 to +500 °F (-267 to +260 °C).

#### Features

When considering the encapsulated concept, one should take into account the many features which FEP and PFA Teflon® have to offer:

- Corrosion resistance
- Ultra-low moisture absorption
- Uniformity
- Low cold flow
- Broad temperature range
- Good dielectric properties
- Flexibility
- Low coefficient of friction
- Permeation resistance
- Abrasion resistance

- Non-flammable
- Good impact strength
- Excellent resilience
- Lubricity
- No swelling
- Reusable

#### FDA Approval

The United States Federal Food and Drug Administration has published amendment 21 CFR 177.1550 which permits the use of FEP and PFA as articles or components of articles intended for use in contact with food. There is no general approval for use of these grades in medical applications.

### Core Materials

The core material is the component which imparts "life" or "memory" to the encapsulated O-ring when it is subjected to compressive force.

#### Viton®

A fluoroelastomer compound with a combination of exceptional mechanical properties and compression set resistance. This particular energizer gives an O-ring excellent memory and the ability to recover rapidly from deformation. This core has a Shore A hardness of 75 with a suggested operating temperature range of -10 to +300 °F (-23 to +150 °C) in encapsulated applications.

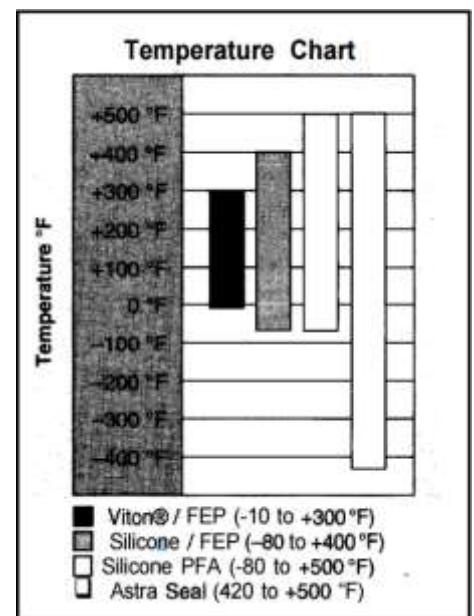
#### Silicone

This elastomer possesses mechanical properties similar to Viton®, with the exception of its slightly lower compression set resistance. It is more suitable for sensitive applications where lighter compressive forces are applied to energize the seal. This core has a Shore A hardness of 70 but it also offers a broader operating temperature range of -80 to +500 °F (-62 to +260 °C).

#### Astra Seal

The spring energizer, made from precision

rolled stainless high strength steel, gives a very high compression set resistance. The stainless spring core maintains its resilience even in long term exposure to cryogenic temperatures -420 to +500 °F (-250 to +260 °C). It offers superior sealing characteristics in face seal applications particularly in liquid oxygen and hydrogen service.



### Hollow-Core Encapsulated O-Rings

Hollow core O-rings provide effective sealing properties in applications where lower compressive forces may limit sealing ability of our standard O-rings. The combination of a hollow core insert with a slightly lower hardness offers a more flexible easier to squeeze O-ring requiring less energy to activate its sealing capability.

#### Note

Hollow core energizers are available in a limited size range. Please contact the factory for specific details.

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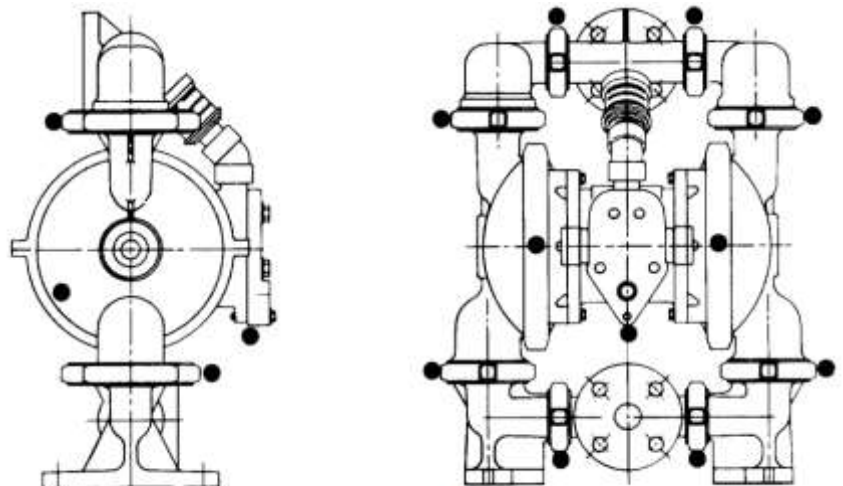
## Applications

- Mechanical Seals
- Seals in Diaphragm Pumps
- Cryogenics
- Mechanical Pumps
- Filter Elements
- Filter Housings
- Reusable Syringes
- Air-operated Vents
- Gas Service
- Corrosive Fluid Seals
- High Purity Water
- Low Pressure, Quick Disconnect Piping Systems
- Vacuum Service
- Relief and Emergency Valves
- Large Diameter Access Cover
- Pressure Vessels
- Compressors
- Face Flange Seals
- Glass Heat Exchanger Tube/Tubesheet Seals
- Dairy and Beverage Service
- Butterfly Valves

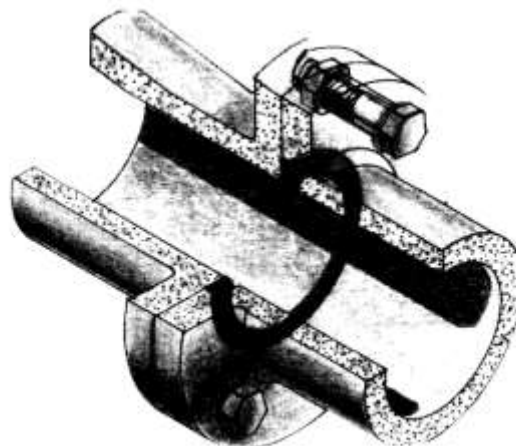
### Now there is a choice!

Although solid elastomer O-rings are suitable for a broad range of applications, there are limitations.

Consider Teflon® encapsulated O-rings as the choice which allows your equipment to perform in a broader range of hostile environments and temperatures while retaining their sealing capabilities.



DIAPHRAGM PUMPS



CRYOGENIC SERVICE FLANGE SEALS

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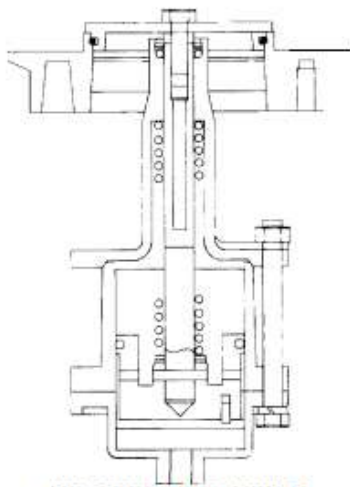


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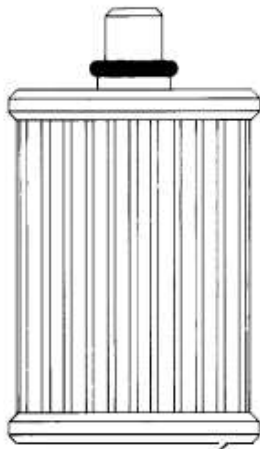
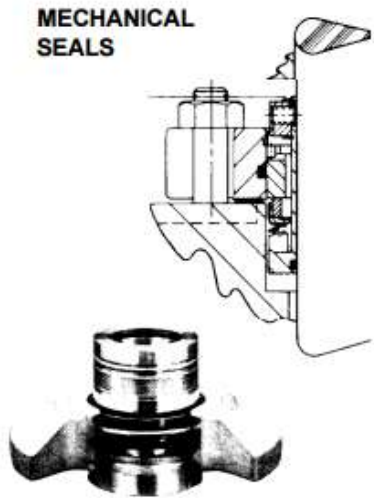


## Applications

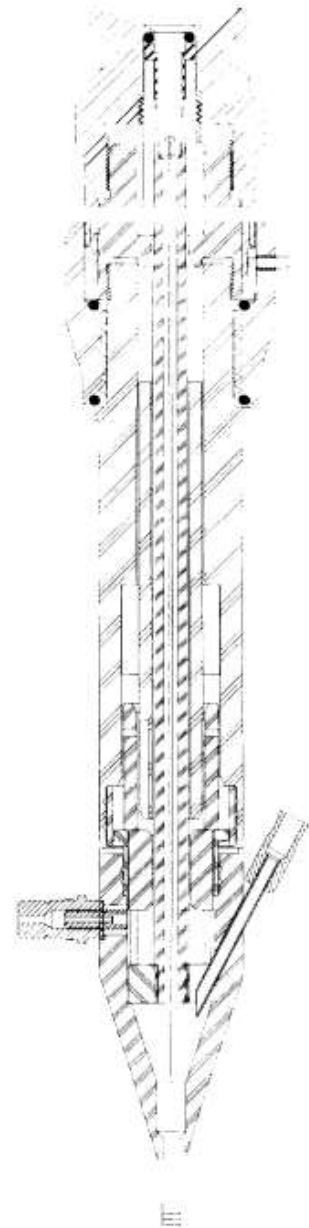
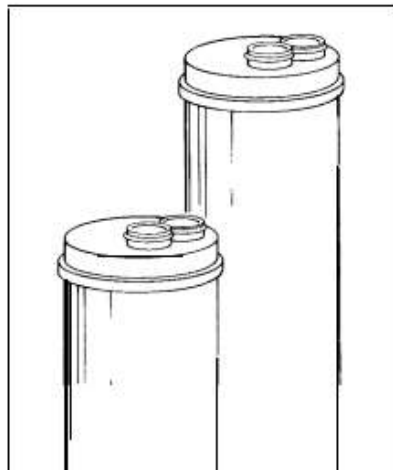


**AIR OPERATED VENTS**

**MECHANICAL SEALS**



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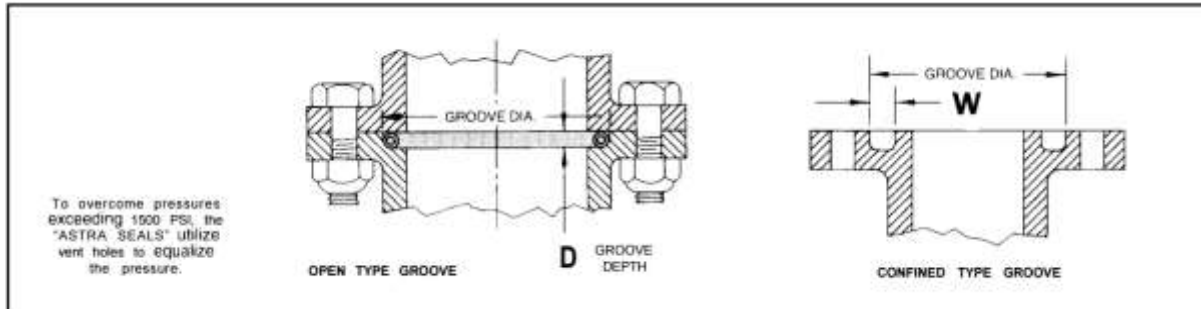


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## Engineering Design Data



### Stainless Steel Core Astra Seals

Table 1

Seal Series	A	Groove Depth D	Nominal Squeeze	I.D. Min.	O.D. Max.	W Min.
Astra	.075 ± .005	0.053	0.022	0.750	3.000	0.105
Astra	.103 ± .005	0.072	0.028	0.750	5.000	0.130
Astra	.115 ± .005	0.085	0.030	1.250	3.500	0.150
Astra	.140 ± .007	0.110	0.030	1.250	7.500	0.195
Astra	.170 ± .007	0.130	0.040	1.500	12.000	0.230
Astra	.192 ± .007	0.148	0.044	1.750	36.000	0.255
Astra	.220 ± .010	0.175	0.045	2.000	Any	0.310
Astra	.250 ± .015	0.200	0.050	3.000	Any	0.325
Astra	.275 ± .015	0.225	0.050	3.500	Any	0.350

### Viton & Silicone Core Materials Recommended Design Procedure

#### For Typical Installation

- Shaft diameter must be known.
- Choose the seal cross-section from the recommended O.D. range in Table 2.
- Use the formula: shaft diameter plus twice the seal cross-section minus twice the squeeze.
- The minimum width (W) is listed for each series in Table 2.
- To determine the nominal shaft diameter if the bore diameter is known. Bore diameter minus twice the seal cross-section plus twice the squeeze.

#### Example:

- Known shaft diameter is 1.000
- Chosen cross-section.103
- Shaft diameter + (2 x cross-section) - (2 x squeeze) = bore diameter.  
 $1.000 + (2 \times .103) - (2 \times .025) = 1.156$  bore diameter

Width (W) would be .133. The seal part number would be .103-1.156

#### Note:

There is no maximum limitation to the O.D. in any cross-section. Seal reliability dictates larger cross-sections for larger diameters in order to observe good design practice.

After determining O-ring size, specify the Teflon® jacket (FEP or PFA), and the core material (Viton®, Silicone or Astra Seal).

#### Example:

Viton®/FEP .103-1.156" O.D.

#### Note:

When ordering, always specify whether ring dimension is inside or outside diameter.

#### Encapsulated O-Ring Specifications Dimensions

- SAE Standard AS 568A
- British BS 1806
- British BS 4518 Metric
- Refer to Design Data Section for Tolerances

#### Teflon®, FEP, PFA

- ASTM D 2116 and L-P-387A

#### Viton®

- ASTM 200
- HK715
- MIL-F-83248A 75 Durometer, Color Black

#### Silicone

- ASTM 200
- ZZ-F-765-B Class 2A Grade 70

#### Stainless Astra

- ASTM Type 302
- MILS 5059

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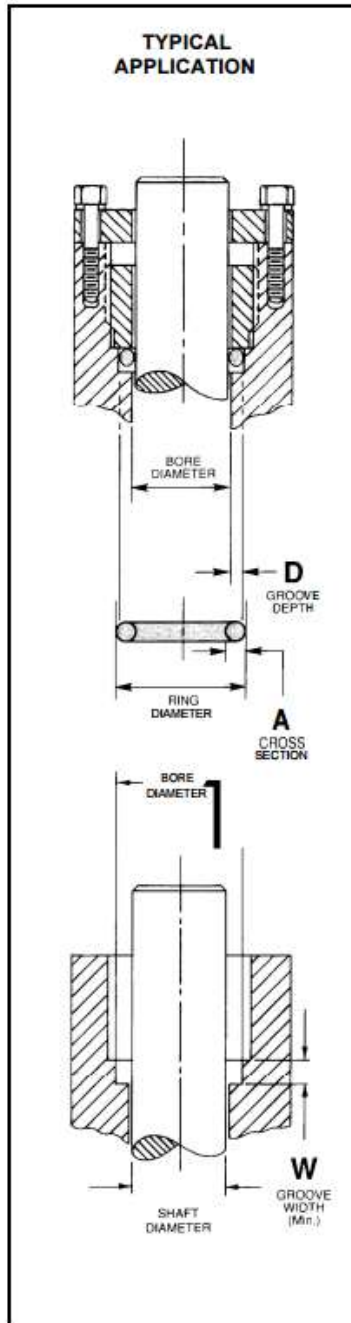


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## Teflon Encapsulated O-Rings



### Cross Section Design Data

Silicone and Viton®

Table 2

Cross Section A	mm	Nominal Squeeze	Groove Depth D	Groove Width W	I.D. Min. (in)	O.D. Max. (in)
.062 ± .005	1.57	0.018	0.044	0.085	0.300	2.5
.070 ± .005	1.78	0.022	0.048	0.097	0.300	5.5
.077 ± .005	1.96	0.022	0.055	0.104	0.480	5.5
.093 ± .005	2.36	0.025	0.068	0.123	0.480	10.0
.103 ± .005	2.62	0.025	0.078	0.133	0.480	10.0
.107 ± .005	2.72	0.028	0.079	0.140	0.500	10.0
.110 ± .005	2.79	0.030	0.080	0.145	0.500	10.0
.115 ± .005	2.92	0.030	0.085	0.150	0.500	10.0
.118 ± .005	3.00	0.030	0.088	0.153	0.500	10.0
.125 ± .005	3.18	0.030	0.095	0.160	0.500	20.0
.135 ± .006	3.43	0.030	0.105	0.170	0.500	20.0
.139 ± .006	3.53	0.030	0.109	0.174	0.500	20.0
.148 ± .006	3.76	0.032	0.116	0.185	0.750	20.0
.158 ± .006	4.01	0.032	0.126	0.195	0.750	25.0
.165 ± .006	4.19	0.032	0.133	0.202	1.000	25.0
.170 ± .006	4.32	0.035	0.135	0.210	1.000	25.0
.177 ± .006	4.50	0.037	0.140	0.219	1.000	25.0
.185 ± .008	4.70	0.040	0.145	0.230	1.000	25.0
.194 ± .008	4.93	0.040	0.154	0.239	1.100	25.0
.210 ± .008	5.33	0.045	0.165	0.260	1.100	Any
.220 ± .010	5.59	0.047	0.175	0.270	1.250	Any
.225 ± .010	5.72	0.047	0.178	0.277	1.500	Any
.236 ± .010	5.99	0.047	0.189	0.288	1.500	Any
.250 ± .010	6.35	0.050	0.200	0.305	1.750	Any
.275 ± .010	6.99	0.050	0.225	0.330	2.250	Any
.296 ± .010	7.52	0.055	0.241	0.356	3.000	Any
.315 ± .010	8.00	0.060	0.255	0.380	3.250	Any
.335 ± .015	8.51	0.065	0.270	0.405	3.500	Any
.355 ± .015	9.02	0.065	0.290	0.425	3.750	Any
.375 ± .015	9.53	0.070	0.305	0.450	4.000	Any
.395 ± .015	10.03	0.075	0.320	0.475	4.000	Any
.433 ± .015	11.00	0.080	0.353	0.518	7.250	Any
.475 ± .015	12.07	0.085	0.390	0.565	8.000	Any
.500 ± .015	12.70	0.100	0.400	0.605	12.000	Any
.590 ± .025	14.99	0.125	0.465	0.720	15.000	Any
.625 ± .025	15.88	0.125	0.465	0.720	15.000	Any
.750 ± .035	19.05	0.200	0.550	0.955	18.000	Any
.787 ± .035	19.99	0.225	0.562	1.017	25.000	Any
1.000 ± .050	25.40	0.250	0.750	1.255	37.000	Any

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## Size Chart

### Pressure Seals Standard O-Ring Dimensions

Universal						Universal					
Dash No.	Nominal Size			Actual Size		Dash No.	Nominal Size			Actual Size	
	I.D.	O.D.	W	I.D.	C/S		I.D.	O.D.	W	I.D.	C/S
010	1/4	3/8	1/16	0.239 ± 0.010	0.070	121	1 1/16	1 1/4	3/32	1.049 ± 0.010	0.103
011	5/16	7/16	1/16	0.301 ± 0.010	0.070	122	1 1/8	1 5/16	3/32	1.112 ± 0.010	0.103
012	3/8	1/2	1/16	0.364 ± 0.010	0.070	123	1 3/16	1 3/8	3/32	1.174 ± 0.010	0.103
013	7/16	9/16	1/16	0.426 ± 0.010	0.070	124	1 1/4	1 7/16	3/32	1.237 ± 0.010	0.103
014	1/2	5/8	1/16	0.489 ± 0.010	0.070	125	1 5/16	1 1/2	3/32	1.299 ± 0.010	0.103
015	9/16	11/16	1/16	0.551 ± 0.010	0.070	126	1 3/8	1 9/16	3/32	1.362 ± 0.010	0.103
016	5/8	3/4	1/16	0.614 ± 0.010	0.070	127	1 7/16	1 5/8	3/32	1.424 ± 0.010	0.103
017	11/16	13/16	1/16	0.676 ± 0.010	0.070	128	1 1/2	1 11/16	3/32	1.487 ± 0.010	0.103
018	3/4	7/8	1/16	0.739 ± 0.010	0.070	129	1 9/16	1 3/4	3/32	1.549 ± 0.010	0.103
019	13/16	15/16	1/16	0.801 ± 0.010	0.070	130	1 5/8	1 13/16	3/32	1.612 ± 0.010	0.103
020	7/8	1	1/16	0.864 ± 0.010	0.070	131	1 11/16	1 7/8	3/32	1.674 ± 0.010	0.103
021	15/16	1 1/16	1/16	0.926 ± 0.010	0.070	132	1 3/4	1 15/16	3/32	1.737 ± 0.010	0.103
022	1	1 1/8	1/16	0.989 ± 0.010	0.070	133	1 13/16	2	3/32	1.799 ± 0.010	0.103
023	1 1/16	1 3/16	1/16	1.051 ± 0.010	0.070	134	1 7/8	2 1/16	3/32	1.862 ± 0.010	0.103
024	1 1/8	1 1/4	1/16	1.114 ± 0.010	0.070	135	1 15/16	2 1/8	3/32	1.925 ± 0.010	0.103
025	1 3/16	1 5/16	1/16	1.176 ± 0.010	0.070	136	2	2 3/16	3/32	1.987 ± 0.010	0.103
026	1 1/4	1 3/8	1/16	1.239 ± 0.010	0.070	137	2 1/16	2 1/4	3/32	2.050 ± 0.010	0.103
027	1 5/16	1 7/16	1/16	1.301 ± 0.010	0.070	138	2 1/8	2 5/16	3/32	2.112 ± 0.010	0.103
028	1 3/8	1 1/2	1/16	1.364 ± 0.010	0.070	139	2 3/16	2 3/8	3/32	2.175 ± 0.010	0.103
029	1 1/2	1 5/8	1/16	1.426 ± 0.010	0.070	140	2 1/4	2 7/16	3/32	2.237 ± 0.010	0.103
030	1 5/8	1 3/4	1/16	1.489 ± 0.010	0.070	141	2 5/16	2 1/2	3/32	2.300 ± 0.010	0.103
031	1 3/4	1 7/8	1/16	1.551 ± 0.010	0.070	142	2 3/8	2 9/16	3/32	2.362 ± 0.010	0.103
032	1 7/8	2	1/16	1.614 ± 0.010	0.070	143	2 7/16	2 5/8	3/32	2.425 ± 0.010	0.103
033	2	2 1/8	1/16	1.676 ± 0.010	0.070	144	2 1/2	2 11/16	3/32	2.487 ± 0.010	0.103
034	2 1/8	2 1/4	1/16	1.739 ± 0.010	0.070	145	2 9/16	2 3/4	3/32	2.550 ± 0.010	0.103
035	2 1/4	2 3/8	1/16	1.801 ± 0.010	0.070	146	2 5/8	2 13/16	3/32	2.612 ± 0.010	0.103
036	2 3/8	2 1/2	1/16	1.864 ± 0.010	0.070	147	2 11/16	2 7/8	3/32	2.675 ± 0.010	0.103
037	2 1/2	2 5/8	1/16	1.926 ± 0.010	0.070	148	2 3/4	2 15/16	3/32	2.737 ± 0.010	0.103
038	2 5/8	2 3/4	1/16	1.989 ± 0.010	0.070	149	2 13/16	3	3/32	2.800 ± 0.010	0.103
039	2 3/4	2 7/8	1/16	2.051 ± 0.010	0.070	150	2 7/8	3 1/16	3/32	2.862 ± 0.010	0.103
040	2 7/8	3	1/16	2.114 ± 0.010	0.070	151	3	3 3/16	3/32	2.925 ± 0.010	0.103
041	3	3 1/8	1/16	2.176 ± 0.010	0.070	152	3 1/4	3 7/16	3/32	3.000 ± 0.010	0.103
042	3 1/4	3 3/8	1/16	2.239 ± 0.010	0.070	153	3 1/2	3 11/16	3/32	3.075 ± 0.010	0.103
043	3 1/2	3 5/8	1/16	2.301 ± 0.010	0.070	154	3 3/4	3 15/16	3/32	3.150 ± 0.010	0.103
044	3 3/4	3 7/8	1/16	2.364 ± 0.010	0.070	155	4	4 3/16	3/32	3.225 ± 0.010	0.103
045	4	4 1/8	1/16	2.426 ± 0.010	0.070	156	4 1/4	4 7/16	3/32	3.300 ± 0.010	0.103
046	4 1/4	4 3/8	1/16	2.489 ± 0.010	0.070	157	4 1/2	4 11/16	3/32	3.375 ± 0.010	0.103
047	4 1/2	4 5/8	1/16	2.551 ± 0.010	0.070	158	4 3/4	4 15/16	3/32	3.450 ± 0.010	0.103
048	4 3/4	4 7/8	1/16	2.614 ± 0.010	0.070	159	5	5 3/16	3/32	3.525 ± 0.010	0.103
049	5	5 1/8	1/16	2.676 ± 0.010	0.070	160	5 1/4	5 7/16	3/32	3.600 ± 0.010	0.103
050	5 1/4	5 3/8	1/16	2.739 ± 0.010	0.070	161	5 1/2	5 11/16	3/32	3.675 ± 0.010	0.103
110	3/8	9/16	3/32	0.362 ± 0.010	0.103	162	5 3/4	5 15/16	3/32	3.750 ± 0.010	0.103
111	7/16	5/8	3/32	0.424 ± 0.010	0.103	163	6	6 3/16	3/32	3.825 ± 0.010	0.103
112	1/2	11/16	3/32	0.487 ± 0.010	0.103	164	6 1/4	6 7/16	3/32	3.900 ± 0.010	0.103
113	9/16	3/4	3/32	0.549 ± 0.010	0.103	165	6 1/2	6 11/16	3/32	3.975 ± 0.010	0.103
114	5/8	13/16	3/32	0.612 ± 0.010	0.103	166	6 3/4	6 15/16	3/32	4.050 ± 0.010	0.103
115	11/16	7/8	3/32	0.674 ± 0.010	0.103	167	7	7 3/16	3/32	4.125 ± 0.010	0.103
116	3/4	15/16	3/32	0.737 ± 0.010	0.103	168	7 1/4	7 7/16	3/32	4.200 ± 0.010	0.103
117	13/16	1	3/32	0.799 ± 0.010	0.103	169	7 1/2	7 11/16	3/32	4.275 ± 0.010	0.103
118	7/8	1 1/16	3/32	0.862 ± 0.010	0.103	170	7 3/4	7 15/16	3/32	4.350 ± 0.010	0.103
119	15/16	1 1/8	3/32	0.924 ± 0.010	0.103	171	8	8 3/16	3/32	4.425 ± 0.010	0.103
120	1	1 3/16	3/32	0.987 ± 0.010	0.103	172	8 1/4	8 7/16	3/32	4.500 ± 0.010	0.103
						173	8 1/2	8 11/16	3/32	4.575 ± 0.010	0.103
						174	8 3/4	8 15/16	3/32	4.650 ± 0.010	0.103

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Universal						Universal					
Dash No.	Nominal Size			Actual Size		Dash No.	Nominal Size			Actual Size	
	I.D.	O.D.	W	I.D.	C/S		I.D.	O.D.	W	I.D.	C/S
175	9	9 3/16	3/32	8.987 ± 0.015	0.103	253	5 3/8	5 5/8	1/8	5.359 ± 0.015	0.139
176	9 1/4	9 7/16	3/32	9.237 ± 0.015	0.103	254	5 1/2	5 3/4	1/8	5.484 ± 0.015	0.139
177	9 1/2	9 11/16	3/32	9.487 ± 0.015	0.103	255	5 5/8	5 7/8	1/8	5.609 ± 0.020	0.139
178	9 3/4	9 15/16	3/32	9.737 ± 0.015	0.103	256	5 3/4	6	1/8	5.734 ± 0.020	0.139
						257	5 7/8	6 1/8	1/8	5.859 ± 0.020	0.139
						258	6	6 1/4	1/8	5.984 ± 0.020	0.139
205	7/16	11/16	1/8	0.421 ± 0.010	0.139	259	6 1/4	6 1/2	1/8	6.234 ± 0.020	0.139
206	1/2	3/4	1/8	0.484 ± 0.010	0.139	260	6 1/2	6 3/4	1/8	6.484 ± 0.020	0.139
207	9/16	13/16	1/8	0.546 ± 0.010	0.139	261	6 3/4	7	1/8	6.734 ± 0.020	0.139
208	5/8	7/8	1/8	0.609 ± 0.010	0.139	262	7	7 1/4	1/8	6.984 ± 0.020	0.139
209	11/16	15/16	1/8	0.671 ± 0.010	0.139	263	7 1/4	7 1/2	1/8	7.234 ± 0.020	0.139
210	3/4	1	1/8	0.734 ± 0.010	0.139	264	7 1/2	7 3/4	1/8	7.484 ± 0.020	0.139
211	13/16	1 1/16	1/8	0.796 ± 0.010	0.139	265	7 3/4	8	1/8	7.734 ± 0.020	0.139
212	7/8	1 1/8	1/8	0.859 ± 0.010	0.139	266	8	8 1/4	1/8	7.984 ± 0.020	0.139
213	15/16	1 3/16	1/8	0.921 ± 0.010	0.139	267	8 1/4	8 1/2	1/8	8.234 ± 0.020	0.139
214	1	1 1/4	1/8	0.984 ± 0.010	0.139	268	8 1/2	8 3/4	1/8	8.484 ± 0.020	0.139
215	1 1/16	1 5/16	1/8	1.046 ± 0.010	0.139	269	8 3/4	9	1/8	8.734 ± 0.020	0.139
216	1 1/8	1 3/8	1/8	1.109 ± 0.010	0.139	270	9	9 1/4	1/8	8.984 ± 0.020	0.139
217	1 3/16	1 7/16	1/8	1.171 ± 0.010	0.139	271	9 1/4	9 1/2	1/8	9.234 ± 0.020	0.139
218	1 1/4	1 1/2	1/8	1.234 ± 0.010	0.139	272	9 1/2	9 3/4	1/8	9.484 ± 0.020	0.139
219	1 5/16	1 9/16	1/8	1.296 ± 0.010	0.139	273	9 3/4	10	1/8	9.734 ± 0.020	0.139
220	1 3/8	1 5/8	1/8	1.359 ± 0.010	0.139	274	10	10 1/4	1/8	9.984 ± 0.025	0.139
221	1 7/16	1 11/16	1/8	1.421 ± 0.010	0.139	275	10 1/2	10 3/4	1/8	10.484 ± 0.025	0.139
222	1 1/2	1 3/4	1/8	1.484 ± 0.010	0.139	276	11	11 1/4	1/8	10.984 ± 0.025	0.139
223	1 5/8	1 7/8	1/8	1.609 ± 0.010	0.139	277	11 1/2	11 3/4	1/8	11.484 ± 0.025	0.139
224	1 3/4	2	1/8	1.734 ± 0.010	0.139	278	12	12 1/4	1/8	11.984 ± 0.025	0.139
225	1 7/8	2 1/8	1/8	1.859 ± 0.010	0.139	279	13	13 1/4	1/8	12.984 ± 0.025	0.139
226	2	2 1/4	1/8	1.984 ± 0.010	0.139	280	14	14 1/4	1/8	13.984 ± 0.025	0.139
227	2 1/8	2 3/8	1/8	2.109 ± 0.010	0.139	281	15	15 1/4	1/8	14.984 ± 0.025	0.139
228	2 1/4	2 1/2	1/8	2.234 ± 0.010	0.139	282	16	16 1/4	1/8	15.955 ± 0.025	0.139
229	2 3/8	2 5/8	1/8	2.359 ± 0.010	0.139	283	17	17 1/4	1/8	16.955 ± 0.025	0.139
230	2 1/2	2 3/4	1/8	2.484 ± 0.010	0.139	284	18	18 1/4	1/8	17.955 ± 0.025	0.139
231	2 5/8	2 7/8	1/8	2.609 ± 0.015	0.139						
232	2 3/4	3	1/8	2.734 ± 0.015	0.139						
233	2 7/8	3 1/8	1/8	2.859 ± 0.015	0.139	318	1	1 3/8	3/16	0.975 ± 0.006	0.210
234	3	3 1/4	1/8	2.984 ± 0.015	0.139	319	1 1/16	1 7/16	3/16	1.037 ± 0.006	0.210
235	3 1/8	3 3/8	1/8	3.109 ± 0.015	0.139	320	1 1/8	1 1/2	3/16	1.100 ± 0.006	0.210
236	3 1/4	3 1/2	1/8	3.234 ± 0.015	0.139	321	1 3/16	1 9/16	3/16	1.162 ± 0.006	0.210
237	3 3/8	3 5/8	1/8	3.359 ± 0.015	0.139	322	1 1/4	1 5/8	3/16	1.225 ± 0.006	0.210
238	3 1/2	3 3/4	1/8	3.484 ± 0.015	0.139	323	1 5/16	1 11/16	3/16	1.287 ± 0.006	0.210
239	3 5/8	3 7/8	1/8	3.609 ± 0.015	0.139	324	1 3/8	1 3/4	3/16	1.350 ± 0.006	0.210
240	3 3/4	4	1/8	3.734 ± 0.015	0.139	325	1 1/2	1 7/8	3/16	1.475 ± 0.010	0.210
241	3 7/8	4 1/8	1/8	3.859 ± 0.015	0.139	326	1 5/8	2	3/16	1.600 ± 0.010	0.210
242	4	4 1/4	1/8	3.984 ± 0.015	0.139	327	1 3/4	2 1/8	3/16	1.725 ± 0.010	0.210
243	4 1/8	4 3/8	1/8	4.109 ± 0.015	0.139	328	1 7/8	2 1/4	3/16	1.850 ± 0.010	0.210
244	4 1/4	4 1/2	1/8	4.234 ± 0.015	0.139	329	2	2 3/8	3/16	1.975 ± 0.010	0.210
245	4 3/8	4 5/8	1/8	4.359 ± 0.015	0.139	330	2 1/8	2 1/2	3/16	2.100 ± 0.010	0.210
246	4 1/2	4 3/4	1/8	4.484 ± 0.015	0.139	331	2 1/4	2 5/8	3/16	2.225 ± 0.010	0.210
247	4 5/8	4 7/8	1/8	4.609 ± 0.015	0.139	332	2 3/8	2 3/4	3/16	2.350 ± 0.010	0.210
248	4 3/4	5	1/8	4.734 ± 0.015	0.139	333	2 1/2	2 7/8	3/16	2.475 ± 0.010	0.210
249	4 7/8	5 1/8	1/8	4.859 ± 0.015	0.139	334	2 5/8	3	3/16	2.600 ± 0.010	0.210
250	5	5 1/4	1/8	4.984 ± 0.015	0.139	335	2 3/4	3 1/8	3/16	2.725 ± 0.010	0.210
251	5 1/8	5 3/8	1/8	5.109 ± 0.015	0.139	336	2 7/8	3 1/4	3/16	2.850 ± 0.010	0.210
252	5 1/4	5 1/2	1/8	5.234 ± 0.015	0.139	337	3	3 3/8	3/16	2.975 ± 0.010	0.210

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## Size Chart

### Pressure Seals Standard O-Ring Dimensions

Universal						Universal					
Dash	Nominal Size			Actual Size		Dash	Nominal Size			Actual Size	
No.	I.D.	O.D.	W	I.D.	C/S	No.	I.D.	O.D.	W	I.D.	C/S
338	3 1/8	3 1/2	3/16	3.100 ± 0.010	0.210	393	24	24 3/8	3/16	23.955 ± 0.030	0.210
339	3 1/4	3 5/8	3/16	3.225 ± 0.010	0.210	394	25	25 3/8	3/16	24.955 ± 0.030	0.210
340	3 3/8	3 3/4	3/16	3.350 ± 0.010	0.210	395	26	26 3/8	3/16	25.955 ± 0.030	0.210
341	3 1/2	3 7/8	3/16	3.475 ± 0.010	0.210						
342	3 5/8	4	3/16	3.600 ± 0.010	0.210	425	4 1/2	5	1/4	4.475 ± 0.015	0.275
343	3 3/4	4 1/8	3/16	3.725 ± 0.010	0.210	426	4 5/8	5 1/8	1/4	4.600 ± 0.015	0.275
344	3 7/8	4 1/4	3/16	3.850 ± 0.010	0.210	427	4 3/4	5 1/4	1/4	4.725 ± 0.015	0.275
345	4	4 3/8	3/16	3.975 ± 0.015	0.210	428	4 7/8	5 3/8	1/4	4.850 ± 0.015	0.275
346	4 1/8	4 1/2	3/16	4.100 ± 0.015	0.210	429	5	5 1/2	1/4	4.975 ± 0.015	0.275
347	4 1/4	4 5/8	3/16	4.225 ± 0.015	0.210	430	5 1/8	5 5/8	1/4	5.100 ± 0.015	0.275
348	4 3/8	4 3/4	3/16	4.350 ± 0.015	0.210	431	5 1/4	5 3/4	1/4	5.225 ± 0.015	0.275
349	4 1/2	4 7/8	3/16	4.475 ± 0.015	0.210	432	5 3/8	5 7/8	1/4	5.350 ± 0.015	0.275
350	4 5/8	5	3/16	4.600 ± 0.015	0.210	433	5 1/2	6	1/4	5.475 ± 0.015	0.275
351	4 3/4	5 1/8	3/16	4.725 ± 0.015	0.210	434	5 5/8	6 1/8	1/4	5.600 ± 0.015	0.275
352	4 7/8	5 1/4	3/16	4.850 ± 0.015	0.210	435	5 3/4	6 1/4	1/4	5.725 ± 0.015	0.275
353	5	5 3/8	3/16	4.975 ± 0.015	0.210	436	5 7/8	6 3/8	1/4	5.850 ± 0.015	0.275
354	5 1/8	5 1/2	3/16	5.100 ± 0.015	0.210	437	6	6 1/2	1/4	5.975 ± 0.015	0.275
355	5 1/4	5 5/8	3/16	5.225 ± 0.015	0.210	438	6 1/4	6 3/4	1/4	6.225 ± 0.015	0.275
356	5 3/8	5 3/4	3/16	5.350 ± 0.015	0.210	439	6 1/2	7	1/4	6.475 ± 0.015	0.275
357	5 1/2	5 7/8	3/16	5.475 ± 0.015	0.210	440	6 3/4	7 1/4	1/4	6.725 ± 0.015	0.275
358	5 5/8	6	3/16	5.600 ± 0.015	0.210	441	7	7 1/2	1/4	6.975 ± 0.020	0.275
359	5 3/4	6 1/8	3/16	5.725 ± 0.015	0.210	442	7 1/4	7 3/4	1/4	7.225 ± 0.020	0.275
360	5 7/8	6 1/4	3/16	5.850 ± 0.015	0.210	443	7 1/2	8	1/4	7.475 ± 0.020	0.275
361	6	6 3/8	3/16	5.975 ± 0.015	0.210	444	7 3/4	8 1/4	1/4	7.725 ± 0.020	0.275
362	6 1/4	6 5/8	3/16	6.225 ± 0.015	0.210	445	8	8 1/2	1/4	7.975 ± 0.020	0.275
363	6 1/2	6 7/8	3/16	6.475 ± 0.015	0.210	446	8 1/2	9	1/4	8.475 ± 0.020	0.275
364	6 3/4	7 1/8	3/16	6.725 ± 0.015	0.210	447	9	9 1/2	1/4	8.975 ± 0.020	0.275
365	7	7 3/8	3/16	6.975 ± 0.020	0.210	448	9 1/2	10	1/4	9.475 ± 0.020	0.275
366	7 1/4	7 5/8	3/16	7.225 ± 0.020	0.210	449	10	10 1/2	1/4	9.975 ± 0.025	0.275
367	7 1/2	7 7/8	3/16	7.475 ± 0.020	0.210	450	10 1/2	11	1/4	10.475 ± 0.025	0.275
368	7 3/4	8 1/8	3/16	7.725 ± 0.020	0.210	451	11	11 1/2	1/4	10.975 ± 0.025	0.275
369	8	8 3/8	3/16	7.975 ± 0.020	0.210	452	11 1/2	12	1/4	11.475 ± 0.025	0.275
370	8 1/4	8 5/8	3/16	8.225 ± 0.020	0.210	453	12	12 1/2	1/4	11.975 ± 0.025	0.275
371	8 1/2	8 7/8	3/16	8.475 ± 0.020	0.210	454	12 1/2	13	1/4	12.475 ± 0.025	0.275
372	8 3/4	9 1/8	3/16	8.725 ± 0.020	0.210	455	13	13 1/2	1/4	12.975 ± 0.025	0.275
373	9	9 3/8	3/16	8.975 ± 0.020	0.210	456	13 1/2	14	1/4	13.475 ± 0.025	0.275
374	9 1/4	9 5/8	3/16	9.225 ± 0.020	0.210	457	14	14 1/2	1/4	13.975 ± 0.025	0.275
375	9 1/2	9 7/8	3/16	9.475 ± 0.020	0.210	458	14 1/2	15	1/4	14.475 ± 0.025	0.275
376	9 3/4	10 1/8	3/16	9.725 ± 0.020	0.210	459	15	15 1/2	1/4	14.975 ± 0.025	0.275
377	10	10 3/8	3/16	9.975 ± 0.025	0.210	460	15 1/2	16	1/4	15.475 ± 0.025	0.275
378	10 1/2	10 7/8	3/16	10.475 ± 0.025	0.210	461	16	16 1/2	1/4	15.955 ± 0.030	0.275
379	11	11 3/8	3/16	10.975 ± 0.025	0.210	462	16 1/2	17	1/4	16.455 ± 0.030	0.275
380	11 1/2	11 7/8	3/16	11.475 ± 0.025	0.210	463	17	17 1/2	1/4	16.955 ± 0.030	0.275
381	12	12 3/8	3/16	11.975 ± 0.025	0.210	464	17 1/2	18	1/4	17.455 ± 0.030	0.275
382	13	13 3/8	3/16	12.975 ± 0.025	0.210	465	18	18 1/2	1/4	17.955 ± 0.030	0.275
383	14	14 3/8	3/16	13.975 ± 0.025	0.210	466	18 1/2	19	1/4	18.455 ± 0.030	0.275
384	15	15 3/8	3/16	14.975 ± 0.025	0.210	467	19	19 1/2	1/4	18.955 ± 0.030	0.275
385	16	16 3/8	3/16	15.955 ± 0.030	0.210	468	19 1/2	20	1/4	19.455 ± 0.030	0.275
386	17	17 3/8	3/16	16.955 ± 0.030	0.210	469	20	20 1/2	1/4	19.955 ± 0.030	0.275
387	18	18 3/8	3/16	17.955 ± 0.030	0.210	470	21	21 1/2	1/4	20.955 ± 0.030	0.275
388	19	19 3/8	3/16	18.955 ± 0.030	0.210	471	22	22 1/2	1/4	21.955 ± 0.030	0.275
389	20	20 3/8	3/16	19.955 ± 0.030	0.210	472	23	23 1/2	1/4	22.940 ± 0.030	0.275
390	21	21 3/8	3/16	20.955 ± 0.030	0.210	473	24	24 1/2	1/4	23.940 ± 0.030	0.275
391	22	22 3/8	3/16	21.955 ± 0.030	0.210	474	25	25 1/2	1/4	24.940 ± 0.030	0.275
392	23	23 3/8	3/16	22.955 ± 0.030	0.210	475	26	26 1/2	1/4	25.940 ± 0.030	0.275

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## Chemical Compatibility

**Teflon® resins are compatible with the following chemicals:\***

Abietic acid	Dimethyl hydrazine, unsymmetrical	n-Octadecyl alcohol oils, animal and vegetable
Acetic acid	Dioxane	Ozone
Acetic anhydride	Ethyl acetate	Perchloroethylene
Acetone	Ethyl alcohol	Pentachlorobenzamide
Acetophenone	Ethyl ether	Perfluoroxylene
Acrylic anhydride	Ethyl hexoate	Phenol
Allyl acetate	Ethylene bromide	Phosphoric acid
Allyl methacrylate	Ethylene glycol	Phosphorus pentachloride
Aluminum chloride	Ferric chloride	Phthalic acid
Ammonia, liquid	Ferric phosphate	Pinene
Ammonium chloride	Fluoronaphthalene	Piperidine
Aniline	Fluoronitrobenzene	Polyacrylonitrile
Benzonitrile	Formaldehyde	Potassium acetate
Benzoyl chloride	Formic acid	Potassium hydroxide
Benzyl alcohol	Furane	Potassium permanganate
Borax	Gasoline	Pyridine
Boric acid	Hexachloroethane	Soap and detergents
Bromine	Hexane	Sodium hydroxide
n-Butyl amine	Hydrazine	Sodium hypochlorite
Butyl acetate	Hydrochloric acid	Sodium peroxide
Butyl methacrylate	Hydrofluoric acid	Solvents, aliphatic and aromatic
Calcium chloride	Hydrogen peroxide	Stannous chloride
Carbon disulfide	Lead	Sulfur
Cetane	Magnesium chloride	Sulfuric acid
Chlorine	Mercury	Tetrabromoethane
Chloroform	Methyl ethyl ketone	Tetrachloroethylene
Chlorosulfonic acid	Methacrylic acid	Trichloroacetic acid
Chromic acid	Methanol	Trichloroethylene
Cyclohexane	Methyl methacrylate	Tricresyl phosphate
Cyclohexanone	Naphthalene	Triethanolamine
Dibutyl phthalate	Napithols	Vinyl methacrylate
Dibutyl sebacate	Nitric acid	Water
Diethyl carbonate	Nitrobenzene	Xylene
Dimethyl ether	2-Nitro-butanol	Zinc chloride
Dimethyl formamide	Nitromethane	
Di-isobutyl adipate	Nitrogen tetroxide	
Dimethylformamide	2-Nitro-2 methyl propanol	

\*Absence of chemicals from list does not imply incompatibility.

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