

# ThredSeal

## Applications

ThredSeals are safe and reliable seals for threaded devices. They are self-centering and non-directional, designed to seal directly against threads, without any special requirements.

ThredSeals can also offer considerable savings because they enable the use of low cost standard fasteners and full threaded fittings. They are easy to assemble and do not require special skills or tooling; simply push them on with a slight twisting motion and tighten the fastener.

## ThredSeal Features

Unlike other cure-in-place thread sealing methods, ThredSeals are mechanical, not chemical in application. They can be easily assembled and removed, do not require set up cure time, and are easily parted from contacting surfaces without special tools or chemicals, providing easy access to the sealed areas.

ThredSeals seal at the recommended pressure and temperature levels by utilizing the bolt threads to form a contained elastomeric dam. If the elastomeric element is not damaged to the extent of tearing or rupturing, the seals are reusable. Close visual inspection after each removal is recommended, and the use of cover washers will reduce the possibility of tears or breaks in the rubber, as well as provide adequate seating surfaces for the nut.

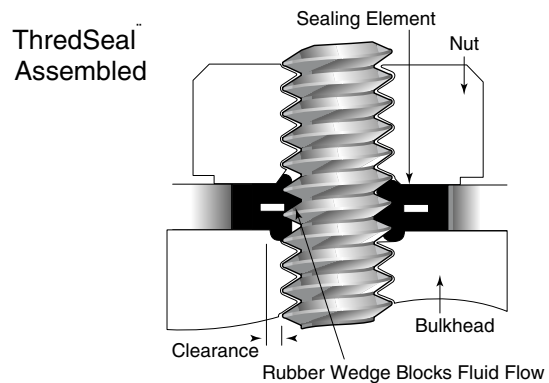
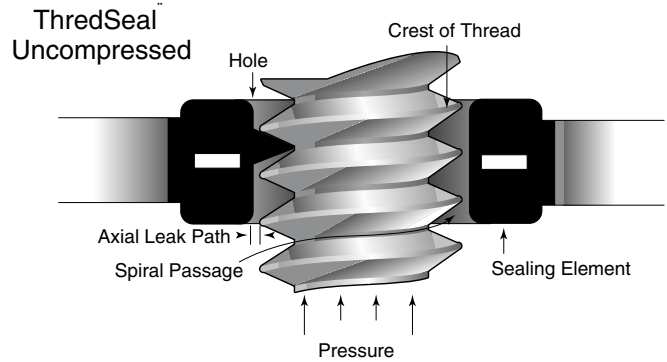
## Key Benefits

- Effective sealing for standard fastener sizes
- Self-centering
- Non-directional
- Easy to assemble and disassemble
- Readily available in standard fastener sizes

## Design Requirements

ThredSeals work by blocking all leak paths in a threaded fastener. They are used with standard bolts or screws and generally are seated on the nut side of the fastener. Unlike sealing directly underneath the bolt head, the nut side of the fastener has an additional spiral leak path, created by the threads, which will permit the fluid to wind its way through the helix.

ThredSeals have three wedge shaped protrusions on the inside of the seal. Since all standard screw threads have only a single V-shaped spiral channel, one of these wedges will always be in position to block the flow of fluid through this channel.



## Maximum Pressure Recommendation

All standard ThredSeal sizes consisting of a low carbon steel retainer and commercial standard Nitrile have been static pressure tested to the limits shown in the following table. Many ThredSeal sizes are capable of sealing at pressures in excess of those shown in the table below, but it is recommended that customers test the part in their specific application when sealing higher pressures.

Maximum Recommended Pressure		
Fastener Size	Material Combination	
	Commercial Nitrile	Low Carbon Steel
#6 to #12	2000 psi	
1/4 to 1	5000 psi	
1 1/8 and Up	Consult Factory	

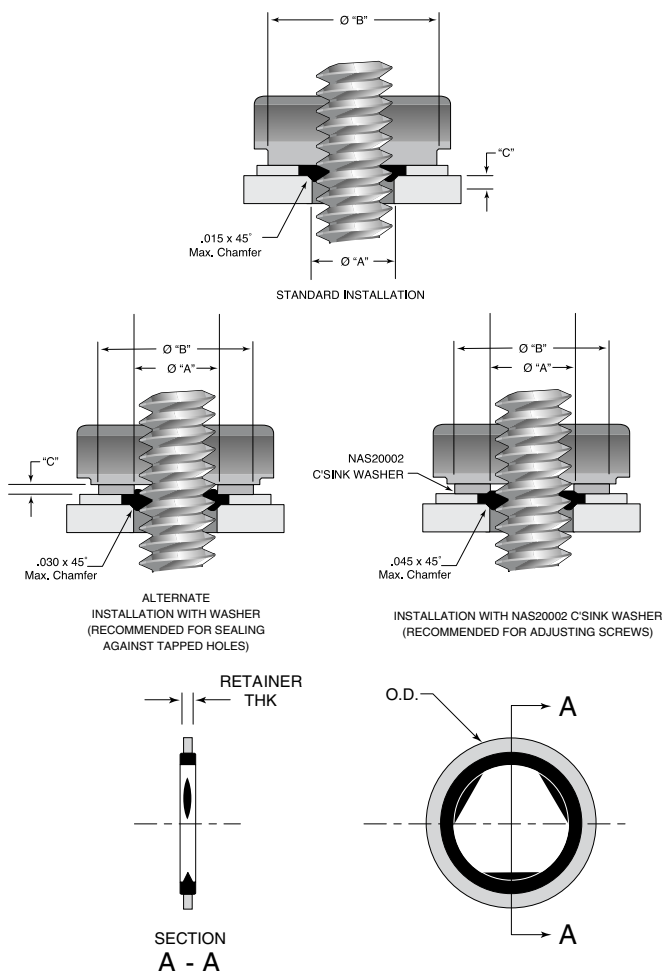
### Installation Notes

In all ThredSeal applications, it is important that the rubber sealing element is completely covered by the adjacent metal parts to prevent extrusion of the rubber. To ensure proper coverage, the nut and/or washer that sits on the ThredSeal must have a minimum flat surface of diameter “B” in the table below.

Rubber is not a compressible material and thus must have a void into which it can flow while under load. ThredSeals are designed to seat against a clearance hole of diameter “A” in the table below. The required void can be provided through the clearance hole in the mounting surface, but in cases where the mounting hole is tapped, the same effect can be achieved with a washer or a counterbore of diameter “A” (clearance), either in the mounting surface or in the nut. In these cases, in order to provide adequate void space for the rubber, the washer thickness or counterbore depth is defined per dimension “C” in the table below. An NAS 20002 countersunk cover washer is recommended in adjusting screw applications.

Lubricants are not required to install ThredSeals. If a lubricant is used be sure it is compatible with the elastomer selected.

**Note:** For critical applications using UNF (Fine) threads, up to 20% additional void is recommended to avoid an overfill condition.



750 Series ThredSeal Dimensions							
Fastener Size (Ref.)	Threads Per Inch (Ref.)		O.D. ± .010	Retainer Thickness ± .005	A Clearance Diameter	B Min. Dia. of Mating Surface	C Min. Washer Thk. or C-Bore Depth
	UNC (Coarse)	UNF (Fine)					
#6	32	40	0.406	.050	.143/.149	3/8	3/64
#8	32	36	0.406	.050	.170/.177	3/8	3/64
#10	24	32	0.469	.050	.198/.206	3/8	1/16
#12	24	28	0.562	.050	.224/.234	7/16	1/16
1/4	20	28	0.562	.050	.260/.271	7/16	1/16
5/16	18	24	0.687	.064	.327/.339	1/2	1/16
3/8	16	24	0.750	.064	.392/.406	5/8	1/16
7/16	14	20	0.906	.078	.458/.474	11/16	1/16
1/2	13	20	1.000	.078	.523/.541	3/4	1/16
9/16	12	18	1.094	.094	.589/.609	7/8	1/16
5/8	11	18	1.187	.094	.654/.676	1	1/16
3/4	10	16	1.375	.109	.788/.812	1 1/8	3/32
7/8	9	14	1.562	.109	.921/.947	1 1/4	3/32
1	8	12	1.750	.120	1.054/1.082	1 7/16	3/32
1 1/8	8*	12	1.875	.120	1.187/1.217	1 9/16	3/16
1 1/4	8*	12	2.000	.120	1.321/1.353	1 11/16	3/16
1 3/8	8*	12	2.125	.120	1.454/1.488	1 13/16	3/16
1 1/2	8*	12	2.250	.120	1.587/1.623	1 15/16	3/16
1 3/4	5	N/A	3.375	.179	1.865/1.920	2 7/16	3/8

\* Sizes 1 1/8, 1 1/4, 1 3/8, and 1 1/2 are not designed for standard coarse threads.

### Special Considerations for Adjusting Screws

When sealing adjusting screws or other applications where the seal will be disturbed frequently, a cover washer should be provided to reduce the tearing action of repeated adjustments. A cover washer is especially important if the screw will be adjusted while hydraulic pressure is applied. Since adjusting screws generally fasten into tapped holes, this washer is the most convenient place to provide the needed extra void. A cone shaped void causes much less wear and tear than

a clearance hole. NAS 20002 countersunk washers have proved useful for this purpose. There are occasions when this countersink cannot be provided by a cover washer and may be machined into the mating boss or nut, although the cover washer is the preferred method. Such a countersunk type void is mandatory with adjusting screws subject to frequent adjustment and may be used in a permanent installation as well.

750- **XX** **XX** - **X**

Code	Seal Compound	Specification	Recommended Uses	Recommended Operating Temp.	Code	Retainer Material	Finish	Size (dash number)
00	Commercial Standard Nitrile	None General Purpose	General industrial environments, petroleum fluids and cold/room temperature water	-30°F to +225°F	02	Low-Carbon Steel, ASTM A109/A109M	Zinc Plated, Commercial Grade	6
01	N406-60 Nitrile	SAE AMS-R-6855, CL 1 or 2, Grade 60 (*1)	General industrial environments, petroleum fluids and cold/room temperature water	-40°F to +225°F	00	Low-Carbon Steel, Commercial Grade	Cadmium Plated, Commercial Grade	8
31	V720-75 Fluorocarbon	SAE AMS 7276	Air, petroleum fluids, hydrocarbons, silicone fluids, many acids, and vacuum applications	-20°F to +400°F	03	Low-Carbon Steel, Commercial Grade	Nickel Plated	10
30	V1854-75	ASTM D2000 M2HK710 A1-10 B37 EF31 E078	Air, petroleum fluids, hydrocarbons, silicone fluids, many acids, and vacuum applications	-20°F to +400°F	15	7075-T6 Aluminum SAE AMS-QQ-A-250/12	Anodize Per MIL-A-8625, Type II, Class I	12
83	E515-80 Ethylene Propylene	Commercial	Water, steam, ozone and weather resistant, automotive brake fluid, Skydrol, phosphate esters	-65°F to +250°F	30	302/304 Stainless Steel, SAE AMS5513	Passivate Per SAE AMS-QQ-P-35	1/4
84	E1823-75 Ethylene Propylene	Commercial	Water, steam, ozone and weather resistant, automotive brake fluid, Skydrol, phosphate esters	-65°F to +250°F				5/16

**Notes:**

- \*1: Compound meets both the Class 1 and Class 2 requirements. Certs will be issued to Class 1 unless Class 2 is specifically requested.
- 2: For more detailed compound information, see the Parker O-Ring Handbook (ORD 5700).

	= Standard: General application
	= Non-Standard
	= Special: Consult factory prior to ordering

**Example Part Number:**

750-0002-1/2 = Commercial Standard Nitrile, Steel-Zinc Plated, Size 1/2