



**High Pressure  
Equipment  
Company**

## **Tubular Series Reactors**

### **Assembly Instructions**



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## Tubular Series Reactors

### Description:

The Tubular Series Reactors are double ended pressure vessels. The bodies are made from 304 stainless steel and the covers from 316 Stainless steel. Outside (non-wetted) caps are alloy steel. These are both economical and versatile vessels proven in demand for many applications. Finishes are commercial cold drawn finishes, with honed internal finishes.

Standard sizes are shown in the chart below, but special lengths and modifications are easily supplied on request. One pressure connection for 1/4" O.D. high pressure coned and threaded tubing at each end is standard. Additional end connections are possible on the larger size models. Also, side connections and end cover thermowells can be supplied when required. Consult factory for special requirements.

The standard Tubular Series Reactors (TOC) are used when temperatures do not exceed 250°F. This is an easily assembled closure requiring minimal torque for positive sealing. The standard O-ring material used is BUNA-N (nitrile) with various other O-ring materials available on request.

The TOC-G Tubular Series reactors are available for temperatures up to 800°F. A 15% reduction in the listed working pressure is required at this elevated temperature level. These closures utilize a metal gasket (304 stainless steel) which can be torqued down for positive sealing. Torque requirements on the thrust bolts will range from 60 to 110 foot pounds depending on size, pressure, temperature and media being pressurized. These confined gasket closures are available for all models except the TOC1 and TOC3 series. When ordering, simply specify catalog number and add suffix "( G)".

The TOC-P Tubular Series Reactors with piston separators can be supplied with the O-ring closure vessels for use as compression cylinders. These are ideal for separating a liquid from a gas and other similar applications. The tubing body is supplied with a honed inside diameter surface to accommodate the piston. When ordering, simply specify catalog number and add suffix "( P)".

Tubing Size		Pressure Rating psi	Material	Catalog Number (O-Ring Closure)			
I.D.	O.D.			20"IL	40"IL	60"IL	72"IL
1"	1 1/2"	5,000	Body 304 S.S.  Covers 316 S.S.	TOC1-20	TOC1-40	TOC1-60	TOC1-72
3/4"	1 1/2"	10,000		TOC3-20	TOC3-40	TOC3-60	TOC3-72
1 1/4"	2"	6,000		TOC5-20	TOC5-40	TOC5-60	TOC5-72
1"	2"	10,000		TOC7-20	TOC7-40	TOC7-60	TOC7-72
1 3/4"	2 1/2"	4,000		TOC9-20	TOC9-40	TOC9-60	TOC9-72
1 1/2"	2 1/2"	7,000		TOC11-20	TOC11-40	TOC11-60	TOC11-72
2 1/4"	3"	3,000		TOC13-20	TOC13-40	TOC13-60	TOC13-72
2"	3"	5,000		TOC15-20	TOC15-40	TOC15-60	TOC15-72
2 3/4"	3 1/2"	3,000		TOC17-20	TOC17-40	TOC17-60	TOC17-72
2 1/2"	3 1/2"	4,500		TOC19-20	TOC19-40	TOC19-60	TOC19-72
3 1/4"	4"	2,500		TOC21-20	TOC21-40	TOC21-60	TOC21-72
3"	4"	4,000		TOC23-20	TOC23-40	TOC23-60	TOC23-72
3 1/2"	4 1/2"	3,000		TOC25-20	TOC25-40	TOC25-60	TOC25-72
3"	4 1/2"	5,000		TOC27-20	TOC27-40	TOC27-60	TOC27-72
4"	5"	3,000		TOC29-20	TOC29-40	TOC29-60	TOC29-72
3 1/2"	5"	5,000		TOC31-20	TOC31-40	TOC31-60	TOC31-72

  
  

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#### General Information:

The "TOC" series reactors employ a simple yet highly reliable sealing design. This is a self-sealing type of closure and does not require any torque to affect a proper seal. Assembly and disassembly can be accomplished by hand even on the larger size reactors.

It is extremely important that an ample supply of thread lubricant be kept on the body and main nut threads.

The use of a handle bar inserted into the main nut might prove helpful during assembly or disassembly of the closure. However, excessive force on the bar should never be used.

#### Caution: In order to guard against thread galling:

The weight of the cap may be significant and must be offset (neutralized) prior to assembly or disassembly. Thread lubricant must be applied to the body threads prior to each reassembly.

Assembly Instructions for Standard TOC and TOC-P Reactors:

1. Place the O-Ring into the groove in the cover. A process-compatible grease sealant is usually desirable to enhance sealing.
2. Insert the cover into the body until it fully contacts the end of the body.
3. Lubricate the body threads with an appropriate thread lubricant.
4. Rotate the main nut clockwise onto the reactor until it contacts the cover. Excessive force is not required for sealing.

Assembly Instructions for Standard TOC-G Reactors:

1. Place the Gasket into the groove in the cover. A process-compatible grease sealant is usually desirable to enhance sealing.
2. Insert the cover into the body until it fully contacts the end of the body.
3. Lubricate the body threads with an appropriate thread lubricant.
4. Rotate the main nut clockwise onto the reactor until it contacts the cover. Excessive force is not required for sealing.
5. Torque the cap screws to the recommended torque value on the assembly drawing.