MADE IN USA

TUFF GUARD™
Gauge Isolators

Operating & Installation Instructions

Series TG-25 & TG-22
With and Without Gauge

MARQUEST SCIENTIFIC
Fluid Handling Products

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INSTRUCTIONS FOR WHEN ORDERED WITHOUT A GAUGE/INSTRUMENT INSTALLED

A.Filling the Instrument

When using a 2 1/2" or smaller diameter gauge, it is not necessary to vacuum fill the internals of the gauge due to the provided volume displacement of our Tuff Guard series. It is desirable to fill the neck or straight portion of the bourdon tube. The bottom face of the 1/4" NPT instrument thread should be flat and smooth with a maximum 1/4" Dia. orifice.

⚠ **Never use thread sealant of any type on the instrument thread.**

Step 1. Invert the gauge or instrument.

Step 2. Using a small syringe or squeeze bottle, fill the straight portion of the tube with a compatible or inert liquid such as aqueous glycerin, propylene glycol, silicone oil, halocarobon oil, etc. **Contact us for a recommendation on your application.**

Step 3. Retain the gauge in its inverted position for further assembly.

⚠ **When installing a gauge larger than 2 1/2" diameter, it is necessary to also fill the bourdon tube element of the gauge internals. This can be accomplished by vacuum fill or repeated venting of air from the fill liquid by probing the fill liquid with a thin wire or other method.**

B. Filling the Upper Chamber of the Instrument Isolator

⚠ **It is required that the Upper Chamber be filled with a compatible or inert fill liquid.**

Step 1. Upright position

Step 2. Using a small syringe or squeeze bottle, add the liquid through the fill orifice making sure not to bridge the orifice with the liquid as air will be trapped in the Upper Chamber.

Step 3. Continue to fill until the level of liquid reaches the top surface of the O-ring.

Step 4. Retain the filled unit in an upright position.

C. Assembling the Gauge or Instrument to the Instrument Isolator

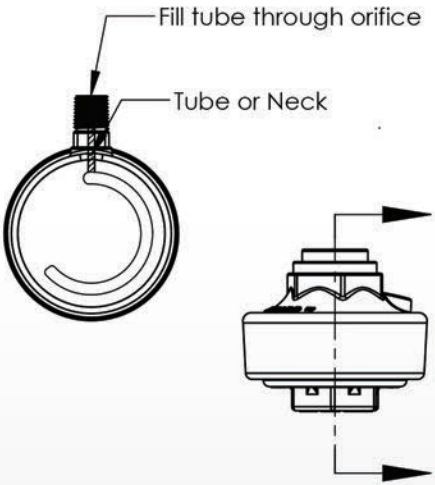
The instrument will seal on the o-ring at the bottom of the female instrument thread. This creates an o-ring gland and balanced pressure seal. The female thread is a venting thread that allows pressure to escape during assembly.

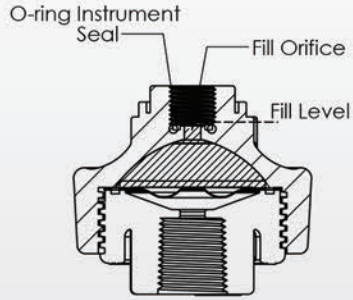
⚠ **Do not apply any type of thread sealant.**

Step 1. Make sure the o-ring is in its groove at the bottom of the the venting female thread.

Step 2. Screw the gauge or instrument into the Upper Chamber of the Isolator.

Step 3. Continue to screw the gauge until reaching the bottom. When reaching the stop or bottom, tighten firmly by hand.



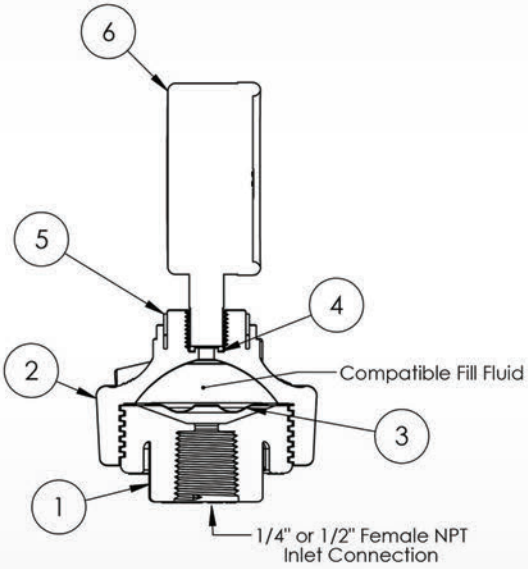


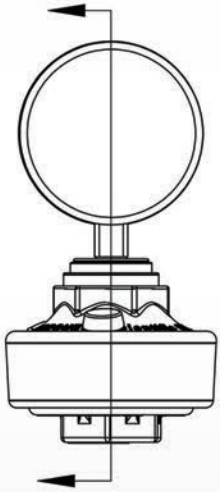
INSTRUCTIONS FOR WHEN ORDERED WITH A GAUGE / INSTRUMENT

The Marquest Scientific TUFF GUARD Gauge Isolator is designed to isolate and protect pressure sensing instruments from corrosive and high purity process media. This is accomplished by the impermeable diaphragm. The instrument side of the gauge isolator is filled with a compatible or inert liquid that will transmit the pressure of the processing system to the instrument. The inherent volumetric and sensing area design features allow an accurate transmittal of pressure.

Marquest TUFF GUARD, when purchased with a gauge, comes filled and is ready for installation. Installation is performed by simply connecting it to the processing system using a 1/4" or 1/2" Male NPT connector. Teflon tape is recommended as a thread sealant.

⚠ **Pipe dope, not specifically recommended for plastic pipe by the manufacturer, should not be used. A firm hand tight torque is normally sufficient for small plastic pipe threads; over tightening may deform threads and cause leakage**





ITEM NO.	PART NUMBER	QTY.
1	Lower Chamber	1
2	Upper Chamber	1
3	Diaphragm	1
4	Instrument O-Ring Seal	1
5	Stainless Reinforcing Ring	1
6	Instrument	1

Pressure/Temperature Range

MAX WORKING PRESSURES PSI (water, non-shock) **WEIGHTS**

Material	10°C 50°F	20°C 68°F	30°C 86°F	40°C 104°F	50°C 122°F	60°C 140°F	70°C 158°F	80°C 176°F	90°C 194°F	100°C 212°F	120°C 248°F	Net Weights Pounds*
PVC	200	250	250	220	140	135	----	----	----	----	----	0.387
CPVC	230	250	250	230	200	200	150	120	60	----	----	0.40
PP	200	240	240	210	145	125	75	60	----	----	----	0.318
PVDF	240	250	250	250	250	230	220	200	160	140	80	0.45

Temperature Ranges: PVC: 14 to 140°F (10 to 60°C), CPVC: 50 to 194°F (10 to 90°C), PP: 46 to 176°F (8 to 80°C), PVDF: -22 to 248°F (-30 to 120°C). * Weights are for unfilled 1/4" Female NPT x 1/2" Female NPT without gauge.

Product Warranty

Marquest Scientific, Inc. warrants its products against defects in material or workmanship for a period of three years from the date of shipment to the buyer. Adjustments under this warranty will be made only after complete inspection and confirmation of defects by Marquest Scientific, Inc. Liability under the warranty shall extend only to the replacement or correction of the product not conforming to the warranty as determined by Marquest Scientific, Inc. All materials must be returned freight prepaid.

This warranty shall not apply to any product that has been modified or repaired by the customer without the manufacturer's knowledge and consent. This warranty shall not apply to products which have been subjected to misuse, improper maintenance, or damage through accident or negligence.

No other warranty, written or oral is authorized by Marquest Scientific, Inc. No responsibility is assumed for any special, incidental or consequential damages. Implied warranties of merchantability and fitness for a particular purpose are also specifically disclaimed.

MARQUEST SCIENTIFIC
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