

Series TG TUFF GUARD™ Gauge Isolators

Protect and isolate pressure sensing instruments from corrosive & high purity fluids.
Available in PVC, CPVC, Polypropylene, PVDF.

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Product Overview

The **Series TG TUFF GUARD Gauge Isolators** provide robust protection and isolation for pressure-sensing instruments in aggressive chemical and high-purity fluid systems. Available in PVC, CPVC, Polypropylene, and PVDF body materials, these isolators are engineered for demanding environments where diaphragm integrity and media isolation are critical. Each unit features a convoluted diaphragm — Modified PTFE (low-permeability), Viton®, EPDM, or composite PTFE/FKM — providing accurate pressure transmission and chemical compatibility. The all-plastic body includes a stainless-steel-reinforced, integrally molded instrument connection for durability. With reinforced, spoke-ribbed process connections and ANSI Schedule 120-compliant wall thickness, TUFF GUARD isolators withstand mechanical stress and corrosive media. A low-profile, dead-volume-free design with self-venting geometry simplifies filling and maintenance. Integrated wrench flats, a replaceable diaphragm, and fill-port options support fast service and long-term reliability. All models include a 3-year limited warranty.

Key Features & Benefits

- ✓ **Protective Media Isolation**
TUFF GUARD Gauge Isolators create a reliable, contamination-free barrier between corrosive or sensitive process fluids and pressure sensing instruments. This separation extends instrument life and protects system integrity in critical applications.
- ✓ **Increased System Reliability**
By isolating instruments from direct process contact, the gauge guards help eliminate common failure points due to chemical attack or fluid incompatibility, enhancing long-term operational stability and system uptime.

✓ Material Options

PVC: Cost-effective option for general-purpose chemical systems. Suitable for non-critical media and moderate temperature ranges.

CPVC: Enhanced temperature resistance over PVC, ideal for hot process lines or higher-pressure chemical applications.

Polypropylene: Excellent chemical compatibility and FDA-compliant for use in food-grade or high-purity fluid handling systems.

PVDF: High-purity fluoropolymer offering superior chemical resistance and mechanical strength. Best for aggressive acids, ultra-pure media, or semiconductor-grade systems.



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Key Features (Continued)

- ✓ **Reinforced Instrument Connection**
Each unit features a stainless steel-reinforced instrument port, integrally molded to prevent fracturing caused by plastic-to-metal thread interactions. This rugged design ensures mechanical strength under demanding service conditions.

✓ **Field Service Provisions**
Integral wrench flats molded into the upper chamber provide easy grip and torque access for maintenance and field servicing, simplifying diaphragm replacement and fill operations without specialized tools.

✓ **Broad Diaphragm Compatibility**
Diaphragms are available in Modified PTFE, Viton®, EPDM, and composite PTFE/FKM blends, allowing chemical compatibility across a wide range of applications ensuring accurate pressure transmission with flexible material choices.
- ✓ **High Displacement Volume**
Designed to accommodate large displacement needs, the isolators support gauges up to 4" in diameter and sensors with high fill volume requirements, ensuring pressure accuracy and full-scale responsiveness.

✓ **Self-Venting Chamber Geometry**
An internal self-venting profile minimizes air entrapment and simplifies vacuum fill processing. This design reduces dead volume and ensures a fully responsive gauge reading without fluid delay or dampening.

✓ **Versatile Port Connections**
Available with 1/4" and 1/2" female NPT instrument ports, TUFF GUARD isolators include Viton® O-ring seals for reliable vacuum and pressure integrity, making them adaptable to a wide range of instrumentation configurations.

Pressure / Temperature Ratings

Working pressures (PSI) at various media operating temperatures												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

MARVIS

Based on the data, PVDF maintains the highest and most stable pressure ratings across elevated temperatures, making it ideal for high-temperature and high-purity applications. PPN (Natural PP) offers moderate performance with a sharper pressure decline above 60°C. PVC is cost-effective but not recommended above 50°C due to rapid pressure loss.

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.

Markets & Applications

Semiconductor MFG

Used in ultra-pure systems to isolate gauges from aggressive process chemistries.

Desalination Plants

Withstands brine and pretreatment chemicals in high-pressure membrane processes.

Alternative Energy

Used in pressure monitoring for chemical loops in hydrogen and battery production.

Chemical Plants

Provides diaphragm isolation in high-pressure, corrosive fluid systems.

Wet Processing

Safely isolates instruments in acid etch and rinse systems used in wafer fabrication.

Chemical Odor Control

Protects gauges in scrubber and vapor-phase chemical injection systems.

Chemical Feed Systems

Ensures pressure sensing reliability in metering and dosing skid assemblies.

Food & Beverage

Compatible materials support sanitary applications with FDA-compliant options.

PCB Manufacturing

Ideal for pressurized delivery of fluxes, cleaners, and plating solutions.

Pharmaceutical Processing

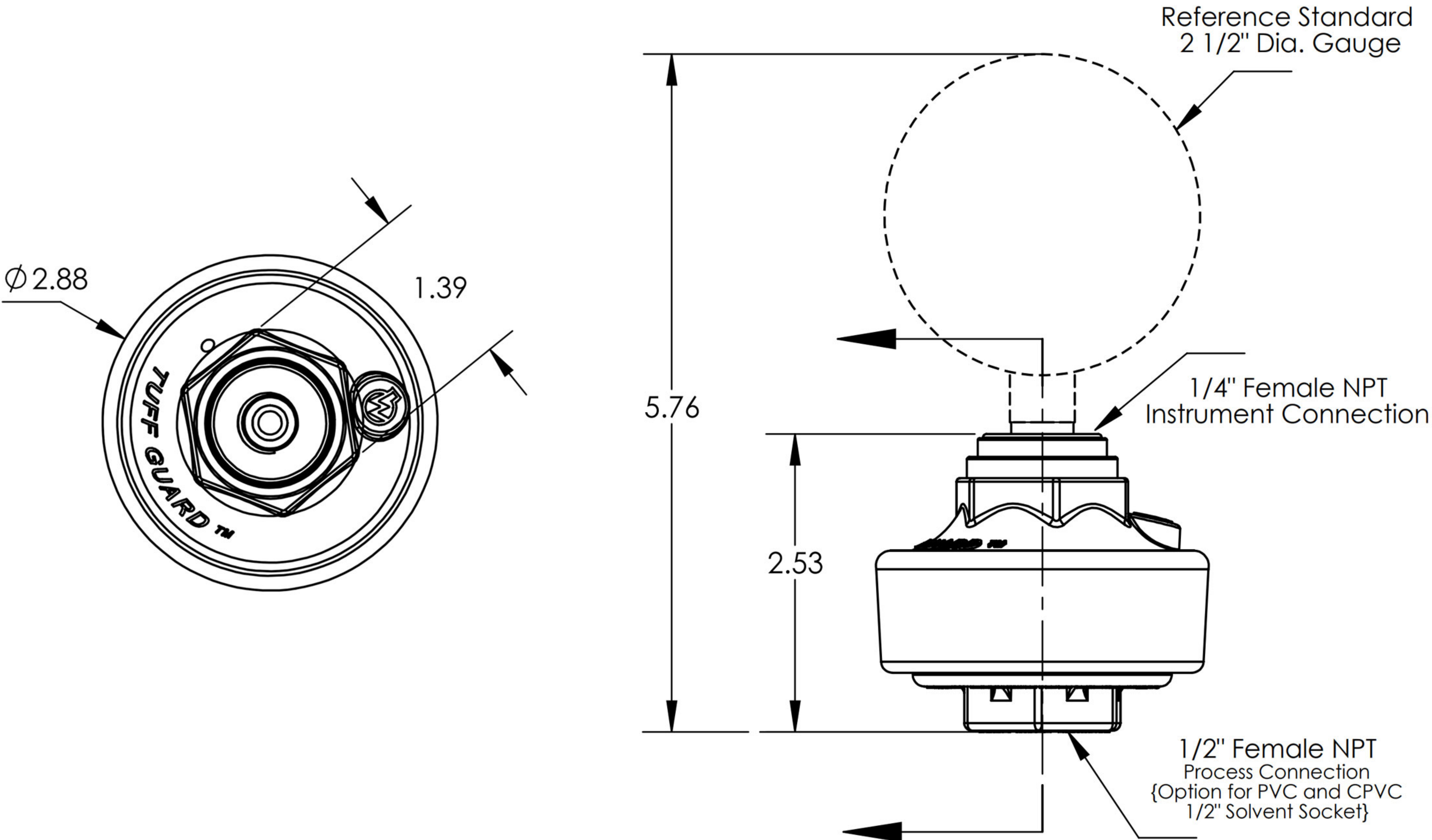
Maintains sterile barrier between media and sensing components in validated systems

Wastewater Treatment

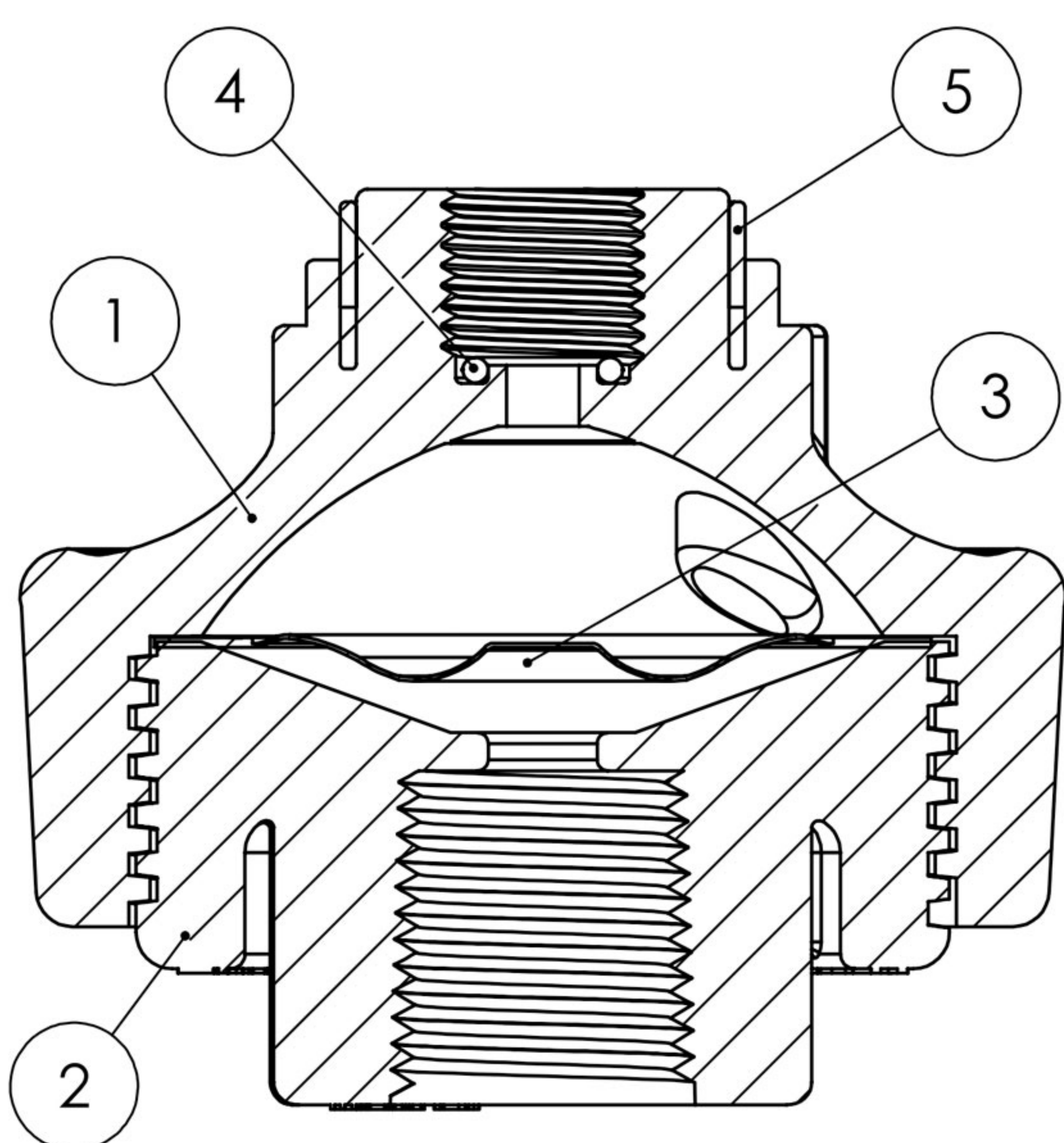
Gauge guards extend instrument life and ensure reliable pressure monitoring in corrosive wastewater processes.



Dimensional Data - Inches



Parts List



Item	Description
1	Upper Chamber
2	Lower Chamber
3	Diaphragm
4	O-Ring, Instrument Seal, FKM
5	Ring, Reinforcing 316 SS

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ORDERING CODE:	Example:	TG	2	5S	T	100	SB	CPV	
Model Name									
Tuff Guard		TG							
Instrument Port									
2 - 1/4" Vented Female NPT		2							
5 - 1/2" Vented Female NPT									
Process Inlet Port									
2 - 1/4" Female NPT									
5 - 1/2" Female NPT									
2S - 1/4" Solvent Socket									
5S - 1/2" Solvent Socket		5S							
Diaphragm Material									
T - Modified PTFE							T		
V - Viton									
E - EPDM									
C - Composite PTFE/FKM									
Gauge Pressure Range									
XXX - No Gauge Installed									
H030 - 0-30 in HG Vacuum									
015 - 0-15 PSI									
030 - 0-30 PSI									
060 - 0-60 PSI									
100 - 0-100 PSI							100		
160 - 0-160 PSI									
200 - 0-200 PSI									
300 - 0-300 PSI									
Gauge Installed									
Blank = No Gauge									
S - Standard 2.5" Black Painted Steel Case, Marquest Dry Case, 2-3 % Accuracy									
SB - Stainless Case / Brass Internals 2.5" Wika 212.53, Glycerin Filled Case, 2.5% Accuracy							SB		
SS - All Stainless 2.5" Ashcroft 1008s, Glycerin Filled Case, 1.5% Accuracy									
Body Material									
PVC - Polyvinyl Chloride									
CPV - CPVC, Chlorinated Polyvinyl Chloride							CPV		
PPR - Reinforced, Glass Filled Polypropylene									
PVD - 100% HP Virgin PVDF									

Example: TG-25T060SS-PVC (Gauge Installed)
PVC Tuff Guard Isolator Assy, 1/2" Female NPT Inlet, Modified PTFE Diaphragm, 0-60 PSI All Stainless 2.5" Dia. Ashcroft 1008s, Glycerin Filled Gauge, Assy Internal Aqueous Glycerin Filled, Calibrated & Tested

Example: TG-22CXXX-PVD (No Gauge Installed)
PVDF Tuff Guard Isolator, 1/4" Vented Female NPT X 1/4" Female NPT Inlet, PTFE/FKM Composite Diaphragm, No Gauge Installed

Assemblies with gauge installed have an Aqueous Glycerin (70% USDA 99.5% Glycerin / 30% Distilled Water) internal fill in the upper chamber and gauge stem internals. Silicone, Halocarbon, and Glycol fills are also available. Units ordered without an instrument must be filled per installation instructions. We offer both dual-scale and compound pressure ranges, as well as other instrument options from Ashcroft, WIKA, and US Ametek, including 3.5" and 4" dial sizes. The TUFF Guard is also perfectly suited for a variety of pressure sensors.

