

FUGITIVE EMISSIONS VALVE TESTING

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FUGITIVE EMISSIONS PRODUCTS

- Flanged and 3-piece isolation and control valves that are capable of handling fugitive emissions per ISO-15848, Fire-safe per API-607 and API-6D design
- Vanguard Stem Sealing System imparts robust blockage attribute against VOC emissions
- F150 valve model incorporates stem and seat O-rings that further enhance valve's performance against fugitive emissions
- ISO-15848 certified Media Containment Units act as a secondary layer of leakage isolation which makes valves stand out in the market
- Preventive maintenance during valve operation extends life of stem seals

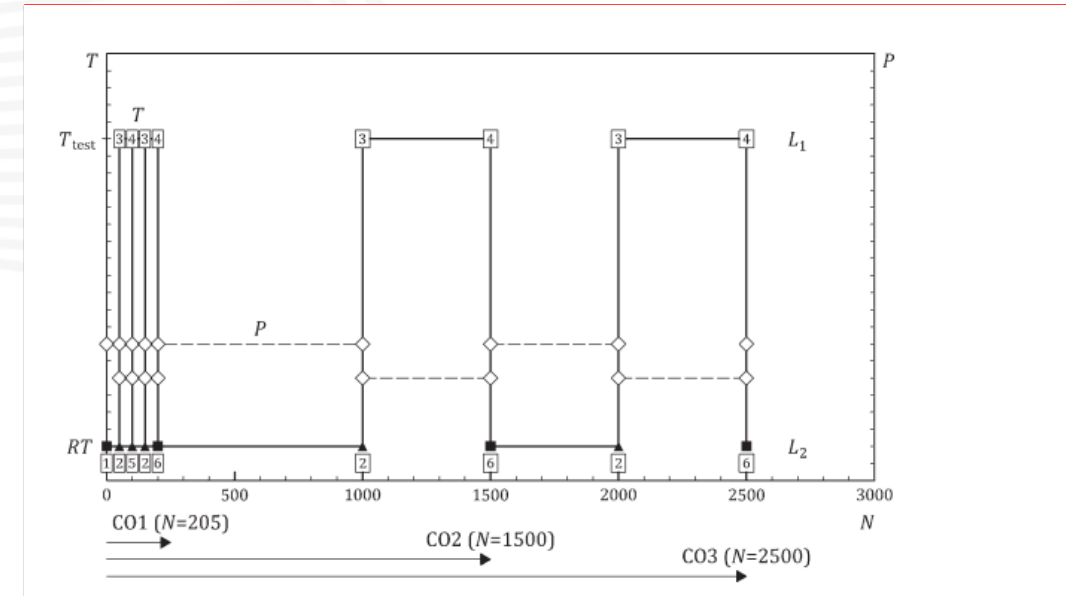
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ISO 15848-1 FUGITIVE EMISSIONS SPECS.

2022

- Evaluation of external leakage of stem and body joint
- Thermal and Mechanical Cycles
- Methane or Helium as test fluid
- One re-torque per endurance class allowed
- Vacuum/Sniffing Leak Detection Methods



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ISO-15848 TEST DETAILS FOR F150 VALVES

2022

Parameters	Description
Model	3" F150 Flanged Ball Valve
Body Seal Material	SS316 + Graphoil
Stem Seal Material	TFM
Mechanical Cycles	2500
Thermal Cycle	RT to 80°C
Endurance Class	CO3
Tightness Class	BH
Number of Stem Seal Adjustments	SSA0
Measured Leakage	≤ 50ppmv

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IN-HOUSE FUGITIVE EMISSIONS TESTING

2022

- Valves tested - fugitive emissions testing of Flanged (F150/F300) and 3-piece valves using blended gas mixture of 83% Nitrogen and 17% Methane
- Valves were pressurized to 1.5 times its pressure rating class for a duration of 1 to 5 minutes
- Foxbro Organic Vapor Analyzer (OVA-108) was used to detect any hydrocarbon leaks from the valve stem packing and body joint areas.

Valve Cycle	Valve Emission (PPM)					(Stem Seal)
	#1	#2	#3	#4	#5	
0	0	0	0	0	0	
10,000	0	0	0	0	0	
50,000	30	25	31	35	29	
100,000	39	35	40	40	38	

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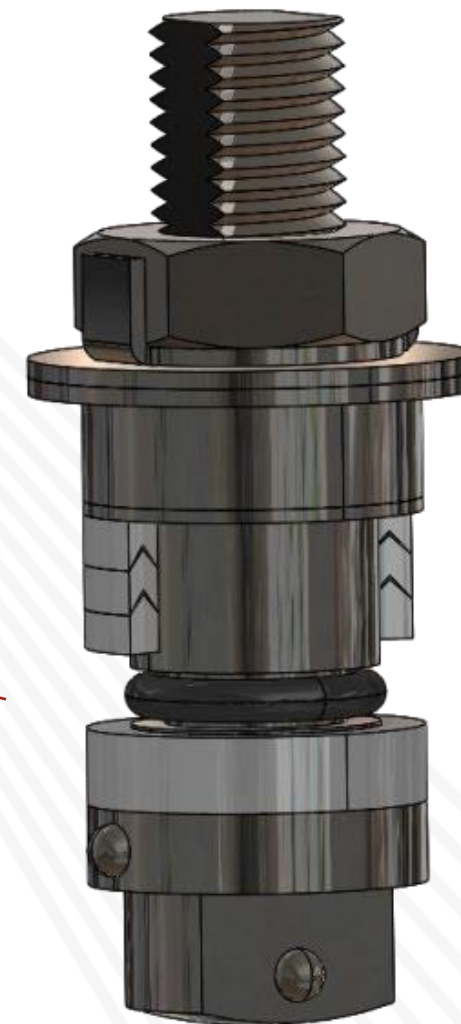
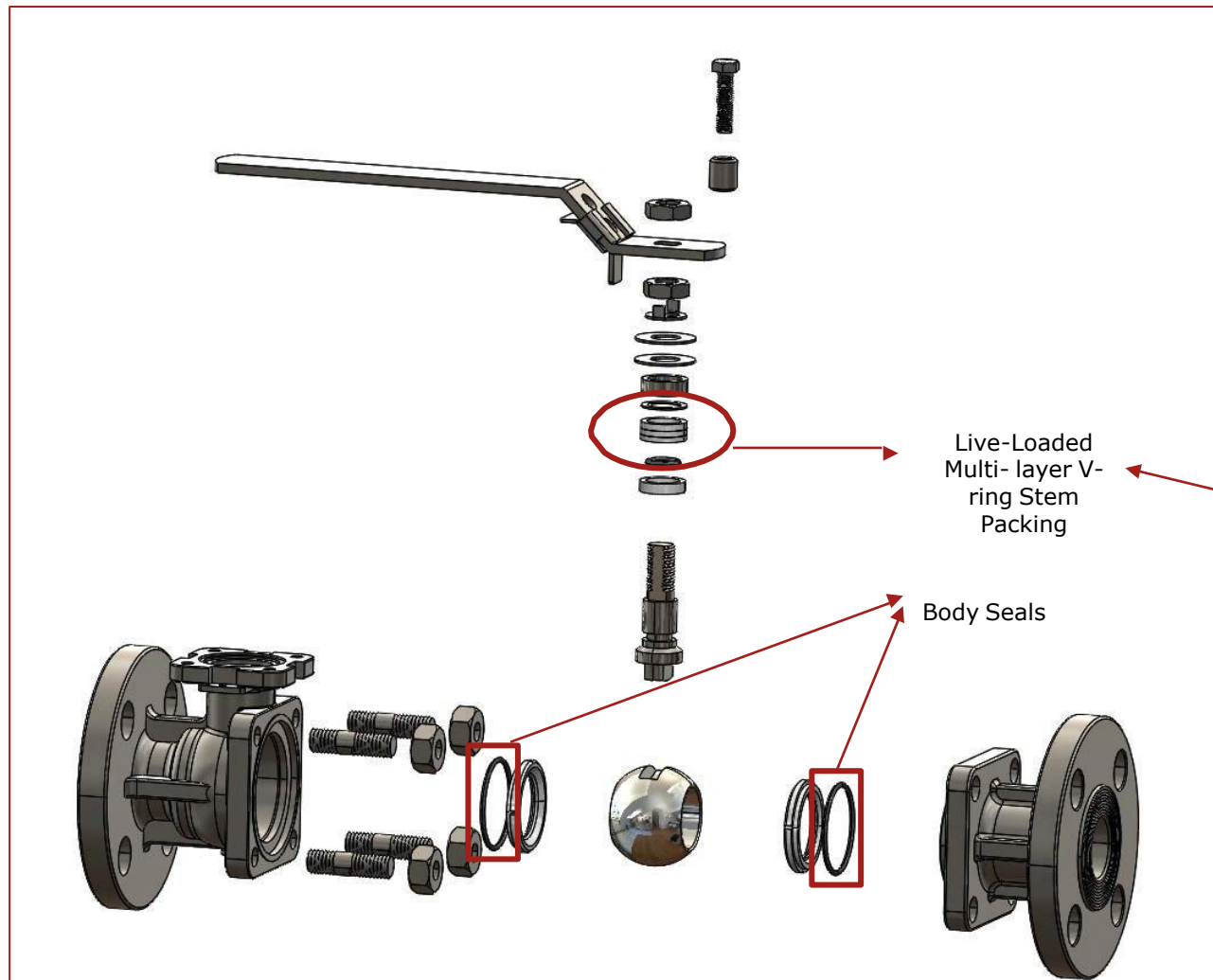
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F150 VALVE CONFIGURATION

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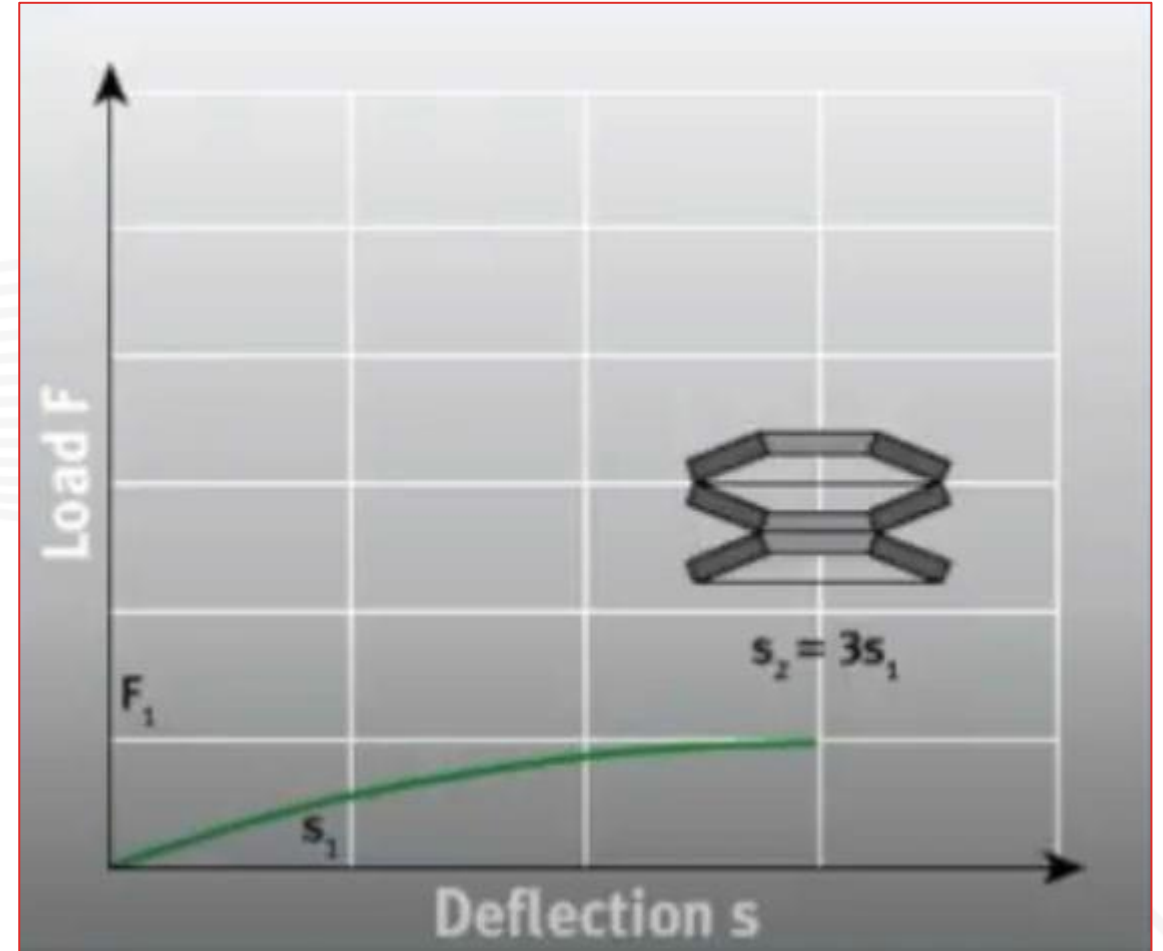


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VANGUARD STEM SEALING 2022

- Vanguard Stem Sealing System is a unique characteristic of certain Ball Valve products
- Multi-layer V-style packing rings, O-ring and thrust washer isolate leakage paths
- Series combination of Belleville Washers incorporates double deflection under the same nominal load that in turn makes the stem packing assembly live loaded



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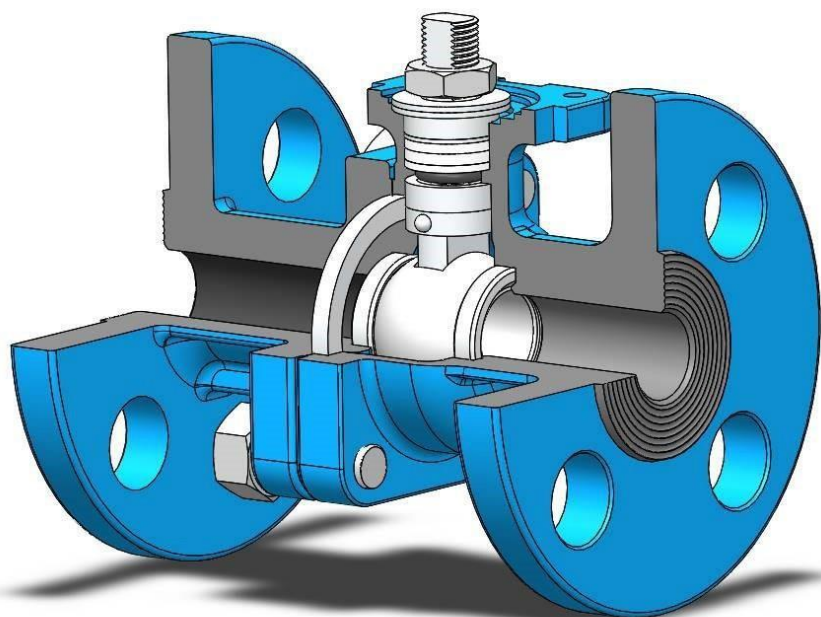
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Sealing for a Safer and Greener Tomorrow

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VANGUARD STEM SEALING



Van Guard Stem Sealing System, designed to minimize fugitive emissions. Increases safety and provide an immediate ball valve solution to the newer EPA performance requirements, for valves meeting with a leak rate of 500ppm.

Van Guard Seal, state of the art stem sealing system. Incorporating a triple set of valve stem seals. This unique system eliminates the possibility of valve stem leaks in most all media applications.

STAGE I - FRONT LINE

Stage I provides a front line defense against leakage. The blow-out proof stem shoulder has a 45 degree bell shaped slope. The bell shaped design offers more sealing surface, effectively blocking all leak paths during rotation. The wedging action of the portion of the stem is far superior to the common small flat stem shoulder design.

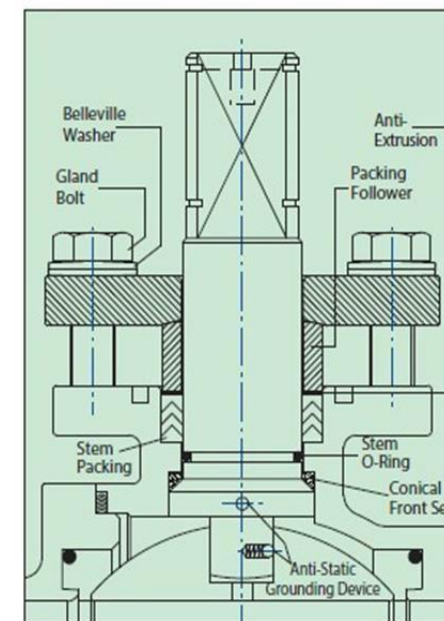
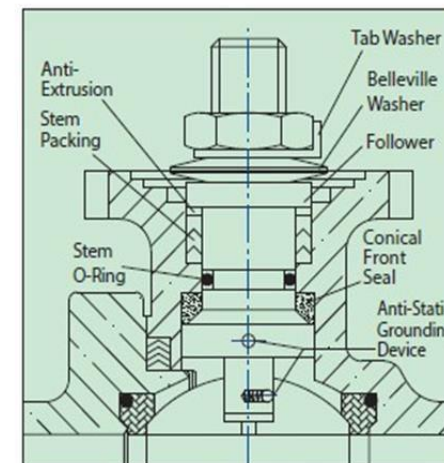
STAGE II - GUIDE-SEAL

The O-ring originated early in valve design and has been a proven performer in high cycle applications. Its basic function reduces the potential of machining imperfections and provides a low torque flexible seal. This center guide also helps to maintain a perfect stem alignment, by eliminating side loading stress which can cause stem leaks.

STAGE III - LIVE-SEAL

Live-seal is considered the intellectual component and the workhorse of Flo-Tite's Van Guard stem sealing system. Working in unison with stages I and II, stage III calls upon the use of V-Ring packing sets which expand sideways as they are compressed and pressurized blocking all air pockets. The Van-Guard stem system is energized by disk or coil springs which continuously adjusts packing compression to compensate for wear, pressure or temperature changes.

Whether your service involves volatile organic compounds, volatile hazardous chemicals, or air pollutants, Flo-Tite's ball valves are by design dependable, long lasting and fully maintainable. Flo-Tite has various valve solutions and designs that provide end-users freedom of choice for the toughest requirements imposed by the industry and by international standards.



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LOW EMISSIONS STEM PACKING OPTION

2022



- Die-formed Low Emissions Graphite packing certified to:
 - a- API 622, 3rd Edition
 - b. API 624
 - c. API 607
 - d- ISO 15848-1
- Low Emissions packing is warrantied for a period of 5 years to not leak > 100ppm *

*(conditions apply – for extended product warranty Flotite requires review of media, no. of cycles, pressure and temperature)

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MEDIA CONTAINMENT UNITS

2022

ISO 15848-1:2015
Methane Fugitive Emission Test Report

Performed for

Flotite Inc. Valves & Controls

www.flotite.com

Media Containment Unit - 2
Product Code: MCU-2

Project Number: 219540
Test Start Date: January 17, 2020

Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

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Consistent bolt mounting dimensions make adaptations effortless.

Anti-Extrusion Packing Protector to contain packing material.

Precision investment casting makes the M/C unit highly corrosion-resistant and capable of withstanding harsh environments.

Precision polished stem is blow out proof to ensure maximum operating safety.

A strategically placed monitoring connection allows for the adaption of a pressure gauge, sniffer sensor, or sealant injection. This ensures early detection of primary stem leaks.

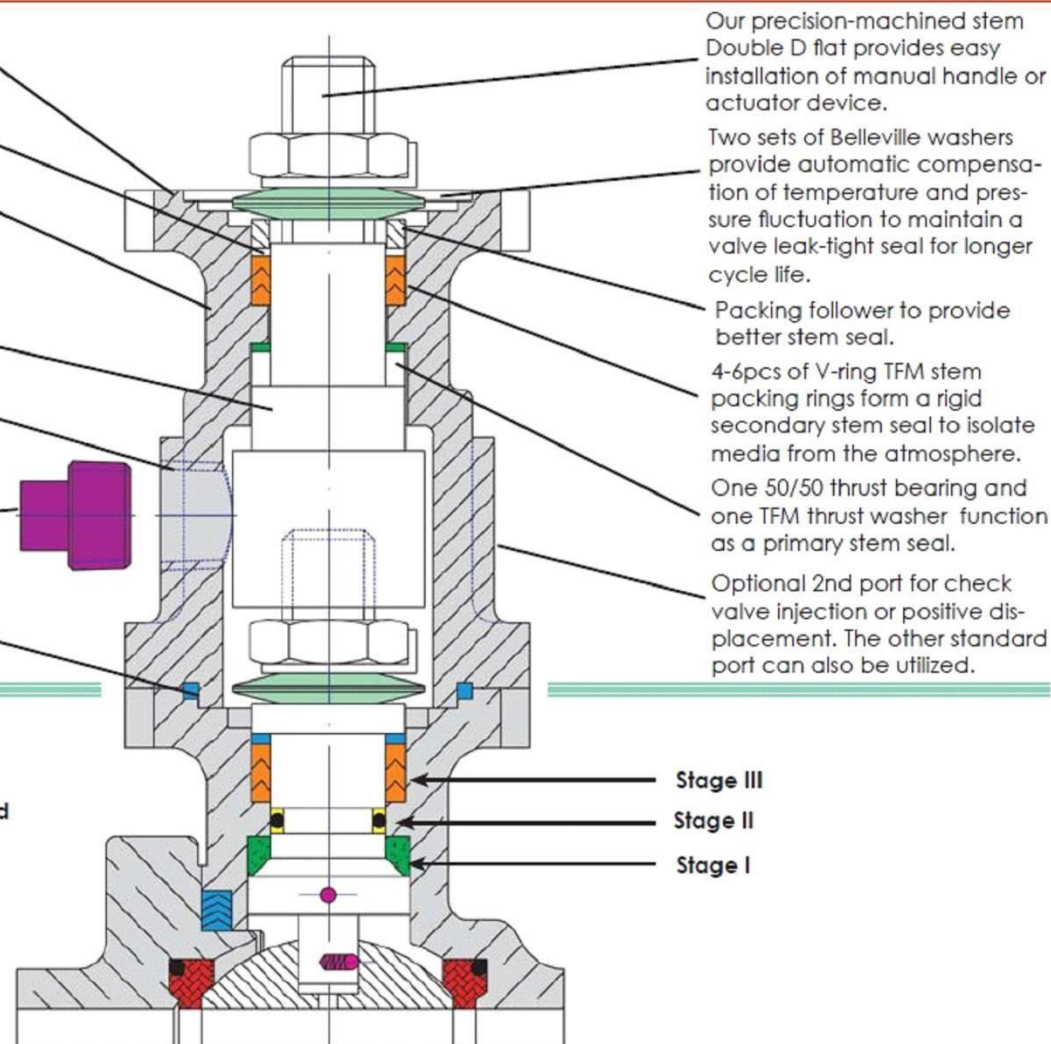
Plugged port as standard.

A PTFE gasket placed between the valve and M/C unit blocks possible leaks and isolates media from the atmosphere.

Van Guard Stem Sealing System

This High-Tech Sealing System is standard on the following Valve Series:

Multi-Choice	3PC
Tri-Pro	3PC
Full Flo	Flanged



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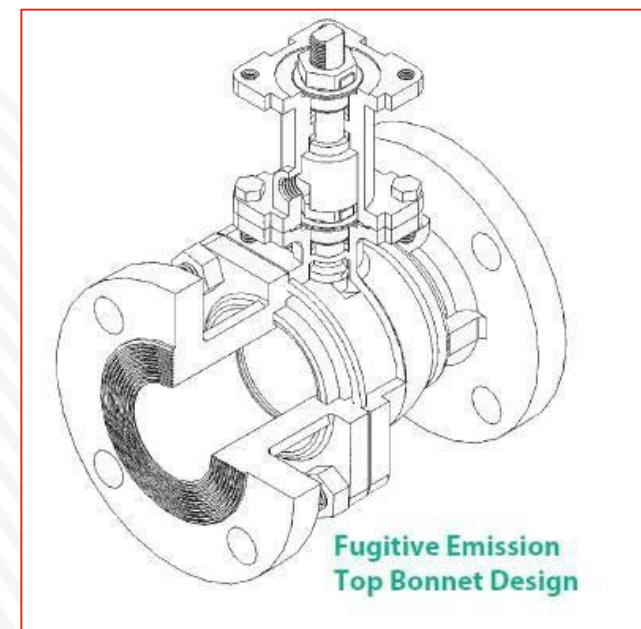
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ISO-15848 TEST DETAILS FOR 2022 MEDIA CONTAINMENT UNITS

Parameters	Description
Model	MCU-2
Packing Description	TFM
Tightness Class	AM
Mechanical Cycles	2500
Thermal Cycle	RT to 80°C
Endurance Class	C03
Measured Leakage	8 ppmv (avg.); 11ppmv (max.)



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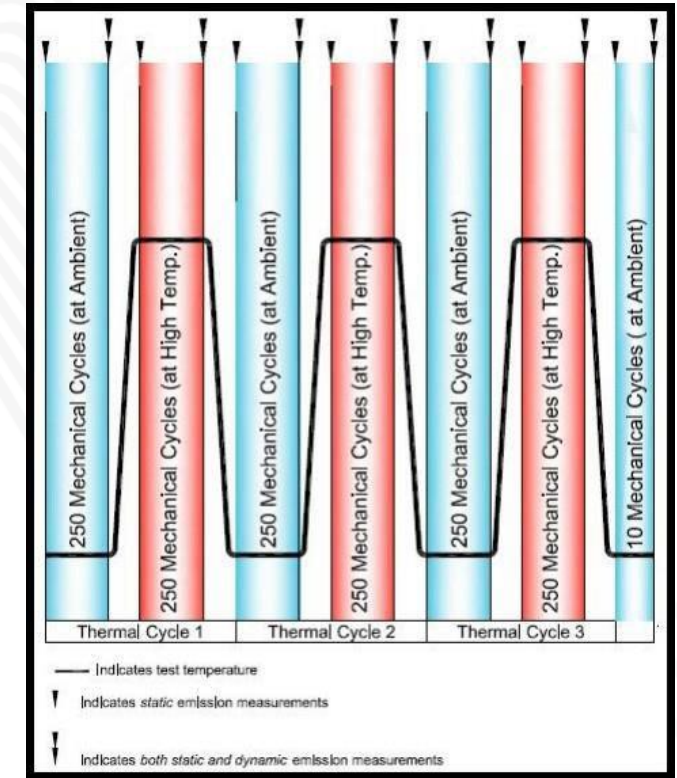
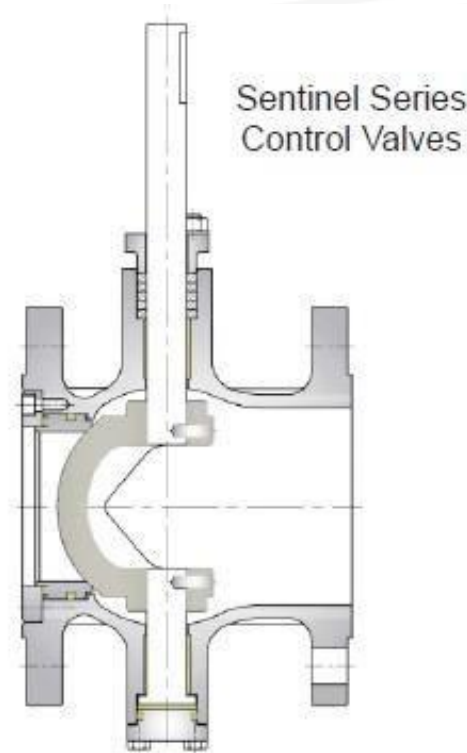
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- In-process: Segmented Ball Valve certified to ISO-15848-1 standard
- Flanged and 3-piece valves are being tested in-house for API-641 Fugitive Emissions standard and will be later sent for 3rd party testing and certification.



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