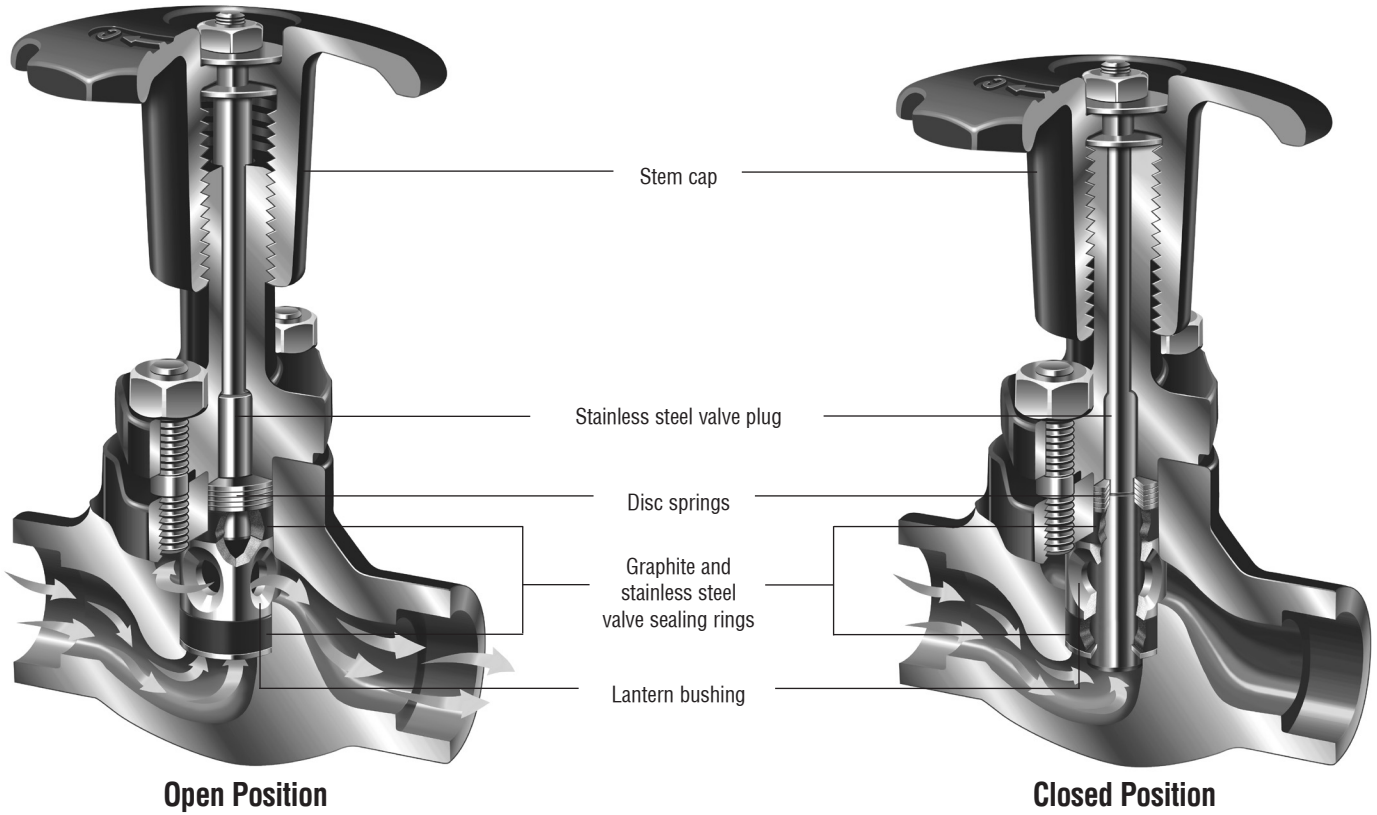




Armstrong® TVS 4000 Series Stainless Steel Trap Valve Station

The Piston Valve

Armstrong Steam Distribution Manifolds (MSD/SMSD) and TVS 4000 Trap Valve Stations incorporate advanced piston sealing technology for safer, longer lasting steam isolation service.



Open Position

Closed Position

- **Dual sealing action.** The piston valve is a seatless valve that includes two graphite and stainless steel valve sealing rings that seal the stem and function as a seat. This combination provides long-term protection against leaks to the atmosphere and downstream piping.
- **Self-cleaning action.** Stainless steel piston slides without rotating between the two valve sealing rings, preventing dirt from damaging the surfaces.
- **Sealing integrity.** Flexible disc springs automatically provide leak tightness by exerting pressure, which keeps the upper and lower valve sealing rings compressed at all times. Sealing tightness is ensured by the compression of the sealing rings against the piston

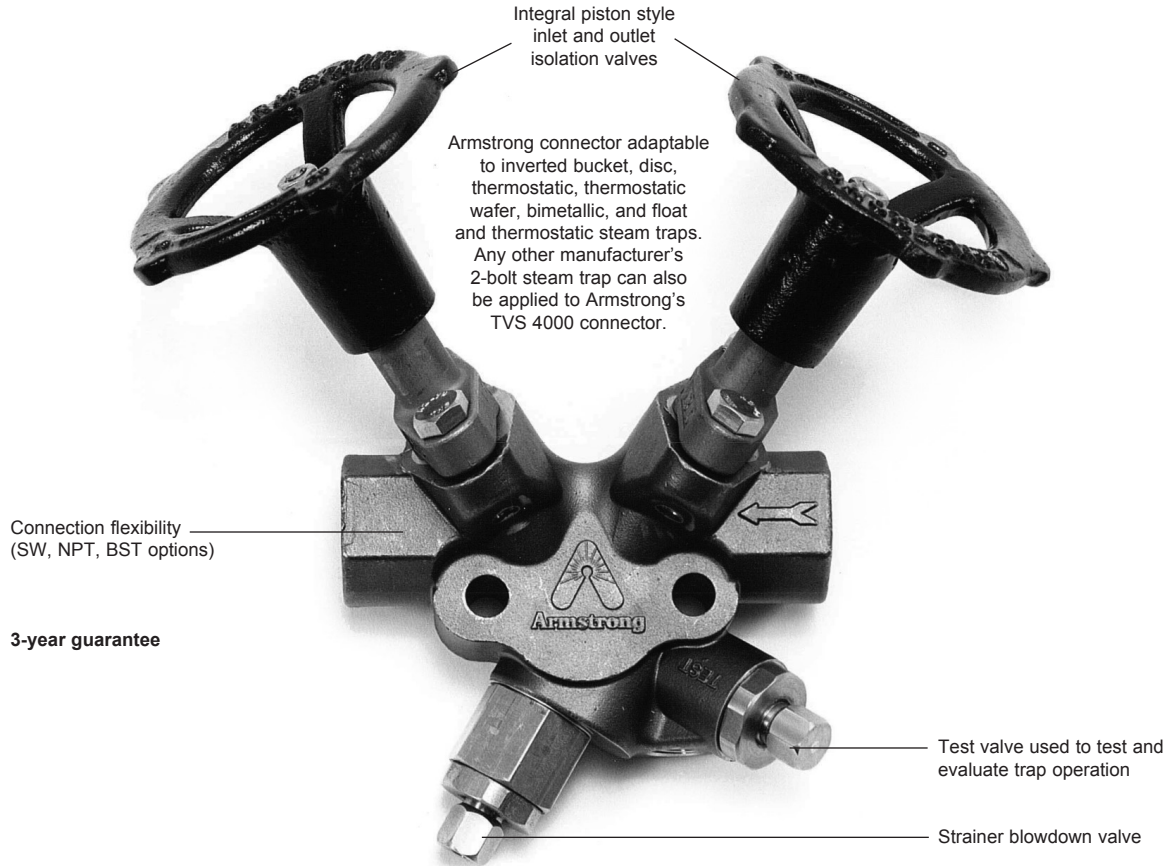
and valve body. This combination of disc springs and dual valve seal rings protects against expansion and contraction due to heating and cooling. This ensures dependable operation, even after years of service.

- **Protected valve stem.** The valve stem and sealing surfaces are completely protected from dirt and corrosion by the stem cap, whether in an open or closed position.
- **In-line repairability.** All sealing valve components may be easily replaced in-line.
- **Long-term operation.** Piston valve design ensures actuation even after many years without operation.

U.S. Patent 6,467,503

Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com for up-to-date information.

TVS 4000 Series Stainless Steel Trap Valve Station



Description

Same principle. Different package with two piston-style isolation valves, test valve and integral stainless steel strainer with blowdown valve. What you'll find new are all the benefits of a piston valve integrated into the same space-saving package.

Maximum Operating Conditions

Maximum allowable pressure:
650 psig @ 600°F (45 barg @ 315°C)

Materials—TVS 4000 Connector

| | |
|------------------|--------------------|
| Connector: | ASTM A351 Gr. CF8M |
| Strainer screen: | Stainless steel |
| Test valve: | Stainless steel |
| Blowdown valve: | Stainless steel |

Isolation Valve Components

| | |
|----------------------|------------------------------|
| All wetted parts: | Stainless steel |
| Valve sealing rings: | Graphite and stainless steel |
| Handwheel: | Ductile iron |

Weight

6-1/2 lb (2.9 kg)

How to Order

| Model | Connection | Type of Connection Inlet/Outlet | Flow Direction | Trap Type |
|----------|--------------|---------------------------------|--|---|
| TVS 4000 | 1/2" 3/4" | NPT SW BSPT Flanged* | R = Right to Left L = Left to Right | Inverted Bucket Disc Thermostatic wafer Bimetallic Float and Thermostatic |

*Consult factory.

U.S. Patent 6,467,503

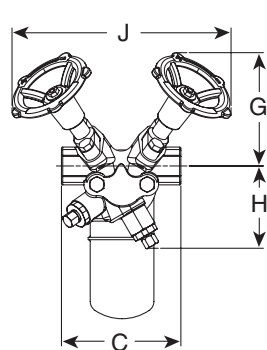
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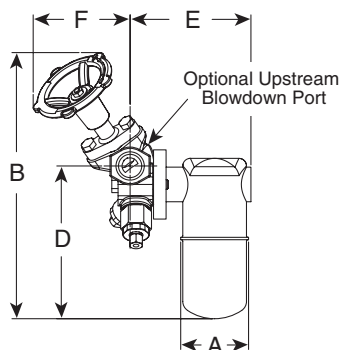
TVS 4000 Series Stainless Steel Trap Valve Station

For Pressures to 650 psig (45 barg)...Capacities to 1 300 lb/hr (590 kg/hr) (Using 2000 Series Inverted Bucket Steam Traps)

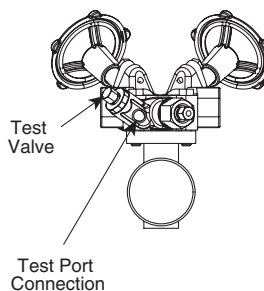
Steam Trapping and Steam Tracing Equipment



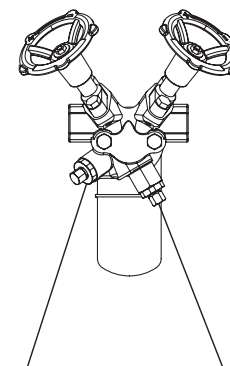
Model TVS 4000 With 2000 Series SS Trap
Front View



Model TVS 4000 With 2000 Series SS Trap
Side View



Model TVS 4000 With 2000 Series SS Trap
Bottom View



Test Valve
Used to test and evaluate trap operation

Strainer Blowdown Valve

Same principle. Different package with two piston-style isolation valves, test valve and integral stainless steel strainer with blowdown valve. Now the energy-saving performance and reliability of the inverted bucket steam trap are available in a versatile new package. You'll still enjoy all the familiar benefits. And the same efficient condensate drainage from virtually every kind of steam-using equipment. What you'll find new are all the benefits of a piston valve integrated into the same space-saving package.

Materials—TVS 4000 Connector

| | |
|------------------|--------------------|
| Connector: | ASTM A351 Gr. CF8M |
| Strainer screen: | Stainless steel |
| Screen retainer: | Stainless steel |
| Gasket: | Stainless steel |
| Retainer unit: | Stainless steel |
| Test valve: | Stainless steel |
| Blowdown valve: | Stainless steel |

Isolation Valve Components

| | |
|----------------------|--------------------------------------|
| Handwheel: | Ductile iron |
| Nut: | Stainless steel |
| Stem, washers: | Stainless steel |
| Bonnet: | ASTM A351 Gr. CF8M |
| Bonnet, bolts: | DIN 933, Gr. A2 Class 70 per DIN 267 |
| Valve plug: | Stainless steel |
| Disc springs: | Stainless steel |
| Valve sealing rings: | Graphite and stainless steel |
| Lantern bushing: | Stainless steel |
| Valve washers: | Stainless steel |

Materials—Series 2000 Traps

| | |
|-----------------|------------------------------|
| Body: | ASTM A240 Gr. 304L |
| Internals: | All stainless steel—304 |
| Valve and seat: | Hardened chrome steel—17-4PH |

For a fully detailed certified drawing, refer to CD #1232.

| TVS 4000 Series With 2000 Series Inverted Bucket Steam Trap | | | | | | |
|---|------------------------------------|--------|--------------------|--------|------------------------------------|--------|
| Model No. | 2010 | | 2011 | | 2022 | |
| | in | mm | in | mm | in | mm |
| Pipe Connections | 1/2, 3/4 | 15, 20 | 1/2, 3/4 | 15, 20 | 1/2, 3/4 | 15, 20 |
| "A" Trap Diameter | 2-11/16 | 68 | 2-11/16 | 68 | 3-7/8 | 98 |
| "B" Height (Valve Open) | 8 | 203 | 10-1/2 | 268 | 12-1/2 | 318 |
| "C" Face to Face | 4-3/4 | 120 | 4-3/4 | 120 | 4-3/4 | 120 |
| "D" Connection \varnothing to Bottom | 4-3/4 | 120 | 6 | 154 | 8 | 203 |
| "E" Connection \varnothing to Outside of Trap | 4-1/2 | 114 | 4-13/16 | 122 | 5-7/8 | 149 |
| "F" Connection \varnothing to Front of Handwheel (Valve Open) | 3-1/2 | 89 | 3-7/8 | 98 | 3-7/8 | 98 |
| "G" Connection \varnothing to Top of Handwheel (Valve Open) | 3-1/4 | 83 | 4-1/2 | 114 | 4-1/2 | 114 |
| "H" Connection \varnothing to Bottom of Connector | 1-7/8 | 47 | 3-1/4 | 83 | 3-1/4 | 83 |
| "J" Width Across Handwheels (Valve Open) | 9-1/4 | 235 | 8-3/4 | 222 | 8-3/4 | 222 |
| Test Port Connection | 1/4 NPT | 6 | 1/4 NPT | 6 | 1/4 NPT | 6 |
| Weight lb (kg) | 9 | 4 | 9-1/2 | 4.3 | 12 | 5.4 |
| Maximum Operating Pressure (Trap) | 200 psig (14 barg) | | 400 psig (28 barg) | | 650 psig (45 barg) | |
| Maximum Allowable Pressure (Trap) | 400 psig (28 barg) @ 750°F (399°C) | | | | 650 psig @ 600°F (45 barg @ 315°C) | |

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