

TWT Steam Trap Test Valve

Description

The TWT steam trap test valve is designed to have a three-position valve, which will allow straight flow, complete isolation, and test or bleed capability.

Limiting operating conditions

Max. Operating Pressure (PMO) 300 psig (21 barg)

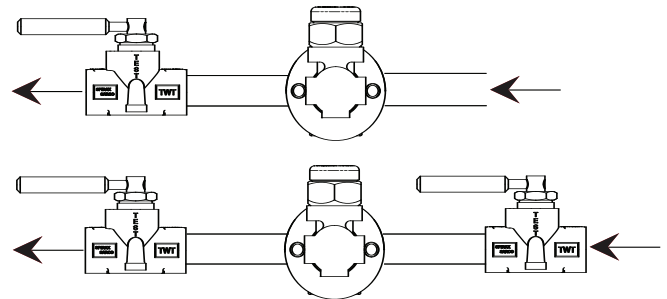
Max. Operating Temperature (TMO) 421°F (198°C)

Maximum operating pressure is determined by the Pressure Shell Design conditions.

PMA 300 psig (21 barg)

Installation and Start-up

Before starting any work, make sure all steam is turned off where work is to be performed and is cool. **Install the elbow to the valve body making sure the discharge is pointing down.** The trap test valve is generally placed either after the steam trap or two valves are used on both the inlet and outlet of the trap. If the valve is only required for trap testing and no bleed upstream or isolation is required than only one test valve would be used on the discharge side of the trap. If the design is such that both upstream and down stream isolation with bleed and test capability is needed, then two valves would be required. Two valve installations around traps are most common.



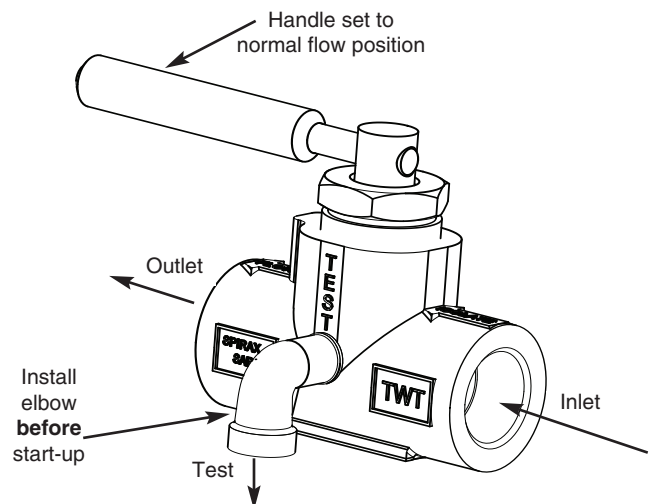
Test valve operation

In normal operation the handles on both of the valves will be pointing toward the flow position.

To test the trap during normal flow, turn the valve handle to the test position. Rotate the outlet valve clockwise 1/4 turn when facing the nameplate with flow out to your right. Turn inlet valve 1/4 turn clockwise to drain condensate away (inlet valve to test position) so that the trap will see little load initially. Return inlet valve to the

normal flow position. Observe trap function. If load is very high, opening a strainer blowdown upstream will reduce flow to the trap so that it will either close or throttle back if working properly. If the trap is working properly return valve to normal flow position. If trap is malfunctioning go through station isolation for trap maintenance or replacement. Never remove trap until all pressure is released and trap is cooled.

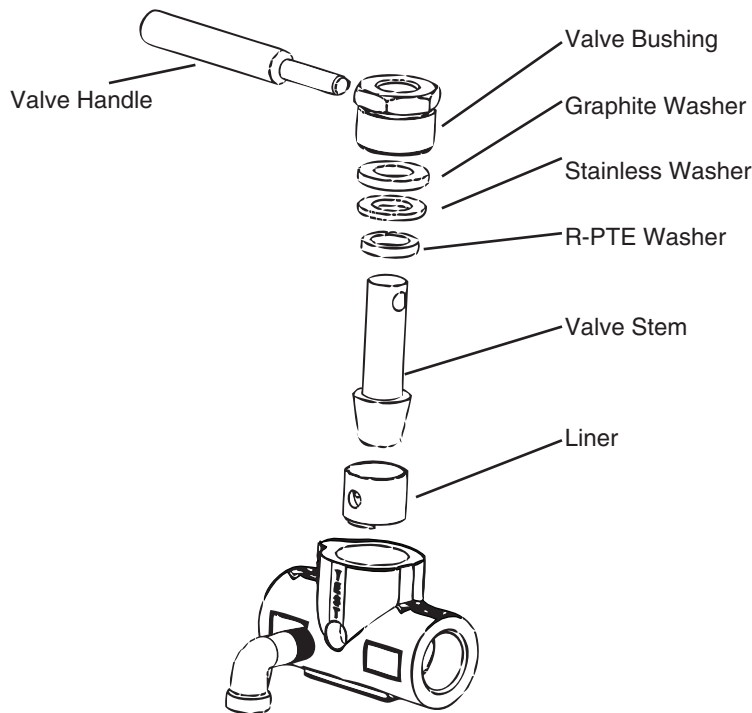
Function	Flow Valve Handle Position (flow right to left with test port in the front on the valve)	Flow Valve Handle Position
	Inlet Flow Valve	Outlet Flow Valve
Normal operation	←	←
Checking for upstream line blockage	↓	→
Trap isolation for trap maintenance or replacement	→	↓
Visual testing of trap	→	
Shut down drainage (stream upstream of station turned off)	↓	↓
Start-up purging	↓	→



Rebuilding three-way plug type valves

The valve assemblies can be replaced in-line by using the following technique:

- a) Remove all process pressure from valve to be serviced in accordance to all in-plant safety requirements.
- b) Light tap the narrow end of the handle with a punch to remove the handle from the valve stem. Screw out the packing nut until the threads disengage. By using a screwdriver or other lever under the nut, pry the plug, and nut assembly straight out. A bit of "wiggling" is acceptable if need be.
- c) The liner may now be removed by inserting a small screwdriver between the valve body and the liner. Take care not to mar the metal body as the blade is pushed all the way to the bottom of the liner. Now push toward the center of the liner bore which will cause the liner to buckle and collapse. The liner can now easily be removed with needle nose pliers.
- d) Insert new liner insuring alignment of the two ports. The two ports must line up with outlet and test port in the valve body. The liner is provided with two tabs along the bottom side that will lock it in place and keep it from rotating.
- e) Place R-PTFE washer over valve stem. Place metal stainless steel washer on the valve stem. Place graphite packing onto valve stem. Place bushing on to valve stem.
- f) Place entire assembly into valve body, making sure hole in the valve stem is lined up with the test port hole in the liner.
- g) Tighten valve bushing to 30ft-lbs while maintaining orientation of the valve stem. Look into test port to insure that it is properly aligned
- h) Insert handle into valve stem by tapping lightly into place with a hammer. This is a friction fit.
- i) Put the valve back in service. Check for leaks and if necessary tighten packing bushing as above just enough to stop leakage.
- j) Move handle to the different positions to insure proper valve operation.



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