



Installation and Maintenance

SERIES TTF THERMOSTATIC STEAM TRAP AND AIR VENT

This bulletin should be used by experienced personnel as a guide to the installation of TTF thermostatic steam traps and air vents. Selection or installation of equipment should always be accompanied by competent technical assistance. We encourage you to contact Armstrong or its local representative if further information is required.

Armstrong Series TTF Stainless Steel Thermostatic Steam Traps are of the balanced pressure type and provide positive intermittent discharge. Operating pressure ranges from 0 to 300 psig. See Table for orifice size and pipe connections.

Model	Orifice Size	Pipe Connections
TTF-1 Straight-Thru	3/16"	1/2" or 3/4"
TTF-1R Right Angle		

When installing Series TTF traps, observe good piping practices and local codes.

INSTALLATION

Figure 1 shows a typical Series TTF steam trap installation. The dirt pocket and strainer prolong the trap's service life by protecting the internal mechanism from scale and dirt. Valves in the inlet and discharge lines allow the trap to be isolated for maintenance.

Series TTF traps may be piped in either a vertical or horizontal position.

When installing a TTF series trap, observe the following rules:

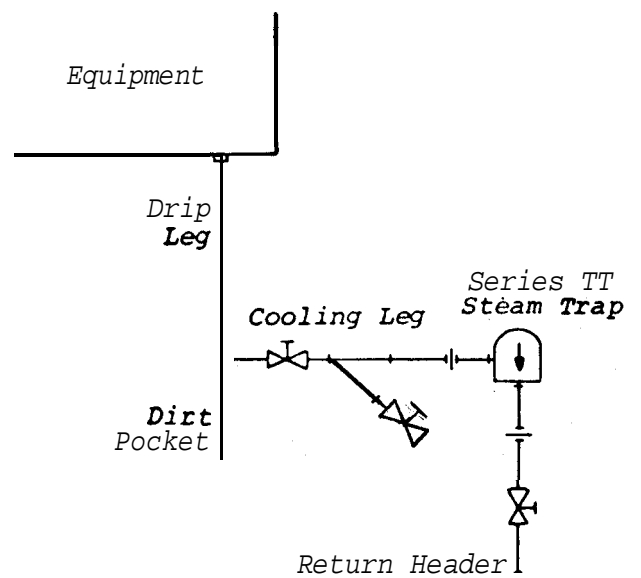


Figure 1.



SERIES TTF THERMOSTATIC STEAM TRAP AND AIR VENT

1. Be sure that steam pressure does not exceed 300 psig.
2. Install the trap so that the FLOW arrow on its label corresponds with the flow of the system.
3. The trap inlet should be below the condensate discharge connection of the equipment to be drained.
4. Provide a cooling leg ahead of the trap.
5. Be sure that there is a valve on each side of the trap so that it can be isolated for maintenance. The piping should also include at least one union between the isolating valves.
6. When connecting or disconnecting the steam trap, use the hex connections for wrenching. Do not apply torque to the trap body.
7. Install a dirt pocket and a strainer ahead of the trap inlet.
8. If possible, avoid elbows and other restrictions in the discharge line, especially if the trap is operating near its maximum capacity.
9. Do not elevate condensate if the equipment is under modulated control. IF THIS SITUATION CANNOT BE AVOIDED, CONTACT ARMSTRONG FOR A BULLETIN ON SAFETY DRAINS.
10. Do not install Series TTF traps on superheat.
11. Do not hydrotest or air test Series TTF traps above 40 psi.

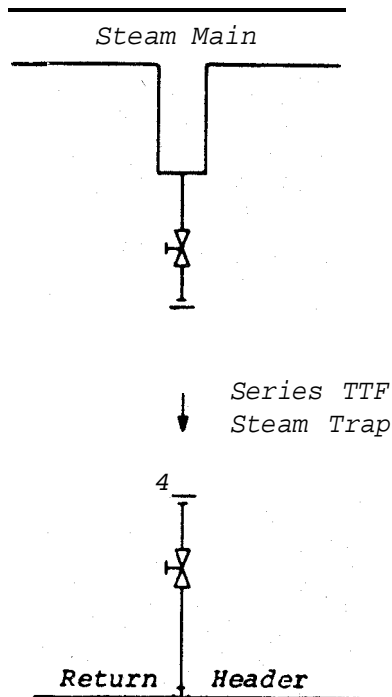


Figure 2

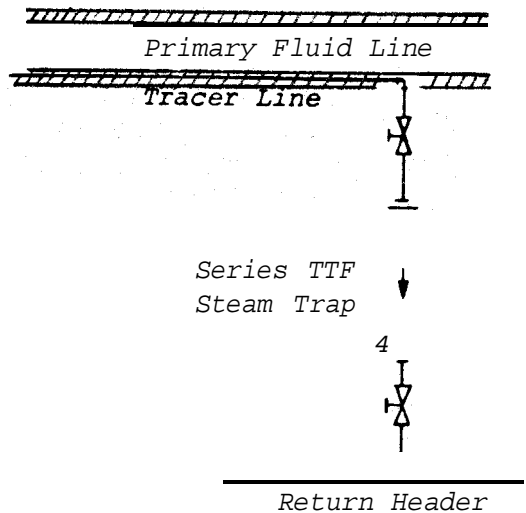


Figure 3



Armstrong

WHEN SERIES TTF TRAPS ARE SUBJECTED TO FREEZING CONDITIONS

Series TTF traps are recommended for use in such applications as tracer lines, tank car coils, tank heating coils, and other applications that may subject them to freezing conditions. When freezing conditions are likely to exist, take the following precautionary steps.

1. Slope piping to promote gravity drainage. Avoid low spots that can accumulate condensate and allow it to freeze, blocking the pipe.
2. Install a pressure or temperature actuated safety drain device on the inlet piping directly ahead of the trap. If the trap discharges to a closed return, another drain device should be installed in the low point of the discharge piping.
3. DO NOT elevate the condensate return line when freezing conditions exist.
4. Take precautionary steps against flooded return lines and backflow of condensate.

USING SERIES TTF THERMOSTATIC TRAPS TO VENT AIR FROM STEAM IN CHAMBER TYPE HEAT EXCHANGERS.

Suitable for pressures from 0 to 300 psig.

NOTE: FLOW arrows on the **trap** label must correspond with the flow of the vented air.

Figure 4 shows a Series TTF trap installed as an air vent for a stationary cooking kettle. Any air accumulating in the quiet space opposite the steam inlet will be automatically vented at slightly below steam temperature throughout the entire operating pressure range.

Series TTF traps may also be used to vent air from steam chambers to atmosphere. In these applications, the vent should be installed at the highest point of the steam chamber with the inlet connection to the vent higher than the highest **point** of the chamber. Thus installed, there is a minimum hazard of any liquid carry over and air can be vented to atmosphere with no drain line necessary. Figures 5, 6, 7, 8 show typical installations.

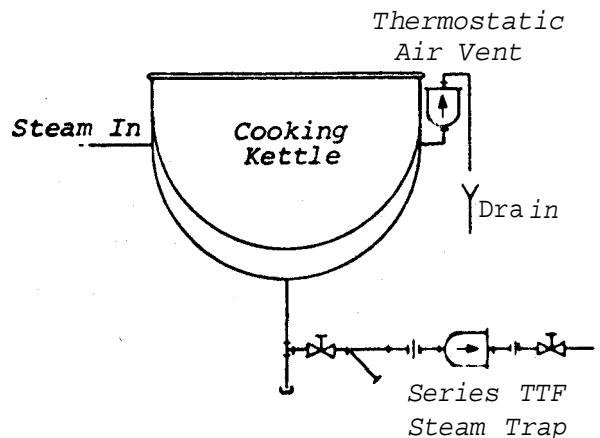


Figure 4

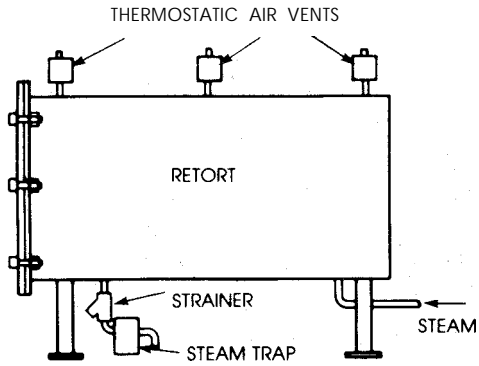


Fig. 5. Installation on a retort.

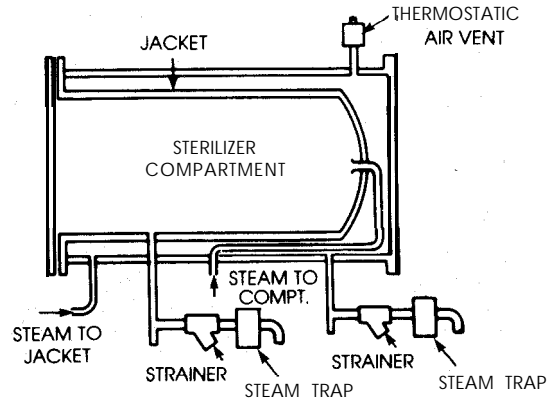


Fig. 6. Installation on a sterilizer.

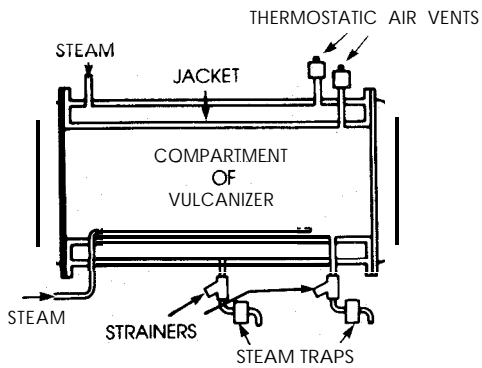


Fig. 7. Installation on a vulcanizer.

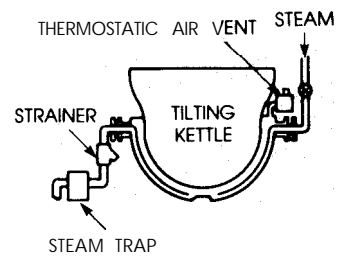
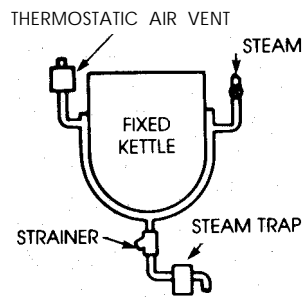


Fig. 8. Installation on jacketed kettles.