

The float and thermostatic trap is a mechanical trap that operates on both density and temperature principles. The float valve operates on the density principle: A lever connects the ball float to the valve and seat. Once condensate reaches a certain level in the trap the float rises, opening the orifice and draining condensate. A water seal formed by the condensate prevents live steam loss.

Since the discharge valve is under water, it is not capable of venting air and non-condensables. When the accumulation of air and non-condensable gases causes a significant temperature drop, a thermostatic air vent in the top of the trap discharges it. The thermostatic vent opens at a temperature a few degrees below saturation so it's able to handle a large volume of air—through an entirely separate orifice—but at a slightly reduced temperature.

Armstrong F&T traps provide high air-venting capacity, respond immediately to condensate and are suitable for both industrial and HVAC applications.

Reliable Operation on Modulating Steam Pressure

Modulating steam pressure means that the pressure in the heat exchange unit being drained can vary anywhere from the maximum steam supply pressure down to vacuum under certain conditions. Thus, under conditions of zero pressure, only the force of gravity is available to push condensate through a steam trap. Substantial amounts of air may also be liberated under these conditions of low steam pressure. The efficient operation of the F&T trap meets all of these specialized requirements.

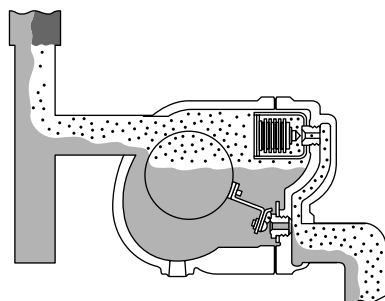
High Back Pressure Operation

Back pressure has no adverse effect on float and thermostatic trap operation other than capacity reduction due to low differential. The trap will not fail to close and will not blow steam due to the high back pressure.

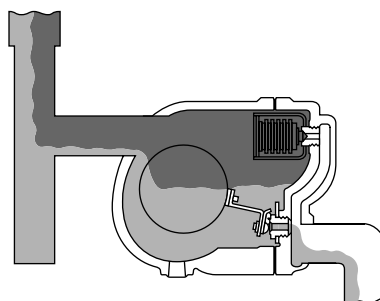
Table CG-5. Typical Design Parameters for Float and Thermostatic Traps		
Body and Cap Materials	Cast Iron	Cast Steel
Connections	1/2" thru 3"	1/2" thru 3"
Type Connections	Screwed or Flanged	Screwed, Socketweld or Flanged
Operating Pressure (psig)	0 thru 250	0 thru 465
Capacity (lbs/hr)	To 208,000	To 280,000

Figure CG-12. Operation of the F&T Steam Trap

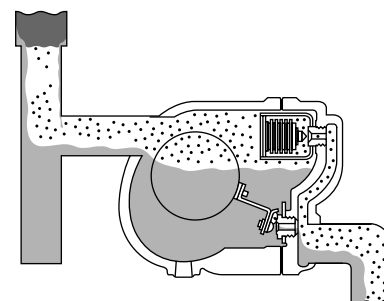
Condensate
 Steam
 Air



1. On start-up, low system pressure forces air out through the thermostatic air vent. A high condensate load normally follows air venting and lifts the float, which opens the main valve. The remaining air continues to discharge through the open vent.



2. When steam reaches the trap, the thermostatic air vent closes in response to higher temperature. Condensate continues to flow through the main valve, which is positioned by the float to discharge condensate at the same rate that it flows to the trap.



3. As air accumulates in the trap, the temperature drops below that of saturated steam. The balanced pressure thermostatic air vent opens and discharges air.

NOTE: These operational schematics of the F&T trap do not represent actual trap configuration.