

Spence FTN Series Float and Thermostatic Steam Traps



Figure 1. FTN Series Float and Thermostatic Steam Trap

Features

- Universal Four-port Design - Four possible hookup combinations of the "H" pattern body and piping dimensions similar to other major manufacturers allow maximum installation flexibility for easy replacement of other traps. Inlet and outlet taps on larger sized traps located in the cover to permit larger capacities.
- All Stainless Steel Internal Components - Hardened valves and seats. Extra long life and dependable service. Resists water hammer. Protects against erosion and corrosion.
- Balanced Pressure Thermostatic Element - allows venting of non-condensibles while operating at design pressure.
- Rugged Welded Stainless Steel Element - Increases service life.
- Wide Selection of Differential Pressures - Sizes NPS 3/4 to 2 / DN 20 to 50 available with 15, 30, 75 and 125 psig / 1.03, 2.07, 5.17 and 8.62 bar differential pressures.

- Air Line Water Removal - Special configuration FTNA optimized for compressed air service.
- Repairable In-line - Can be serviced without disturbing system piping.

Introduction

A steam trap is an automatic valve which discharges condensate, undesirable air and non-condensibles from a system while trapping, or holding in, steam.

FTN Series are float and thermostatic steam traps. Float actuates the valve via a hinged lever and linkage. Air vent is a balanced pressure design with stainless steel welded encapsulated bellows capable of discharging air and non-condensable gases continuously within 15°F / -9.4°C of saturated temperature. Traps through NPS 1-1/4 / DN 32 employs "H" pattern connections to accommodate multiple piping configurations. Traps are cast iron bodied suitable for pressures to 125 psi / 8.62 bar and available in NPS 3/4 to 2 / DN 20 to 50.

FTN Series

Specifications

The Specifications section gives some general specifications for the FTN Series float and thermostatic steam traps. The nameplates give detailed information for a specific steam trap as built in the factory.

Available Configurations

- Type FTN-15:** Steam pressures to 15 psig / 1.03 bar
- Type FTN-30:** Steam pressures to 30 psig / 2.07 bar
- Type FTN-75:** Steam pressures to 75 psig / 5.17 bar
- Type FTN-125:** Steam pressures to 125 psig / 8.62 bar
- Type FTNA-75:** Air pressures to 75 psig / 5.17 bar
- Type FTNA-125:** Air pressures to 125 psig / 8.62 bar

Body Sizes

- NPS 3/4, 1, 1-1/4, 1-1/2 and 2 /
- DN 20, 25, 32, 40 and 50

End Connection Style

- NPT

Maximum Operating Pressure⁽¹⁾

- See Table 1

Maximum Allowable Temperature⁽¹⁾

- H Pattern Traps:** 450°F / 232°C
- Standard Pattern :** 353°F / 178°C

Maximum Allowable Pressure⁽¹⁾

- H Pattern Traps:** 250 psig / 17.2 bar
- Standard Pattern:** 125 psig / 8.62 bar

Capacity Information

- See Tables 2 and 3

Construction Materials

- Body and Cover: Cast Iron
- All Internal Parts: Stainless steel
- Air Vent⁽²⁾: Balanced Pressure, Welded Stainless steel

Option

- Repair Kits

Applications

- Unit Heaters and other Space Heating Equipment
- Heat Exchangers/Reboilers
- Steam Heating Coils
- Steam Main Drips
- Air Compressor Receivers
- Air Line Drips
- Air Powered Process Equipment

Approximate Weights

- 9 to 26 lbs / 4.1 to 11.8 kg

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.

2. Available on Types FTN-15, FTN-30, FTN75 and FTN-125 only.

Principle of Operation

Air entering trap is immediately discharged through the high capacity integral air vent. The thermostatic vent closes prior to saturation temperature. The balanced design will allow venting of non-condensibles collected in the float chamber when operating at design pressure. When steam enters the trap, the thermostatic air vent closes to prevent steam loss. When steam gives up its latent heat, it becomes condensate. This "condensate" enters the trap and causes the stainless steel ball float to rise. Raising of the float opens the discharge valve, allowing condensate to be continuously discharged as it enters the trap. The condensate level in the trap body is maintained above the discharge seat, providing a positive seal against the loss of steam.

Installation

Before installing:

- Install traps in an accessible position and location for easy servicing. Be sure to install trap straight and in a level position to ensure proper operation.
- Install trap below and close to the equipment being drained, avoid long lengths of horizontal piping ahead of trap.
- Pitch all horizontal inlet lines toward the steam trap to help eliminate potential water hammer.
- Recommended installation to always provide a dirt pocket and strainer with blow down above the trap.

Note

For Air Traps, 1/8 NPT tap at top boss for balancing line is recommended.

Ordering Information

When ordering, complete the ordering guide on this page. Refer to the Specifications section. Review the description to the right of each specification and the information in each referenced table or figure. Specify your choice whenever a selection is offered.

Ordering Guide

Available Configurations (Select One)

- ☐ Type FTN-15
- ☐ Type FTN-30
- ☐ Type FTN-75
- ☐ Type FTN-125
- ☐ Type FTNA-75
- ☐ Type FTNA-125

Body Sizes (Select One)

- ☐ NPS 3/4 / DN 20
- ☐ NPS 1 / DN 25
- ☐ NPS 1-1/4 / DN 32
- ☐ NPS 1-1/2 / DN 40
- ☐ NPS 2 / DN 50

Construction Type (Select One)

- ☐ H Pattern
- ☐ Standard Pattern

Option

- ☐ Repair Kits

Table 1. Maximum Operating Pressure

ORIFICE	OPERATING PRESSURE	
	psig	bar
15	15	1.03
30	30	2.07
75	75	5.17
125	125	8.62

Table 2. Maximum Capacity - lbs/hr 10°F Below Saturation

TYPE	ORIFICE,	MAX. ΔP	DIFFERENTIAL, psig														
	IN.	psig	1/4	1/2	1	2	5	10	15	20	25	30	40	50	75	100	125
FTN-15	3/4	0.218	279	369	489	650	785	1000	1075	----	----	----	----	----	----	----	----
	1	0.218	279	369	489	650	785	1000	1075	----	----	----	----	----	----	----	----
	1-1/4	0.312	600	770	980	1240	1640	2000	2340	----	----	----	----	----	----	----	----
	1-1/2	0.500	1100	1700	2400	3300	5000	6600	7600	----	----	----	----	----	----	----	----
	2	0.625	2300	2800	3600	4650	6900	9000	10900	----	----	----	----	----	----	----	----
FTN-30	3/4	0.218	279	369	489	650	785	1000	1075	1210	1300	1370	----	----	----	----	----
	1	0.218	279	369	489	650	785	1000	1075	1210	1300	1370	----	----	----	----	----
	1-1/4	0.228	375	500	690	910	1200	1500	1680	1800	1900	2000	----	----	----	----	----
	1-1/2	0.390	1000	1300	1700	2300	3400	4600	5500	6000	6600	7000	----	----	----	----	----
	2	0.500	1300	1800	2500	3400	5200	6800	7800	8600	9300	10000	----	----	----	----	----
FTN-75 ⁽¹⁾	3/4	0.166	160	213	280	365	520	700	795	875	930	970	1120	1230	1450	----	----
	1	0.166	160	213	280	365	520	700	795	875	930	970	1120	1230	1450	----	----
	1-1/4	0.312	550	725	960	1300	1900	2650	3050	3400	3700	4000	4400	4750	5400	----	----
	1-1/2	0.312	550	725	960	1300	1900	2650	3050	3400	3700	4000	4400	4750	5400	----	----
	2	0.421	850	1100	1500	2000	3100	4150	4750	5200	5500	5800	6400	6800	7700	----	----
FTN-125 ⁽¹⁾	3/4	0.125	100	135	175	230	330	415	500	585	620	685	750	830	970	1110	1190
	1	0.125	100	135	175	230	330	415	500	585	620	685	750	830	970	1110	1190
	1-1/4	0.246	400	520	680	890	1300	1700	2050	2300	2500	2700	3000	3200	3800	4200	4500
	1-1/2	0.246	400	520	680	890	1300	1700	2050	2300	2500	2700	3000	3200	3800	4200	4500
	2	0.332	550	675	880	1225	1950	2600	3000	3250	3500	3800	4200	4600	5500	6100	6600

1. For Types FTNA-75 and FTNA-125 capacities, multiply by 1.33.

Table 3. Maximum Capacity - kg/hr 5°C Below Saturation

TYPE	ORIFICE	MAX. ΔP	DIFFERENTIAL, barg														
	mm	bar	0.017	0.034	0.069	0.138	0.345	0.690	1.03	1.38	1.72	2.07	2.76	3.45	5.17	6.90	8.62
FTN-15	19.05	0.02	127	167	222	295	356	454	488	----	----	----	----	----	----	----	----
	25.40	0.02	127	167	222	295	356	454	488	----	----	----	----	----	----	----	----
	31.75	0.02	272	349	445	562	744	907	1061	----	----	----	----	----	----	----	----
	38.10	0.03	499	771	1089	1497	2268	2994	3447	----	----	----	----	----	----	----	----
	50.80	0.04	1043	1270	1633	2109	3130	4082	4944	----	----	----	----	----	----	----	----
FTN-30	19.05	0.02	127	167	222	295	356	454	488	549	590	621	----	----	----	----	----
	25.40	0.02	127	167	222	295	356	454	488	549	590	621	----	----	----	----	----
	31.75	0.02	170	227	313	413	544	680	762	816	862	907	----	----	----	----	----
	38.10	0.03	454	590	771	1043	1542	2087	2495	2722	2994	3175	----	----	----	----	----
	50.80	0.03	590	816	1134	1542	2359	3084	3538	3901	4218	4536	----	----	----	----	----
FTN-75 ⁽¹⁾	19.05	0.01	73	97	127	166	236	318	361	397	422	440	508	558	658	----	----
	25.40	0.01	73	97	127	166	236	318	361	397	422	440	508	558	658	----	----
	31.75	0.02	249	329	435	590	862	1202	1383	1542	1678	1814	1996	2155	2449	----	----
	38.10	0.02	249	329	435	590	862	1202	1383	1542	1678	1814	1996	2155	2449	----	----
	50.80	0.03	386	499	680	907	1406	1882	2155	2359	2495	2631	2903	3084	3493	----	----
FTN-125 ⁽¹⁾	19.05	0.01	45	61	79	104	150	188	227	265	281	311	340	376	440	503	540
	25.40	0.01	45	61	79	104	150	188	227	265	281	311	340	376	440	503	540
	31.75	0.02	181	236	308	404	590	771	930	1043	1134	1225	1361	1452	1724	1905	2041
	38.10	0.02	181	236	308	404	590	771	930	1043	1134	1225	1361	1452	1724	1905	2041
	50.80	0.02	249	306	399	556	885	1179	1361	1474	1588	1724	1905	2087	2495	2767	2994

1. For Types FTNA-75 and FTNA-125 capacities, multiply by 1.33.

FTN Series

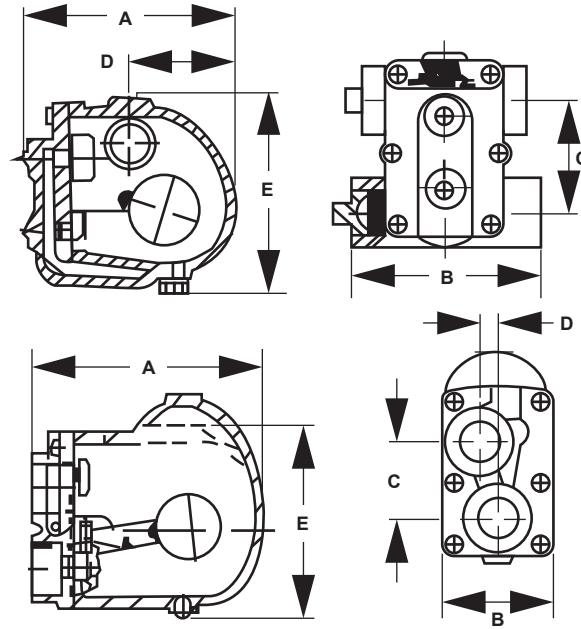


Figure 2.FTN Series Float and Thermostatic Steam Trap Dimension

Table 4. FTN Series Dimension

TYPE	SIZE		B		C		D		E		F		Weight	
	NPS	DN	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	Lb	kg
FTN-15 and FTN-30	3/4	20	6.25	159	5.50	140	3.31	84	5.75	146	----		9	4.1
	1	25	6.25	159	5.50	140	3.31	84	5.75	146	----		9	4.1
	1-1/4	32	6.25	159	5.75	146	3.00	76	5.75	146	----		9-1/2	4.3
	1-1/2	40	8.50	216	4.25	108	3.00	76	----		8.40	213	18	8.2
	2	50	9.81	249	4.94	123	4.94	123	9.12	232	----		26	11.8
FTN-75, FTN-125, FTNA-75 and FTNA-125	3/4	20	6.25	159	5.50	140	3.31	84	5.75	146	----		9	4.1
	1	25	6.25	159	5.50	140	3.31	84	5.75	146	----		9	4.1
	1-1/4	32	8.50	216	4.25	108	3.00	76	----		8.40	213	18	8.2
	1-1/2	40	8.50	216	4.25	108	3.00	76	----		8.40	213	18	8.2
	2	50	9.81	249	4.94	123	4.94	123	9.12	232	----		26	11.8

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