Spence FTE Series Float and Thermostatic Steam Traps

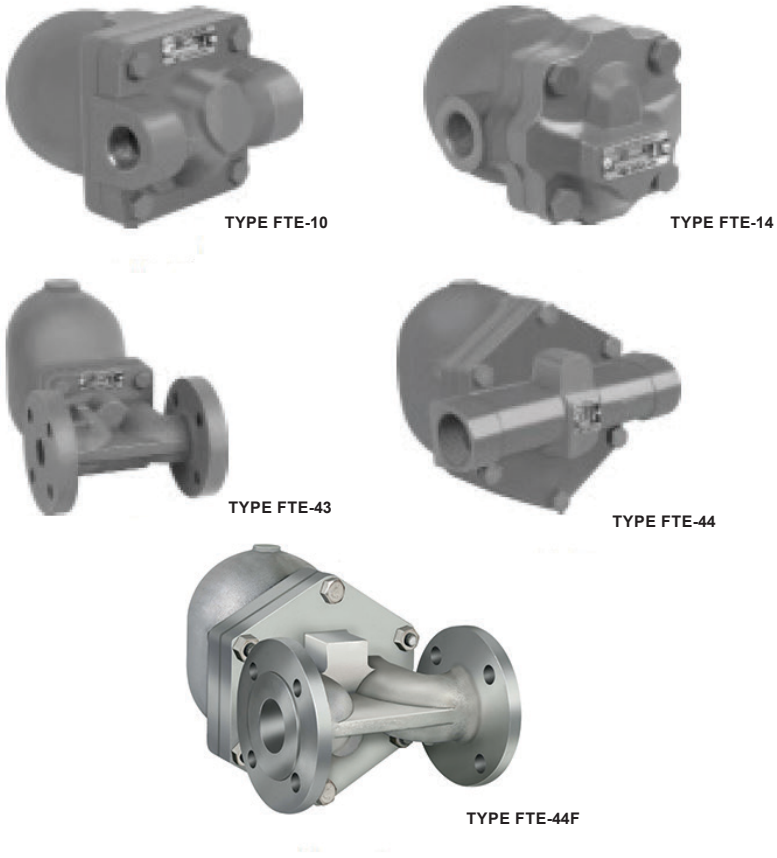


Figure 1. *FTE Series Float and Thermostatic Steam Trap*

Features

- High Capacities
- Rugged cast iron, ductile iron or cast steel body and cover
- Stainless steel thermostatic element eliminates air binding
- Stainless steel float and lever mechanism
- Below condensate level seat design prevents steam leakage
- Resistant to water hammer and corrosion
- In-line repairable

Specifications

The Specifications section gives some general specifications for the FTE Series Float and Thermostatic Steam Traps. The nameplates give detailed information for a specific steam trap as built in the factory.

Available Configurations

See Table 1

End Connection Styles

NPT, SWE[1], CL125, CL150, CL300, CL600, DIN 10, 16, 25 or 40 and BS10 - F, H, J, K or R

Maximum Operating Pressure[2]

See Table 2

Maximum Operating Temperature[2]

Saturated at pressure

Maximum Allowable Pressure[2]

Cast Iron and Ductile Iron: 232 psig / 16 bar
Cast Steel: 465 psig / 32 bar

Maximum Allowable Temperature[2]

Cast Iron and Ductile Iron: 450ºF/ 232ºC
Cast Steel: 850ºF / 454ºC

Capacity Information

See Tables 3 and 4

Materials of Construction

Body and Cover: Cast iron, Ductile iron and Cast steel
Valve, Valve Seat, Float, Lever Assembly, Thermostatic Airvent and Housing: Stainless steel
Cover Bolts: Carbon Steel

Applications

Very High Condensate Loads
Continuous Drainage With High Air Venting Capacity Requirements
Industrial And Commercial Applications
Absorption Systems
Air Handling Coils
Heat Exchangers
Dryers Evaporators
Hot water Generators
Rendering Machines
Steam Process Equipment
Air Make-up Coils
Unit Heaters And Cooking Kettles

Approximate Weights

See Tables 5 to 7

1. Available on Type FTE-44 only.
2. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.

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.

The FTE Series Ball Float Traps are fitted with an integral balanced pressure type thermostatic air went. FTE Series is available with horizontal in line connections. However, in case of Type FTE-14 sizes NPS 1/2 and 3/4 / DN 15 and 20, the position of body can be changed to suit different flow directions like left to right, top to bottom or right to left. A steam lock release (SLR) option is available to FTE Series Traps.

Principle of Operation

On startup, air and non-condensible gases enter the trap and are automatically vented through an accurate balanced pressure internal thermostatic air vent. As condensate enters the trap, the float and lever mechanism is raised, lifting the valve off the seat, discharging the condensate. Condensate continues to discharge at the same rate at which it is entering. Any air or non-condensible gas that accumulates, continually and efficiently passed by the thermostatic air vent.

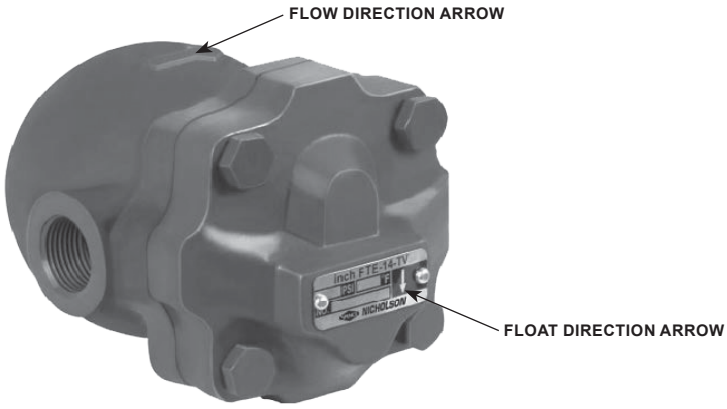


Figure 2. *FTE Series with Flow Direction Arrow and Float Direction Arrow*

Table 1. *FTE Series Available Configurations*

BODY MATERIAL	TYPE[1]	END CONNECTION	OPERATING PRESSURE
Cast iron	FTE-10	Threaded	To 200 psig / 14.0 bar
	FTE-43	Flanged	To 200 psig / 14.0 bar
Ductile iron	FTE-14	Threaded	To 200 psig / 14.0 bar
	FTE-43	Flanged	To 200 psig / 14.0 bar
Cast steel	FTE-44	Screwed or Socket Weld	To 465 psig / 32 bar
	FTE-44F	Flanged	To 465 psig / 32 bar
1. Add "S" to end of Type for SLR.			

Installation

1. Install trap in an accessible position and location for easy servicing.
2. Ensure that the float direction of the trap is positioned downward during installation. Install trap straight, plumb and in a level position to ensure proper orientation.

Note

Arrow cast on the trap indicates the flow direction while the arrow on the nameplate indicates the float direction while closing the trap. See Figure 2.

3. Install below and close to equipment being drained. Avoid long lengths of horizontal piping ahead of trap.
4. Pitch all horizontal inlet lines towards the stream trap to help eliminate potential water hammer problems.
5. Provide a dirt pocket and strainer (with blow down) ahead of trap.
6. Install union fittings and shut off valves on both sides of trap for ease of servicing and trap testing.
7. Install a test valve in outlet pipe and cap it. This allows trap to be tested. Cap is used as safety precaution when unit is not being tested.
8. Blowdown piping using full steam pressure for (5) five minutes prior to service. This cleaning process removes debris from piping.
9. Perform maintenance and cleaning 2 to 3 days after startup until system is clean. Then perform maintenance 6 to 12 months once in normal operation.

Table 2. *FTE Series Maximum Operating Pressure*

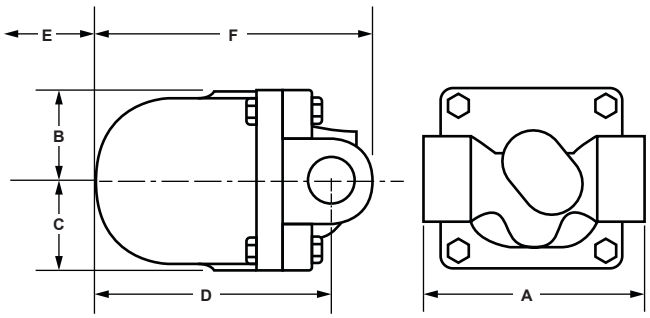
TYPE	INLET SIZE		MAXIMUM OPERATING PRESSURE, psig / bar									
			65 / 4.5		145 / 10		200 / 14		300 / 21		465 / 32	
	NPS	DN	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
FTE-10 / FTE-43	1/2 and 3/4	15 and 20	0.141	3.57	0.094	2.38	0.079	2	----	----	----	----
	1	25	0.256	6.5	0.197	5	0.157	4	----	----	----	----
	1-1/2	40	0.689	17.5	0.65	16.5	0.531	13.5	----	----	----	----
	2	50	1.063	27	0.811	20.6	0.657	16.7	----	----	----	----
FTE-14	1/2 and 3/4	15 and 20	0.141	3.57	0.094	2.38	0.079	2	----	----	----	----
	1	25	0.185	4.7	0.126	3.2	0.106	2.7	----	----	----	----
FTE-44 and FTE-44F	1/2 and 3/4	15 and 20	0.16	4.07	0.107	2.73	0.091	2.3	0.075	1.9	0.059	1.5
	1	25	0.256	6.5	0.197	5	0.157	4	0.13	3.3	0.118	3
	1-1/2	40	0.689	17.5	0.65	16.5	0.531	13.5	0.531	13.5	0.531	13.5
	2	50	1.063	27	0.811	20.6	0.657	16.7	0.657	16.7	0.657	16.7

Table 3. *Maximum Capacity - lbs/hr 18°F Below Saturation*

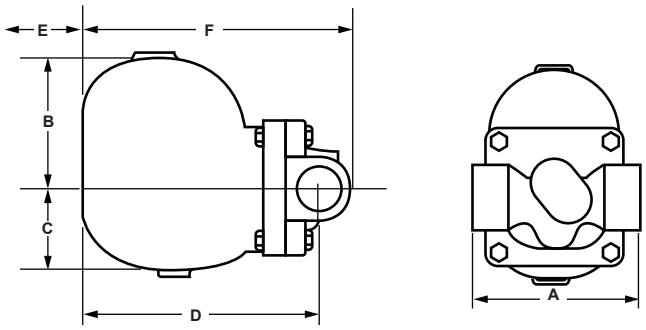
TYPE	INLET SIZE, NPS	MAX. ΔP, psig	DIFFERENTIAL PRESSURE, psig														
			5	10	20	40	50	65	80	100	125	145	180	200	300	400	465
FTE-10	1/2	65	400	520	700	950	1000	1150	----	----	----	----	----	----	----	----	----
FTE-14		145	175	250	355	500	560	640	705	790	885	950	----	----	----	----	----
FTE-43		200	120	165	235	335	375	430	475	530	590	635	710	750	----	----	----
FTE-10	3/4	65	400	520	700	950	1000	1150	----	----	----	----	----	----	----	----	----
FTE-14		145	175	250	355	500	560	640	705	790	885	950	----	----	----	----	----
FTE-43		200	120	165	235	335	375	430	475	530	590	635	710	750	----	----	----
FTE-44 and FTE-44F	1/2 and 3/4	65	450	630	850	1100	1250	1350	----	----	----	----	----	----	----	----	----
		145	235	330	465	660	735	840	930	1030	1165	1250	----	----	----	----	----
		200	220	320	380	480	570	640	680	770	810	880	960	1050	----	----	----
		300	90	125	175	250	280	320	355	410	395	480	530	560	680	----	----
		465	70	90	110	150	170	200	220	240	260	270	300	330	370	420	450
FTE-10	1	65	1650	2200	3050	4200	5000	5200	----	----	----	----	----	----	----	----	----
		145	870	1250	1650	2350	2600	3000	3200	3500	3900	4100	----	----	----	----	----
FTE-43		200	640	800	1250	1600	1800	2000	2200	2550	2780	2900	3020	3100	----	----	----
FTE-44		300	400	520	700	950	1000	1150	1600	1850	2020	2150	2350	2500	2800	----	----
FTE-44F		465	275	380	530	720	800	900	1000	1080	1250	1380	1440	1500	1800	2000	2050
FTE-14	1	65	1050	1430	1750	2150	2400	2750	----	----	----	----	----	----	----	----	----
		145	480	620	820	1080	1200	1320	1380	1550	1650	2200	----	----	----	----	----
FTE-10, FTE-43, FTE-44 and FTE-44F	1-1/2	65	4200	6000	8800	12,500	13,500	15,000	----	----	----	----	----	----	----	----	----
		145	2800	3900	5600	8000	9000	10,000	11,500	13,000	14,200	15,000	----	----	----	----	----
		200	1800	2600	3600	5000	5450	6000	6900	7800	8600	9000	9650	10,000	----	----	----
		300	1800	2600	3600	5000	5450	6000	6900	7800	8600	9000	9650	10,000	13,000	----	----
		465	1800	2600	3600	5000	5450	6000	6900	7800	8600	9000	9650	10,000	13,000	14,300	15,000
FTE-10, FTE-43, FTE-44 and FTE-44F	2	65	13,500	19,800	28,000	40,000	45,000	50,500	----	----	----	----	----	----	----	----	----
		145	7300	10,000	14,500	20,000	22,500	26,000	29,000	32,000	35,000	40,000	----	----	----	----	----
		200	3500	5000	6800	9600	10,500	12,000	13,500	15,000	16,500	17,500	19,000	20,000	----	----	----
		300	3500	5000	6800	9600	10,500	12,000	13,500	15,000	16,500	17,500	19,000	20,000	27,000	----	----
		465	3500	5000	6800	9600	10,500	12,000	13,500	15,000	16,500	17,500	19,000	20,000	27,000	29,800	31,000

Table 4. *Maximum Capacity - kg/hr 10°C Below Saturation*

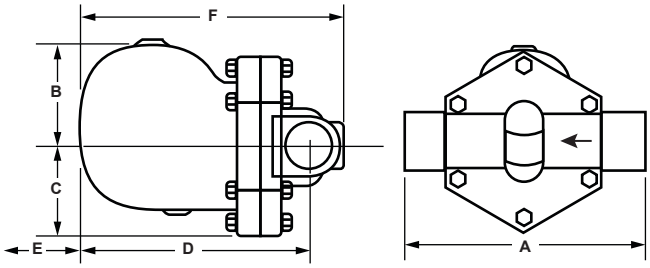
TYPE	INLET SIZE, DN	MAX. ΔP, bar	DIFFERENTIAL PRESSURE, bar														
			0.345	0.690	1.38	2.76	3.45	4.50	5.52	6.90	8.62	10.0	12.4	13.8	20.7	27.6	32.1
FTE-10	15	4.5	182	236	318	432	455	523	----	----	----	----	----	----	----	----	----
FTE-14		10.0	80	114	161	227	255	291	320	359	402	432	----	----	----	----	----
FTE-43		14.0	55	75	107	152	170	195	216	241	268	289	323	341	----	----	----
FTE-10	20	4.5	182	236	318	432	455	523	----	----	----	----	----	----	----	----	----
FTE-14		10.0	80	114	161	227	255	291	320	359	402	432	----	----	----	----	----
FTE-43		14.0	55	75	107	152	170	195	216	241	268	289	323	341	----	----	----
FTE-44 and FTE-44F	15 and 20	4.5	205	286	386	500	568	614	----	----	----	----	----	----	----	----	----
		10.0	197	150	211	300	334	382	423	473	530	568	----	----	----	----	----
		14.0	100	145	173	218	259	291	309	350	368	400	436	477	----	----	----
		21.0	41	57	80	113	127	145	161	186	180	218	214	255	309	----	----
		32.0	32	41	50	68	77	91	100	109	118	123	136	150	168	191	205
FTE-10	25	4.5	750	1000	1386	1909	2273	2364	----	----	----	----	----	----	----	----	----
		10.0	395	568	750	1068	1182	1364	1455	1591	1773	1864	----	----	----	----	----
FTE-43		14.0	291	364	568	727	818	909	1000	1159	1264	1318	1373	1409	----	----	----
FTE-44		21.0	182	236	318	432	455	523	727	841	918	977	1068	1136	1273	----	----
FTE-44F		32.0	125	173	241	327	364	409	455	491	568	627	655	682	818	909	932
FTE-14	25	4.5	477	650	795	977	1091	1250	----	----	----	----	----	----	----	----	----
		10.0	218	282	373	491	545	600	627	705	750	1000	----	----	----	----	----
FTE-10, FTE-43, FTE-44 and FTE-44F	40	4.5	1909	2727	4000	5682	6136	6818	----	----	----	----	----	----	----	----	----
		10.0	1273	1773	2545	3636	4091	4545	5227	5909	6455	6818	----	----	----	----	----
		14.0	818	1182	1636	2273	2477	2727	3136	3545	3909	4091	4386	4545	----	----	----
		21.0	818	1182	1636	2273	2477	2727	3136	3545	3909	4091	4386	4545	5909	----	----
		32.0	818	1182	1636	2273	2477	2727	3136	3545	3909	4091	4386	4545	5909	6500	6818
FTE-10, FTE-43, FTE-44 and FTE-44F	50	4.5	6136	9000	12,727	18,182	20,455	22,955	----	----	----	----	----	----	----	----	----
		10.0	3318	4545	6591	9091	10,227	11,818	13,182	14,545	15,909	18,182	----	----	----	----	----
		14.0	1591	2273	3091	4364	4773	5455	6136	6818	7500	7955	8636	9091	----	----	----
		21.0	1591	2273	3091	4364	4773	5455	6136	6818	7500	7955	8636	9091	12,273	----	----
		32.0	1591	2273	3091	4364	4773	5455	6136	6818	7500	7955	8636	9091	12,273	13,545	14,091



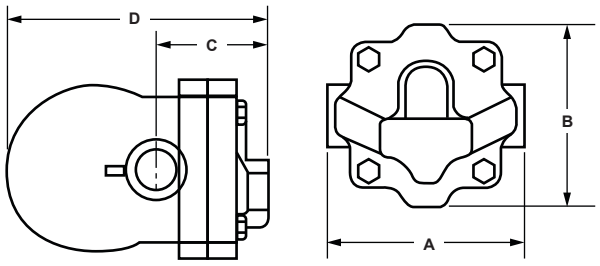
TYPE FTE-10 CAST IRON AND TYPE FTE-44 CAST STEEL,
NPS 1/2 AND 3/4 / DN 15 AND 20



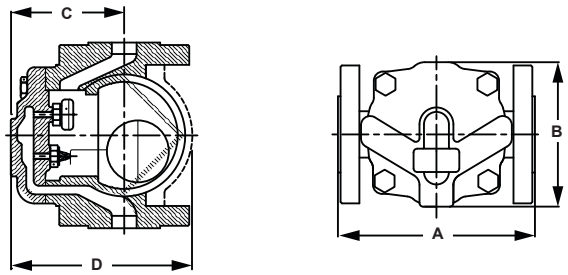
TYPE FTE-10 CAST IRON AND TYPE FTE-44 CAST STEEL,
NPS 1 / DN 25



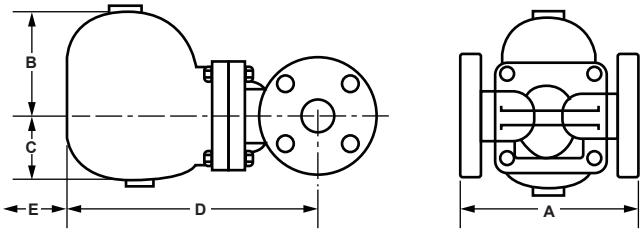
TYPE FTE-10 CAST IRON AND TYPE FTE-44 CAST STEEL,
NPS 1-1/2 AND 2 / DN 40 AND 50



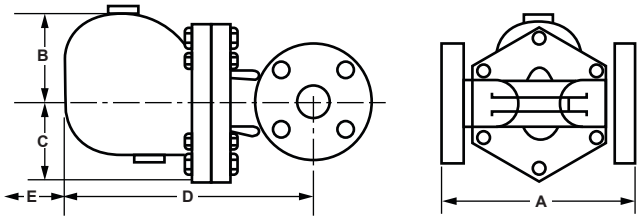
TYPE FTE-14 DUCTILE IRON,
NPS 1/2, 3/4 AND 1 / DN 15, 20 AND 25



TYPE FTE-43 DUCTILE IRON,
NPS 1/2 AND 3/4 / DN 15 AND 20

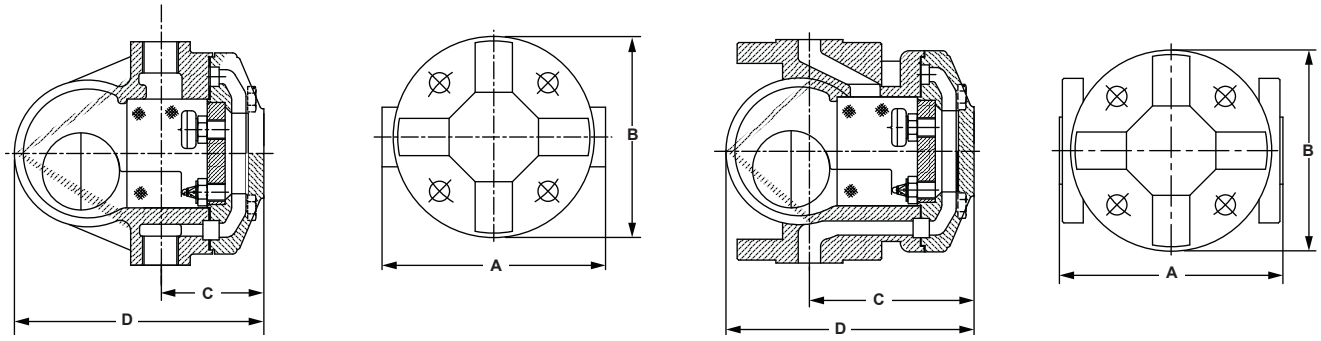


TYPE FTE-43 CAST IRON AND TYPE FTE-44F CAST STEEL,
NPS 1 / DN 25



TYPE FTE-43 CAST IRON AND TYPE FTE-44F CAST STEEL,
NPS 1-1/2 AND 2 / DN 40 AND 50

Figure 3. *FTE Series Float and Thermostatic Steam Trap Dimension*



TYPE FTE-44 CAST STEEL, NPS 1/2 AND 3/4 / DN 15, 20 AND 25

TYPE FTE-44F CAST STEEL, NPS 1/2 AND 3/4 / DN 15, 20 AND 25

Figure 3. *FTE Series Float and Thermostatic Steam Trap Dimension (continued)*

Table 5. *Types FTE-10 and FTE-44 Dimensions*

SIZE, NPS / DN	IN. / mm						WEIGHT, LB / kg	
	A	B	C	D	E	F	Type FTE-10	Type FTE-44
1/2 / 15[1]	5-1/16 / 128	2-1/8 / 54	2-1/8 / 54	5-11/16 / 144	4-5/16 / 110	6-11/16 / 170	10.5 / 4.8	11.4 / 5.2
3/4 / 20[1]	5-1/16 / 128	2-1/8 / 54	2-1/8 / 54	5-11/16 / 144	4-5/16 / 110	6-11/16 / 170	10.5 / 4.8	11 / 5.0
1 / 25	5-1/16 / 128	4-5/16 / 110	2-15/16 / 75	7-1/2 / 190	6-5/16 / 160	8-1/2 / 216	17.6 / 8.0	18.7 / 8.5
1-1/2 / 40	11-1/8 / 282	5-1/8 / 130	3-3/8 / 85	10 / 305	7-7/8 / 200	11-3/8 / 289	48.4 / 22.0	49.5 / 22.5
2 / 50	12-1/8 / 308	5-11/16 / 145	3-3/4 / 95	10-1/4 / 260	7-1/8 / 200	11-13/16 / 300	59.4 / 27.0	61.6 / 28.0
1. Dimensions A to F are for Type FTE-10 only.								

Table 6. *Types FTE-43 and FTE-44F Dimensions*

SIZE, NPS / DN	IN. / mm					WEIGHT, LB / kg	
	A	B	C	D	E	Type FTE-43	Type FTE-44F
1 / 25	6-5/16 / 160	4-5/16 / 110	2-15/16 / 75	9-10/15 / 245	6-5/16 / 160	25.3 / 11.5	26.4 / 12.0
1-1/2 / 40	9-1/16 / 230	5-1/8 / 130	3-3/8 / 85	13-1/8 / 333	7-7/8 / 200	61.6 / 28.0	63.8 / 29.0
2 / 50	9-1/16 / 230	5-11/16 /145	3-3/4 / 95	13-1/2 / 343	7-1/8 / 200	74.8 / 34.0	77.0 / 35.0

Table 7. *Types FTE-14, FTE-43, FTE-44 and FTE-44F Dimensions*

TYPES	SIZE, NPS / DN	IN. / mm				WEIGHT, LB / kg
		A	B	C	D	
FTE-14	1/2 / 15	4 / 102	4 / 102	2 / 51	5 / 127	7.9 / 3.6
	3/4 / 20	4 / 102	4 / 102	2 / 51	5 / 127	7.9 / 3.6
	1 / 25	5 / 127	4 / 102	3 / 76	6 / 152	10.1 / 4.6
FTE-43	1/2 and 3/4 / 15 and 20	5-7/8 / 150	4-5/16 / 110	3-13/16 / 97	5-11/16 / 150	12 / 5.5
FTE-44	1/2 and 3/4 / 15 and 20	5-7/8 / 150	5-5/16 / 135	2-13/16 / 71	6-5/8 / 169	13.2 / 6
FTE-44F						16.5 / 7.5

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 FTE-10
- ☐ Type FTE-14
- ☐ Type FTE-43
- ☐ Type FTE-44
- ☐ Type FTE-44F

Body Sizes (Select One)

- ☐ NPS 1/2 / DN 15
- ☐ 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

End Connection Styles (Select One)

- ☐ NPT
- ☐ Socket Weld Connection (For Type FTE-44 only)
- ☐ CL125
- ☐ CL150
- ☐ CL300
- ☐ CL600
- ☐ DIN 10
- ☐ DIN 16
- ☐ DIN 25
- ☐ DIN 40
- ☐ BS10-F
- ☐ BS10-H
- ☐ BS10-J
- ☐ BS10-K
- ☐ BS10-R

Option

- ☐ SPL Orifice

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