

### Features

- **Reliable foam proportioning system**
- **Suitable for multi hazard protection**
- **Easy to install**
- **Optional materials and fittings**
- **Wide range of available foam proportioners**

### Application

The bladder tank, together with ratio controllers, form a balanced pressure proportioning system used to mix water and firefighting foam together to generate an effective extinguishing medium.

The bladder tank technology is a reliable and precise mixing method that is widespread in the firefighting industry. This method allows to maintain the water/foam ratio stable by adjusting automatically to the variable flow rate and pressure conditions that may occur during the operation.

This feature makes bladdertanks particularly suitable to fit multiple hazard systems, sprinkler system and any other system operating under variable, non-predictable, flow or pressure conditions.

### Functional description

The bladder tank is a carbon steel pressure vessel (stainless steel construction optional) containing an elastomeric separation bladder between water and foam concentrate. The bladder permits water pressure to be transferred to the foam concentrate without these two fluids can mix together. A foam proportioner, as described in a separate data sheet, generates a water pressure drop where the water stream passes through. As foam concentrate pressure is higher than the water pressure inside the foam proportioner, the foam will be proportioned into the water stream at a pre-determined ratio.

### Construction features

- Vertical type on legs or horizontal type on saddles. Legs and saddles are provided with fixing holes
- Supplied with pre-piped/pre-trimmed or with separate ratio controllers
- Manufactured according to ASME Sec. VIII Div. I, EN13445 or ISPEL-VSR codes at Customer's choice
- Design pressure 175 psig (12.1 barg)
- 100% pressure tested according to the applied design code at a pressure of not less than 251 psig (17.3 barg)
- Shell and heads in ASTM A516 Gr. 70 or EN10028-3 P275NH/P355NH



- A106 Gr. B water and foam piping (stainless steel as an option)
- Machine welded circumferential and longitudinal seams for maximum quality and durability
- Welded lifting lugs for easy handling operations
- Earth lug
- Thermal relief valve provided on the water side
- Bladder in polyester reinforced hypalon-neoprene polymers, with an ASTM D-412 Tensile Strength of at least 6500 psi to ensure no ruptures under operation condition
- Bladder equipped with cast rubber caps to ensure water and foam tightness under constant pressurized condition
- Bladder tanks are oversized to permit concentrate thermal expansion (volume expansion allowance)
- Tank equipped with drain/fill/vent valves needed for full operation, made of corrosion resistant nickel covered brass
- Tank equipped with inside protection at any opening to ensure no damage to the bladder
- Internal PVC foam distribution pipe (one pipe for the vertical type, two orthogonal pipes for the horizontal type)
- Internal water distribution pipe to equalize the water pressure everywhere avoiding damage to the bladder and to drain the tank under any condition
- Nameplate in corrosion resistant material
- Nameplate holder to avoid undetected corrosion on the tank's shell behind the plate
- Analog level indicator instead of classic sight glasses to avoid foam soiling or foam leakage in case of ruptures
- External epoxy zinc rich primer/aliphatic polyurethane finish tested by FM for corrosive atmosphere

### Options

- Pre-piped version with optional foam proportioner
- Automatic water control valve
- Internal epoxy protective layer (recommended for salt-

water applications) or external harsh-environment cycle

- Higher wall thickness for corrosion allowance
- Higher pressure ratings, seismic rating
- Ladders, work platforms, sunshade
- Water and foam piping in stainless steel AISI316 grade
- Full bladder tank stainless steel construction
- Manual or electrical filling pump
- Bladder tank and ratio controllers pre-assembled on skid or in container

## Standard material

Tank shell	ASTM A516 Gr. 70
	P275NH to EN10028-3
	P355NH to EN10028-3
Bladder	Polyester reinforced hypalon-neoprene polymers
Trim valves	Nickel coated brass
Thermal relief valve	Brass
Pressure gauges	Stainless steel
Level indicator	Stainless steel
Water and foam pipes	ASTM A106 Gr. B
Flanges	ASTM A105

## Standard design data

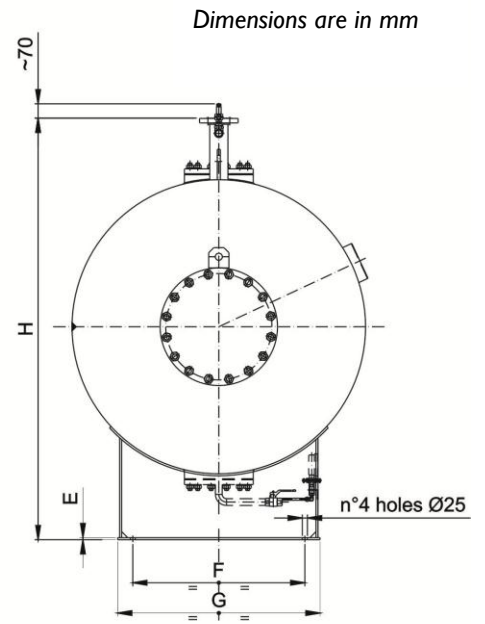
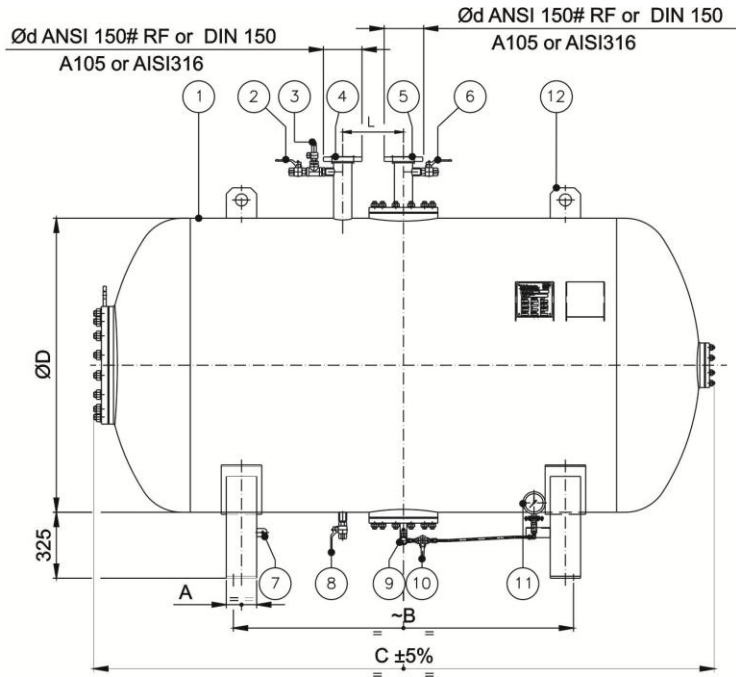
Design pressure	175 psig (12.1 barg)
Test pressure	≥ 251 psig (17.3 barg)
Design metal temperature(*)	-10 °C; +50°C
Capacity	See technical data
Empty weight	See technical data
Proportioning range	See proportioner data sheet

(\*) Temperature limitations normally come from foam concentrate and water

## Technical data

CAPACITY liters	Ød	A mm	B mm	C mm	Ø D mm	F mm	G mm	T mm	H mm	WEIGHT (Kg) *
1000	2 ½"	120	820	1765	1000	600	700	8	1525	550
1500	2 ½"	120	1360	2415	1000	600	700	8	1475	630
2000	2 ½"	120	1520	2572	1100	700	800	8	1575	755
2500	3"	150	1560	2705	1200	800	900	8	1675	880
3000	3"	150	1680	2879	1300	800	900	8	1775	1030
3500	3"	150	1680	2952	1400	850	1000	8	1875	1155
4000	3"	150	1680	3078	1450	850	1000	10	1925	1205
4500	3"	150	1780	3107	1500	850	1000	10	1975	1360
5000	3"	200	1680	3061	1600	950	1100	10	2075	1480
5500	3"	200	1910	3311	1600	950	1100	10	2075	1585
6000	3"	200	1680	3160	1750	1050	1200	10	2225	1805
6500	3"	200	1680	3186	1800	1050	1200	10	2275	1865
7000	3"	250	1250	2892	2000	1350	1500	10	2475	2150
7500	3"	250	1400	3042	2000	1350	1500	10	2475	2225
8000	3"	250	1600	3242	2000	1350	1500	10	2475	2325
8500	3"	250	1750	3392	2000	1350	1500	10	2475	2405
9000	3"	250	1900	3542	2000	1350	1500	10	2475	2480
10000	3"	250	2250	3892	2000	1350	1500	10	2475	2660
11000	3"	250	2550	4192	2000	1350	1500	10	2475	2820
12000	3"	250	2900	4542	2000	1350	1500	10	2475	3000
13000	3"	250	3350	4992	2000	1350	1500	10	2475	3240
14000	3"	250	3700	5342	2000	1350	1500	10	2475	3480
15000	3"	250	3700	5692	2000	1350	1500	10	2475	3540
16000	3"	250	3700	5992	2000	1350	1500	10	2475	3720
17000	3"	250	3850	6292	2000	1350	1500	10	2475	3900
18000	3"	250	3850	6642	2000	1350	1500	10	2475	4080
19000	3"	250	4050	6942	2000	1350	1500	10	2475	4260
20000	3"	250	4050	7292	2000	1350	1500	10	2475	4440

(\*) The table shows the approximate weight of the bladder tank without proportioner. The proportioner weight must be added to obtain the total weight (see the relevant data page). The weight shown refers to the ISPEL-VSR version, design pressure 175 psi (12,1 barg).



1. Tank
2. Water vent valve
3. Thermal safety valve
4. Water inlet flange
5. Foam outlet flange
6. Foam vent valve
7. Earth lug
8. Water drain valve
9. Foam concentrate fill / drain valve
10. Foam level indicator valve
11. Analog level indicator
12. Lifting lug