

FOAM PROPORTIONING UNIT - BLADDER TANK

12BAR VERSION

- Capacity: 100 Litres to 20,000 Litres
- Design Code: Designed and constructed as per ASME Sec. VIII Div.1
- Approval: UL LISTED with AFFF 1%, AFFF 3%, AR-AFFF 3x3%, High Expansion Foam 2%
- Rated Pressure: 12.06 Bar (175 psi)
- Mounting: Vertical/Horizontal
- Wide Flow Range: 75 to 36,000 LPM
- Wide Range of MOC: Carbon Steel, Stainless Steel 304/L, Stainless Steel 316/L
- Optional - ASME 'U Stamped', 'CE' Mark

DESCRIPTION

We Bladder Type Foam Proportioning Unit (Bladder Tank) is provided for accurate foam proportioning of the foam concentrate with the fire-water over a wide range of flow. We Horizontal and Vertical Bladder Tanks consist of main components i.e. Foam Vessel, Foam Bladder, Water Piping, Foam Piping, Vent & Drain Valves, and Level Indicator.

UL Listed Units are available from 100 to 15,000 Litres in Vertical Mounting & 200 to 20,000 Litres in Horizontal Mounting. General arrangement of vertical mounting shall be as per fig no. 660-1 and horizontal mounting shall be as per fig no. 600-2. For the dimensions of foam vessel, foam bladder, foam proportioner, interconnecting piping, valves, and concentrate level gauge, please reach out to We team.

Note: Foam bladder is UL listed for use with AFFF 1%, AFFF 3% and AR-AFFF 3X3%, High Expansion Foam 2%

The general arrangement of foam proportioner shall be as per fig no. 600-3. It is connected to the tank by means of interconnecting piping. Inlet of foam proportioner is connected to the fire-water supply and outlet of foam proportioner to the foam solution delivery piping. Units can also be installed in double vessel configuration to facilitate stand-by arrangement for immediate switchover (main & reserve). In

application of multiple hazard areas and single centralised foam storage & proportioning unit, Bladder Tanks can also be installed with multiple ratio controllers.

OPERATION

During operation, the water is charged into the Bladder Tank between the vessel wall and the bladder to the inlet water pressure. Bladders transfer this water pressure to the foam concentrate stored inside the bladder, this causes pressurization of the foam concentrate. Pressurized foam concentrate is delivered to the foam concentrate inlet of the foam proportioner. A foam concentrate orifice is provided for accurate mixing of the foam concentrate into the fire-water. The metering pressure drop is created in the foam proportioner which causes the foam concentrate to flow into the fire water stream.

Bladder Tanks with horizontal layout are referred as Horizontal Bladder Tanks. We manufactures UL certified Horizontal Bladder Tank from range of 200L to 15000L capacity. Bladder Tanks are also available in vertical layout. They function the same as Horizontal Bladder Tanks. Vertical Bladder Tanks are preferred in case of space constraint.

SPECIFICATION

We Bladder Tank Foam vessel is designed and fabricated to ASME Sec. VIII Div. 1. The vessels are UL listed for two version of a maximum working pressure viz. 12.06 Bar (175 psi) which is hydro tested to a pressure of 18 Bar (261 psi). All the welded joints and sharp corners are ground smooth. Internal surface is coated with coal tar epoxy and external surface with fire-red polyurethane paint. Lifting lugs are welded to the vessel. Vertical vessel is provided with leg support and horizontal vessel with saddle supports. Anchoring holes are drilled in the base plate of support. Anchor bolts are also supplied with the unit.

Foam bladder is made up of Nylon reinforced nitrile rubber, which is mounted inside the vessel. It is tested for foam concentrate compatibility as per UL-162, for AFFF 1%, AFFF 3% and AR-AFFF 3x3% and UL-139 for High Expansion Foam 2%.

Foam proportioner and spool piece are made of carbon steel with internals of stainless steel construction. As an option, complete stainless steel construction is also available. The foam proportioners are designed for maximum working pressure of 12.06 Bar (175 psi) and hydrotested to 18 Bar (261 psi). Proportioners are flow tested for flow rate and proportioning ratio for various flows within the flow range of foam proportioner.

Interconnecting piping connects the foam vessel to the foam proportioner. It consists of water piping and foam piping. Water piping is of carbon steel construction and foam piping of stainless steel construction. Interconnecting piping is designed for maximum working pressure of 12.06 Bar (175 psi) and hydrotested to 18 Bar (261 psi). Piping is externally coated with fire-red polyurethane paint. For sea water application, both water and foam side piping are available in stainless steel construction.

APPLICATION

We Foam Proportioning - Unit Bladder Type is a very versatile and reliable foam proportioning unit, which provides accurate and automatic foam proportioning with very low proportioning losses. Unit can be supplied with a single or multiple proportioners for covering a wide flow range. Units can also be installed in double vessel configuration to facilitate stand-by arrangement for immediate switchover (main & reserve).

Foam Proportioning - Unit Bladder Type is most ideal for foam systems employed for protection of hazardous areas, such as:

- Flammable liquid storage tanks in refineries and petrochemical units
- Chemical process plants
- Aircraft hangars
- Loading & unloading gantries
- Oil Jetties
- Off-shore platforms
- Warehouses
- Foam application through Foam spray nozzle, foam sprinkler, High/Medium Expansion Foam generators, Foam pourers etc.

ORDERING INFORMATION

While ordering a Foam Proportioning Unit – Bladder Type specify the following:

- Item code
- Max. working pressure
- Flange drilling (foam proportioner)
- Flow direction - left to right/right to left
- Material of construction for various components
- Optional requirements – e.g. High Expansion Foam Bladder Tank
- Quantity

For further details on application, installation, commissioning and on-site testing, contact.

FOAM PROPORTIONING UNIT - BLADDER TYPE - VERTICAL MOUNTING

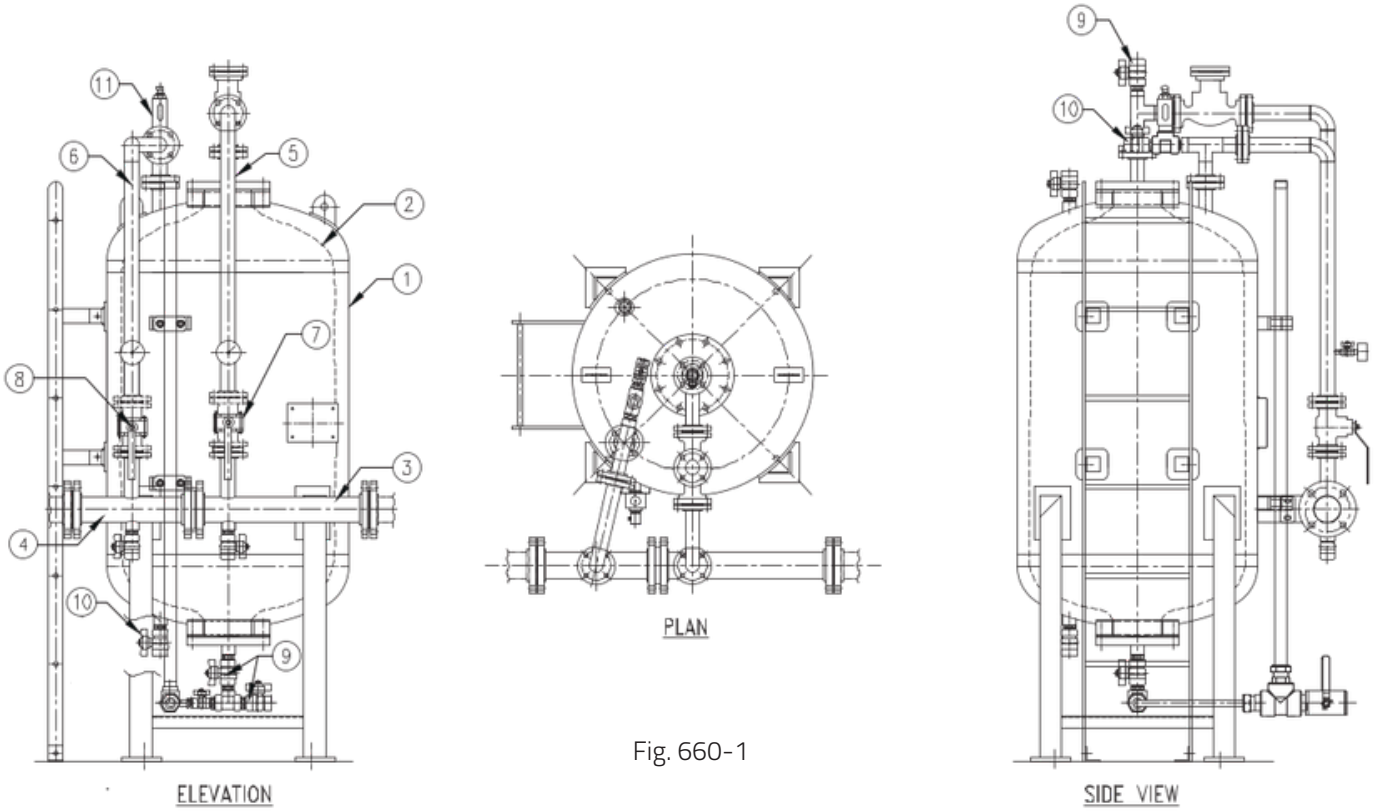


Fig. 660-1

MATERIAL OF CONSTRUCTION

SR.NO	DESCRIPTION	MATERIAL
1	Foam Vessel	Carbon Steel, Stainless Steel 304/L, Stainless Steel 316/L
2	Foam Bladder	Nylon Reinforced Nitrile Rubber (Buna-N)
3	Foam Proportioner	Carbon Steel With Stainless Steel internals/Stainless Steel
4	Spool Piece	Carbon Steel/Stainless Steel
5	Foam Piping	Stainless Steel
6	Water Piping	Carbon Steel/Stainless Steel
7	Foam Supply Valve	Stainless Steel
8	Water Charging Valve	Stainless Steel
9	Bladder Vent/Bladder Drain	Stainless Steel/Brass Chrome Plated
10	Vessel Vent/Vessel Drain	Stainless Steel/Brass Chrome Plated
11	Pressure Relief Valve	Copper Alloy/Stainless Steel

FOAM PROPORTIONING UNIT - BLADDER TYPE - HORIZONTAL MOUNTING

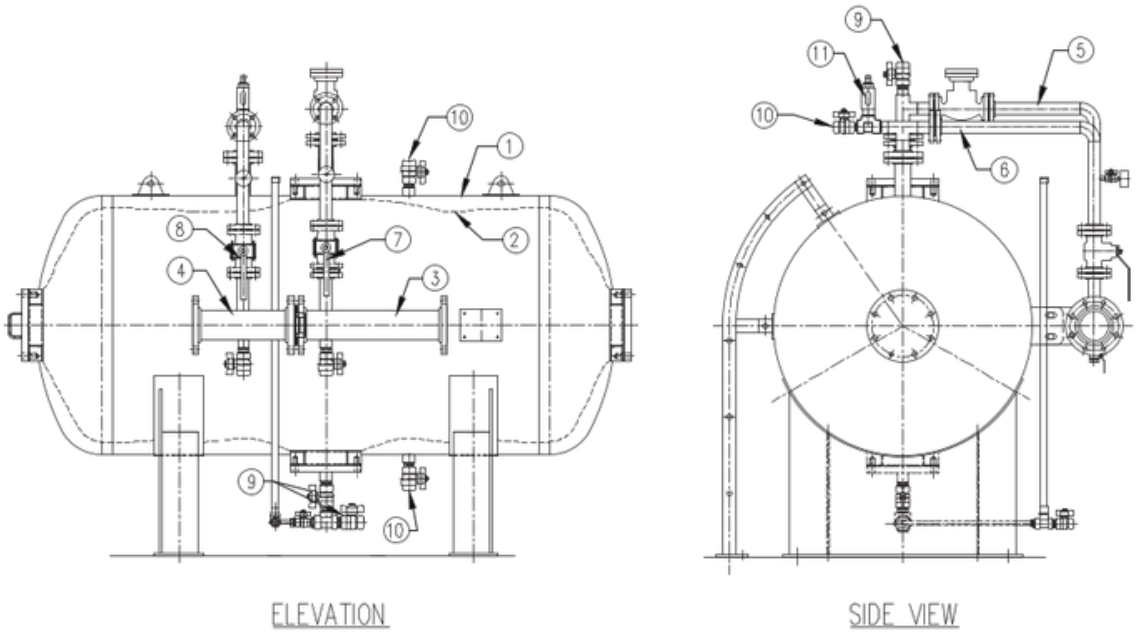


Fig. 660-2

TECHNICAL DATA

1	Item Code – VBT/HBT# (#Indicates capacity of foam vessel in litres)
2	Capacity – 100 to 15,000 litres (Vertical) & 200 to 20,000 litres (Horizontal)
3	Design Code – ASME Sec.VIII Div.1 Latest Edition (Optional – ASME 'U Stamped')
4	Maximum Working Pressure – 12.06 Bar (175 psi)
5	Hydrostatic Test Pressure – 18.09 Bar (261 psi)
6	Painting & Finish
6.1	Internal Of Vessel – Coal Tar Epoxy
6.2	External – Painted Epoxy Fire-Red To Shade No. RAL 3000

BLADDER TANK FOAM PROPORTIONER / RATIO CONTROLLER

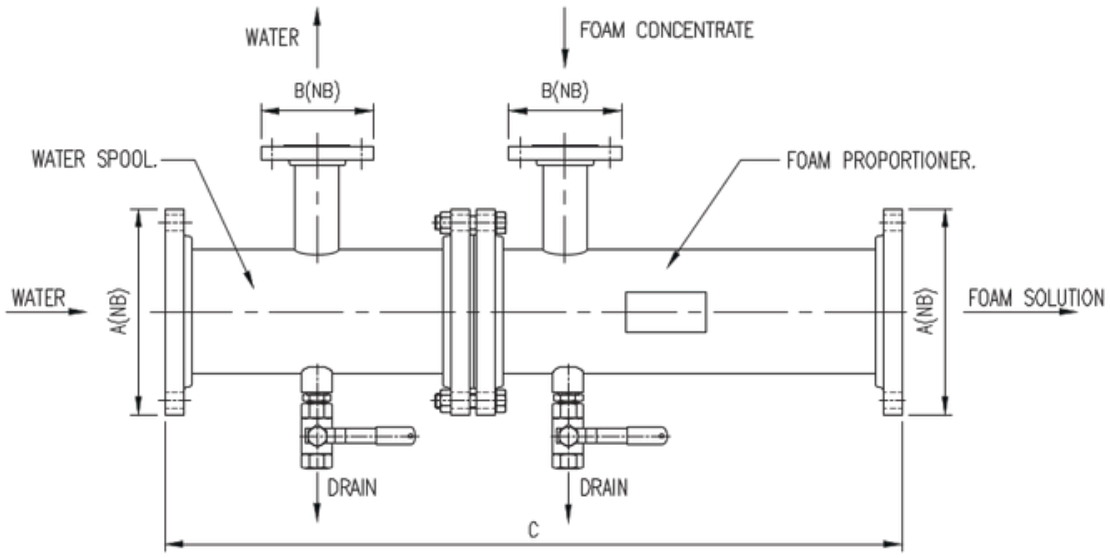


Fig. 660-3

MATERIAL OF CONSTRUCTION

NO.	DESCRIPTION	MATERIAL
1	Body	Carbon Steel/Stainless Steel 304/L, 316/L
2	Water Nozzle	Stainless Steel 304/L, 316/L Stainless
3	Foam Nozzle	Steel 304/L, 316/L Stainless steel/Brass
4	Drain Valve	Chrome Plated

PERFORMANCE & DIMENSIONAL DATA

MODEL-SIZE (NB)	NOMINAL FLOW RANGE IN LPM*	PROP. RATIO IN %	A (NB)	B (NB)	C
BTFP-50 50	75 - 1000	1%, 3%, 2%		25	1000
BTFP-80 80	200 - 3200	1%, 3%, 2%		40	1000
BTFP-100100	400 - 6200	1%, 3%, 2%		40	1000
BTFP-150150	1000 - 11500	1%, 3%, 2%		50	1000
BTFP-200200	3000 - 36300	1%, 3%, 2%		65	1000

NOTE: *1. All dimensions are in mm, unless specified otherwise*
*2. *Flow range mentioned above is nominal flow range. For flow range with specific foam concentrate contact We*

TECHNICAL DATA

1	Model – BTFP
2	Approval – UL Listed with AFFF 1%, AFFF 3%, AR-AFFFF 3x3%, - High Expansion Foam 2% (UL file no. EX15733)
3	Maximum Working Pressure – 12.06 Bar (175 psi) / 16 Bar (232 psi)
4	Foam Proportioning Ratio – 1% for AFFF 1% & 3% for AFFF 3% & AR-AFFF 3x3% & 2% for High Expansion Foam 2%
5	Hydrostatic Test Pressure – 18.09 Bar (263 psi)
6	Flange Drilling – As Per ANSI B16.5, 150#, RF
7	Finish – Internal – Coal Tar Epoxy
8	Finish – External – Painted Polyurethane Fire-Red To Shade No. RAL 3000