

# TECHNICAL DATA SHEET

## FOAM BLADDER TANK



### Features:

- UL LISTED EX26925 with AFFF-3%C6 & AR-AFFF3x3%C6 Foam Concentrates
- Designed & Constructed as per ASME Sec. VIII Div.1
- Largest Range of Capacities (20 Gallon to 4000 Gallon) in Vertical & Horizontal Mounting
- Single vessel configuration or double vessel configuration (1main & 1 standby) or single vessel with multiple proportioner configuration
- Range of Ratio Controllers 50NB/80NB/100NB
- Widest Flow Range (70 GPM to 1500 GPM for AFFF & 125 GPM to 1765 GPM for AR-AFFF)
- Lowest Proportioning Losses
- Foam bladder is approved for use with UL Listed with AFFF & AR-AFFF Foam
- High reliability and design simplicity minimizes chances of system failure
- Manual and automatic operation
- Horizontal / Vertical Mounting
- Low installation cost
- Can be adapted into existing foam system

### Application:

SFFECO Foam Proportioning Unit - Bladder Type is a versatile and reliable which provides accurate and automatic foam proportioning with very low proportioning losses. Unit can be supplied with a single or multiple proportions or dual tank for covering a wide flow range and storage capacities. 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
- Air-craft hangars
- Loading and Unloading gantries
- Oil Jetties
- Off-Shore Platforms
- Warehouses
- Foam application through spray nozzle and foam sprinkler

### Description:

SFFECO Foam Proportioning Unit - Bladder Type is a self-contained foam proportioning unit used for injecting the foam concentrate into fire-water stream over a wide range of flow and pressure. Units are available from 20 Gallon to 4000 Gallon in Vertical as well as Horizontal Mounting. Unit consists of a foam vessel, foam bladder, foam proportioner, interconnecting piping, valves and concentrate level tube/gauge. Note - Foam Bladder is compatible for use with AFFF & AR-AFFF Foam Concentrates for specific flows. Foam vessel is designed and fabricated to ASME Sec. VIII Div.1. Foam bladder is made of Reinforced PVC / Nylon reinforced nitrile rubber / Non Reinforced vinyl, which is fixed inside the foam vessel. Foam concentrate is stored inside the foam bladder. Foam proportioner can be supplied separately. 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 switch over or single tank with multiple proportioner configuration.

### Specification:

Foam vessel is designed and fabricated to ASME Sec. VIII Div.1 for a maximum working pressure of 12.06Bar and hydro tested to a pressure of 18.09 Bar. All the welded joints and sharp corners are ground smooth. Internal surface is coating is optional (usually coated with primer i.e. red-oxide or coal tar epoxy) and external surface with fire-red paint. Lifting lugs are welded to the vessel. Vertical vessel is provided with leg supports and horizontal vessel with saddle supports. Anchoring holes are drilled in the base plate of supports. Anchor bolts are not supplied with the unit. Foam bladder is made of Reinforced PVC / Nylon reinforced nitrile rubber / Non Reinforced vinyl, which is fixed inside the foam vessel and is provided with neck flanges. Foam proportioner is made of carbon steel/MS. As an option complete stainless steel construction is also offered for non-listed unit. It is hydro tested to pressure of 18.09 Bar and flow tested by UL for flowrate 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/MS construction and foam piping of stainless steel construction. Piping is hydro tested to a pressure of 18.09 Bar and externally coated with fire-red paint.

# TECHNICAL DATA SHEET

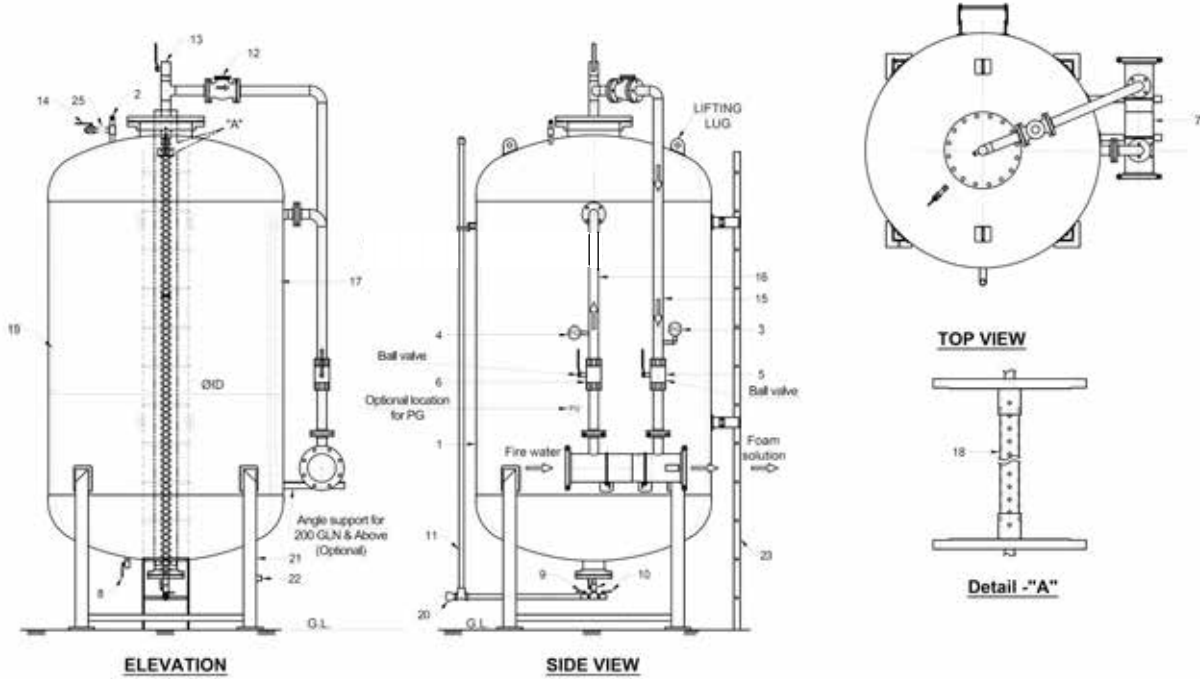
## FOAM BLADDER TANK



G.A. Drawing

Bladder Tank – Vertical Mounting

Model series: SFD-BT-XXXX-V, where XXXX= Tank Capacity in gallon



### Material of Construction

SR. NO.	ITEM DESCRIPTION	SIZE	RATING	QTY.	MATERIAL OF CONSTRUCTION
1	FOAM VESSEL	20-4000 GLN.	175 PSI	1 NO.	CARBON STEEL (SA516 GR. 70) OR EQUIVALENT
2	RELIEF VALVE	2"NB, SCRD. OR ABOVE	175 PSI MINIMUM	1 NO.	STAINLESS STEEL
3	PRESSURE GAUGE - WATER	2"NB, 0-20 BAR	2-20 BAR	1 NO.	STAINLESS STEEL
4	PRESSURE GAUGE - FOAM	2"NB, 0-20 BAR	2-20 BAR	1 NO.	STAINLESS STEEL
5	FOAM SUPPLY VALVE	20/25/40NB	≥150# / PN16	1 NO.	STAINLESS STEEL
6	WATER CHARGING VALVE	20/25/40NB	≥150# / PN16	1 NO.	STAINLESS STEEL
7	FOAM PROPORTIONER	50/80/100NB	SCH.40	1 NO.	CARBON STEEL/MS
8	VESSEL DRAIN VALVE	25"65NB, SCRD. OR HIGHER	≥150# / PN16	1 NO. / 2 NO.	STAINLESS STEEL
9	LEVEL INDICATOR VALVE	SCRD.	≥150# / PN16	1 NO.	STAINLESS STEEL
10	FOAM CONCENTRATE FILL / DRAIN VALVE	25"65NB, SCRD.	≥150# / PN16	1 NO.	STAINLESS STEEL
11	LEVEL INDICATOR TUBE OR LEVEL INDICATOR GAUGE (OPTIONAL)	15"25NB	-	1 NO.	CLEAR PLASTIC TUBE STAINLESS STEEL
12	NON RETURN VALVE	20/25/40NB	≥150# / PN16	1 NO.	STAINLESS STEEL
13	BLADDER VENT VALVE	25"65NB	≥150# / PN16	1 NO.	STAINLESS STEEL
14	VESSEL VENT VALVE	25"NB, SCRD.	≥150# / PN16	1 NO.	STAINLESS STEEL
15	FOAM PIPING	20/25/40NB	SCH.40	1 NO.	STAINLESS STEEL
16	WATER PIPING	20/25/40NB	SCH.40	1 NO.	CARBON STEEL/MS
17	INTERNAL PIPING-WATER	2"NB UPTO 150 GLN. / 65 NB ABOVE 150 GLN.	SCH.40	1 NO.	CARBON STEEL/MS
18	SYPHON PIPE-FOAM	25NB UPTO 150 GLN. / 80 NB ABOVE 150 GLN.	SCH.10	1 NO.	STAINLESS STEEL
19	BLADDER BAG	20-4000 GLN.	-	1 NO.	REINFORCED PVC
20	ANGLE VALVE / BALL VALVE	15"25NB	-	1 NO.	STAINLESS STEEL
21	LEG SUPPORT	20-4000 GLN.	-	1 NO.	CARBON STEEL/MS
22	EARTH LUG	20-4000 GLN.	-	1 NO.	CARBON STEEL/MS
23	LADDER, SUPPORTS (OPTIONAL)	20-4000 GLN.	-	1 NO.	CARBON STEEL/MS
24	NOT USED	-	-	-	-
25	AIR RELEASE VALVE (OPTIONAL)	15"25NB	≥150# / PN16	1 NO.	STAINLESS STEEL

Note:

- x Height of ratio flow controller (proportioner) can vary as per client requirement.
- x Proportioner, valves & its associate piping, gauges etc. may be supplied separately (loose).
- x All Mentioned Stainless steel are of SS304 as standard materials.

Technical Data
1. Model: SFD-BT-XXXX-V
2. Capacity: 20 to 4000 Gallon
3. Design Code: ASME SEC.VIII DIV.1
4. Max. Working Pressure: 12.06 BAR (175 PSI)
5. Foam Proportioning Ratio : 3% to 3.9 %
6. Painting: Internal Coating - Primer Red Oxide or coal tar epoxy External Coating - RAL-3000

# TECHNICAL DATA SHEET

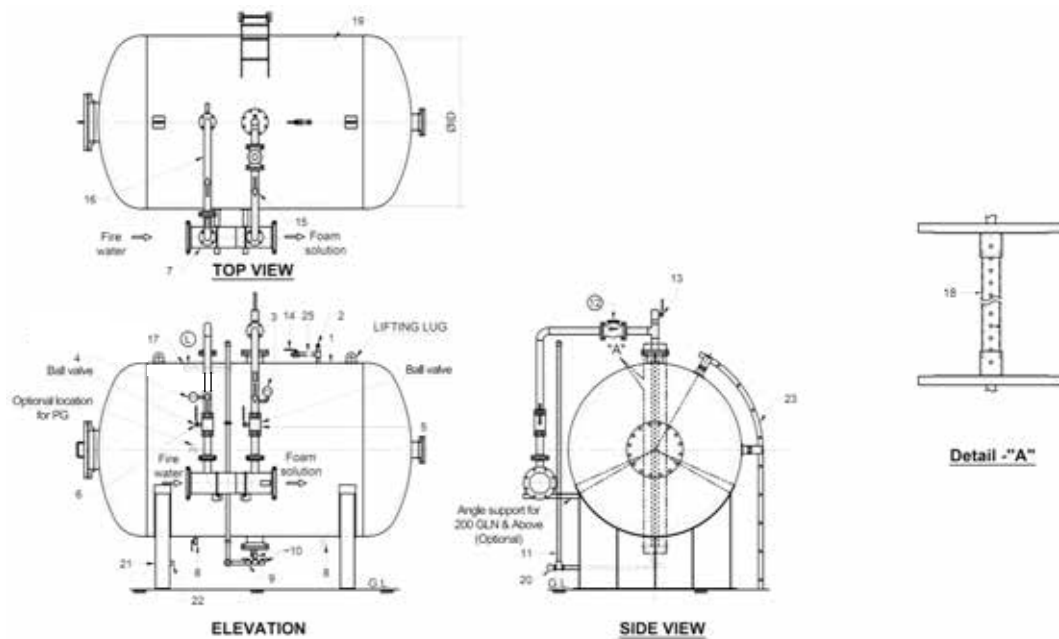
## FOAM BLADDER TANK



G.A. Drawing

Bladder Tank – Horizontal Mounting

Model series: SFD-BT-XXXX-H, where XXXX= Tank Capacity in gallon



### Material of Construction

SR. NO.	ITEM DESCRIPTION	SIZE	RATING	QTY.	MATERIAL OF CONSTRUCTION
1	FOAM VESSEL	20-4000 GLN.	175 PSI	1 NO.	CARBON STEEL (SA516 GR.70) OR EQUIVALENT
2	RELIEF VALVE	20NB, SCRD. OR ABOVE	175 PSI MINIMUM	1 NO.	STAINLESS STEEL
3	PRESSURE GAUGE - WATER	2NB, 0-20 BAR	3-20 BAR	1 NO.	STAINLESS STEEL
4	PRESSURE GAUGE - FOAM	2NB, 0-20 BAR	3-20 BAR	1 NO.	STAINLESS STEEL
5	FOAM SUPPLY VALVE	20/25/40NB	≥150# / PN16	1 NO.	STAINLESS STEEL
6	WATER CHARGING VALVE	20/25/40NB	≥150# / PN16	1 NO.	STAINLESS STEEL
7	FOAM PROPORTIONER	20/80/100NB	SCH.40	1 NO.	CARBON STEEL/MS
8	VESSEL DRAIN VALVE	25-65NB, SCRD. OR HIGHER	≥150# / PN16	1 NO. / 2 NO.	STAINLESS STEEL
9	LEVEL INDICATOR VALVE	SCRD.	≥150# / PN16	1 NO.	STAINLESS STEEL
10	FOAM CONCENTRATE FILL / DRAIN VALVE	25-65NB, SCRD.	≥150# / PN16	1 NO.	STAINLESS STEEL
11	LEVEL INDICATOR TUBE DR	15-25NB	-	1 NO.	CLEAR PLASTIC TUBE
	LEVEL INDICATOR GAUGE (OPTIONAL)	15-25NB	0-4000 mmWC (UPTO 200 GLN.) 0-6000 mmWC(ABOVE 200 GLN.)	-	STAINLESS STEEL
12	NON RETURN VALVE	20/25/40NB	≥150# / PN16	1 NO.	STAINLESS STEEL
13	BLADDER VENT VALVE	25-65NB	≥150# / PN16	1 NO.	STAINLESS STEEL
14	VESSEL VENT VALVE	25NB, SCRD.	≥150# / PN16	1 NO.	STAINLESS STEEL
15	FOAM PIPING	20/25/40NB	SCH.40	1 NO.	STAINLESS STEEL
16	WATER PIPING	20/25/40NB	SCH.40	1 NO.	CARBON STEEL/MS
17	INTERNAL PIPING-WATER	20NB UPTO 150 GLN. / 65 NB ABOVE 150 GLN.	SCH.40	1 NO.	CARBON STEEL/MS
18	SYPHON PIPE-FOAM	25NB UPTO 150 GLN. / 80 NB ABOVE 150 GLN.	SCH.30	1 NO.	STAINLESS STEEL
19	BLADDER BAG	20-4000 GLN.	-	1 NO.	REINFORCED PVC
20	ANGLE VALVE / BALL VALVE	15-25NB	-	1 NO.	STAINLESS STEEL
21	SADDLE SUPPORT	20-4000 GLN.	-	2 NO.	CARBON STEEL/MS
22	EARTH LUG	20-4000 GLN.	-	1 NO.	CARBON STEEL/MS
23	LADDER, SUPPORTS (OPTIONAL)	20-4000 GLN.	-	1 NO.	CARBON STEEL/MS
24	NOT USED	-	-	-	-
25	AIR RELEASE VALVE (OPTIONAL)	15-25NB	≥150# / PN16	1 NO.	STAINLESS STEEL

Note:

- x Height of ratio flow controller (proportioner) can vary as per client requirement.
- x Proportioner, valves & its associate piping, gauges etc. may be supplied separately (loose).
- x All Mentioned Stainless steel are of SS304 as standard materials.

Technical Data
1. Model: SFD-BT-XXXX-H
2. Capacity: 20 to 4000 Gallon
3. Design Code: ASME SEC.VIII DIV.1
4. Max. Working Pressure: 12.06 BAR (175 PSI)
5. Foam Proportioning Ratio : 3% to 3.9 %
6. Painting: Internal Coating – Primer Red Oxide or coal tar epoxy External Coating - RAL-3000

# TECHNICAL DATA SHEET

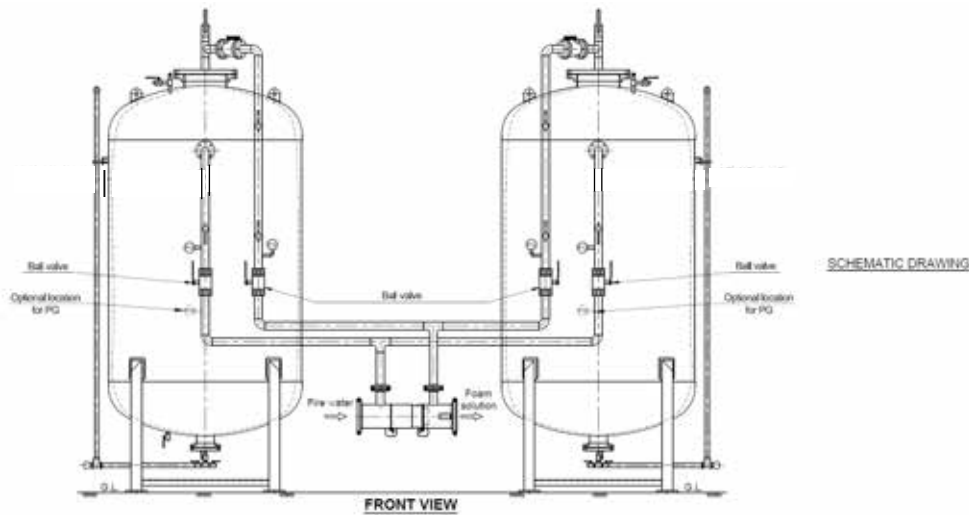
## FOAM BLADDER TANK



G.A. Drawing

Dual Bladder Tank – Vertical Mounting

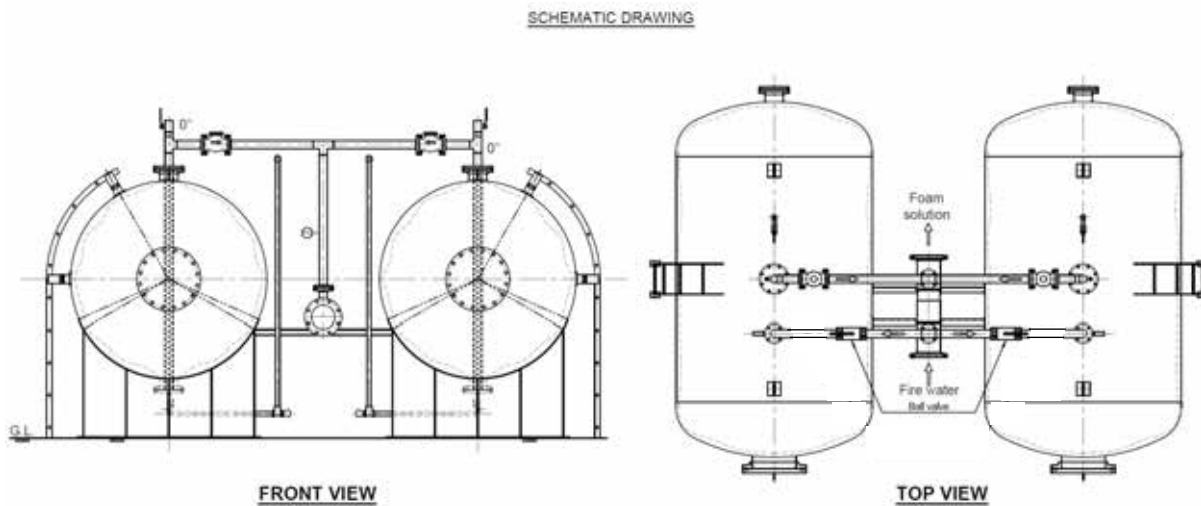
Model series: SFD-BT-XXXX-V-DT, where XXXX= Tank Capacity in gallon



- NOTE:-
1. FIRST BLADDER TANK IS THE OPERATING TANK AND THE SECOND ONE IS STANDBY RESERVE
  2. OTHER FEATURES & OPTIONS AS PER INDIVIDUAL BLADDER TANKS.
  3. PROPORTION CAN BE ON EITHER SIDE OF THE TANK.
  4. PROPORTION CAN BE IN ANY ORIENTATION TO SUIT THE SITE CONDITION.

Dual Bladder Tank – Horizontal Mounting

Model series: SFD-BT-XXXX-H-DT, where XXXX= Tank Capacity in gallon



- NOTE:-
1. FIRST BLADDER TANK IS THE OPERATING TANK AND THE SECOND ONE IS STANDBY RESERVE
  2. OTHER FEATURES & OPTIONS AS PER INDIVIDUAL BLADDER TANKS.
  3. PROPORTION CAN BE ON EITHER SIDE OF THE TANK.
  4. PROPORTION CAN BE IN ANY ORIENTATION TO SUIT THE SITE CONDITION.

# TECHNICAL DATA SHEET

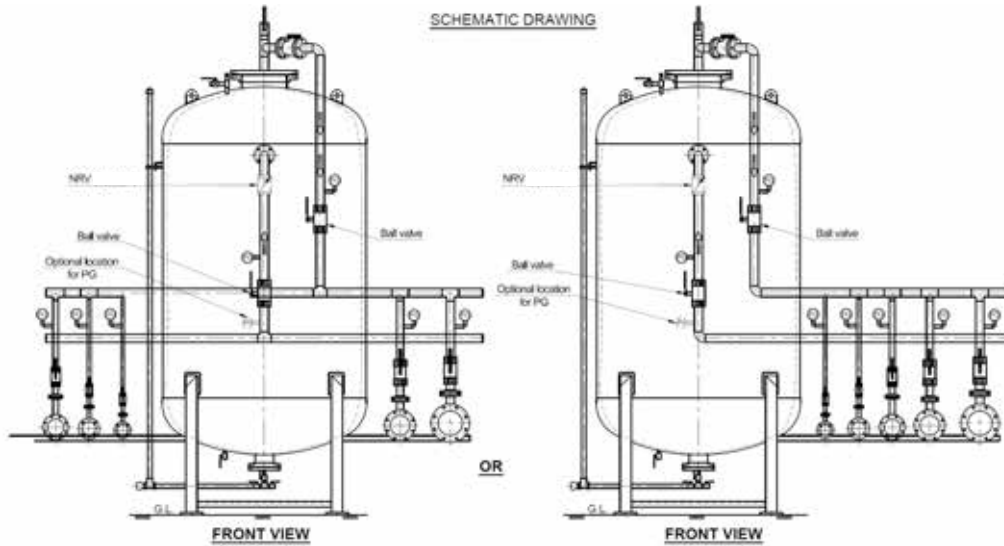
## FOAM BLADDER TANK



G.A. Drawing

Multi Connection Bladder Tank – Vertical Mounting

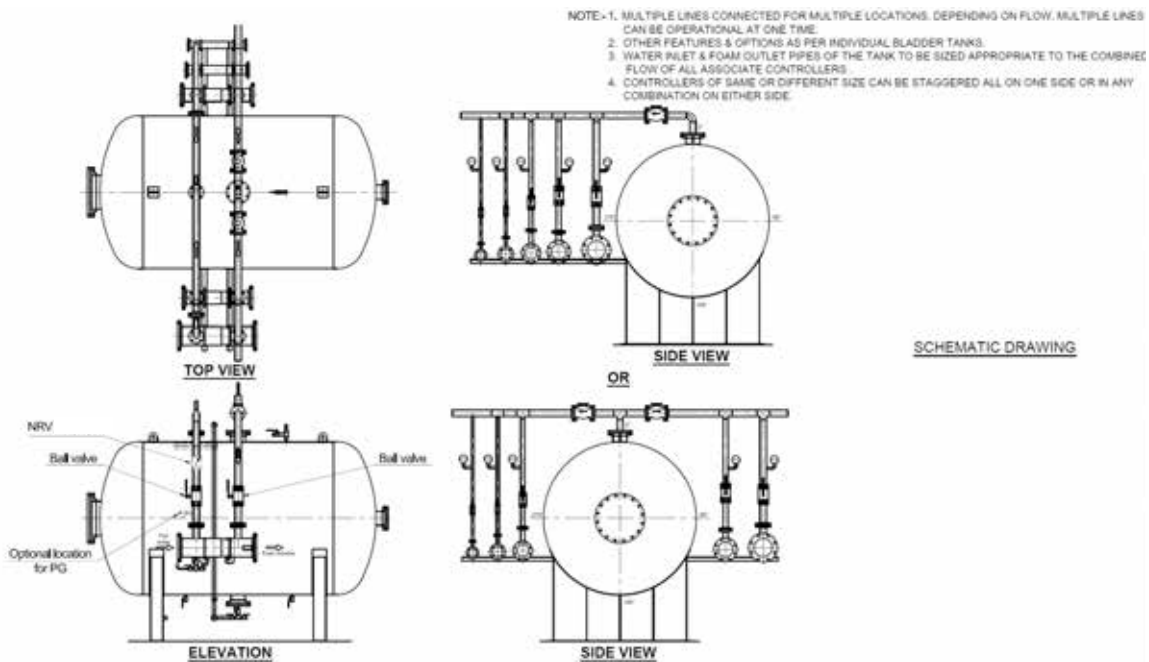
Model series: SFD-BT-XXXX-V-MP, where XXXX= Tank Capacity in gallon



- NOTE-1. MULTIPLE LINES CONNECTED FOR MULTIPLE LOCATIONS. DEPENDING ON FLOW, MULTIPLE LINES CAN BE OPERATIONAL AT ONE TIME.
2. OTHER FEATURES & OPTIONS AS PER INDIVIDUAL BLADDER TANKS.
3. WATER INLET & FOAM OUTLET PIPES OF THE TANK TO BE SIZED APPROPRIATE TO THE COMBINED FLOW OF ALL ASSOCIATE CONTROLLERS.
4. CONTROLLERS OF SAME OR DIFFERENT SIZE CAN BE STAGGERED ALL ON ONE SIDE OR IN ANY COMBINATION ON EITHER SIDE.

Multi Connection Bladder Tank – Horizontal Mounting

Model series: SFD-BT-XXXX-H-MP, where XXXX = Tank Capacity in gallon



# TECHNICAL DATA SHEET

## FOAM BLADDER TANK



Capacities: Vertical & Horizontal Mountings

Capacity Gallon	Capacity Liters	Foam Ratio Controller Size		
		50 NB	80NB	100NB
20	75.71	✓	✓	✓
50	189.27	✓	✓	✓
75	283.91	✓	✓	✓
100	378.54	✓	✓	✓
150	567.81	✓	✓	✓
200	757.08	✓	✓	✓
300	1135.62	✓	✓	✓
400	1514.16	✓	✓	✓
500	1892.71	✓	✓	✓
600	2271.25	✓	✓	✓
700	2649.79	✓	✓	✓
800	3028.33	✓	✓	✓
900	3406.87	✓	✓	✓
1000	3785.41	✓	✓	✓
1100	4163.95	✓	✓	✓
1200	4542.49	✓	✓	✓
1300	4921.04	✓	✓	✓
1400	5299.58	✓	✓	✓
1500	5678.12	✓	✓	✓
1600	6056.66	✓	✓	✓
1700	6435.20	✓	✓	✓
1800	6813.74	✓	✓	✓
1900	7192.28	✓	✓	✓
2000	7570.82	✓	✓	✓
2100	7949.37	✓	✓	✓
2200	8327.91	✓	✓	✓
2300	8706.45	✓	✓	✓
2400	9084.99	✓	✓	✓
2500	9463.53	✓	✓	✓
2600	9842.07	✓	✓	✓
2700	10220.61	✓	✓	✓
2800	10599.15	✓	✓	✓
2900	10977.69	✓	✓	✓
3000	11356.24	✓	✓	✓
3100	11734.78	✓	✓	✓
3200	12113.32	✓	✓	✓
3300	12491.86	✓	✓	✓
3400	12870.40	✓	✓	✓
3500	13248.94	✓	✓	✓
3600	13627.48	✓	✓	✓
3700	14006.02	✓	✓	✓
3800	14384.57	✓	✓	✓
3900	14763.11	✓	✓	✓
4000	15141.65	✓	✓	✓

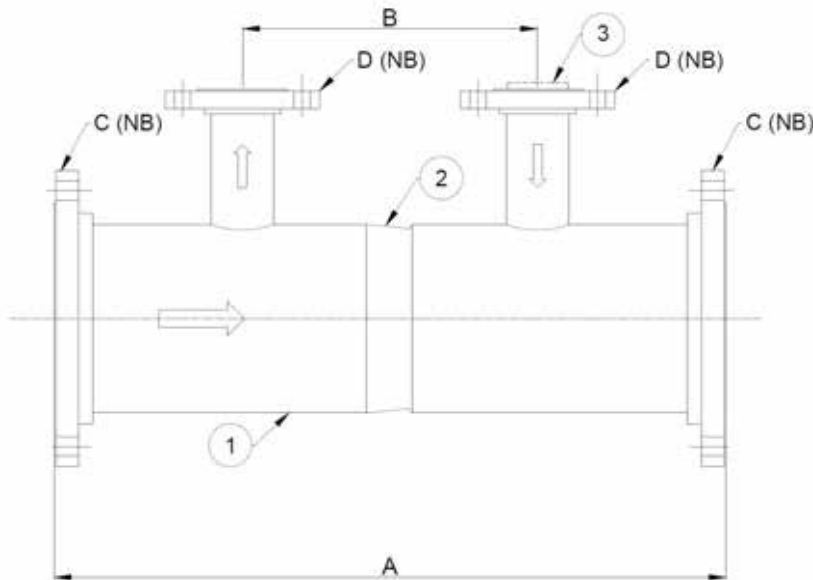
Note: Intermediate capacities / sizes can be made as per client's requirement.

# TECHNICAL DATA SHEET

## FOAM BLADDER TANK



Foam Ratio Controller



### Material of Construction

Sr. no.	Description	Material
1	Body	Carbon steel / MS
2	Water Nozzle	Carbon steel / MS
3	Foam Orifice	Stainless Steel

Technical Data
1. Model: SFD-BTRC-2, SFD-BTRC-3, SFD-BTRC-4
2. Approval: UL listed with AFFF3%C6 & AR-AFFF3x3%C6
3. Max. Working Pressure: 12.06 BAR (175 PSI)
4. Foam Proportioning Ratio : 3% to 3.9 %
5. Flange Drilling : As per ANSI B16.5 class 150 SORF
6. Painting: Internal Coating – Primer Red Oxide or coal tar epoxy External Coating - RAL-3000

### Performance & Dimensional Data

Sr. no.	Model	Nominal Flow range in GPM for AFFF3%C6	Nominal Flow range in GPM for AR-AFFF3x3%C6	A mm	B mm	C (NB) inch	D (NB) inch
1	SFD-BTRC-2	70-372	125-200	670	345	2"	¾"
2	SFD BTRC-3	153-905	245-1065	670	345	3"	1"
3	SFD BTRC-4	293-1501	354-1765	670	345	4"	1-1/2"

### Note:

- x All dimensions are in mm, unless specified
- x Flow range are nominal flow range.
- x For friction loss data, refer equivalent length mentioned on UL online listing page.

# TECHNICAL DATA SHEET

## FOAM BLADDER TANK



### Ordering Information:

- x Model number
- x Capacity in gallon
- x Model/Size of proportioner
- x no. of proportioners with its respective sizes in case of Multiple proportioner tank and no. of proportioner per side (left or right)
- x Type of Foam concentrate to be used
- x Optional accessories / features required if any
- x Flow direction: Left to right or Right to left

### Note:

- x SFFECO pre-piped bladder tanks can be customized to accommodate a variety of special requirements, including but not limited to ladders, alternate materials of construction, capacities, NRV, Air release valves, Hydraulic concentrate control valves etc. can be provided upon request, please contact SFFECO.