

PRE-PIPED VERTICAL & HORIZONTAL BLADDER TANK



DESCRIPTION

The NAFFCO Pre-piped Bladder tank is an integral component of balanced pressure proportioning system. Its operation requires no external power other than a pressurized water system. NAFFCO bladder tank, with an appropriate proportioner, injects foam concentrate into the water supply of a fire protection system and automatically proportions at wide range of flows and pressures.

NAFFCO Pre-piped Foam bladder tank is a steel pressure vessel fitted with an Internal Elastomeric bladder that

stores foam concentrate. During operation, the concentrate is discharged by incoming water pressure to the bladder tank until the concentrate is depleted. The bladder tank discharges foam concentrate at approximately the same pressure as the water supplied at the water inlet connection to the tank. Since the bladder tank is pressurized, the bladder should not be refilled during operation.

APPLICATIONS

The NAFFCO Pre-piped Bladder tank is a complete balanced pressure proportioning system frequently used in;



Aircraft Hangars



Loading Racks



Sprinkler Systems



Offshore Platforms

FEATURES

•UL listed

- Pre-piped bladder tank offers the foam system designer fixed dimensions and eliminates uncertainty during sizing of foam equipment room and piping layout.
- Pre-fabricated foam bladder proportioning system eliminates loose components and simplifies the installation.
- Bladder is manufactured of a vinyl based polymer as per ASTM D-412 with a Tensile strength of at least 3000psi and ASTM D-624 with tear strength of at least 420lbs/in.
- Tanks are supplied with Brass trim valves and Teflon seats.
- All valves are labeled with working position and function.
- Permanently welded lifting lugs for easy tank movement and positioning.
- Designed for Maximum agent discharge
- Tanks are oversized to allow thermal expansion of foam concentrate if any
- Tanks are supplied with label identifying foam concentrate type, percentage ratio and tank size
- Tanks are Externally RED enamel coated and Internally Coal tar Epoxy coated.

TECHNICAL SPECIFICATIONS

NAFFCO Foam bladder tank system is a complete self-contained proportioning system consisting of a bladder tank, ratio controller, and assembled piping. The bladder tank shall be constructed in accordance to ASME code Section VIII, for unfired pressure vessels with a working pressure of 175psi (12bar) and tested to at least 228psi (15.7bar).

The tanks are fabricated to nominal capacity and overall dimensions are indicated in corresponding data sheet. The tank shall be constructed of steel complying with ASME code having a Tensile strength of not less than 70,000psi (4827bar). The tank contain a flexible bladder manufactured of vinyl based polymer as per ASTM D-412 with a Tensile strength of at least 3000psi and ASTM D-624 with tear strength of at least 420lbs/in.

The bladder material is tested by Underwriter's Laboratory for compatibility with the agent to be used. This Bladder separates the foam concentrate from the incoming water. The tank can be supplied in Horizontal and Vertical configuration and shall be mounted on permanently attached saddle supports with holes for mounting bolts.

The tank shall has perforated PVC schedule 80 center discharge piping, located within the bladder, to ensure that foam concentrate flows to the bottom discharge. A section of 1-inch I.D. rubber hose installed between the bladder and tank shell, shall extend from the water vent to the water drain connection, preventing bladder obstruction at these openings.

The ratio controller (RC) is a flanged style for mounting in Schedule 40 pipe between two 150 # flat or raised flanges of the same nominal size as the RC. The RC is cast bronze or Stainless Steel and shall be rated for a Working pressure of 175psi (12 bar). A 1/4" (6.35 mm) female NPT port for sensing water pressure at the inlet to the ratio controller water orifice shall be incorporated into the casting. Each ratio Controller is automatically proportions over the range indicated on flow range chart without any manual adjustment. The foam concentrate inlet shall



contains a calculated foam concentrate metering orifice allowing for proper proportioning. The ratio controller is pre-piped to the bladder tank.

All external piping shall be Schedule 40, and is St. Steel for foam concentrate and Carbon steel for water. Brass or bronze ball valves is supplied, and is complete with identification labels on the handles. Tank includes all necessary drain and vent valves, pressure relief valve, and tank content/identification labels. External surfaces of tank and piping are coated with RED Enamel finish.

MATERIALS OF CONSTRUCTION

Tank	Carbon steel, ASME code
Bladder	Vinyl based polymer
Internal Piping	Perforated PVC, Sch. 80
External Piping	
Water Side	Carbon Steel, Sch.40
Foam Concentrate Side	Stainless steel, Sch. 40
Valves	Ball valve type Brass body, and S. Steel or brass chrome plated brass ball

HORIZONTAL FOAM BLADDER TANK

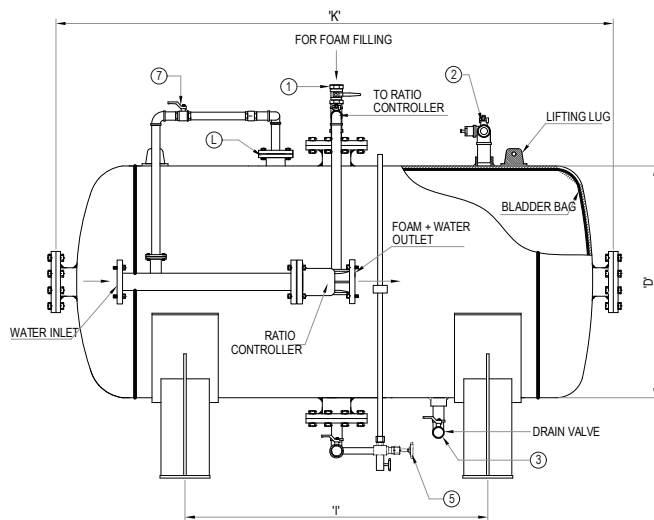
TECHNICAL DATA

Tank Mounting Type		Horizontal
Concentrate Storage Capacity		50 - 3200 Gln.
Foam Concentrate Type		AFFF,3%, NAFFCO
Max. Working Pressure		12.09 Bar (175 Psi)
Factory Test Pressure		15.69 Bar (227 Psi)
Pressure Vessel Construction		Carbon Steel, SA 516 Gr. 70
Pressure Relief Valve (Optional)		Brass Construction with Set Pressure @15 Bar
Bladder		Vinyl based polymer
Size of Ratio Controller		3", 4"& 6"
Foam Concentrate Proportioning Orifice		3%
Ratio Flow Controller Size and Flow Rate		Size Flow Rate @ 7Bar
		80 NB 270-3000 LPM
		100 NB 650-5700 LPM
		150 NB 1200-9500 LPM
Standard Piping Material For Prepiped Tanks		
Foam Concentrate Lines		Stainless Steel,316L
Water Pressurization Lines		Carbon Steel,Sch 40
Vent/Drain/Nrv Valves		Brass/Bronze
Sight Glass Valve		Sight Guage With Shut Off & Drain Valve
Painting*	External	Zinc rich primer with red enamel finish
	Internal	Zinc rich primer with coal tar epoxy paint

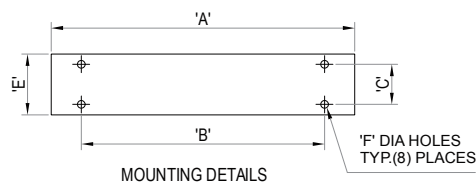
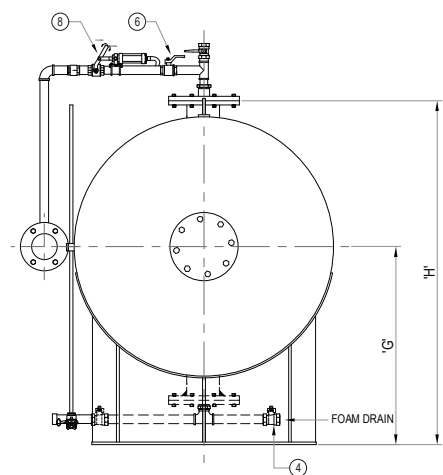
*Optional painting available for marine applications.



VALVE TYPE AND POSITION		
Valve no.	Description	Normal Position
1	Concentrate vent / fill	Closed
2	Tank water vent	Closed
3	Water drain / fill	Closed
4	Concentrate drain / fill	Closed
5	Sight glass valve	Closed
6	Concentrate outlet	Open
7	Water inlet	Open
8	Water powered ball valve(optional)	---



DIAGRAM



MOUNTING DETAILS

DIMENSIONAL DATA

BLADDER TANK CAPACITY (GAL)	A	B	C	D (OUTER DIA)	E	F	G	H	I	J INLET FLANGE TO TANK	K
50	468	378	80	524	170	26	559	921	661	3"	1751
100	556	466	80	626	170	26	616	1029	708	3"	1928
150	688	598	80	778	170	26	692	1181	654	3"	1950
200	688	598	80	778	170	26	692	1181	1064	3"	2560
300	819	729	80	930	170	26	760	1325	1054	3"	2619
400	959	785	140	1083	250	26	848	1490	1042	3"	2691
500	959	785	140	1083	250	26	851	1493	1246	3"	2894
600	959	785	140	1083	250	26	851	1493	1652	3"	3300
700	1095	875	140	1239	250	26	1025	1745	1459	3"	3088
800	1095	875	140	1239	250	26	1025	1745	1639	3"	3368
900	1095	875	140	1239	250	26	1024	1744	2071	3"	3800
1000	1095	875	140	1239	250	26	1018	1738	2503	3"	4232
1100	1095	875	140	1239	250	26	1025	1745	2808	3"	4537
1200	1370	1150	140	1548	250	26	1168	2042	1398	3"	3183
1300	1370	1150	140	1548	250	26	1168	2042	1448	3"	3333
1400	1370	1150	140	1548	250	26	1168	2042	1868	3"	3757
1500	1370	1150	140	1548	250	26	1168	2042	2173	3"	4062
1600	1640	1380	140	1863	250	26	1321	2353	1137	3"	3080
1800	1640	1380	140	1863	250	26	1321	2353	1442	3"	3385
2000	1640	1380	140	1863	250	26	1321	2353	1647	3"	3690
2200	1640	1380	140	1863	250	26	1321	2353	1952	3"	3995
2400	1640	1380	140	1863	250	26	1321	2353	2256	3"	4299
2600	1640	1380	140	1863	250	26	1321	2353	2561	3"	4604
2800	1640	1380	140	1863	250	26	1321	2353	2866	3"	4909
3000	1640	1380	140	1863	250	26	1321	2353	3170	3"	5213
3200	1640	1380	140	1863	250	26	1321	2353	3476	3"	5519

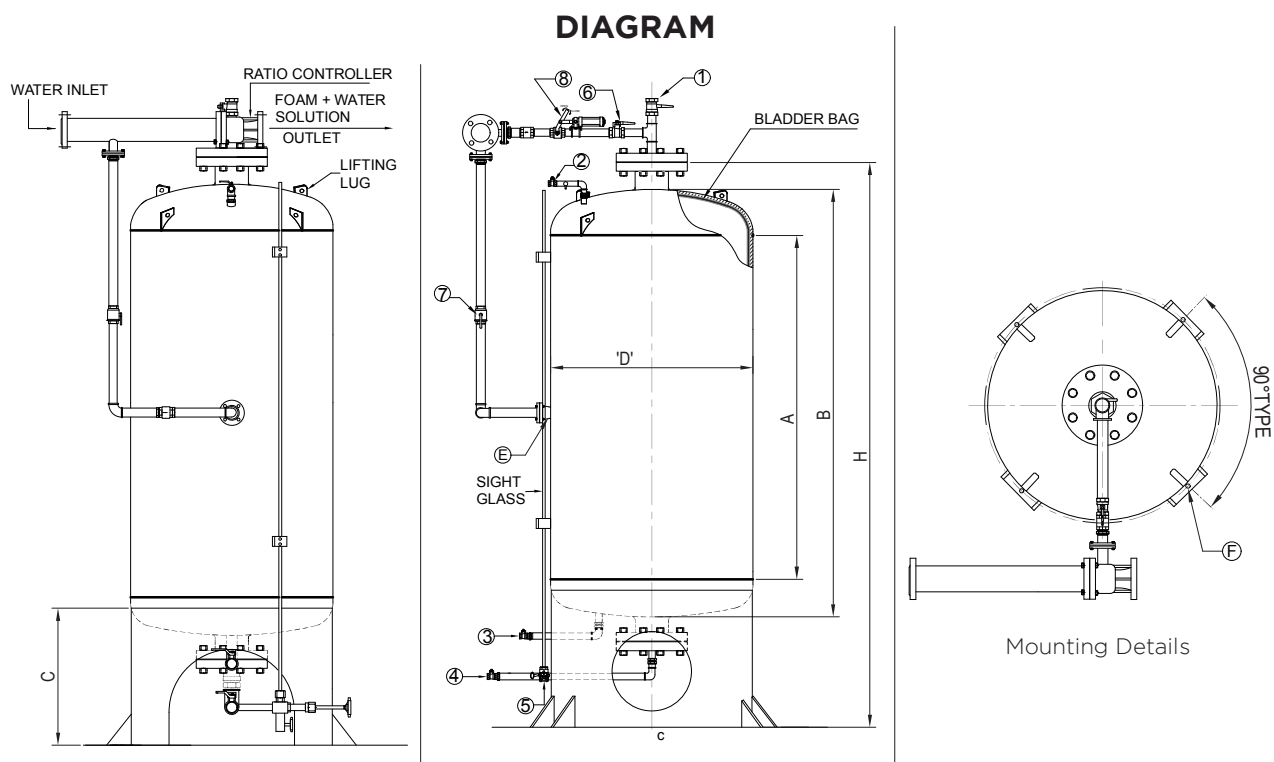
VERTICAL FOAM BLADDER TANK

TECHNICAL DATA

Tank Mounting Type		Vertical
Concentrate Storage Capacity		50 - 1200 Gln.
Foam Concentrate Type		AFFF, 3%, NAFFCO
Max. Working Pressure		12.09 Bar (175 Psi)
Factory Test Pressure		15.69 Bar (227 Psi)
Pressure Vessel Construction		Carbon Steel, Sa 516 Gr. 70
Pressure Relief Valve (Optional)		Brass Construction with Set Ppressure @15 Bar
Bladder		Vinyl based polymer
Size of Ratio Controller		3", 4" & 6"
Foam Concentrate Propotioning Orifice		3%
Ratio Flow Controller Size and Flow Rate	Size	Flow Rate @ 7Bar
	80 NB	270-3000 LPM
	100 NB	650-5700 LPM
	150 NB	1200-9500 LPM
Standard Piping Material For Prepped Tanks		
Foam Concentrate Lines		Stainless Steel,316L
Water Pressurization Lines		Carbon Steel,SCH 40
Vent/Drain/Nrv Valves		Brass/Bronze
Sight Glass Valve		Sight Guage With Shut Off & Drain Valve
Painting*	External	Zinc rich primer with red enamel finish
	Internal	Zinc rich primer with coal tar epoxy paint

*Optional painting available for sea water applications.





DIMENSIONAL DATA

SL No.	BLADDER TANK CAPACITY	A	B	C	D	E (INLET FLANGE) TO TANK	F	H
1	50 GALLON	900	1276	420	536	3"	Ø19 HOLE 4Nos. ON PCD 690	1665
2	100 GALLON	1143	1571	480	640	3"	Ø19 HOLE 4Nos. ON PCD 770	1985
3	150 GALLON	1200	1728	510	840	3"	Ø19 HOLE 4Nos. ON PCD 980	2135
4	200 GALLON	1200	1728	510	840	3"	Ø19 HOLE 4Nos. ON PCD 980	2135
5	300 GALLON	1160	1788	565	1040	3"	Ø19 HOLE 4Nos. ON PCD 1190	2226
6	400 GALLON	1400	2050	575	1083	3"	Ø19 HOLE 4Nos. ON PCD 1253	2475
7	500 GALLON	1865	2515	575	1083	3"	Ø19 HOLE 4Nos. ON PCD 1253	2940
8	600 GALLON	1650	2380	700	1239	3"	Ø19 HOLE 4Nos. ON PCD 1390	2910
9	700 GALLON	1900	2630	700	1239	3"	Ø19 HOLE 4Nos. ON PCD 1390	3160
10	800 GALLON	2200	2930	700	1239	3"	Ø19 HOLE 4Nos. ON PCD 1390	3460
11	900 GALLON	1338	2258	940	1620	3"	Ø19 HOLE 4Nos. ON PCD 1750	2930
12	1000 GALLON	1428	2348	940	1620	3"	Ø19 HOLE 4Nos. ON PCD 1750	3020
13	1100 GALLON	1578	2498	940	1620	3"	Ø19 HOLE 4Nos. ON PCD 1750	3170
14	1200 GALLON	1910	2830	940	1620	3"	Ø19 HOLE 4Nos. ON PCD 1750	3502

ABOVE GROUND STORAGE TANK

NAFFCO's Above Ground Storage Tank is designed for performance, durability, and reliability. The lightweight NAFFCO tank is performance engineered for safety and long service life. It is UL listed (manufacturing accordance UL 142) and has easily passed all tests for 100% primary containment.

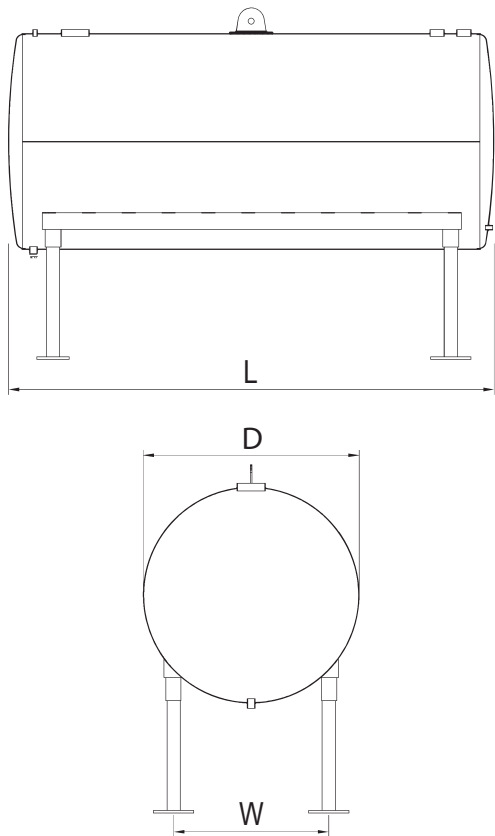
These tanks are intended for installation and use in accordance with the flammable and combustible liquids code NFPA 30.

The basic features of primary containment tanks covered under this category include all containment spaces and their respective openings (vents, liquid fill/withdraw, level indicator, drain and other functional openings) with connection threaded fittings.

All tank-containment compartments have been factory leak-tested by the NAFFCO before shipping.



DIAGRAM



TANK DIMENSION			
Tank Capacity (Gallon)	Diameter (D)	Length (L)	Width (W)
70	600	1050	430
150	800	1250	575
250	1000	1325	720
310	1070	1450	768.5

BILL OF MATERIALS	
Description	Material
Shell	ASTM A36
Leg	ASTM A53
Lift Lug	ASTM A36
Liquid Level Indicator	---