

CHEMGUARD Vertical Pre-Piped Bladder Tanks with Proportioner

Application

The CHEMGUARD Pre-Piped Bladder Tank is a complete balanced pressure proportioning system. A pre-piped bladder tank offers the foam system designer fixed dimensions inclusive of the proportioner/ratio controller. This takes away some of the uncertainty when sizing the foam equipment room and piping layout. Plus, the installer has the advantage of a pre-fabricated foam system, eliminating loose components and simplifying the installation. Its operation requires no external power other than a pressurized water system. The bladder tank may be used with any CHEMGUARD foam agent and with any suitable discharge device.

CHEMGUARD bladder tanks have numerous applications including truck loading racks, aircraft hangars, dip tanks, pump rooms, helipads, etc.

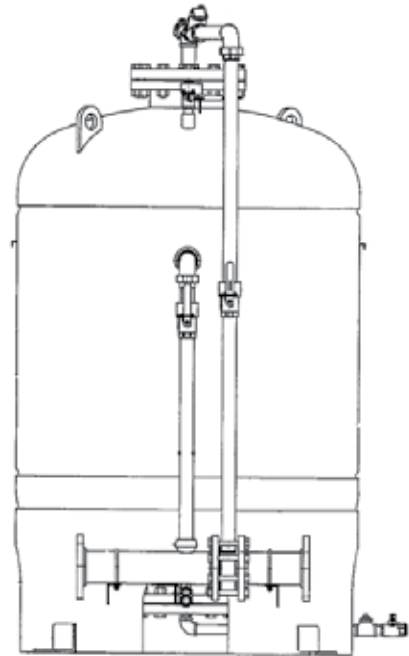
Description

The CHEMGUARD Pre-Piped Bladder Tank is a steel pressure vessel which stores a foam concentrate contained within an elastomeric bladder. The concentrate is discharged from the tank by incoming water applying pressure to the bladder. This applied energy is transferred to the concentrate, supplying pressurized concentrate to the proportioner. All tank models feature perforated center tubes which allow improved agent discharge.

CHEMGUARD bladder tanks are available in a variety of nominal capacities as listed in the tank information table. Pre-piped models listed in this data sheet are for use in manually operated systems. For automatically operated systems, please contact Tyco Fire Protection Products Technical Services.

Features incorporated into the CHEMGUARD pre-piped bladder tanks include the following:

- Water pressurized bladder construction, alleviating the requirement for foam pumps or other energy sources
- Valves that are pinned in the normal operative positions and are supplied with nameplates identifying their functions and operating instructions
- Proportioner and piping supported from the side of tank – no need for additional bracing
- Corrosion-resistant (CR) foam concentrate piping
- Exterior tank surfaces finished with a red “CR” epoxy finish for use in marine or corrosive environments
- Tanks with a high-build epoxy coated interior for use with both fresh and salt water



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Approvals

CHEMGUARD bladder tanks and proportioners are Underwriters Laboratories (UL) listed with various CHEMGUARD foam concentrates and bear the “UL” label along with an American Society of Mechanical Engineers (ASME) code stamp.

Standard bladder tanks 200 gallons (757 L) and larger are CE marked in conformance with the European Pressure Equipment Directive. Tanks less than 200 gallons (757 L) are acceptable based on sound engineering practices of ASME code.

Specifications

The CHEMGUARD vertical bladder tanks shall be designed and constructed in accordance with the latest revisions to ASME code, Section VIII for unfired pressure vessels with a maximum allowable working pressure (MAWP) of 175 psi (12.1 bar) and tested to the pressure specified by the applicable codes and standards. Tanks shall be pressure tested per the design pressure and all applicable codes and standards. ASME tanks shall be tested to no less than 230 psi (15.9 bar). CE Marked tanks shall be tested to no less than 255 psi (17.6 bar). The tank shall be of (specify) gallon nominal capacity and overall dimensions as indicated in the appropriate diagram and corresponding information table. The tank shall be constructed of steel complying to ASME specifications possessing a tensile strength of not less than 70,000 psi (4,827 bar).

The tank heads shall be 2-to-1 ellipsoid to ensure strength while reducing overall tank weight.

Vertical Pre-Piped Bladder Tanks

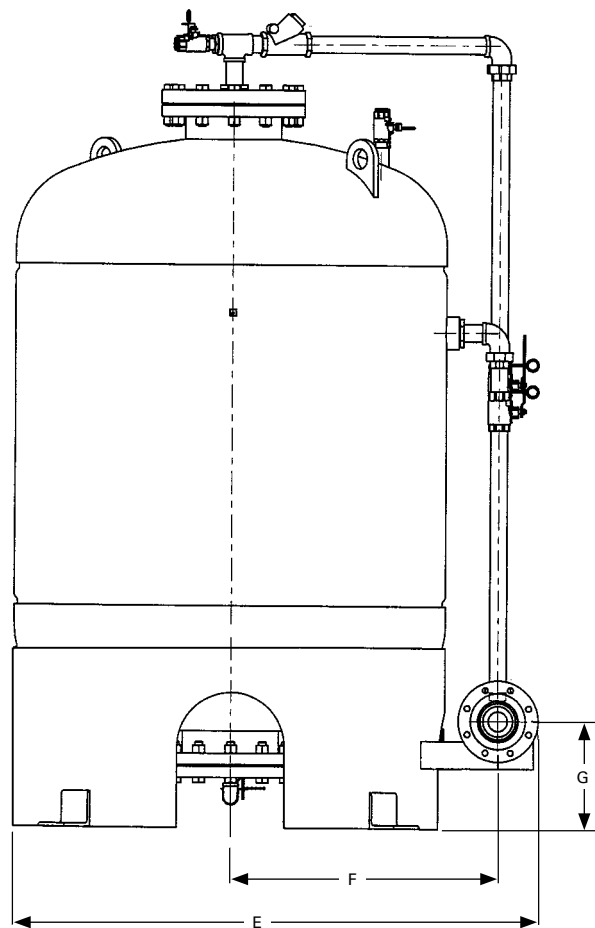
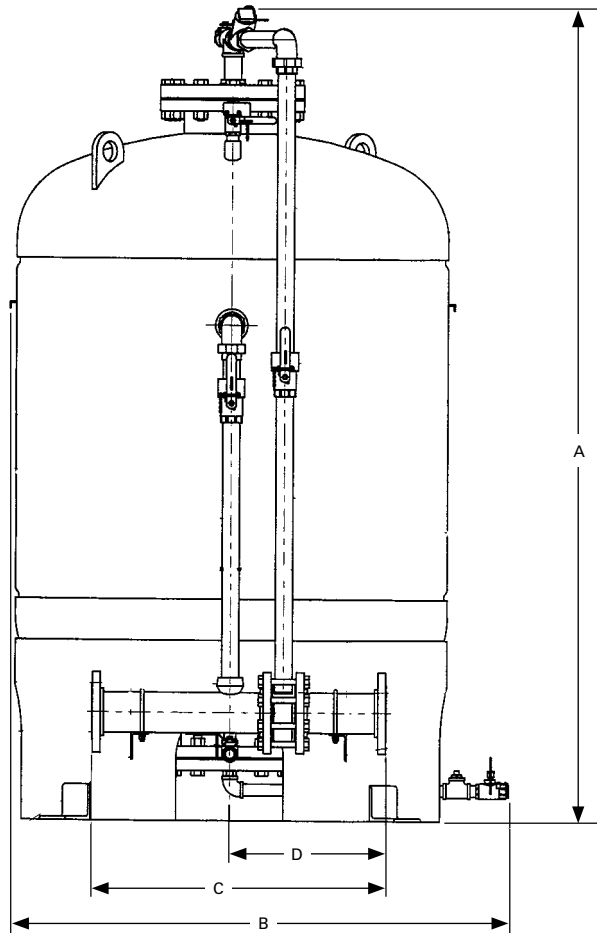
Note: Dimensions rounded to nearest inch.

Part No.	Tank Size		Proportioner Size	Tank Diameter		Dimensions										Weight					
	gal	(L)		in.	(m)	A	B*	C	D	E	F	G	lb	(kg)							
700034	50	(189)	2	24	(0.61)	57	(1.45)	31	(0.79)	24	(0.61)	18	(0.46)	34	(0.86)	18	(0.46)	11	(0.28)	510	(231)
700035	100	(379)	2	24	(0.61)	84	(2.13)	31	(0.79)	24	(0.61)	18	(0.46)	34	(0.86)	18	(0.46)	11	(0.28)	740	(336)
700036	50	(189)	2 1/2	24	(0.61)	57	(1.45)	31	(0.79)	23	(0.58)	16	(0.41)	34	(0.86)	18	(0.46)	10	(0.25)	515	(234)
700037	100	(379)	2 1/2	24	(0.61)	84	(2.13)	31	(0.79)	23	(0.58)	16	(0.41)	34	(0.86)	18	(0.46)	10	(0.25)	745	(338)
700038	100	(379)	3	24	(0.61)	85	(2.16)	31	(0.79)	28	(0.71)	16	(0.41)	34	(0.86)	18	(0.46)	12	(0.30)	750	(340)
700039	150	(568)	3	30	(0.76)	85	(2.16)	37	(0.94)	28	(0.71)	16	(0.41)	40	(1.02)	21	(0.53)	12	(0.30)	1030	(467)
700040	200	(757)	3	30	(0.76)	103	(2.62)	37	(0.94)	28	(0.71)	16	(0.41)	40	(1.02)	21	(0.53)	12	(0.30)	1040	(608)
700041	150	(568)	4	30	(0.76)	87	(2.21)	37	(0.94)	33	(0.84)	17	(0.43)	42	(1.07)	22	(0.56)	12	(0.30)	1350	(476)
700042	200	(757)	4	30	(0.76)	105	(2.67)	37	(0.94)	33	(0.84)	17	(0.43)	42	(1.07)	22	(0.56)	12	(0.30)	1340	(608)
700043	200	(757)	6	30	(0.76)	104	(2.64)	37	(0.94)	48	(1.22)	24	(0.61)	45	(1.14)	24	(0.61)	15	(0.38)	1360	(617)
700044	300	(1136)	3	36	(0.91)	106	(2.69)	43	(1.09)	48	(1.22)	16	(0.41)	46	(1.17)	24	(0.61)	12	(0.30)	1620	(726)
700045	300	(1136)	4	36	(0.91)	109	(2.77)	43	(1.09)	33	(0.84)	17	(0.43)	47	(1.19)	24	(0.61)	12	(0.30)	1620	(735)
700046	300	(1136)	6	36	(0.91)	107	(2.72)	49	(1.24)	48	(1.22)	24	(0.61)	48	(1.22)	24	(0.61)	15	(0.38)	1660	(753)
700047	400	(1514)	4	48	(1.22)	90	(2.29)	55	(1.40)	33	(0.84)	17	(0.43)	59	(1.50)	30	(0.76)	12	(0.30)	1870	(848)
700048	500	(1893)	4	48	(1.22)	103	(2.62)	55	(1.40)	33	(0.84)	17	(0.43)	59	(1.50)	30	(0.76)	12	(0.30)	2220	(1007)
700049	600	(2271)	4	48	(1.22)	116	(2.95)	55	(1.40)	33	(0.84)	17	(0.43)	59	(1.50)	30	(0.76)	12	(0.30)	2640	(1198)
700050	700	(2650)	4	48	(1.22)	130	(3.30)	55	(1.40)	33	(0.84)	17	(0.43)	59	(1.50)	30	(0.76)	12	(0.30)	2905	(1318)
700051	800	(3028)	4	48	(1.22)	144	(3.66)	55	(1.40)	33	(0.84)	17	(0.43)	59	(1.50)	30	(0.76)	12	(0.30)	3170	(1438)
700052	900	(3407)	4	48	(1.22)	158	(4.01)	55	(1.40)	33	(0.84)	17	(0.43)	59	(1.50)	30	(0.76)	12	(0.30)	3470	(1574)
700053	1000	(3785)	4	48	(1.22)	172	(4.37)	55	(1.40)	33	(0.84)	17	(0.43)	59	(1.50)	30	(0.76)	12	(0.30)	3670	(1665)
700354	400	(1514)	6	48	(1.22)	89	(2.26)	55	(1.40)	48	(1.22)	24	(0.61)	62	(1.57)	32	(0.81)	12	(0.30)	1910	(866)
700355	500	(1893)	6	48	(1.22)	102	(2.59)	55	(1.40)	48	(1.22)	24	(0.61)	62	(1.57)	32	(0.81)	12	(0.30)	2260	(1025)
700356	600	(2271)	6	48	(1.22)	115	(2.92)	55	(1.40)	48	(1.22)	24	(0.61)	62	(1.57)	32	(0.81)	12	(0.30)	2680	(1216)
700357	700	(2650)	6	48	(1.22)	129	(3.28)	55	(1.40)	48	(1.22)	24	(0.61)	62	(1.57)	32	(0.81)	12	(0.30)	2945	(1336)
700358	800	(3028)	6	48	(1.22)	143	(3.63)	55	(1.40)	48	(1.22)	24	(0.61)	62	(1.57)	32	(0.81)	12	(0.30)	3210	(1456)
700359	900	(3407)	6	48	(1.22)	157	(3.99)	55	(1.40)	48	(1.22)	24	(0.61)	62	(1.57)	32	(0.81)	12	(0.30)	3510	(1592)
700360	1000	(3785)	6	48	(1.22)	171	(4.34)	55	(1.40)	48	(1.22)	24	(0.61)	62	(1.57)	32	(0.81)	12	(0.30)	3710	(1683)
700061	400	(1514)	8	48	(1.22)	89	(2.26)	55	(1.40)	64	(1.63)	31	(0.79)	63	(1.60)	32	(0.81)	15	(0.38)	1925	(873)
700062	500	(1893)	8	48	(1.22)	102	(2.59)	55	(1.40)	64	(1.63)	31	(0.79)	63	(1.60)	32	(0.81)	15	(0.38)	2275	(1032)
700063	600	(2271)	8	48	(1.22)	115	(2.92)	55	(1.40)	64	(1.63)	31	(0.79)	63	(1.60)	32	(0.81)	15	(0.38)	2695	(1223)
700064	700	(2650)	8	48	(1.22)	129	(3.28)	55	(1.40)	64	(1.63)	31	(0.79)	63	(1.60)	32	(0.81)	15	(0.38)	2960	(1343)
700065	800	(3028)	8	48	(1.22)	143	(3.63)	55	(1.40)	64	(1.63)	31	(0.79)	63	(1.60)	32	(0.81)	15	(0.38)	3225	(1463)
700066	900	(3407)	8	48	(1.22)	157	(3.99)	55	(1.40)	64	(1.63)	31	(0.79)	63	(1.60)	32	(0.81)	15	(0.38)	3525	(1599)
700067	1000	(3785)	8	48	(1.22)	171	(4.34)	55	(1.40)	64	(1.63)	31	(0.79)	63	(1.60)	32	(0.81)	15	(0.38)	3725	(1690)
700068	1100	(4164)	4	60	(1.52)	141	(3.58)	67	(1.70)	33	(0.84)	17	(0.43)	71	(1.80)	36	(0.91)	18	(0.46)	3820	(1733)
700069	1200	(4542)	4	60	(1.52)	150	(3.81)	67	(1.70)	33	(0.84)	17	(0.43)	71	(1.80)	36	(0.91)	18	(0.46)	4020	(1824)
700070	1300	(4921)	4	60	(1.52)	159	(4.04)	67	(1.70)	33	(0.84)	17	(0.43)	71	(1.80)	36	(0.91)	18	(0.46)	4210	(1910)
700071	1400	(6300)	4	60	(1.52)	168	(4.27)	67	(1.70)	33	(0.84)	17	(0.43)	71	(1.80)	36	(0.91)	18	(0.46)	4420	(2005)
700072	1500	(5678)	4	60	(1.52)	168	(4.27)	67	(1.70)	33	(0.84)	17	(0.43)	71	(1.80)	36	(0.91)	18	(0.46)	4600	(2087)
700073	1100	(4164)	6	60	(1.52)	140	(3.56)	67	(1.70)	48	(1.22)	24	(0.61)	74	(1.88)	38	(0.97)	18	(0.46)	3860	(1751)
700074	1200	(4542)	6	60	(1.52)	149	(3.78)	67	(1.70)	48	(1.22)	24	(0.61)	74	(1.88)	38	(0.97)	18	(0.46)	4060	(1842)
700075	1300	(4921)	6	60	(1.52)	158	(4.01)	67	(1.70)	48	(1.22)	24	(0.61)	74	(1.88)	38	(0.97)	18	(0.46)	4250	(1928)
700076	1400	(5300)	6	60	(1.52)	167	(4.24)	67	(1.70)	48	(1.22)	24	(0.61)	74	(1.88)	38	(0.97)	18	(0.46)	4460	(2023)
700077	1500	(5678)	6	60	(1.52)	175	(4.45)	67	(1.70)	48	(1.22)	24	(0.61)	74	(1.88)	38	(0.97)	18	(0.46)	4640	(2105)
700078	1100	(4164)	8	60	(1.52)	141	(3.58)	67	(1.70)	64	(1.63)	31	(0.79)	77	(1.96)	40	(1.02)	18	(0.46)	3875	(1758)
700079	1200	(4542)	8	60	(1.52)	150	(3.81)	67	(1.70)	64	(1.63)	31	(0.79)	77	(1.96)	40	(1.02)	18	(0.46)	4075	(1848)
700080	1300	(4921)	8	60	(1.52)	159	(4.04)	67	(1.70)	64	(1.63)	31	(0.79)	77	(1.96)	40	(1.02)	18	(0.46)	4265	(1935)
700081	1400	(5300)	8	60	(1.52)	168	(4.27)	67	(1.70)	64	(1.63)	31	(0.79)	77	(1.96)	40	(1.02)	18	(0.46)	4475	(2030)
700082	1500	(5678)	8	60	(1.52)	176	(4.47)	67	(1.70)	64	(1.63)	31	(0.79)	77	(1.96)	40	(1.02)	18	(0.46)	4655	(2112)

*Dimension B Note: On some models Dimension B includes proportioner piping that extends beyond side of tank.

Proportioner Size – in.	Proportioner Pipe Connection	Proportioner Size – in.	Proportioner Pipe Connection
2	2 in. NPT Thread (male)	4	4 in. x 150 lb raised face flange
2 1/2	2 1/2 in. NPT Thread (male)	6	6 in. x 150 lb raised face flange
3	3 in. x 150 lb raised face flange	8	8 in. x 150 lb raised face flange

Note: This configuration is for manually operated systems. For pre-piped tanks suitable for automatically operated systems, contact Tyco Fire Protection Products Technical Services.



Specifications (Continued)

All tank openings larger than 1 in. (25 mm) diameter shall be divided to prevent bladder blow-out. There shall be a water channel between the water inlet opening and water drain opening to establish a water path between the tank shell interior and the bladder.

The tank interior shall have all welds and edges ground smooth. It shall be cleaned, sand blasted to a near white surface, and immediately coated with a high build epoxy coating. The tank data plate shall be of a material compatible with the tank shell and must be seal welded with appropriate procedure and material to the tank. (This ensures that the data plate will reflect the overall condition of the tank and that no corrosion occurs undetected behind the data plate.) The data plate shall contain as a minimum an ASME code stamp: year of manufacture, maximum allowable working pressure (MAWP), National Board number, minimum material thicknesses, minimum design metal temperature (MDMT), and type of head. The tank shall also have a label specifying the type of foam concentrate the system was designed to use, the quantity of concentrate, and any other pertinent warnings.

The vertical tank assembly shall be supported by a continuous skirt of a diameter equal to the tank, with four brackets (feet) drilled for anchoring. Lifting lugs shall be designed to lift the empty weight of the tank with a minimum safety factor of 2 when utilizing a minimum 30 degrees from the horizontal lifting angle. Lifting lugs shall have a clear hole of no less than 2 in. (50 mm) in diameter.

The tank shall contain a flexible bladder of a material tested by Underwriters Laboratories for compatibility with the agent to be used. The bladder material shall be constructed to conform with the inside tank dimensions.

Vertical tank assemblies contain perforated center tubes of PVC or another material compatible with the agent, with holes of no more than 3/4 in. (19 mm) diameter.

The following shall be assembled to each tank: a bladder drain/fill valve, bladder vent/fill valve, tank shell drain valve, and tank shell vent valve. These valves shall be 1 in. (25 mm), 1/4-turn ball valves with bronze bodies, hard chromium-plated bronze ball, bronze stem, stainless steel locking nut and handle, and high performance TEFLON* seats and stuffing box ring. Each valve shall have a nameplate secured to it depicting the valve name and operating position. Also, the valve shall have a ring pin and chain attached for securing the valve in the operating position. The valve names shall coincide with those in the tank instruction manual. Bottom valves shall be piped out from under the tank for easy access. All pipes shall be Schedule 40 ASTM-B-43 and all fittings shall be ASTM B-62 or B-50.84 bronze. The bladder drain/fill piping shall include a tee with 1/2 in. plug for future sight gauge connection.

The tank exterior shall be prepared and finished in accordance with the CHEMGUARD red "CR" epoxy specification or equivalent.

A CHEMGUARD proportioner shall be mounted on the bladder tank with appropriate inlet and outlet piping and water and foam concentrate piping and valving. Reference CHEMGUARD Proportioner data sheets for proportioner specifications and flow data.

A printed filling and maintenance manual shall be supplied with each tank. The manual shall contain a system schematic, installation instructions, initial fill procedures, major and minor refill procedures, inspection and maintenance procedures, sight gauge use instructions, service and repair procedures, and field inspection manual.

Ordering Information

The CHEMGUARD bladder tank shipping assembly part numbers and approximate shipping weights are identified in the previous table. Part numbers vary according to tank requirements.

Note: For tanks with special engineered options, such as special pressure ratings, seismic ratings, or trim and finish options, contact Tyco Fire Protection Products Technical Services.

Specify type and percent of foam concentrate to be used in the bladder tank and proportioner. The proportioner metering orifice is sized according to type and percentage of concentrate used.

Note: The converted metric values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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