

FIGURE 1

CHEMGUARD® Horizontal 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 hangers, 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 tubes which allow improved agent discharge.

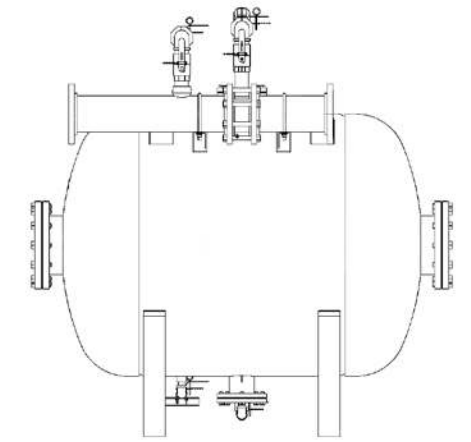
CHEMGUARD bladder tanks are available in a variety of nominal capacities as listed in the tank information tables. Pre-piped models listed in this data sheet are for use in manually operated systems. For automatically operated systems, please contact Tyco Fire Protection Products Technical Services.

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 attached to 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

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.



009860

Standard bladder tanks 200 gallons (757 L) and larger are CE marked in conformance with the 97/23/EC Pressure Equipment Directive. Tanks less than 200 gallons (757 L) are acceptable based on sound engineering practices of ASME code.

Specifications

The CHEMGUARD horizontal 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 (4827 bar).

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

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 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 the concentrate, and any other pertinent warnings

Specifications (Continued)

The horizontal tank assembly shall be supported by two saddles permanently welded to the tank and drilled for anchoring. These supports provide maximum stability and a maximum amount of bearing area which protects against horizontal and vertical forces such as vibration and shifting. 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.

Horizontal tank assemblies shall contain perforated center tubes of PVC or other material compatible with the agent, with holes of no more than 3/4 in. (19 mm) diameter. The assembly shall contain both vertical and horizontal perforated center tubes connected with a cross fitting of compatible material.

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 pipe 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 following tables. 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.

*TEFLON is a trademark of its respective owner.

CHEMGUARD and the product names listed in this material are marks and/or registered marks. Unauthorized use is strictly prohibited.

Ordering Information (Continued)

Note: Dimensions rounded to nearest inch – see Figure 1 for drawing.

Part No.	Tank Size		Proportioner		Dimensions						Weight				
	gal	(L)	Size in.	Diameter in. (mm)	A in. (mm)	B in. (mm)	C* in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	K in. (mm)	L in. (mm)
700135	100	(379)	2	24 (610)	54 (1360)	11 (280)	74 (1880)	34 (860)	760 (345)						
700136	100	(379)	2 1/2	24 (610)	53 (1350)	11 (280)	74 (1880)	34 (860)	765 (347)						
700137	100	(379)	3	24 (610)	53 (1350)	11 (280)	74 (1880)	34 (860)	770 (349)						
700138	150	(568)	3	30 (760)	53 (1340)	13 (330)	73 (1860)	38 (960)	1100 (499)						
700139	200	(757)	3	30 (760)	67 (1700)	15 (380)	91 (2320)	42 (1060)	1370 (621)						
700140	300	(1136)	3	36 (910)	69 (1750)	16 (410)	95 (2420)	42 (1060)	1650 (748)						
700141	150	(568)	4	30 (760)	58 (1470)	13 (330)	73 (1860)	38 (960)	1120 (508)						
700142	200	(757)	4	30 (760)	67 (1700)	15 (380)	91 (2320)	42 (1060)	1400 (635)						
700143	300	(1136)	4	36 (910)	69 (1750)	16 (410)	95 (2420)	42 (1060)	1685 (764)						
700144	200	(757)	6	30 (760)	77 (1960)	15 (380)	91 (2320)	42 (1060)	1430 (649)						
700145	300	(1136)	6	36 (910)	79 (2010)	16 (410)	95 (2420)	42 (1060)	1700 (771)						
700146	400	(1514)	4	48 (1220)	60 (1520)	11 (280)	77 (1950)	34 (870)	2425 (1100)						
700147	500	(1893)	4	48 (1220)	66 (1680)	15 (370)	90 (2280)	41 (1050)	2675 (1213)						
700148	600	(2271)	4	48 (1220)	73 (1850)	18 (440)	103 (2610)	47 (1200)	2725 (1236)						
700149	700	(2650)	4	48 (1220)	80 (2030)	21 (530)	117 (2970)	54 (1370)	3075 (1395)						
700150	800	(3028)	4	48 (1220)	87 (2210)	25 (620)	131 (3330)	61 (1560)	3275 (1486)						
700151	900	(3407)	4	48 (1220)	94 (2380)	28 (710)	145 (3680)	68 (1730)	3545 (1608)						
700152	1000	(3785)	4	48 (1220)	101 (2560)	32 (800)	159 (4040)	75 (1910)	3725 (1690)						
700153	400	(1514)	6	48 (1220)	70 (1780)	11 (280)	77 (1950)	34 (860)	2475 (1123)						
700154	500	(1893)	6	48 (1220)	77 (1950)	15 (370)	90 (2280)	41 (1050)	2725 (1236)						
700155	600	(2271)	6	48 (1220)	83 (2110)	18 (440)	103 (2610)	47 (1200)	2775 (1259)						
700156	700	(2650)	6	48 (1220)	90 (2290)	21 (530)	117 (2970)	54 (1370)	3125 (1418)						
700157	800	(3028)	6	48 (1220)	97 (2470)	25 (620)	131 (3330)	61 (1560)	3325 (1508)						
700158	900	(3407)	6	48 (1220)	104 (2650)	28 (710)	145 (3680)	68 (1730)	3595 (1631)						
700159	1000	(3785)	6	48 (1220)	111 (2820)	32 (800)	159 (4040)	75 (1910)	3775 (1712)						
700160	400	(1514)	8	48 (1220)	80 (2040)	11 (280)	77 (1950)	34 (860)	2525 (1145)						
700161	500	(1893)	8	48 (1220)	87 (2210)	15 (370)	90 (2280)	41 (1050)	2775 (1259)						
700162	600	(2271)	8	48 (1220)	93 (2370)	18 (440)	103 (2610)	47 (1200)	2825 (1281)						
700163	700	(2650)	8	48 (1220)	100 (2550)	21 (530)	117 (2970)	54 (1370)	3175 (1440)						
700164	800	(3028)	8	48 (1220)	107 (2730)	25 (620)	131 (3330)	61 (1560)	3375 (1531)						
700165	900	(3407)	8	48 (1220)	114 (2900)	28 (710)	145 (3680)	68 (1730)	3645 (1653)						
700166	1000	(3785)	8	48 (1220)	121 (3080)	32 (800)	159 (4040)	75 (1910)	3825 (1735)						
700167	1100	(4164)	4	60 (1530)	106 (2700)	22 (560)	124 (3150)	58 (1480)	4300 (1950)						
700168	1200	(4542)	4	60 (1530)	110 (2790)	25 (620)	131 (3330)	63 (1610)	4520 (2050)						
700169	1300	(4921)	4	60 (1530)	114 (2900)	27 (670)	140 (3560)	67 (1710)	4700 (2132)						
700170	1400	(5300)	4	60 (1530)	119 (3020)	29 (740)	149 (3780)	72 (1840)	4910 (2227)						
700171	1500	(5678)	4	60 (1530)	123 (3130)	31 (790)	158 (4010)	76 (1940)	5090 (2309)						
700172	1600	(6057)	4	60 (1530)	128 (3250)	34 (850)	167 (4240)	81 (2060)	5280 (2395)						
700173	1700	(6435)	4	60 (1530)	132 (3360)	36 (910)	176 (4470)	86 (2190)	5480 (2486)						
700174	1800	(6814)	4	60 (1530)	137 (3480)	38 (970)	185 (4700)	90 (2290)	5660 (2567)						
700175	1900	(7192)	4	60 (1530)	141 (3590)	41 (1030)	194 (4930)	95 (2420)	5840 (2649)						
700176	1100	(4164)	6	60 (1530)	107 (2710)	22 (560)	124 (3150)	58 (1480)	4375 (1985)						
700177	1200	(4542)	6	60 (1530)	110 (2800)	25 (620)	131 (3330)	63 (1610)	4595 (2084)						
700178	1300	(4921)	6	60 (1530)	115 (2910)	27 (670)	140 (3560)	67 (1710)	4775 (2166)						
700179	1400	(5300)	6	60 (1530)	119 (3030)	29 (740)	149 (3780)	72 (1840)	4985 (2261)						
700180	1500	(5678)	6	60 (1530)	124 (3140)	31 (790)	158 (4010)	76 (1940)	5165 (2343)						
700181	1600	(6057)	6	60 (1530)	128 (3260)	34 (850)	167 (4240)	81 (2060)	5355 (2429)						
700182	1700	(6435)	6	60 (1530)	133 (3370)	36 (910)	176 (4470)	86 (2190)	5555 (2520)						
700183	1800	(6814)	6	60 (1530)	137 (3480)	38 (970)	185 (4700)	90 (2290)	5735 (2601)						
700184	1900	(7192)	6	60 (1530)	142 (3600)	41 (1030)	194 (4930)	95 (2420)	5915 (2683)						
700185	1100	(4164)	8	60 (1530)	108 (2740)	22 (560)	124 (3150)	58 (1480)	4420 (2005)						
700186	1200	(4542)	8	60 (1530)	112 (2850)	25 (620)	133 (3380)	63 (1610)	4640 (2105)						
700187	1300	(4921)	8	60 (1530)	117 (2970)	27 (670)	142 (3610)	67 (1710)	4820 (2186)						
700188	1400	(5300)	8	60 (1530)	121 (3080)	29 (740)	151 (3830)	72 (1840)	5030 (2282)						
700189	1500	(5678)	8	60 (1530)	126 (3200)	31 (790)	160 (4060)	76 (1940)	5210 (2363)						
700190	1600	(6057)	8	60 (1530)	131 (3320)	34 (850)	170 (4320)	81 (2060)	5300 (2404)						
700191	1700	(6435)	8	60 (1530)	136 (3450)	36 (910)	179 (4550)	86 (2190)	5600 (2540)						
700192	1800	(6814)	8	60 (1530)	140 (3550)	38 (970)	188 (4770)	90 (2290)	5780 (2622)						
700193	1900	(7192)	8	60 (1530)	144 (3670)	41 (1030)	197 (5000)	95 (2420)	5960 (2703)						
700194	2000	(7571)	8	72 (1830)	129 (3280)	30 (760)	154 (3920)	74 (1890)	6330 (2871)						
700195	2200	(8328)	8	72 (1830)	136 (3440)	33 (840)	167 (4250)	80 (2040)	6690 (3035)						
700196	2400	(9085)	8	72 (1830)	142 (3610)	37 (930)	180 (4580)	87 (2220)	7070 (3207)						
700197	2600	(9842)	8	72 (1830)	149 (3770)	40 (1000)	193 (4910)	93 (2370)	7490 (3397)						
700198	2800	(10599)	8	72 (1830)	155 (3940)	43 (1080)	206 (5240)	99 (2520)	7780 (3529)						
700199	3000	(11356)	8	72 (1830)	165 (4190)	46 (1170)	219 (5570)	106 (2690)	8170 (3706)						

*Dimension C Note: On some models dimension includes proportioner piping that extends beyond end 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

Part No.	E in. (mm)	F in. (mm)	G in. (mm)	H in. (mm)	J in. (mm)	K in. (mm)	L in. (mm)
700135	12 (300)	34 (870)	10 (250)	47 (1200)	35 (890)	17 (420)	20 (520)
700136	12 (300)	34 (870)	10 (250)	47 (1200)	35 (890)	16 (420)	18 (460)
700137	14 (360)	36 (920)	10 (250)	49 (1260)	35 (890)	16 (410)	11 (290)
700138	17 (430)	42 (1080)	16 (410)	55 (1410)	41 (1040)	16 (410)	11 (290)
700139	17 (430)	42 (1080)	16 (410)	55 (1410)	41 (1040)	16 (410)	11 (290)
700140	20 (510)	48 (1230)	22 (560)	61 (1560)	47 (1190)	16 (410)	11 (290)
700141	17 (430)	43 (1090)	16 (410)	58 (1470)	41 (1040)	21 (540)	11 (290)
700142	17 (430)	43 (1090)	16 (410)	58 (1470)	41 (1040)	21 (540)	11 (290)
700143	20 (510)	49 (1250)	22 (560)	64 (1630)	47 (1190)	21 (540)	11 (290)
700144	17 (430)	44 (1120)	16 (410)	60 (1530)	41 (1040)	32 (800)	17 (420)
700145	20 (510)	50 (1270)	22 (560)	69 (1760)	47 (1190)	32 (800)	17 (420)
700146	24 (610)	59 (1500)	34 (860)	76 (1930)	59 (1500)	21 (540)	11 (290)
700147	24 (610)	59 (1500)	34 (860)	76 (1930)	59 (1500)	25 (640)	11 (290)
700148	24 (610)	59 (1500)	34 (860)	76 (1930)	59 (1500)	28 (700)	11 (290)
700149	24 (610)	59 (1500)	34 (860)	76 (1930)	5		