



TECHNICAL DATA

BLADDER TANKS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page.

1. DESCRIPTION

The Chemguard Bladder Tank is one component in a balanced pressure foam proportioning system. It requires no external power, other than the water pressure to ensure correct operation. The vertical and horizontal bladder tanks are designed and constructed in accordance with the latest revisions to ASME code, Section VIII for unfired pressure vessels with a working pressure of 175 psi and tested to the pressure specified by the applicable codes and standards. Tanks designed to ASME code shall be tested to at least 230 psi (15.9 bar). All CE marked tanks shall be tested to 255 psi (17.6 bar).



The tank shell is constructed of steel, complying with ASME specifications, possessing a tensile strength of not less than 70,000 psi. The circumferential, as well as the longitudinal body seam, are machine welded. The tank interior welds and edges are ground smooth.

The tank openings on the outside of the bladder that are larger than 1 inch (25 mm) are divided to prevent bladder blow-out.

The vertical tank assembly is supported by four legs with access to the bladder drain/fill valve and the tank shell drain/fill valve. Four feet are provided for anchoring the tank. All horizontal tank assemblies are supported on two saddles welded to the tank and fitted with anchoring holes. Lifting lugs designed to lift 2X the empty weight of the tank at a minimum of 30 degrees from horizontal lifting angle are included on all tanks.

Features

- Bladder is manufactured of a material tested by UL for compatibility with the agent to be used. The bladder material is constructed to conform with the inside tank dimensions.
- Tanks are supplied with permanently mounted bronze trim valves with Polytetrafluoroethylene (PTFE) seats and stainless steel trim piping.
- All valves are labeled showing normal working position and function.
- Lifting lugs are permanently welded to the tank with eyes of approximately 2" diameter.
- Both the vertical and horizontal tanks contain a perforated PVC center tube that assures maximum agent discharge.
- All tanks are oversized to allow for any thermal expansion of the foam concentrate.
- All tanks are supplied with a label, which identifies the type of foam concentrate the system is designed for, the quantity of the concentrate, and any important warnings.
- Tanks are painted red epoxy on the exterior.
- Horizontal tank assemblies contain both vertical and horizontal perforated center tubes connected with a cross fitting of compatible material.

2. LISTINGS AND APPROVALS

UL Listed

3. TECHNICAL DATA

Specifications:

Flange Connections: ANSI Class 150 Flanges come standard.

Material Standards:

Tank: SA516-70 Carbon Steel

Flanges & Couplings: SA105 Carbon Steel

Trim and Fill Piping: 316 Stainless Steel & SA53B Schedule 40

Trim Valves: Stainless Steel with TFE seals

Sight Tube: Clear PVC Tube with Stainless Steel Valve

Exterior Coating: Red Enamel Finish

Interior: Unfinished, Ground Smooth

Bladder: Vinyl Based Polymer

Ordering Information:

See Table 1

For tanks with special engineered options, such as special pressure ratings, seismic ratings, or trim and finish options, contact Viking Technical Services.



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4. INSPECTIONS, TESTS AND MAINTENANCE

NOTICE

The owner is responsible for maintaining the fire protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to recognized standards such as those produced by NFPA, LPC, and VdS which describe care and maintenance of sprinkler systems. In addition, the "Authority Having Jurisdiction" may have additional maintenance, testing and inspection requirements which must be followed.

⚠ WARNING

Any system maintenance or testing that involves placing a control valve or detection system out of service may eliminate the fire protection capabilities of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

5. AVAILABILITY

Viking Foam Products are available through a network of domestic and international distributors. See the Viking web site for closest distributor or contact The Viking Corporation.

6. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

Table 1: Bladder Tank Part Numbers

Part Number	Description	Part Number	Description
F20559	100 gal. Horizontal, Red Epoxy	F20708	36 gal. Vertical, Red Epoxy
F20560	150 gal. Horizontal, Red Epoxy	F20541	50 gal. Vertical, Red Epoxy
F20561	200 gal. Horizontal, Red Epoxy	F20542	100 gal. Vertical, Red Epoxy
F20562	300 gal. Horizontal, Red Epoxy	F20543	150 gal. Vertical, Red Epoxy
F20563	400 gal. Horizontal, Red Epoxy	F20545	200 gal. Vertical, Red Epoxy
F20564	500 gal. Horizontal, Red Epoxy	F20546	300 gal. Vertical, Red Epoxy
F20565	600 gal. Horizontal, Red Epoxy	F20547	400 gal. Vertical, Red Epoxy
F20566	700 gal. Horizontal, Red Epoxy	F20548	500 gal. Vertical, Red Epoxy
F20567	800 gal. Horizontal, Red Epoxy	F20549	600 gal. Vertical, Red Epoxy
F20568	900 gal. Horizontal, Red Epoxy	F20550	700 gal. Vertical, Red Epoxy
F20569	1000 gal. Horizontal, Red Epoxy	F20551	800 gal. Vertical, Red Epoxy
F20570	1100 gal. Horizontal, Red Epoxy	F20552	900 gal. Vertical, Red Epoxy
F20571	1200 gal. Horizontal, Red Epoxy	F20553	1000 gal. Vertical, Red Epoxy
F20572	1300 gal. Horizontal, Red Epoxy	F20554	1100 gal. Vertical, Red Epoxy
F20573	1400 gal. Horizontal, Red Epoxy	F20555	1200 gal. Vertical, Red Epoxy
F20574	1500 gal. Horizontal, Red Epoxy	F20556	1300 gal. Vertical, Red Epoxy
F20575	1600 gal. Horizontal, Red Epoxy	F20557	1400 gal. Vertical, Red Epoxy
F20576	1700 gal. Horizontal, Red Epoxy	F20558	1500 gal. Vertical, Red Epoxy
F20577	1800 gal. Horizontal, Red Epoxy	NOTE: Items below must be purchased separately.	
F20578	1900 gal. Horizontal, Red Epoxy	F_20872	Sight glass for 36-400 Gallon Vertical Tank
F20579	2000 gal. Horizontal, Red Epoxy	F_20873	Sight glass for 500-1000 Gallon Vertical Tank
F20580	2200 gal. Horizontal, Red Epoxy	F_20872	Sight glass for all sizes of Horizontal Tanks
F20581	2400 gal. Horizontal, Red Epoxy	NOTES:	
F20582	2600 gal. Horizontal, Red Epoxy	1. Brass Trim piping is standard.	
F20583	2800 gal. Horizontal, Red Epoxy	2. Two paint options are available - Standard and CR Epoxy (both are RAL 3001 Red)	
F20584	3000 gal. Horizontal, Red Epoxy	3. Contact Viking for replacement bladders.	



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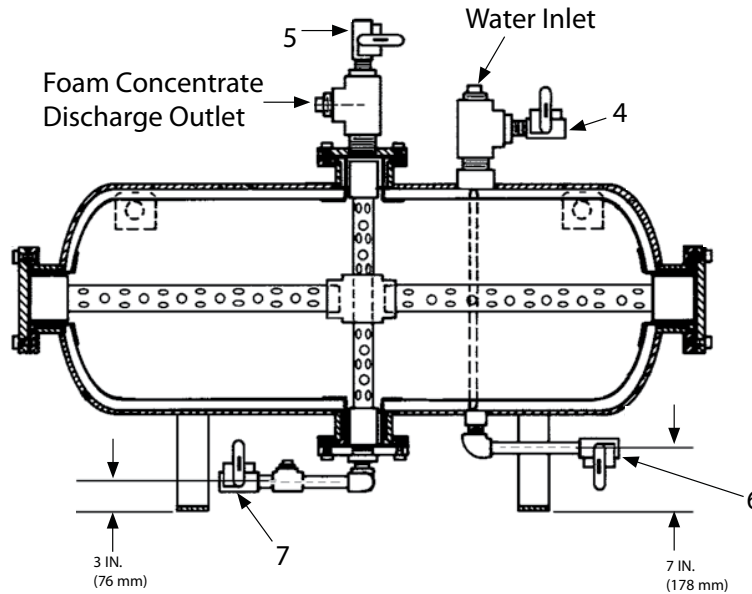


Figure 1: Horizontal Bladder Tank Valves

VALVE DESCRIPTION		NORMAL VALVE POSITION
Valve No.	Description	Automatic System
1	Manual Foam Concentrate Shut-Off (Not Shown)	N.O.
2	Water Supply Shut-Off (Not Shown)	N.O.
3	Sight Gauge Shut-Off (Not Shown)	N.C.
4	Tank Shell Vent	N.C.
5	Bladder Vent	N.C.
6	Tank Shell Drain/Fill	N.C.
7	Bladder Drain/Fill	N.C.
8	Automatic Foam Concentrate Isolation (Not Shown)	N.C.
9	Fill Line Master Shut-Off (Not Shown)	N.C.

N.O. - Normally Open; N.C. - Normally Closed

In this arrangement, Valves listed as "Not Shown" are supplied as loose ship items by Viking.

NOTES:

- Dimensions are approximate and subject to change without notice.
- Foam concentrate discharge pipe size:
 - Tank sizes 1000 gallon (3785 L) and under.....2-1/2" NPT (F)
 - Tank sizes over 1000 gallon (3785 L).....3" NPT
- Water inlet pipe size:
 - Tank sizes 1000 gallon (3785 L) and under.....2-1/2" NPT (F)
 - Tank sizes over 1000 gallon (3785 L).....3" NPT
- When designing a building to store bladder tanks, steps shall be taken to allow for removal of the internal center tube(s). Center tubes are the full length and/or height of the bladder tank.



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Nominal Capacity	DIAMETER		A		B		C		D		E		F		G		WEIGHT (APPROXIMATE)		SADDLE WIDTH		
	GAL	L	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	Lbs.	Kg	In.	(mm)	In.	(mm)	
100	(379)	24	(610)	52	(1321)	44	(1118)	74	(1880)	16.0	(406)	33.75	(857)	35.5	(902)	0.63	(16)	720	(327)	3	(76)
150	(568)	30	(762)	58	(1473)	50	(1270)	74	(1880)	18.0	(457)	37.75	(959)	35.0	(889)	0.63	(16)	1050	(476)	3	(76)
200	(757)	30	(762)	58	(1473)	50	(1270)	91	(2311)	20.0	(508)	41.75	(1061)	44.0	(1118)	0.63	(16)	1320	(599)	3	(76)
300	(1136)	36	(914)	64	(1626)	56	(1422)	96	(2438)	20.0	(508)	41.75	(1061)	46.0	(1168)	0.63	(16)	1600	(726)	3	(76)
400	(1514)	48	(1219)	76	(1930)	68	(1727)	77	(1956)	15.8	(400)	33.75	(857)	36.5	(927)	0.88	(22)	2300	(1043)	4	(102)
500	(1893)	48	(1219)	76	(1930)	68	(1727)	90	(2286)	19.5	(495)	41.25	(1048)	43.0	(1092)	0.88	(22)	2550	(1157)	4	(102)
600	(2271)	48	(1219)	76	(1930)	68	(1727)	103	(2616)	22.5	(572)	47.25	(1200)	49.5	(1257)	0.88	(22)	2800	(1270)	4	(102)
700	(2650)	48	(1219)	76	(1930)	68	(1727)	117	(2972)	26.0	(660)	54.25	(1378)	56.5	(1435)	0.88	(22)	3050	(1383)	4	(102)
800	(3028)	48	(1219)	76	(1930)	68	(1727)	131	(3327)	29.5	(749)	61.25	(1556)	63.5	(1613)	0.88	(22)	3250	(1474)	4	(102)
900	(3407)	48	(1219)	76	(1930)	68	(1727)	145	(3683)	33.0	(838)	68.25	(1734)	70.5	(1791)	0.88	(22)	3420	(1551)	4	(102)
1000	(3785)	48	(1219)	76	(1930)	68	(1727)	159	(4037)	36.5	(927)	75.25	(1911)	77.5	(1969)	0.88	(22)	3600	(1633)	4	(102)
1100	(4164)	60	(1524)	88	(2235)	80	(2032)	123	(3124)	28.0	(711)	58.25	(1480)	60.0	(1524)	0.88	(22)	4150	(1882)	4	(102)
1200	(4542)	60	(1524)	88	(2235)	80	(2032)	132	(3353)	30.5	(775)	63.25	(1607)	64.5	(1638)	0.88	(22)	4370	(1982)	4	(102)

Table 1a: Horizontal Bladder Tank Dimensions (continues on next page)

(See Figure 2)

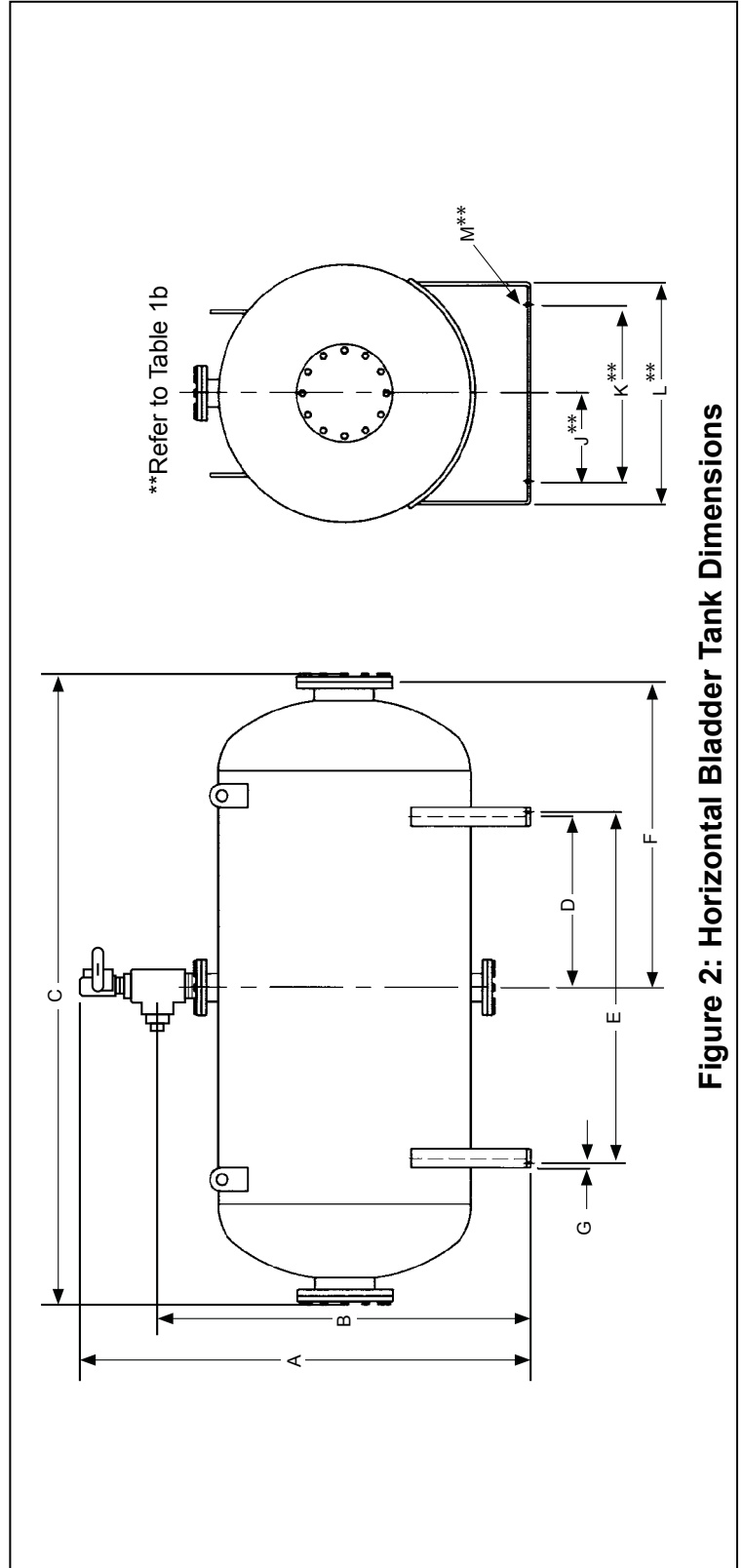


Figure 2: Horizontal Bladder Tank Dimensions



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Nominal Capacity	DIAMETER		A		B		C		D		E		F		G		WEIGHT (APPROXIMATE)		SADDLE WIDTH	
	L	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	Lbs.	Kg	In.	mm	
1300 (4921)	60	(1524)	88	(2235)	80	(2032)	141	(3581)	32.5	(826)	67.25	(1708)	69.0	(1753)	0.88	(22)	4550	(2064)	4	(102)
1400 (5300)	60	(1524)	88	(2235)	80	(2032)	150	(3810)	35.0	(889)	72.25	(1835)	73.5	(1867)	0.88	(22)	4760	(2159)	4	(102)
1500 (5678)	60	(1524)	88	(2235)	80	(2032)	159	(4039)	37.0	(940)	76.25	(1937)	78.0	(1981)	0.88	(22)	4940	(2441)	4	(102)
1600 (6057)	60	(1524)	88	(2235)	80	(2032)	169	(4293)	39.5	(1003)	81.25	(2064)	88.0	(2235)	0.88	(22)	5130	(2327)	4	(102)
1700 (6435)	60	(1524)	88	(2235)	80	(2032)	178	(4521)	42.0	(1067)	86.25	(2191)	87.5	(2223)	0.88	(22)	5330	(2418)	4	(102)
1800 (6814)	60	(1524)	88	(2235)	80	(2032)	187	(4750)	44.0	(1118)	90.25	(2292)	92.0	(2337)	0.88	(22)	5510	(2499)	4	(102)
1900 (7192)	60	(1524)	88	(2235)	80	(2032)	196	(4978)	46.5	(1181)	95.25	(2419)	96.5	(2451)	0.88	(22)	5690	(2581)	4	(102)
2000 (7571)	72	(1829)	100	(2540)	93	(2362)	154	(3912)	36.0	(914)	74.25	(1886)	72.2	(1834)	0.88	(22)	6030	(2735)	4	(102)
2200 (8328)	72	(1829)	100	(2540)	93	(2362)	166	(4216)	39.0	(991)	80.25	(2038)	81.7	(2075)	0.88	(22)	6390	(2898)	4	(102)
2400 (9085)	72	(1829)	100	(2540)	93	(2362)	180	(4572)	42.5	(1080)	87.25	(2216)	88.2	(2240)	0.88	(22)	6770	(3071)	4	(102)
2600 (9842)	72	(1829)	100	(2540)	93	(2362)	193	(4902)	45.5	(1156)	93.25	(2369)	94.7	(2405)	0.88	(22)	7190	(3261)	4	(102)
2800 (10599)	72	(1829)	100	(2540)	93	(2362)	205	(5207)	48.5	(1232)	99.25	(2521)	100.7	(2558)	0.88	(22)	7480	(3393)	4	(102)
3000 (11356)	72	(1829)	100	(2540)	93	(2362)	218	(5537)	52.0	(1321)	106.25	(2699)	107.2	(2723)	0.88	(22)	7870	(3570)	4	(102)

Table 1a: Horizontal Bladder Tank Dimensions (continued)
 (See Figure 2)

Nominal Capacity	Diameter		J		K		L		M		
	L	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)		
100	(379)	24	(610)	5	(127)	10	(254)	18	(457)	0.63	(16)
150 - 200	(568 - 757)	30	(762)	8	(203)	16	(406)	24	(610)	0.63	(16)
300	(1136)	36	(914)	11	(279)	22	(559)	30	(762)	0.63	(16)
400 - 1000	(1514 - 3785)	48	(1219)	17	(432)	34	(864)	42	(1067)	0.88	(22)
1100 - 1900	(4164 - 5678)	60	(1524)	23	(584)	46	(1168)	54	(1372)	1.00	(25)
2000 - 3000	(7571 - 11356)	72	(1829)	29	(737)	58	(1473)	66	(1676)	1.00	(25)

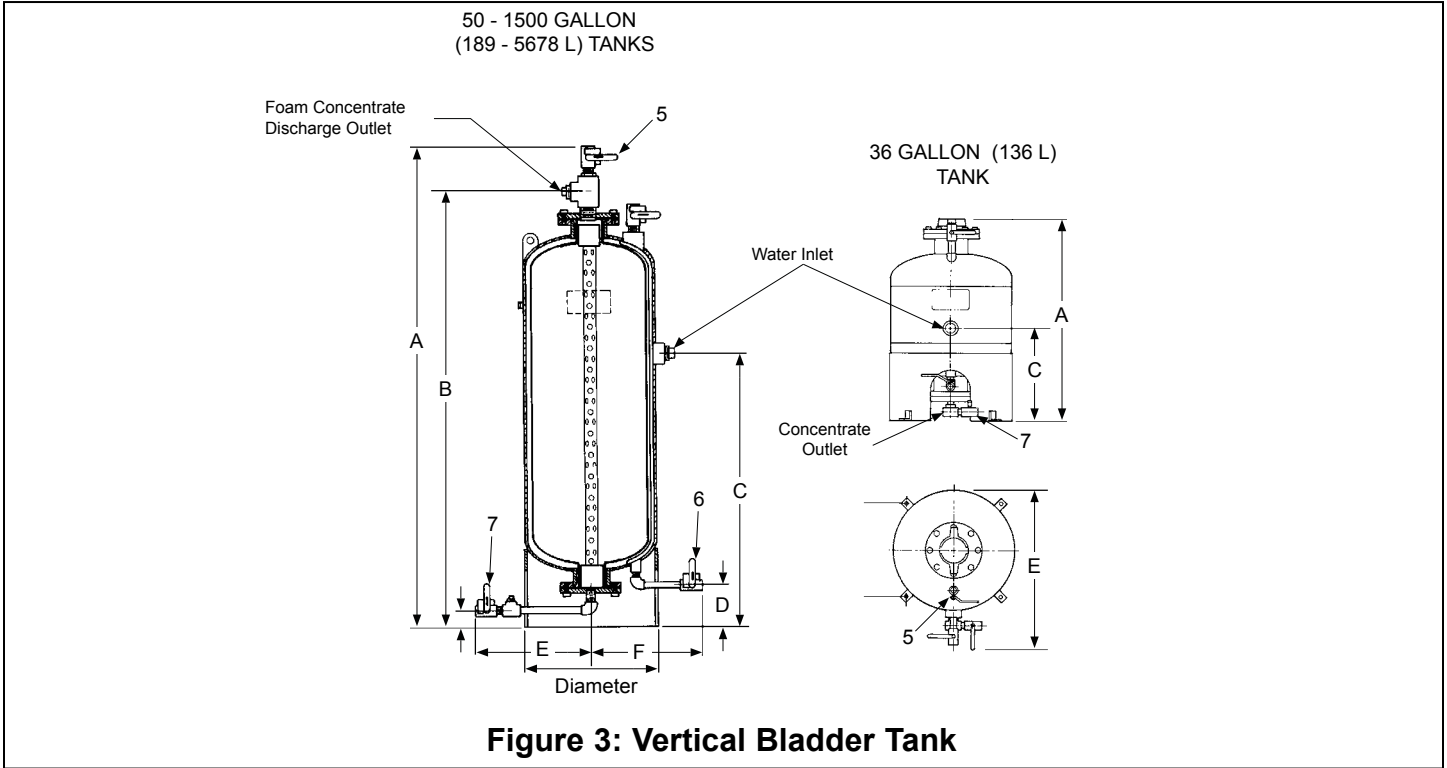
Table 1b: Horizontal Bladder Tank Dimensions
 (See Figure 2)



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VALVE DESCRIPTION		NORMAL VALVE POSITION
Valve No.	Description	Automatic System
1	Manual Foam Concentrate Shut-Off (Not Shown)	N.O.
2	Water Supply Shut-Off (Not Shown)	N.O.
3	Sight Gauge Shut-Off (Not Shown)	N.C.
4	Tank Shell Vent	N.C.
5	Bladder Vent	N.C.
6	Tank Shell Drain/Fill	N.C.
7	Bladder Drain/Fill	N.C.
8	Automatic Foam Concentrate Isolation (Not Shown)	N.C.
9	Fill Line Master Shut-Off	N.C.

N.O. - Normally Open; N.C. - Normally Closed

In this arrangement, Valves listed as "Not Shown" are supplied as loose ship items by Viking.

NOTES:

- Dimensions are approximate and subject to change without notice.
- Foam concentrate discharge pipe size:
 - Tank sizes 1000 gallon (3785 L) and under.....2-1/2" NPT (F)
 - Tank sizes over 1000 gallon (3785 L).....3" NPT
- Water inlet pipe size:
 - Tank sizes 1000 gallon (3785 L) and under.....2-1/2" NPT (F)
 - Tank sizes over 1000 gallon (3785 L).....3" NPT
- When designing a building to store bladder tanks, steps shall be taken to allow for removal of the internal center tube(s). Center tubes are the full length and/or height of the bladder tank.



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Nominal Capacity		DIAMETER		A		B (Estimated)		C		D		E		F		Approximate Shipping Weight	
GAL	L	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)	Lbs	(Kg)
36	(136)	24	(610)	41.0	(1040)	--	--	18.5	(470)	--	--	30	(762)	--	--	300	(136)
50	(189)	24	(610)	64.0	(1626)	56.0	(1442)	24	(610)	7.5	(191)	19	(483)	19	(483)	470	(213)
100	(379)	24	(610)	90.5	(2299)	83.0	(2108)	51	(1295)	8.5	(216)	19	(483)	19	(483)	700	(318)
150	(568)	30	(762)	89.5	(2273)	82.0	(2083)	49	(1245)	10.5	(267)	22	(559)	22	(559)	980	(445)
200	(757)	30	(762)	107.5	(2731)	100.0	(2540)	67	(1702)	10.5	(267)	22	(559)	22	(559)	1290	(585)
300	(1136)	36	(914)	111.5	(2832)	104.0	(2642)	69	(1753)	10.5	(267)	25	(635)	24	(610)	1550	(703)
400	(1514)	48	(1219)	92.5	(2350)	85.0	(2159)	55	(1397)	10.5	(267)	31	(787)	30	(762)	2250	(1021)
500	(1893)	48	(1219)	105.5	(2680)	98.0	(2489)	64	(1626)	10.5	(267)	31	(787)	30	(762)	2500	(1134)
600	(2271)	48	(1219)	118.5	(3010)	111.0	(2819)	73	(1854)	10.5	(267)	31	(787)	30	(762)	2570	(1166)
700	(2650)	48	(1219)	132.5	(3366)	125.0	(3175)	87	(2010)	10.5	(267)	31	(787)	30	(762)	2840	(1288)
800	(3028)	48	(1219)	146.5	(3721)	139.0	(3531)	95	(2413)	10.5	(267)	31	(787)	30	(762)	3200	(1452)
900	(3407)	48	(1219)	160.5	(4077)	153.0	(3886)	106	(2692)	10.5	(267)	31	(787)	30	(762)	3400	(1542)
1000	(3785)	48	(1219)	174.5	(4432)	167.0	(4242)	117	(2972)	10.5	(267)	31	(787)	30	(762)	3600	(1633)
1100	(4164)	60	(1524)	144.0	(3658)	136.0	(3454)	90	(2286)	18.5	(470)	37	(940)	35	(889)	3750	(1701)
1200	(4542)	60	(1524)	153.0	(3886)	145.0	(3683)	96	(2438)	18.5	(470)	37	(940)	35	(889)	3950	(1792)
1300	(4921)	60	(1524)	162.0	(4115)	154.0	(3912)	104	(2642)	18.5	(470)	37	(940)	35	(889)	4140	(1878)
1400	(5300)	60	(1524)	171.0	(4343)	163.0	(4140)	110	(2794)	18.5	(470)	37	(940)	35	(889)	4350	(1973)
1500	(5678)	60	(1524)	180.0	(4572)	172.0	(4369)	117	(2972)	18.5	(470)	37	(940)	35	(889)	4530	(2055)

Table 2a: Vertical Bladder Tank Dimensions

Nominal Capacity		J		K		L		M Hole Diameter	
GAL	(Liters)	In.	(mm)	In.	(mm)	In.	(mm)	In.	(mm)
36	(136)	24	(610)	--	--	19.25	(489)	--	--
50 - 100	(189 - 379)	24	(610)	1.7	(43)	19.5	(495)	1	(25)
150 - 200	(568 - 757)	30	(762)	1.7	(43)	23.7	(602)	1	(25)
300	(1136)	36	(914)	1.7	(43)	27.9	(709)	1	(25)
400 - 1000	(1514 - 3785)	48		2.2	(56)	37.1	(942)	1	(25)
1100 - 1500	(4164 - 5678)	60		2.2	(56)	45.6	(1158)	1	(25)

Table 2b: Vertical Bladder Tank Dimensions
(See Figure 4)

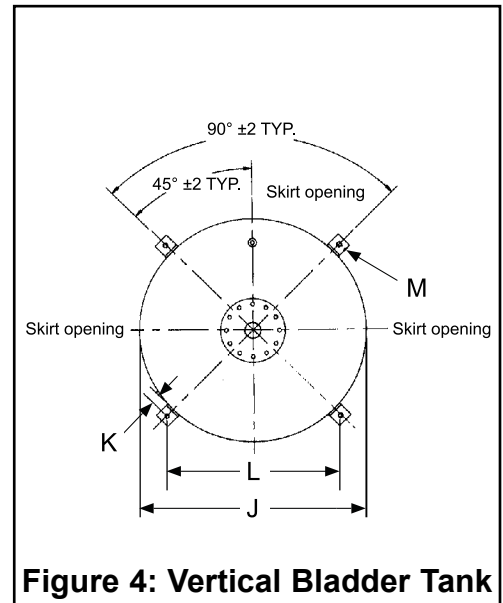


Figure 4: Vertical Bladder Tank