

HORIZONTAL BLADDER TANK BALANCED PRESSURE FOAM SUPPLY DEVICE

NPR020

Approvals: UL, ULC

- Reliable Water Powered Foam Supply
- Perfect For Low Ceiling Areas
- UL & ULC Listed/ASME/National Board Registered
- Bladder UL162 Approved, Hi Tensile Pressure Formed Seams
- Interior Strainers And Flow Path Devices Integral To Tank
- Compatible With All Ratio Controllers



Description

The Bladder Tank is an integral component of the bladder tank proportioning system, which requires no external power other than an adequate water supply. A bladder tank, with an appropriate proportioner(s), injects foam concentrate into the water supply of a fire protection system and automatically proportions over a wide range of flows and pressures.

The National Foam bladder tank is a steel pressure vessel fitted with an internal bladder that stores foam concentrate. During operation, water supplied to the bladder tank displaces the foam concentrate and collapses the bladder 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 cannot be refilled during operation.

Features

- Compatible with all foam concentrates
- Easier to refill than vertical bladder tanks
- Bottom foam concentrate discharge keeps feed piping full, eliminating air pockets and preventing corrosion
- Better stability than vertical tanks in earthquake-prone areas
- Permanently welded lifting lugs for easy tank movement and positioning

Applications

Frequently used in aircraft hangars, loading racks, sprinkler systems, and offshore platforms.

Technical Specifications

The bladder tank shall be an ASME code welded carbon steel pressure vessel with a working pressure of 175 psi (12 bar). The tank shall be supplied in the horizontal configuration and shall be mounted on two permanently attached saddle supports with holes for mounting bolts. A flexible, thermoplastic vulcanized rubber internal bladder separates the foam concentrate from the incoming water. The bladder shall be manufactured with single piece nozzles and all seams shall be temperature/pressure high tensile strength using no adhesives. The tank shall have slotted 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.

All external piping shall be Schedule 40, and shall be brass for foam concentrate and carbon steel for water. Brass or bronze ball valves of the locking handle type, in accordance with NFPA requirements for valve supervision, shall be supplied, and shall be complete with identification labels on the handles. Tank shall include all necessary drain and vent valves, concentrate fill piping, fill cup, and tank content/identification labels. External surfaces of tank and piping shall be coated with red high solids acrylic polyurethane finish.

Approvals and Listings

- Underwriters Laboratories, Inc. (UL Listed)
- Underwriters Laboratories, Canada. (ULC Listed)
- ASME Section VIII Div 1

Technical Information

Materials of Construction:

Tank: Carbon steel, ASME code

Bladder: Welded Seam Thermoplastic

Internal Piping: Slotted PVC, Sch. 80

External Piping:

Water Side: Carbon Steel,
Sch. 40, Screwed

Fm. Conc. Side: Brass, Sch.
40, Screwed

Valves: Ball valve with locking
handle, bronze body, and
brass or chrome plated brass
ball

Fill Funnel: Polyethylene, 7/2" diameter
cup x 1" male NPT spout

Exterior Finish:

Red high solids acrylic polyurethane
(NF Spec AS1-06-030)

Working Pressure:

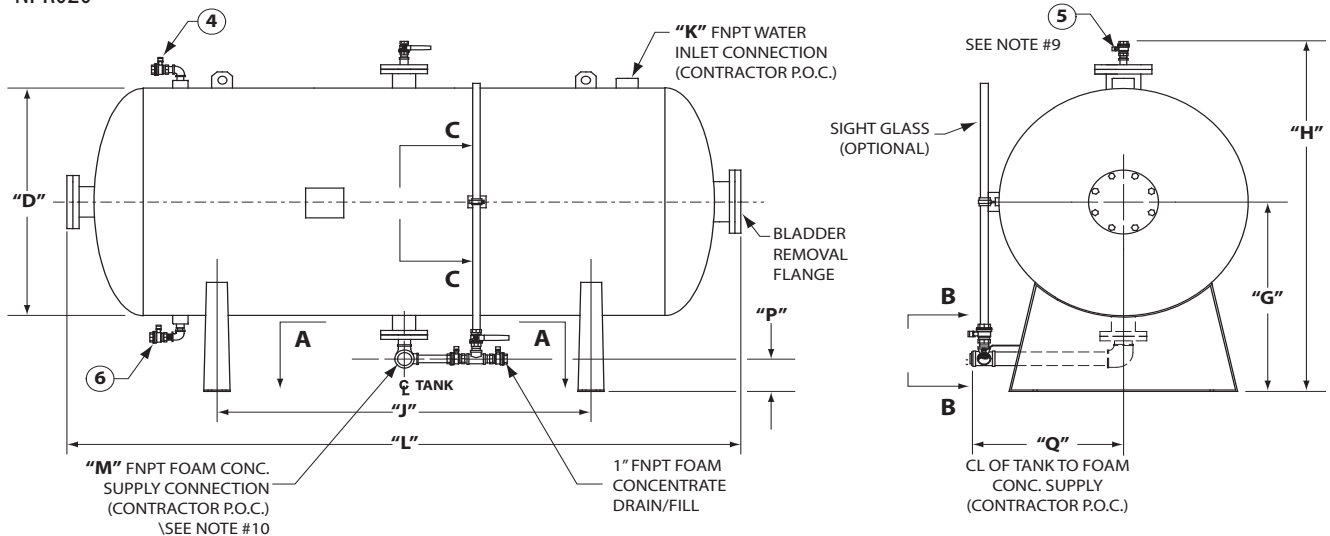
175 psi (12 bar)

Options

- Sight gauge: 1 1/2" (38 mm) O.D. polycarbonate with bronze ball shut-off valve
- Higher tank working pressures
- Coal tar epoxy internal coating
- Special finishes
- Pressure relief valve
- Type 304 or 316 stainless steel piping, screwed or welded
- Fill kit
- Seismic supports
- Prepiped
- Alternate discharge directions

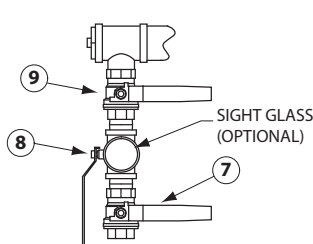
HORIZONTAL BLADDER TANK

NPR020

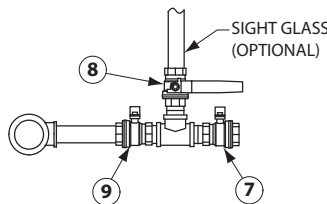


VALVE DESCRIPTION

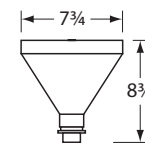
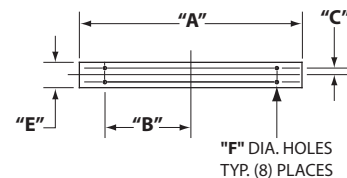
Valve No.	Description	Normal Position
4	Tank Water Vent	Closed
5	Concentrate Vent/Fill	Closed
6	Water Drain/Fill	Closed
7	Concentrate Drain/Fill	Closed
8	Sight Glass (Optional)	Closed
9	Sight Glass Supply (Optional)	Open



DETAIL A - A

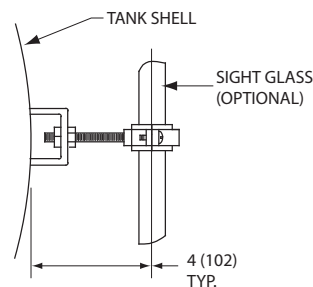


DETAIL B - B



FILL FUNNEL

TO BE SCREWED INTO VALVE 5
SEE NOTE #9



DETAIL C - C

Notes:

- All dimensions are approximate and may vary slightly.
- Weights listed apply to empty tanks.
- All tank and valve openings will be plugged for shipping.
- Optional sight glass assembly includes:
 - Polycarbonate sight glass tube, 1 1/2" (38) O.D. open to atmosphere (vented cap)
 - Ball shutoff valve
 - Split pipe clamp w/ threaded rod
- Fill funnel and optional sight glass tube will be packed and shipped separately.
- Optional sight glass level check cannot be performed with alcohol type AFFF concentrates. Refer to the operating and maintenance manual for further instructions.
- Contents label will be supplied to customer by NF with foam concentrate order and applied by customer.
- When designing a building to house bladder tanks, provisions must be made to allow for the removal of the internal piping and bladder. These items are the full length and height of tank.
- Concentrate vent valve #5 will also be used to top off the concentrate level. A fill funnel will be provided with each tank for this purpose.
- End user shall supply isolation valve at connection point "M".
- For non-standard or special tanks, refer to the tank's specific outline assembly drawing for details.

HORIZONTAL BLADDER TANK

NPRO20

CAPACITY AND DIMENSIONS CHART

Capacity gal. (liters)	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"P"	"Q"	Empty Weight lb (kg)
50 (189)	20 (508)	7 (178)	7/8 (22)	20 (508)	3 (76)	9/16 (14)	22 (559)	41-1/2 (1054)	14 (356)	2 (51)	55-1/2 (1410)	2 (51)	4 (103)	16-1/2 (419)	360 (163)
100 (379)	24 (610)	9 (229)	7/8 (22)	24 (610)	3 (76)	9/16 (14)	24 (610)	45-1/2 (1054)	22 (559)	2 (51)	72 (1828)	2 (51)	4 (103)	18-1/2 (470)	651 (295)
150 (568)	30 (762)	11 (279)	1-1/8 (29)	30 (762)	4 (102)	9/16 (14)	27 (686)	51-1/2 (1308)	36 (914)	2 (51)	71 (1803)	2 (51)	4 (103)	21-1/2 (546)	940 (426)
200 (757)	30 (762)	11 (279)	1-1/8 (29)	30 (762)	4 (102)	9/16 (14)	27 (686)	51-1/2 (1308)	34 (864)	2 (51)	89 (2261)	2 (51)	4 (103)	21-1/2 (546)	1137 (516)
300 (1136)	34 (864)	13 (330)	1-1/8 (29)	36 (914)	4 (102)	9/16 (14)	30 (762)	57-1/2 (1460)	36 (914)	2 (51)	93 (2362)	2 (51)	4 (103)	24-1/2 (622)	1554 (705)
400 (1514)	40 (1016)	15 (381)	1-3/8 (35)	42 (1067)	5 (127)	11/16 (17)	33 (838)	63-1/2 (1613)	50 (1270)	2 (51)	93 (2362)	2 (51)	4 (103)	27-1/2 (699)	1870 (848)
500 (1893)	40 (1016)	15 (381)	1-3/8 (35)	42 (1067)	5 (127)	11/16 (17)	33 (838)	63-1/2 (1613)	48 (1219)	2 (51)	112 (2845)	3 (76)	4 (103)	27-1/2 (699)	2130 (966)
600 (2271)	40 (1016)	15 (381)	1-3/8 (35)	42 (1067)	5 (127)	11/16 (17)	33 (838)	63-1/2 (1613)	60 (1524)	3 (76)	131 (3327)	3 (76)	4 (103)	27-1/2 (699)	2237 (1015)
700 (2650)	44 (1118)	17 (432)	1-3/8 (35)	48 (1219)	5 (127)	11/16 (17)	40 (1016)	73-1/2 (1867)	50 (1270)	3 (76)	119 (3023)	3 (76)	8 (203)	30-1/2 (775)	2644 (1199)
800 (3028)	44 (1118)	17 (432)	1-3/8 (35)	48 (1219)	5 (127)	11/16 (17)	40 (1016)	73-1/2 (1867)	60 (1524)	3 (76)	134 (3404)	3 (76)	8 (203)	30-1/2 (775)	3298 (1496)
900 (3407)	44 (1118)	17 (432)	1-3/8 (35)	48 (1219)	5 (127)	11/16 (17)	40 (1016)	73-1/2 (1867)	70 (1778)	3 (76)	148 (3759)	3 (76)	8 (203)	30-1/2 (775)	3655 (1658)
1000 (3785)	44 (1118)	17 (432)	1-3/8 (35)	48 (1219)	5 (127)	11/16 (17)	40 (1016)	73-1/2 (1867)	94 (2388)	3 (76)	163 (4140)	3 (76)	8 (203)	30-1/2 (775)	3872 (1756)
1100 (4164)	44 (1118)	17 (432)	1-3/8 (35)	48 (1219)	5 (127)	11/16 (17)	40 (1016)	73-1/2 (1867)	100 (2540)	3 (76)	177 (4496)	3 (76)	8 (203)	30-1/2 (775)	4256 (1930)
1200 (4542)	54 (1372)	22 (559)	1-3/4 (44)	60 (1524)	6 (152)	11/16 (17)	46 (1168)	85-1/2 (2172)	58 (1473)	3 (76)	131 (3327)	3 (76)	8 (203)	36-1/2 (927)	4323 (1961)
1300 (4921)	54 (1372)	22 (559)	1-3/4 (44)	60 (1524)	6 (152)	11/16 (17)	46 (1168)	85-1/2 (2172)	60 (1524)	3 (76)	141 (3581)	3 (76)	8 (203)	36-1/2 (927)	4626 (2098)
1400 (5300)	54 (1372)	22 (559)	1-3/4 (44)	60 (1524)	6 (152)	11/16 (17)	46 (1168)	85-1/2 (2172)	76 (1930)	3 (76)	151 (3835)	3 (76)	8 (203)	36-1/2 (927)	4913 (2228)
1500 (5678)	54 (1372)	22 (559)	1-3/4 (44)	60 (1524)	6 (152)	11/16 (17)	46 (1168)	85-1/2 (2172)	80 (2032)	3 (76)	159 (4039)	3 (76)	6 (152)	36-1/2 (927)	5294 (2401)
1600 (6057)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	44 (1118)	3 (76)	125 (3175)	3 (76)	6 (152)	42-1/2 (1080)	4673 (2128)
1700 (6435)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	50 (1270)	3 (76)	131 (3327)	3 (76)	6 (152)	42-1/2 (1080)	4893 (2210)
1800 (6814)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	56 (1422)	3 (76)	138 (3505)	3 (76)	6 (152)	42-1/2 (1080)	5054 (2292)
1900 (7192)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	60 (1524)	3 (76)	144 (3658)	3 (76)	6 (152)	42-1/2 (1080)	5279 (2395)
2000 (7571)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	70 (1778)	3 (76)	151 (3835)	3 (76)	6 (152)	42-1/2 (1080)	5504 (2497)
2100 (7949)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	76 (1930)	3 (76)	157 (3988)	3 (76)	6 (152)	42-1/2 (1080)	5696 (3584)
2200 (8328)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	80 (2032)	3 (76)	164 (4166)	3 (76)	6 (152)	42-1/2 (1080)	5887 (2670)
2300 (8706)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	80 (2032)	3 (76)	170 (4318)	3 (76)	6 (152)	42-1/2 (1080)	6093 (2764)
2400 (9085)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	80 (2032)	3 (76)	177 (4496)	3 (76)	6 (152)	42-1/2 (1080)	6299 (2857)
2500 (9464)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	100 (2540)	3 (76)	183 (4648)	3 (76)	6 (152)	42-1/2 (1080)	6499 (2948)
2600 (9842)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	100 (2540)	3 (76)	189 (4801)	3 (76)	6 (152)	42-1/2 (1080)	6699 (3039)
2700 (10221)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	100 (2540)	3 (76)	196 (4978)	3 (76)	6 (152)	42-1/2 (1080)	6899 (3125)
2800 (10599)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	100 (2540)	3 (76)	202 (5131)	3 (76)	6 (152)	42-1/2 (1080)	7078 (3211)
2900 (10978)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	100 (2540)	3 (76)	209 (5309)	3 (76)	6 (152)	42-1/2 (1080)	7278 (3301)
3000 (11356)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	215 (5461)	3 (76)	6 (152)	42-1/2 (1080)	7478 (3392)
3100 (11735)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	222 (5639)	3 (76)	6 (152)	42-1/2 (1080)	7679 (3483)
3200 (12113)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	228 (5791)	3 (76)	6 (152)	42-1/2 (1080)	7880 (3574)
3300 (12492)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	234 (5944)	3 (76)	6 (152)	42-1/2 (1080)	8100 (3674)
3400 (12870)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	241 (6121)	3 (76)	6 (152)	42-1/2 (1080)	8300 (3765)
3500 (13249)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	247 (6274)	3 (76)	6 (152)	42-1/2 (1080)	8500 (3856)
3600 (13627)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	254 (6452)	3 (76)	6 (152)	42-1/2 (1080)	8700 (3946)
3700 (14006)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	260 (6604)	3 (76)	6 (152)	42-1/2 (1080)	8900 (4037)
3800 (14385)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	267 (6782)	3 (76)	6 (152)	42-1/2 (1080)	9100 (4128)
3900 (14763)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	273 (6934)	3 (76)	6 (152)	42-1/2 (1080)	9300 (4218)
4000 (15142)	64 (1626)	28 (711)	2-3/4 (70)	72 (1829)	8 (203)	1-1/16 (27)	50 (1270)	95-1/2 (2426)	120 (3048)	3 (76)	280 (7112)	3 (76)	6 (152)	42-1/2 (1080)	9500 (4309)

Note: All dimensions are in inches (millimeters)

HORIZONTAL BLADDER TANK

NPRO20

ORDERING INFORMATION

Capacity		Part Number	Part Number	Approx. Shipping Weight		Approx. Shipping Package Dimensions					
gal.	liters	w/o sight gauge	w/ sight gauge	lb	kg	L		W		H	
						in.	mm	in.	mm	in.	mm
50	189	1218-2124-6	1218-2127-6	960	436	65	1651	36	914	59	1499
100	379	1218-2122-1	1218-2125-1	1245	565	81	2057	40	1016	63	1600
150	568	1218-2122-2	1218-2125-2	1530	694	80	2032	46	1168	69	1753
200	757	1218-2122-3	1218-2125-3	1730	785	98	2489	46	1168	69	1753
300	1136	1218-2122-4	1218-2125-4	2135	969	102	2591	52	1321	75	1905
400	1514	1218-2122-5	1218-2125-5	2450	1112	102	2591	58	1473	81	2057
500	1893	1218-2122-6	1218-2125-6	2600	1180	121	3073	58	1473	81	2057
600	2271	1218-2122-7	1218-2125-7	2750	1248	130	3302	58	1473	81	2057
700	2650	1218-2122-8	1218-2125-8	3300	1498	128	3251	64	1626	91	2311
800	3028	1218-2122-9	1218-2125-9	3545	1609	143	3632	64	1626	91	2311
900	3407	1218-2123-0	1218-2126-0	3790	1720	157	3988	64	1626	91	2311
1000	3785	1218-2123-1	1218-2126-1	4035	1831	172	4369	64	1626	91	2311
1100	4164	1218-2123-2	1218-2126-2	4280	1943	186	4724	64	1626	91	2311
1200	4542	1218-2123-3	1218-2126-3	5320	2415	140	3556	76	1930	100	2540
1300	4921	1218-2123-4	1218-2126-4	5670	2574	150	3810	76	1930	100	2540
1400	5299	1218-2123-5	1218-2126-5	6000	2723	160	4064	76	1930	100	2540
1500	5678	1218-2123-6	1218-2126-6	6420	2914	168	4267	76	1930	100	2540
1600	6056	1218-2123-7	1218-2126-7	6825	3098	134	3404	88	2235	113	2870
1700	6435	1218-2137-0	1218-2135-0	7055	3202	140	3556	88	2235	113	2870
1800	6813	1218-2123-8	1218-2126-8	7295	3311	147	3734	88	2235	113	2870
1900	7192	1218-2137-1	1218-2135-1	7560	3431	153	3886	88	2235	113	2870
2000	7570	1218-2123-9	1218-2126-9	7825	3552	160	4064	88	2235	113	2870
2100	7949	1218-2137-2	1218-2135-2	8065	3661	166	4216	88	2235	113	2870
2200	8327	1218-2124-0	1218-2127-0	8300	3767	173	4394	88	2235	113	2870
2300	8706	1218-2137-3	1218-2135-3	8560	3885	179	4547	88	2235	113	2870
2400	9084	1218-2124-1	1218-2127-1	8815	4001	186	4724	88	2235	113	2870
2500	9464	1218-2137-4	1218-2135-4	9060	4112	192	4877	88	2235	113	2870
2600	9841	1218-2124-2	1218-2127-2	9300	4221	198	5029	88	2235	113	2870
2700	10221	1218-2137-5	1218-2135-5	9540	4330	205	5207	88	2235	113	2870
2800	10598	1218-2124-3	1218-2127-3	9775	4437	211	5359	88	2235	113	2870
2900	10978	1218-2137-6	1218-2135-6	10020	4548	218	5537	88	2235	113	2870
3000	11355	1218-2124-4	1218-2127-4	10265	4659	224	5690	88	2235	113	2870
3100	11735	1218-2137-7	1218-2135-7	10510	4770	231	5867	88	2235	113	2870
3200	12112	1218-2124-5	1218-2127-5	10755	4882	237	6020	88	2235	113	2870
3300	12492	1218-2137-8	1218-2135-8	11005	4995	243	6172	88	2235	113	2870
3400	12870	1218-2137-9	1218-2135-9	11250	5106	250	6350	88	2235	113	2870
3500	13249	1218-2138-0	1218-2136-0	11495	5218	256	6502	88	2235	113	2870
3600	13627	1218-2138-1	1218-2136-1	11740	5329	263	6680	88	2235	113	2870
3700	14006	1218-2138-2	1218-2136-2	11985	5440	269	6833	88	2235	113	2870
3800	14385	1218-2138-3	1218-2136-3	12230	5551	276	7010	88	2235	113	2870
3900	14763	1218-2138-4	1218-2136-4	12475	5662	282	7163	88	2235	113	2870
4000	15142	1218-2138-5	1218-2136-5	12720	5774	289	7341	88	2235	113	2870

National Foam

350 East Union Street, West Chester, PA 19382, USA
 24hr **RED ALERT**® : 610-363-1400 • Fax: 610-431-7084
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