



by Tyco Fire Suppression & Building Products

# VERTICAL AND HORIZONTAL BLADDER TANKS

## Data/Specifications

### APPLICATION

The ANSUL bladder tank is one component in a balanced pressure proportioning system. Its operation requires no external power other than a pressurized water system. The bladder tank may be used with any ANSUL foam agent. It can be used in a proportioning system incorporating single or multiple proportioners and any suitable discharge device.

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

### DESCRIPTION

The ANSUL 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. (Proportioners are separate items described on a separate data sheet.)

ANSUL bladder tanks are available in both vertical and horizontal tank models and a variety of nominal capacities as listed in the tank information tables. Both tank models feature perforated center tubes which allow improved agent discharge.

Features incorporated into the ANSUL 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
- Bladder tanks supplied with corrosion-resistant piping
- Exterior tank surfaces finished in red standard system paint or coated with an epoxy "CR" red 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

The ANSUL vertical and horizontal tank assemblies are both Underwriters Laboratories listed and Factory Mutual approved with various ANSUL proportioners and foam concentrates and bear the (UL) label along with an American Society of Mechanical Engineers (ASME) code stamp.

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 ANSUL vertical and horizontal bladder tanks shall be designed and constructed in accordance with the latest revisions to ASME code, Section VIII, Division I, for unfired pressure vessels with a working pressure of 175 psi (12.1 bar) and tested to at least 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 specifi-

cations possessing a tensile strength of not less than 70,000 psi (4827 bar). The circumferential, as well as the longitudinal body seam, shall be machine welded and radiographed to ensure 85% efficiency when applicable by ASME codes.

The tank heads shall be 2 to 1 elliptical 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, working pressure, board number, material thickness, temperature, 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 feet drilled for anchoring. 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 be substantial welded tank attachments with a clear hole not less than 2 in. (50 mm) in diameter.

The tank shall contain a flexible bladder of 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.

Both the vertical and horizontal tank assemblies shall contain porous center tubes of P.V.C. or other material compatible with the agent, with holes of no more than 3/4 in. (19 mm) diameter. The vertical tank assembly shall contain a single perforated center tube. The horizontal tank 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 exactly with those in the tank instruction manual. All 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-584 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 appropriate red paint system standard or "CR" red per ANSUL specification or equivalent.

- ▶ 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.

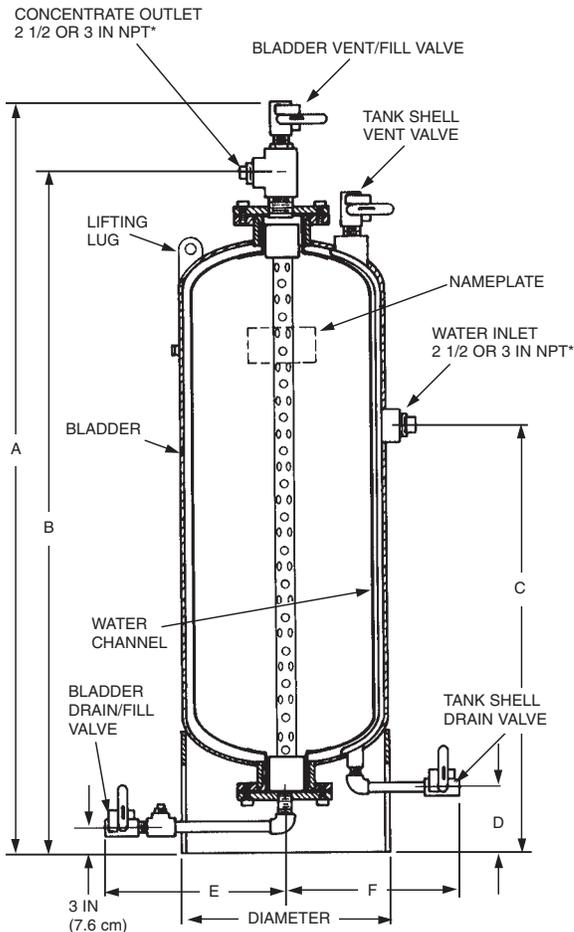
## ORDERING INFORMATION

The ANSUL bladder tank shipping assembly part numbers and approximate shipping weights are identified in the following tables. Part numbers vary according to tank requirements.

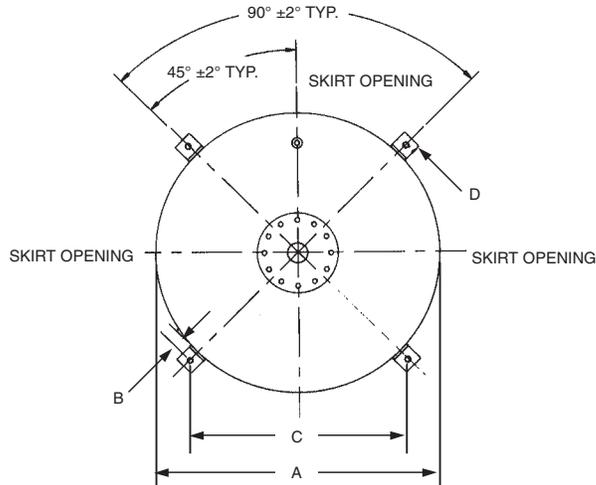
For tanks with special engineered options, such as special pressure ratings, seismic ratings, or trim and finish options, contact the Technical Services Department.

## VERTICAL BLADDER TANK

Nominal Capacity Gal (L)	Bladder Tank Part No. Epoxy/Enamel	Diameter		A		B		Dimensions C		D		E		F		Approximate Shipping Weight	
		in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	lb	(kg)
50 (190)	70501/70502	24	(61)	64	(163)	57	(145)	24	(61)	7.5	(19)	20	(51)	19	(48)	470	(215)
100 (379)	69000/69001	24	(61)	90	(229)	82	(208)	52	(132)	8.5	(22)	19	(48)	19	(48)	700	(320)
150 (568)	70516/70517	30	(76)	90	(229)	82	(208)	49	(125)	10.5	(27)	21	(53)	21	(53)	980	(445)
200 (757)	69002/69003	30	(76)	108	(274)	100	(254)	68	(173)	10.5	(27)	22	(56)	21	(53)	1290	(585)
300 (1136)	69004/69005	36	(91)	112	(284)	104	(264)	70	(178)	10.5	(27)	25	(64)	24	(61)	1550	(705)
400 (1514)	419153/419154	48	(122)	92.5	(235)	84.5	(215)	55	(140)	10.5	(27)	32	(81)	30	(76)	2250	(1020)
500 (1893)	419155/419156	48	(122)	105.5	(268)	97.5	(248)	73	(185)	10.5	(27)	32	(81)	30	(76)	2500	(1134)
600 (2271)	69010/69011	48	(122)	118	(300)	110	(279)	87	(221)	10.5	(27)	32	(81)	30	(76)	2570	(1165)
700 (2650)	69012/69013	48	(122)	132	(335)	124	(315)	88	(224)	10.5	(27)	32	(81)	30	(76)	2840	(1288)
800 (3028)	419157/419158	48	(122)	146.5	(372)	138.5	(352)	95	(241)	10.5	(27)	32	(81)	30	(76)	3200	(1451)
900 (3407)	419159/419160	48	(122)	160.5	(408)	152.5	(387)	106	(269)	10.5	(27)	32	(81)	30	(76)	3400	(1545)
1000 (3785)	419161/419162	48	(122)	174.5	(443)	166.5	(423)	116	(295)	10.5	(27)	32	(81)	30	(76)	3600	(1635)
1100 (4164)	71118/71119	60	(153)	144	(366)	136	(346)	90	(229)	18.5	(47)	37	(94)	36	(91)	3750	(1701)
1200 (4542)	71120/71121	60	(153)	153	(389)	145	(368)	96	(244)	18.5	(47)	37	(94)	36	(91)	3950	(1792)
1300 (4921)	71122/71123	60	(153)	162	(412)	154	(391)	104	(264)	18.5	(47)	37	(94)	36	(91)	4140	(1878)
1400 (5300)	71124/71125	60	(153)	171	(435)	163	(414)	110	(279)	18.5	(47)	37	(94)	36	(91)	4350	(1973)
1500 (5678)	71126/71127	60	(153)	180	(458)	171	(435)	117	(297)	18.5	(47)	37	(94)	36	(91)	4530	(2054)



Tank Capacity Gal	(L)	Dim. 'A' (Tank Dia.)	Dim. 'B' in (cm)	Dim. 'C' in (cm)	Dim. 'D' (Hole Dia.)
50-100	(190-379)	24 (61)	1.7 (4.5)	19.5 (49.5)	1 (2.5)
150-200	(568-757)	30 (76)	1.7 (4.5)	23.7 (60.2)	1 (2.5)
300	(1136)	36 (91)	1.7 (4.5)	28.0 (71.1)	1 (2.5)
400-1000	(1514-3785)	48 (122)	2.2 (5.7)	37.0 (94.0)	1 (2.5)
1100-1500	(4164-5678)	60 (152)	2.2 (5.7)	47.0 (119.4)	1 (2.5)

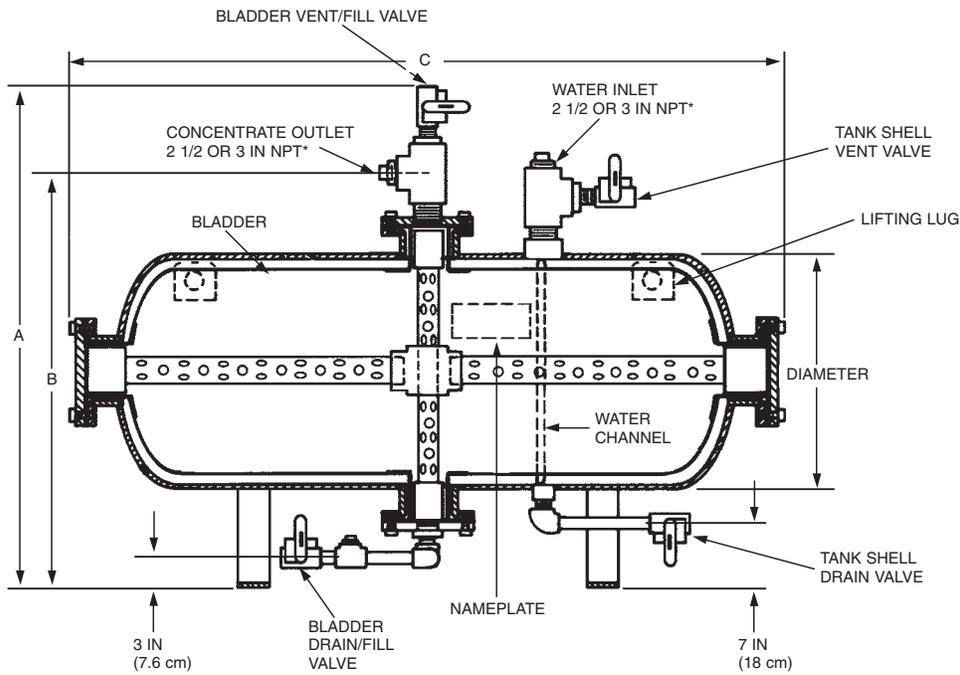


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\* 2 1/2 in NPT on tanks 1000 gallons or less  
 \* 3 in NPT on tanks over 1000 gallons

# HORIZONTAL BLADDER TANK

Nominal Capacity Gal.	(L)	Bladder Tank Part No. Epoxy/Enamel	Diameter		Dimensions						Approximate Shipping Weight	
			in	(cm)	A in	(cm)	B in	(cm)	C in	(cm)	lb	(kg)
100	(379)	69090/69091	24	(61)	52	(132)	44	(112)	74	(188)	720	(330)
150	(568)	70521/70522	30	(76)	58	(147)	50	(127)	74	(188)	1050	(477)
200	(757)	69092/69093	30	(76)	58	(147)	50	(127)	91	(231)	1320	(600)
300	(1136)	69094/69095	36	(91)	64	(162)	56	(142)	96	(244)	1600	(725)
400	(1514)	419178/419179	48	(122)	76	(193)	68	(173)	77	(196)	2300	(1043)
500	(1893)	419180/419181	48	(122)	76	(193)	68	(173)	90	(229)	2550	(1157)
600	(2271)	69100/69101	48	(122)	76	(193)	68	(173)	103	(262)	2800	(1270)
700	(2650)	69102/69103	48	(122)	76	(193)	68	(173)	117	(297)	3050	(1385)
800	(3028)	419182/419183	48	(122)	76	(193)	68	(173)	131	(333)	3250	(1474)
900	(3407)	419184/419185	48	(122)	76	(193)	68	(173)	145	(368)	3420	(1551)
1000	(3785)	419186/419187	48	(122)	76	(193)	68	(173)	159	(404)	3600	(1633)
1100	(4164)	71100/71101	60	(153)	88	(224)	80	(203)	123	(313)	4150	(1882)
1200	(4542)	71102/71103	60	(153)	88	(224)	80	(203)	132	(336)	4370	(1982)
1300	(4921)	71104/71105	60	(153)	88	(224)	80	(203)	141	(358)	4550	(2064)
1400	(5300)	71106/71107	60	(153)	88	(224)	80	(203)	150	(381)	4760	(2159)
1500	(5678)	71108/71109	60	(153)	88	(224)	80	(203)	159	(404)	4940	(2241)
1600	(6057)	71110/71111	60	(153)	88	(224)	80	(203)	169	(430)	5130	(2327)
1700	(6435)	71112/71113	60	(153)	88	(224)	80	(203)	178	(452)	5330	(2418)
1800	(6814)	71114/71115	60	(153)	88	(224)	80	(203)	187	(475)	5510	(2499)
1900	(7192)	71116/71117	60	(153)	88	(224)	80	(203)	196	(498)	5690	(2581)
2000	(7571)	71150/71151	72	(183)	100	(254)	93	(236)	154	(391)	6030	(2735)
2200	(8328)	71152/71153	72	(183)	100	(254)	93	(236)	166	(422)	6390	(2898)
2400	(9085)	71154/71155	72	(183)	100	(254)	93	(236)	180	(457)	6770	(3071)
2600	(9842)	71156/71157	72	(183)	100	(254)	93	(236)	193	(490)	7190	(3261)
2800	(10599)	71158/71159	72	(183)	100	(254)	93	(236)	205	(521)	7480	(3393)
3000	(11356)	71160/71161	72	(183)	100	(254)	93	(236)	218	(554)	7870	(3570)

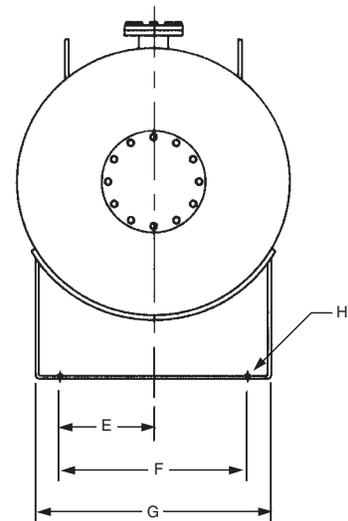
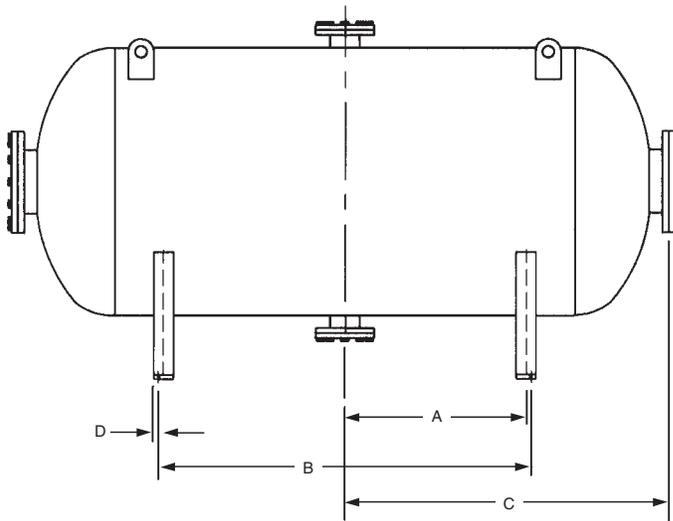


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\* 2 1/2 in NPT on tanks 1000 gallons or less  
 \* 3 in NPT on tanks over 1000 gallons

# HORIZONTAL BLADDER TANK

Tank Size	A		B		C		D		E		F		G		H		Saddle Width		
Gal	(L)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)
100	(379)	16.0	(41)	33.75	(86)	35.5	(90)	0.63	(1.6)	5	(13)	10	(25)	18	(46)	0.63	(1.6)	3	(7.6)
150	(568)	18.0	(46)	37.75	(96)	35.0	(89)	0.63	(1.6)	8	(20)	16	(41)	24	(61)	0.63	(1.6)	3	(7.6)
200	(757)	20.0	(51)	41.75	(106)	44.0	(112)	0.63	(1.6)	8	(20)	16	(41)	24	(61)	0.63	(1.6)	3	(7.6)
300	(1136)	21.0	(53)	41.75	(106)	46.0	(117)	0.63	(1.6)	11	(28)	22	(56)	30	(76)	0.63	(1.6)	3	(7.6)
400	(1514)	16.88	(43)	33.75	(86)	36.5	(93)	0.88	(2.2)	17	(43)	34	(86)	42	(107)	0.88	(2.2)	4	(10.2)
500	(1893)	20.62	(52)	41.25	(105)	43.0	(109)	0.88	(2.2)	17	(43)	34	(86)	42	(107)	0.88	(2.2)	4	(10.2)
600	(2271)	22.5	(57)	47.25	(120)	49.5	(126)	0.88	(2.2)	17	(43)	34	(86)	42	(107)	0.88	(2.2)	4	(10.2)
700	(2650)	26.0	(66)	54.25	(138)	56.5	(144)	0.88	(2.2)	17	(43)	34	(86)	42	(107)	0.88	(2.2)	4	(10.2)
800	(3028)	30.62	(78)	61.25	(156)	63.5	(161)	0.88	(2.2)	17	(43)	34	(86)	42	(107)	0.88	(2.2)	4	(10.2)
900	(3407)	34.12	(87)	68.25	(173)	70.5	(179)	0.88	(2.2)	17	(43)	34	(86)	42	(107)	0.88	(2.2)	4	(10.2)
1000	(3785)	37.62	(96)	75.25	(191)	77.5	(197)	0.88	(2.2)	17	(43)	34	(86)	42	(107)	0.88	(2.2)	4	(10.2)
1100	(4164)	28.0	(71)	58.25	(148)	60.0	(152)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
1200	(4542)	30.5	(78)	63.25	(161)	64.5	(164)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
1300	(4921)	32.5	(83)	67.25	(171)	69.0	(175)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
1400	(5299)	35.0	(89)	72.25	(184)	73.5	(187)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
1500	(5678)	37.0	(94)	76.25	(194)	78.0	(198)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
1600	(6057)	39.5	(100)	81.25	(206)	88.0	(234)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
1700	(6435)	42.0	(107)	86.25	(219)	87.5	(222)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
1800	(6814)	44.0	(112)	90.25	(229)	92.0	(233)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
1900	(7192)	46.5	(118)	95.25	(242)	96.5	(245)	0.88	(2.2)	23	(58)	46	(117)	54	(137)	1.0	(2.5)	4	(10.2)
2000	(7571)	36.0	(91)	74.25	(189)	72.2	(183)	0.88	(2.2)	29	(74)	58	(147)	66	(168)	1.0	(2.5)	4	(10.2)
2200	(8328)	39.0	(99)	80.25	(204)	81.7	(208)	0.88	(2.2)	29	(74)	58	(147)	66	(168)	1.0	(2.5)	4	(10.2)
2400	(9085)	42.5	(108)	87.25	(222)	88.2	(224)	0.88	(2.2)	29	(74)	58	(147)	66	(168)	1.0	(2.5)	4	(10.2)
2600	(9842)	45.5	(116)	93.25	(237)	94.7	(241)	0.88	(2.2)	29	(74)	58	(147)	66	(168)	1.0	(2.5)	4	(10.2)
2800	(10599)	48.5	(123)	99.25	(252)	100.7	(256)	0.88	(2.2)	29	(74)	58	(147)	66	(168)	1.0	(2.5)	4	(10.2)
3000	(11356)	52.0	(132)	106.25	(270)	107.2	(272)	0.88	(2.2)	29	(74)	58	(147)	66	(168)	1.0	(2.5)	4	(10.2)



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