



SUBMITTAL

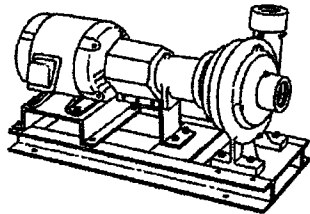
B-224.1E

JOB: SOF RIVERINE & COMBATANT CRAFT OPER. FAC. **REPRESENTATIVE:** Hydronic Technology, Inc.

UNIT TAG: P-1,2
ENGINEER:
CONTRACTOR: GALLO MECHANICAL

ORDER NO.
SUBMITTED BY: BILLY MARTINEZ
APPROVED BY:

DATE: 5/1/2009
DATE:
DATE:



1-1/2AC Series 1510 Centrifugal Pumps - Base Mounted

SPECIFICATIONS

FLOW 91.2 (GPM) **HEAD** 40 (FT)
HP 2 **RPM** 1800
VOLTS 230/460
CYCLE 60 **PHASE** 3
 TEFC Premium Efficiency
APPROX. WEIGHT 172
SPECIALS

MATERIALS OF CONSTRUCTION

BRONZE FITTED ALL IRON

FEATURES

ANSIO/SHA Coupling Guard
 Center Drop Out Spacer Coupling
 Fabricated Heavy Duty Baseplate

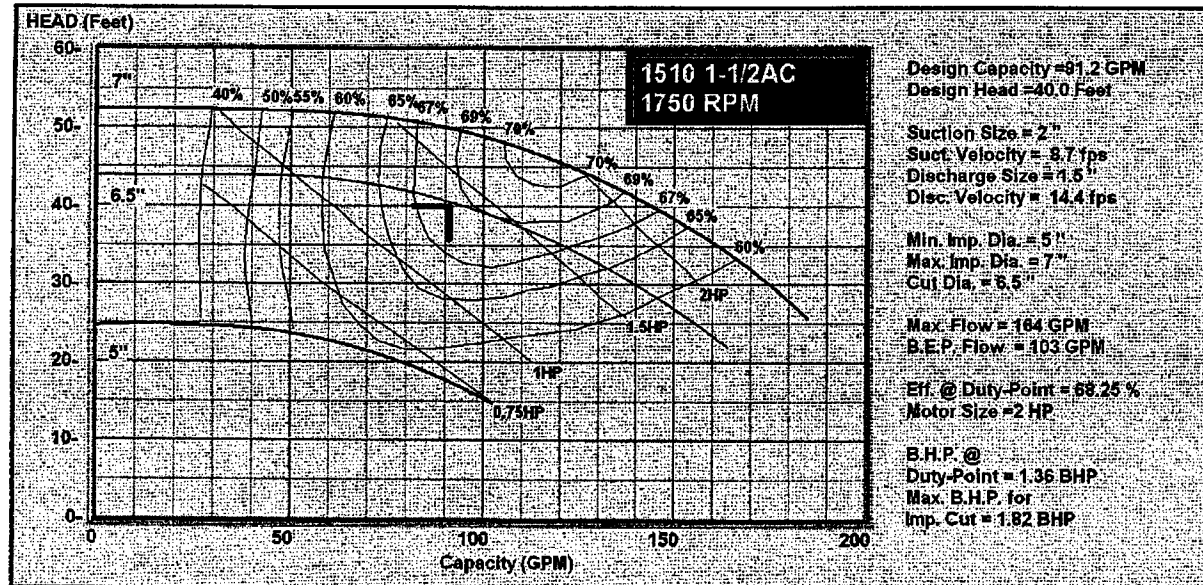
MAXIMUM WORKING PRESSURE

175 psi (12 bar) W.P.

TYPE OF SEAL

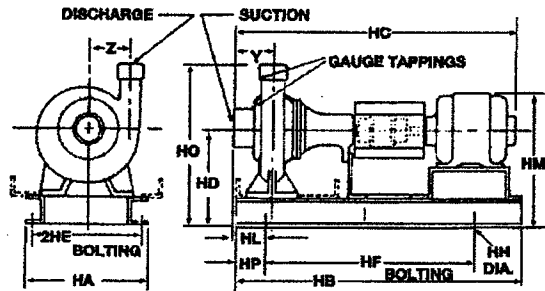
1510 Standard Seal (Buna-Carbon/Ceramic)
 1510 -F Standard Seal w/ Flush Line (Buna-Carbon/Ceramic)
 1510 -S Stuffing Box construction w/ Flushed Mechanical Single Seal (EPR-Tungsten Carbide/Carbon)
 1510 -D Stuffing Box construction w/ Flushed Double Mechanical Seal (EPR-Carbon/Ceramic) Requires external water source
 1510 -PF Stuffing Box Construction w/ Packing (Graphite Impregnated Teflon)

Note: Equipped with EPDM coupling



Series 1510 1-1/2AC Centrifugal Pump Submittal

B-224.1E



NOZZLE SIZES	
Discharge	1-1/2" N.P.T.
Suction	2" N.P.T.

DIMENSIONS - Inches (mm)

STANDARD SEAL 1510, 1510-F

MOTOR FRAME	HA	HB	HC MAX	HD	2HE	HF	HH	HL	HM MAX	HO	HP	Y	Z
	"S" FRAME												
56	12 (305)	28-3/4 (730)	28-1/4 (718)	9-3/4 (248)	10-1/4 (260)	22-1/2 (572)	3/4 (19)	3-1/16 (78)	13-3/8 (340)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
143T	12 (305)	28-3/4 (730)	28-3/8 (721)	9-3/4 (248)	10-1/4 (260)	22-1/2 (572)	3/4 (19)	3-1/16 (78)	13-1/2 (343)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
145T	12 (305)	28-3/4 (730)	29-3/8 (746)	9-3/4 (248)	10-1/4 (260)	22-1/2 (572)	3/4 (19)	3-1/16 (78)	13-1/2 (343)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
182T	14-5/8 (371)	31 (787)	32-1/8 (816)	9-3/4 (248)	12-7/8 (327)	25 (635)	3/4 (19)	1-11/16 (43)	15 (381)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
184T	14-5/8 (371)	31 (787)	32-7/8 (835)	9-3/4 (248)	12-7/8 (327)	25 (635)	3/4 (19)	1-11/16 (43)	15 (381)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
213T	14-5/8 (371)	34-5/8 (879)	35-3/8 (899)	9-3/4 (248)	12-7/8 (327)	28-5/8 (727)	3/4 (19)	1-11/16 (43)	15-5/8 (397)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
215T	14-5/8 (371)	34-5/8 (879)	36-7/8 (937)	9-3/4 (248)	12-7/8 (327)	28-5/8 (727)	3/4 (19)	1-11/16 (43)	15-5/8 (397)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
254T	14-5/8 (371)	39-3/8 (1000)	40-5/8 (1032)	10-3/4 (273)	12-7/8 (327)	33-3/8 (848)	3/4 (19)	1-11/16 (43)	17-5/8 (448)	16-3/4 (425)	3 (76)	3-1/8 (79)	4-5/8 (117)
256T	14-5/8 (371)	39-3/8 (1000)	42-3/8 (1078)	10-3/4 (273)	12-7/8 (327)	33-3/8 (848)	3/4 (19)	1-11/16 (43)	17-5/8 (448)	16-3/4 (425)	3 (76)	3-1/8 (79)	4-5/8 (117)

STUFFING BOX 1510-PF, 1510-S, 1510-D

MOTOR FRAME	HA	HB	HC MAX	HD	2HE	HF	HH	HL	HM MAX	HO	HP	Y	Z
	"S" FRAME												
56	14-5/8 (371)	34-5/8 (879)	31-7/8 (810)	9-3/4 (248)	12-7/8 (327)	28-5/8 (727)	3/4 (19)	1-11/16 (43)	13-3/8 (340)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
143T	14-5/8 (371)	34-5/8 (879)	32 (813)	9-3/4 (248)	12-7/8 (327)	28-5/8 (727)	3/4 (19)	1-11/16 (43)	13-1/2 (343)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
145T	14-5/8 (371)	34-5/8 (879)	33 (838)	9-3/4 (248)	12-7/8 (327)	28-5/8 (727)	3/4 (19)	1-11/16 (43)	13-1/2 (343)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
182T	14-5/8 (371)	34-5/8 (879)	35-3/4 (908)	9-3/4 (248)	12-7/8 (327)	28-5/8 (727)	3/4 (19)	1-11/16 (43)	15 (381)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
184T	14-5/8 (371)	34-5/8 (879)	36-1/2 (927)	9-3/4 (248)	12-7/8 (327)	28-5/8 (727)	3/4 (19)	1-11/16 (43)	15 (381)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
213T	14-5/8 (371)	39-3/8 (1000)	39 (991)	9-3/4 (248)	12-7/8 (327)	33-3/8 (848)	3/4 (19)	1-11/16 (43)	15-5/8 (397)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
215T	14-5/8 (371)	39-3/8 (1000)	40-1/2 (1029)	9-3/4 (248)	12-7/8 (327)	33-3/8 (848)	3/4 (19)	1-11/16 (43)	15-5/8 (397)	15-3/4 (400)	3 (76)	3-1/8 (79)	4-5/8 (117)
254T	16 (406)	46-1/2 (1181)	44-1/4 (1124)	12 (305)	14 (358)	36-1/2 (927)	7/8 (22)	2-13/16 (71)	18-7/8 (479)	18 (457)	5 (127)	3-1/8 (79)	4-5/8 (117)
256T	16 (406)	46-1/2 (1181)	46 (1168)	12 (305)	14 (358)	36-1/2 (927)	7/8 (22)	2-13/16 (71)	18-7/8 (479)	18 (457)	5 (127)	3-1/8 (79)	4-5/8 (117)

Dimensions are subject to change. Not to be used for construction purposes unless certified.

ITT
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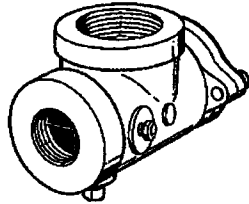
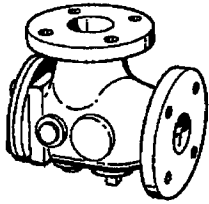
B-825H

JOB: SOF RIVERINE & COMBATANT CRAFT OPER. FAC. **REPRESENTATIVE:** Hydronic Technology, Inc.

UNIT TAG:
ENGINEER:
CONTRACTOR: GALLO MECHANICAL

ORDER NO.
SUBMITTED BY: BILLY MARTINEZ
APPROVED BY:

DATE: 5/1/2009
DATE:
DATE:



B&G Suction Diffuser

Centrifugal Pump Accessories

DESCRIPTION

The Bell & Gossett Suction Diffuser with disposable start-up strainer is designed for direct application to the pump suction and provides ideal flow conditions for the pump providing NPSH requirements are met. The integral orifice cylinder has a free area equal to five times the cross section of the pump suction opening and serves as a strainer protecting the pump.

OPERATING DATA

Operating Temperature: 250°F (121°C)
 Working Pressure: 175 psi (1,207 kPa)

MATERIALS OF CONSTRUCTION

Type	Body	Inlet Vanes	Orifice Cylinder	Start-Up Strainer
X	Cast Iron		Steel	16 Mesh Bronze
Z	Cast Iron		Stainless Steel	16 Mesh Bronze

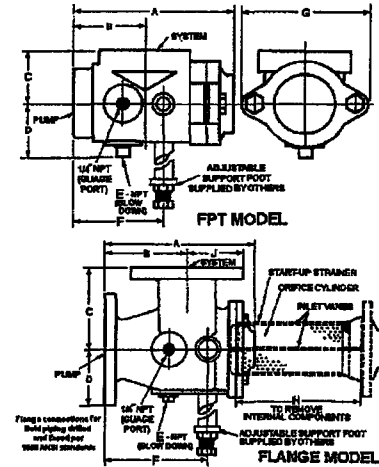
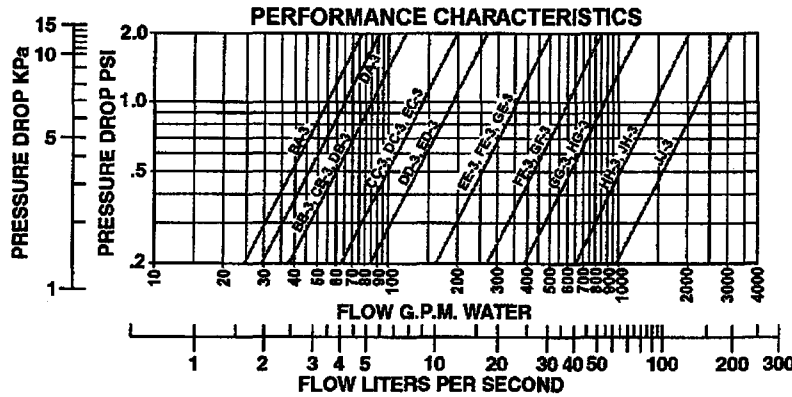
NOTES: Type X-For Closed Systems.
 Type Z-For Domestic Water and Tower Systems.

SCHEDULE

MODEL NUMBER	DIMENSIONS INCHES (mm)				TAGGING INFORMATION	X QUANTITY	Z QUANTITY
	SYSTEM SIDE		PUMP SIDE				
BA-3X/BA-3Z	2 (50.8)	FPT	1-1/2 (38.1)	FPT			
BB-3X/BB-3Z	2 (50.8)	FPT	2 (50.8)	FPT			
CB-3X/CB-3Z	2-1/2 (63.5)	FPT	2 (50.8)	FPT			
CC-3X/CC-3Z	2-1/2 (63.5)	FLG	2-1/2 (63.5)	FLG			
DA-3X/DA-3Z	3 (76.2)	FPT	1-1/2 (38.1)	FPT			
X DB-3X/DB-3Z	3 (76.2)	FPT	2 (50.8)	FPT	P-1,2	2	
DC-3X/DC-3Z	3 (76.2)	FLG	2-1/2 (63.5)	FLG			
DD-3X/DD-3Z	3 (76.2)	FLG	3 (76.2)	FLG			
EC-3X/EC-3Z	4 (101.6)	FLG	2-1/2 (63.5)	FLG			
ED-3X/ED-3Z	4 (101.6)	FLG	3 (76.2)	FLG			
EE-3X/EE-3Z	4 (101.6)	FLG	4 (101.6)	FLG			
FE-3X/FE-3Z	5 (127)	FLG	4 (101.6)	FLG			
FF-3X/FF-3Z	5 (127)	FLG	5 (127)	FLG			
GE-3X/GE-3Z	6 (152.4)	FLG	4 (101.6)	FLG			
GF-3X/GF-3Z	6 (152.4)	FLG	5 (127)	FLG			
GG-3X/GG-3Z	6 (152.4)	FLG	6 (152.4)	FLG			
HG-3X/HG-3Z	8 (203.2)	FLG	6 (152.4)	FLG			
HH-3X/HH-3Z	8 (203.2)	FLG	8 (203.2)	FLG			
JH-3X/JH-3Z	10 (254)	FLG	8 (203.2)	FLG			
JJ-3X/JJ-3Z	10 (254)	FLG	10 (254)	FLG			

SUCTION DIFFUSER

B-825H



TYPICAL SPECIFICATIONS

Provide at each pump a Suction Diffuser for mechanical coupling systems of the sized noted on drawings. Units shall consist of angle type body, grooved system connection, flanged pump connection, stainless steel inlet vanes and combination Diffuser-Strainer-Orifice Cylinder with 3/16 diameter openings for pump protection. The orifice cylinder shall be equipped with a disposable fine mesh strainer which shall be removed after system start-up.

Orifice cylinder shall be designed to withstand pressure differential equal to pump shut-off head (maximum _____ PSI) and shall have a free area equal to five times cross section area of pump suction opening. Vane length shall be no less than 2-1/2 times the pump connection diameter. Unit shall be provided with adjustable support foot to carry the weight of suction piping. Each Suction Diffuser to be ITT Bell & Gossett Model No. SDG-_____.

DIMENSIONS - INCHES (mm)

Model No.	System Side	Pump Side	A	B	C	D	E	F	G	H	J	Orifice Cylinder Free Area in ² (cm ²)	Approx. Shpg. Wt. Lbs. (Kg)
BA-3	2 (50.8)	T (38.1)	6-13/16 (173)	3 (76)	2-1/4 (57)	2-3/8 (60)	3/4 (19)	3-13/16 (97)	5-1/4 (133)	8 (203)	N/A	11 (71)	13 (6)
BB-3	2 (50.8)	T (50.8)	8-3/8 (213)	3-7/8 (98)	2-3/4 (70)	2-3/4 (70)	3/4 (19)	3-7/8 (98)	5-3/4 (145)	9 (229)	N/A	20-1/2 (132)	14 (6)
CB-3	2-1/2 (63.5)	T (63.5)	8-3/8 (213)	3-7/8 (98)	2-3/4 (70)	2-3/4 (70)	3/4 (19)	3-7/8 (98)	5-3/4 (148)	9 (229)	N/A	20-1/2 (132)	16 (7)
CC-3	2-1/2 (63.5)	F (63.5)	9 (229)	4-3/4 (121)	4-3/4 (121)	3-1/2 (89)	3/4 (19)	5-5/8 (143)	N/A	11 (278)	3-1/2 (89)	26 (168)	36 (16)
DA-3	3 (76.2)	T (38.1)	8-3/8 (213)	3-7/8 (98)	2-3/4 (70)	2-3/4 (70)	3/4 (19)	3-7/8 (98)	5-3/4 (145)	9 (229)	N/A	20-1/2 (132)	17 (8)
DB-3	3 (76.2)	T (50.8)	8-3/8 (213)	3-7/8 (98)	2-3/4 (70)	2-3/4 (70)	3/4 (19)	3-7/8 (98)	5-3/4 (146)	9 (229)	N/A	20-1/2 (132)	17 (8)
DC-3	3 (76.2)	F (63.5)	9 (229)	5 (127)	5 (127)	3-1/2 (89)	3/4 (19)	5-5/8 (143)	N/A	11 (279)	3-3/4 (95)	26 (168)	20 (20)
DD-3	3 (76.2)	F (76.2)	10 (254)	5-1/2 (140)	5-1/2 (140)	3-3/4 (95)	3/4 (19)	6-7/8 (175)	N/A	12 (308)	3-3/4 (95)	37-1/2 (242)	48 (22)
EC-3	4 (101.6)	F (63.5)	9 (229)	6-1/2 (165)	6-1/2 (165)	3-1/2 (89)	3/4 (19)	5-5/8 (143)	N/A	11 (278)	4-1/2 (114)	26 (168)	42 (19)
ED-3	4 (101.6)	F (76.2)	10 (254)	6-1/2 (165)	6-1/2 (165)	3-3/4 (95)	3/4 (19)	6-7/8 (175)	N/A	13 (330)	4-1/2 (114)	37-1/2 (242)	55 (25)
EE-3	4 (101.6)	F (101.6)	12-5/8 (321)	6-1/2 (165)	6-1/2 (165)	4-1/2 (114)	3/4 (19)	7-5/8 (194)	N/A	14 (356)	4-1/2 (114)	65 (419)	72 (33)
FE-3	5 (127)	F (101.6)	12-5/8 (321)	7-1/2 (191)	7-1/2 (191)	4-1/2 (114)	3/4 (19)	7-5/8 (194)	N/A	15 (381)	5 (127)	65 (419)	84 (38)
FF-3	5 (127)	F (127)	14-1/4 (362)	7-1/2 (191)	7-1/2 (191)	5 (127)	3/4 (19)	9 (229)	N/A	15 (381)	5 (127)	90 (581)	100 (45)
GE-3	6 (152.4)	F (101.6)	12-5/8 (321)	8 (203)	8 (203)	4-1/2 (114)	3/4 (19)	7-5/8 (194)	N/A	15 (381)	5-1/2 (140)	65 (419)	90 (41)
GF-3	6 (152.4)	F (127)	14-1/4 (362)	8 (203)	8 (203)	5 (127)	3/4 (19)	9 (229)	N/A	15 (381)	5-1/2 (140)	90 (581)	105 (49)
GG-3	6 (152.4)	F (152.4)	16-3/8 (416)	8 (203)	8 (203)	5-1/2 (140)	3/4 (19)	10-1/8 (257)	N/A	17 (432)	5-1/2 (140)	127 (819)	134 (61)
HG-3	8 (203.2)	F (152.4)	16-3/8 (416)	9 (229)	9 (229)	5-1/2 (140)	3/4 (19)	10-1/8 (257)	N/A	18 (457)	6-3/4 (171)	127 (819)	150 (68)
HH-3	8 (203.2)	F (203.2)	20-1/2 (519)	9 (229)	9 (229)	6-3/4 (171)	3/4 (19)	11 (279)	N/A	21 (533)	6-3/4 (171)	218 (1406)	250 (113)
JH-3	10 (254)	F (203.2)	20-1/2 (519)	10 (254)	11 (279)	6-3/4 (171)	3/4 (19)	11 (279)	N/A	21 (533)	8 (203)	218 (1406)	290 (132)
JJ-3	10 (254)	F (254)	26-1/4 (661)	11 (279)	11 (279)	8 (203)	3/4 (19)	13-1/2 (343)	N/A	25 (636)	8 (203)	338 (2180)	415 (188)

(T) Threaded - FPT (F) Flanged *Dimensions include orifice cylinder + 2-1/2 (64) inch clearance. Dimensions are subject to change. Not to be used for construction purposes unless certified.

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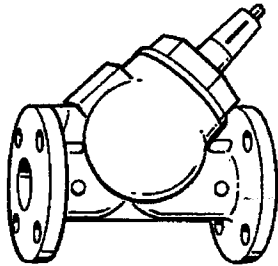
B-833A

JOB: SOF RIVERINE & COMBATANT CRAFT OPER. FAC. **REPRESENTATIVE:** Hydronic Technology, Inc.

UNIT TAG:
ENGINEER:
CONTRACTOR: GALLO MECHANICAL

ORDER NO.
SUBMITTED BY: BILLY MARTINEZ
APPROVED BY:

DATE: 5/1/2009
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Centrifugal Pump Accessories
Triple Duty[®] Valve
 Straight Pattern with Soft Seat Nonslam Check Valve,
 Throttling Valve, Calibrated Balance Valve and Shutoff Valve

DESCRIPTION

The Triple Duty Valve is a quiet operating heavy-duty valve which performs all of the functions normally required on the discharge side of hydronic system pumps.

The valve serves as a nonslam check valve as needed for zoned pumping, parallel and standby pumping, and condenser water applications. The spring loaded disk prevents valve chatter, and assures positive shutoff.

Bell & Gossett's Triple Duty Valve has a calibrated nameplate for rough system balance. The Triple Duty Valve is also equipped with Model RV-125A readout valves for more accurate system balance.

The calibrated nameplate allows the valve to be returned to the original balance position after shutoff.

To repack under system pressure, turn the valve stem to the fully open position. Turning the valve stem to the closed position provides shutoff.

CONSTRUCTION MATERIALS

- Body: Cast Iron with Bronze Seat
- Disc: Brass with EPDM Seat Insert
- Stem: Stainless Steel
- Spring: Stainless Steel
- Packing: Teflon-Graphite (Asbestos-free)
- Gasket: Non-Asbestos
- Readout Valve: Brass with EPT insert, check valve & gasket

SCHEDULE Maximum Working Pressure 175 PSIG (1,207 kPa) – Maximum Operating Temperature 250°F (121°C)

MODEL NO.	PART #	FLANGE SIZE INCHES(mm)	TAGGING INFORMATION	QUANTITY
➔ 3DS-3B	132160	3 (76.2)	P-1,2	2
3DS-4B	132161	4 (101.6)		
3DS-5B	132162	5 (127.0)		
3DS-6B	132163	6 (152.4)		
3DS-8B	132164	8 (203.2)		
3DS-10B	132165	10 (254.0)		
3DS-12B	132166	12 (304.8)		
3DS-14B	132167	14 (355.6)		
3DS-16B	132168	16 (406.4)		

Standard 125 PSIG (862 kPa) ANSI Flanges

TRIPLE DUTY® VALVE – STRAIGHT PATTERN

B-833A

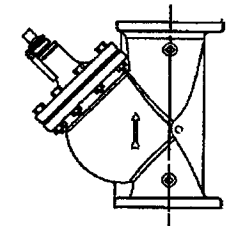
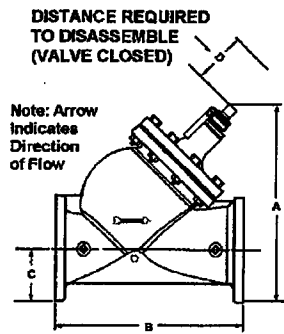
PERFORMANCE DATA

MODEL NO.	Cv RATING IN GPM (m ³ /hr) VS. PERCENT OF STEM RISE																	
	20%		30%		40%		50%		60%		70%		80%		90%		100%	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
3DS-3B	28 (8)	28 (8)	43 (10)	43 (10)	57 (13)	57 (13)	70 (16)	71 (16)	83 (19)	83 (19)	94 (21)	94 (21)	105 (24)	106 (24)	112 (25)	113 (26)	117 (26)	118 (27)
3DS-4B	47 (11)	47 (11)	71 (16)	72 (16)	98 (21)	98 (21)	114 (26)	116 (26)	132 (30)	135 (31)	150 (34)	152 (35)	166 (38)	168 (38)	178 (40)	181 (41)	190 (43)	191 (43)
3DS-5B	76 (17)	76 (17)	121 (28)	123 (28)	165 (38)	169 (38)	204 (46)	209 (47)	238 (54)	245 (56)	278 (63)	283 (64)	306 (69)	312 (71)	325 (74)	331 (75)	357 (81)	360 (82)
3DS-6B	110 (25)	112 (25)	173 (39)	176 (40)	236 (53)	238 (54)	291 (66)	296 (67)	341 (77)	348 (79)	392 (89)	402 (91)	443 (101)	454 (103)	493 (112)	508 (115)	534 (121)	556 (126)
3DS-8B	159 (36)	159 (36)	273 (62)	278 (63)	333 (76)	341 (77)	410 (93)	422 (96)	488 (110)	500 (114)	550 (125)	569 (129)	622 (141)	631 (143)	684 (155)	690 (157)	749 (170)	748 (170)
3DS-10B	250 (57)	253 (57)	378 (86)	389 (88)	513 (117)	528 (120)	629 (143)	652 (148)	748 (178)	775 (184)	854 (194)	889 (202)	935 (212)	983 (223)	1023 (232)	1075 (244)	1117 (254)	1169 (265)
3DS-12B	426 (97)	436 (99)	683 (151)	688 (156)	883 (201)	923 (210)	1089 (247)	1151 (261)	1277 (290)	1343 (305)	1443 (328)	1539 (350)	1607 (365)	1704 (387)	1765 (401)	1870 (425)	1874 (425)	1992 (452)
3DS-14B	578 (131)	594 (135)	885 (201)	916 (208)	1173 (266)	1219 (277)	1437 (326)	1497 (340)	1710 (388)	1780 (400)	1946 (442)	2017 (458)	2159 (490)	2228 (506)	2399 (545)	2499 (567)	2566 (583)	2669 (606)
3DS-16B	614 (139)	619 (141)	1021 (232)	1036 (235)	1422 (323)	1445 (328)	1789 (406)	1798 (408)	2127 (483)	2143 (487)	2412 (548)	2417 (549)	2708 (615)	2715 (616)	2974 (675)	2983 (677)	3283 (746)	3368 (765)

A. FLOWMETER Cv FOR BALANCING. MINIMUM READING OF 3 FEET (.9 m) OF PRESSURE DROP REQUIRED FOR ACCURATE FLOW DETERMINATION.

B. Cv FOR CALCULATING PRESSURE DROP ACROSS THE VALVE.

NOTE: MAXIMUM RECOMMENDED PRESSURE DROP SHOULD NOT EXCEED 25 FEET (7.6 m).



MODEL NUMBER	FLANGE SIZE*	DIMENSIONS IN INCHES (mm)					APPROX. SHPG. WT. LBS. (Kg)
		A		B	C	D	
		OPEN	CLOSED				
3DS-3B	3 (76.2)	11.22 (285.00)	10.51 (266.90)	10.00 (254.00)	3.75 (95.25)	3.50 (88.90)	36 (16)
3DS-4B	4 (101.6)	13.07 (332.00)	12.19 (309.60)	14.50 (368.30)	4.50 (114.30)	3.94 (100.00)	62 (28)
3DS-5B	5 (127.0)	17.41 (442.20)	16.35 (415.20)	16.00 (406.40)	5.00 (127.00)	6.25 (158.80)	105 (48)
3DS-6B	6 (152.4)	19.02 (483.10)	17.78 (451.60)	17.78 (451.60)	5.50 (139.71)	6.88 (174.80)	148 (67)
3DS-8B	8 (203.2)	21.90 (556.30)	20.48 (520.30)	21.50 (546.10)	6.75 (171.45)	8.25 (209.60)	230 (104)
3DS-10B	10 (254.0)	26.02 (660.90)	24.42 (620.40)	25.50 (647.70)	8.00 (203.20)	10.38 (263.70)	380 (172)
3DS-12B	12 (304.8)	30.25 (768.40)	27.95 (710.00)	30.00 (762.00)	9.50 (241.30)	12.25 (311.20)	546 (248)
3DS-14B	14 (355.6)	34.42 (874.30)	32.04 (813.70)	33.75 (857.25)	10.50 (266.70)	14.50 (368.30)	765 (347)
3DS-16B	16 (406.4)	38.24 (971.30)	35.28 (896.00)	35.00 (889.00)	11.75 (298.45)	16.50 (419.10)	980 (445)

STANDARD 125 PSIG (862 kPa) ANSI FLANGES. Dimensions are subject to change. Not to be used for construction purposes unless certified.

TYPICAL SPECIFICATIONS

Furnish and install as shown on plans, an angle pattern valve designed to perform the functions of a nonslam check valve, throttling valve, shutoff valve and calibration balancing valve.

The valve shall be a heavy-duty cast iron construction with standard 125 psig (862 kPa) ANSI flanged connections, and rated for a maximum working pressure of 175 psig (1207 kPa) at 250°F (121°C). The valve shall be fitted with a bronze seat, replaceable brass disc with EPDM seat insert, stainless steel stem, and chatter-preventing spring and calibrated nameplate. The valve design shall permit repacking under full system pressure.

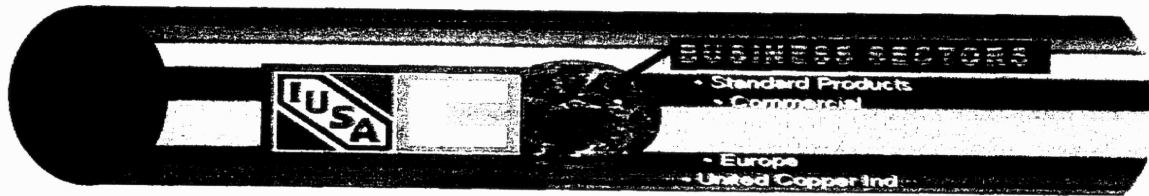
The valve shall be equipped with brass readout valve (with integral check valve) for taking differential pressure readings across the orifice for accurate system balance.

Valve Cv rating at full open position not to be less than _____. (Refer to the 100% stem rise value shown in row "B" for required valve.)

All valves shall be ITT Bell & Gossett Model No. 3D-____S Triple Duty Valve.

ITT
8200 N. Austin Avenue
Morton Grove, IL 60053
Phone (847)966-3700
Facsimile (847)966-9052
www.bellgossett.com





Home Up Feedback Contents

Product Range Print

COPPER TUBE PRODUCT RANGE

Cambridge-Lee Industries manufactures a wide range of copper tube products for use in the plumbing, refrigeration, air-conditioning, and commercial industries. Described herein is our current product range, but other items and specifications are continuously being added and may be available upon request.

Product	Application	Temper	Lengths	Color	Specifications
Water Tube Type K	Domestic Water Service Fire Protection Solar, Fuel Oil HVAC	Hard Soft	10 ft. Straight lgth 20 ft. Straight lgth 60 ft. Coils 100 ft. Coils	Green	C12200, ASTM B-88 Federal WW-T-799
Water Tube Type L	Domestic Water Service Fire Protection Solar, Fuel Oil HVAC, Natural Gas	Hard Soft	10 ft. Straight lgth 20 ft. Straight lgth 60 ft. Coils 100 ft. Coils	Blue	C12200, ASTM B-88 Federal WW-T-799
Water Tube Type M	Domestic Water Service Fire Protection Solar, Fuel Oil HVAC	Hard	10 ft. Straight lgth 20 ft. Straight lgth	Red	C12200, ASTM B-88 Federal WW-T-799
ACR Tube (L cleaned and capped/degreased)	Air Conditioning Refrigeration Natural Gas	Hard	20 ft. Straight lgth	Blue	C12200, ASTM B-280
OXY/MED Tube (K & L cleaned and capped/degreased)	Medical Gas Systems	Hard	20 ft. Straight lgth	Blue	C12200, ASTM B-280 B-819
Refrigeration Tube	Air Conditioning Refrigeration Service	Soft	50 ft. Coils 100 ft. Coils	Red	C12200, ASTM B-280
DWW Tube	Drainage	Hard	20 ft. Straight lgth	Yellow	C12200, ASTM B-306

Last modified: 06/11/07

DAMIEN W. SERAUSKAS, P.E.
PROFESSIONAL ENGINEERING SERVICES

No Exceptions Taken Rejected
 Approved As Noted Resubmit

Date: 3-18-09 By: [Signature]

Review is for general conformance with the design intent and general compliance with the information given in the Project Documents. The Contractor shall be responsible for confirming all dimensions, quantities, and installation methods.

HVAC + PLUMBING + FIRE PROTECTION + SITE UTILITIES

15 CYPRESS POINT LANE NEW ORLEANS, LA 70131
VOICE: (504) 866-2600 FAX: (504)-218-8480



CAMBRIDGE-LEE INDUSTRIES, LLC.

Reading Tube Division

P.O. Box 14026, Reading, PA 19612 - 4026

Phone 610 - 926 4141 Fax 610 - 926 7317

Distributor: Address: Order No.: Product:	Customer: Address: P.O. No.:
--	---

Standard Tube Certificate of Conformance

Tube Type	Specification No. *	Specification Title
Type K, L & M	ASTM B 88 NSF 61	Standard Specification for Seamless Copper Water Tube ANSI/NSF Standard 61 Drinking Water System Components Health Effects ¹
Coils and Straight Lengths Marked as ACR	ASTM B 280	Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service
Type DWV Drainage	ASTM B 306	Standard Specification for Copper Drainage Tube (DWV)
Type K & L Straight Lengths Marked as OXY/MED	ASTM B 819	Standard Specification for Seamless Copper Tube for Medical Gas Systems

Cambridge-Lee Industries, LLC certifies that the copper tube manufactured is grade UNS C12200 and meets the chemical, mechanical, cleanliness and eddy current testing requirements of the current specification(s) indicated below.

* Although CLI - RTD strives to meet all requirements specified in ASTM, Standard Tube² may not fully meet ASTM dimensional requirements. When specified at order placement and for an additional cost, CLI - RTD can produce Certified Tube to meet all requirements of the current ASTM standard, including dimensions.

Copper tube manufactured by Cambridge-Lee Industries does not contain mercury or come in contact with mercury, mercury compounds or mercury containing devices at any stage in manufacturing, inspection, packaging or shipping.

All of the specifications require a minimum copper plus silver content of 99.9% and a phosphorus content between .015 - .040%. As indicated by the compositional requirements, the copper tube is essentially lead free.

¹ Seamless Copper Tube (Alloy C12200) is certified by NSF to NSF/ANSI Standard 61 for public water supplies meeting, or in process of meeting the U.S. EPA Lead and Copper Rule (56FR 26460, June 7, 1991). Water Supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water.

² Standard Tube will be provided unless Certified Tube is clearly defined on Purchase Order.



**PRODUCT CERTIFICATION - SOLDER, BRAZED AND THREADED COPPER
AND COPPER ALLOY PLUMBING FITTINGS**

Elkhart Products Corporation manufactures and/or supplies products which meet the following specifications:

MSS	SP73	<u>Brazing Joints for Copper and Copper Alloy Pressure Fittings</u>
MSS	SP104	<u>Wrought Copper Solder Joint Pressure Fittings</u>
MSS	SP106	<u>Cast Copper Alloy Flanges and Flanged Fittings: Class 125, 150 and 300</u>
MSS	SP123	<u>Non-Ferrous Threaded and Solder-Joint Unions for use with Copper Water Tube</u>
MSS	SP109	<u>Welded Fabricated Copper Solder Joint Pressure Fittings</u>
ASME/ANSI	B16.29-2001:	<u>Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV</u>
ASME/ANSI	B16.18-2001:	<u>Cast Copper Alloy Solder Joint Pressure Fittings</u>
ASME/ANSI	B16.15-1994:	<u>Cast Bronze Threaded Fittings</u>
ASME/ANSI	B16.26-1988:	<u>Cast Copper Alloy Fittings for Flared Copper Tube</u>
ASME/ANSI	B16.23-2002:	<u>Cast Copper Alloy Solder Joint Drainage Fittings - DWV</u>
ASME/ANSI	B16.24-2001:	<u>Bronze Pipe Flanges and Flanged Fittings</u>

EPC's wrought copper solder joint fittings also are manufactured to comply with the material, performance, and installation/joining dimensions of ASME/ANSI B16.22. These fittings are also compliant with the European Union's RoHS (Restrictions of Hazardous Substances) Directive, 2002/95/EC.

The materials used to manufacture these fittings are also in compliance with the following specifications:

Tubular Wrought Copper: ASTM B75 Alloy C12200.	<u>Standard specification for Seamless Copper Tube, or</u>
Products Made From Sheet: ASTM B152 Alloy C11000.	<u>Standard Specification for Copper Sheet, Strip, Plate and Rolled Bar</u>
Cast Products: ASTM B584 Alloy C84400.	<u>Standard Specification for Copper Alloy Sand Castings for General Applications; Federal Specification WW-U-516 For Type III, Class A and B Copper Alloy Unions</u>

ELKHART PRODUCTS CORPORATION
Plumbing Division



Dana Buccicone
Director of Technology

State of Massachusetts product approval
Number P1-0698-46, granted 6.3.98.

Subscribed and sworn to before me


On this 24th day of July, 2006

Dicki A. Vergon
NOTARY PUBLIC

DICKI A. VERGON
NOTARY PUBLIC STATE OF INDIANA
OSCEOLA COUNTY
MY COMMISSION EXPIRES FEB 28 2007

125 Oak St. • P.O. Box 105 • Elkhart, Indiana 46515 • Tel: (574) 264-1051 • Fax: (574) 264-1052
www.ElkhartProducts.com

an
Alberis Industries
company

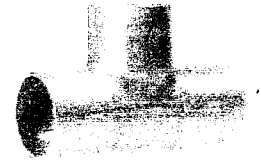


Elkhart Products Corporation
For the perfect fit



1255 Oak St. | Elkhart, Indiana 46515 | Ph: (574) 264-3181 | Fx: (574) 264-0103
www.elkhartproducts.com

Publication Date: October 26, 2006
Revision BB



RECYCLED MATERIAL FOR "LEED" COMPLIANCE Green Building Rating System

"Each year in the United States, nearly as much copper is recovered from recycled material as is derived from newly mined ore. Excluding wire production, more than three-fourths (¾) of the amount used by copper and brass mills, ingot makers, foundries, powder metal plants and other industries comes from recycled scrap copper."

"Almost half of all recycled copper scrap is old post consumer scrap, such as discarded electric cable, automobile radiators and air conditioners."

Elkhart Products Corporation subscribes to the above facts and encourages its suppliers to do the same.

The copper tubing and rod used to produce all E.P.C. copper fittings is manufactured from copper cathode which in turn is made up from twenty-five (25) percent post consumer scrap as described above. Another fifty (50) percent is post industrial scrap (turnings, shavings and chips).

Dennis Thompson

Staff Engineer
Elkhart Products Corp.



Vulcan

THREADED PRODUCTS, INC.

Vulcan Threaded Products
#10 Crosscreek Trail
Pelham, AL 35124
Ph:(205) 620-5100
Fax:(205) 620-5150

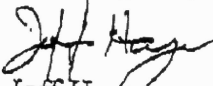
Ref: Low Carbon All-Thread Rod

September 14, 2004

This letter is to certify that the All-Thread Rod supplied by Vulcan Threaded Products will meet the minimum physical requirements of ASTM A36 & A307 and produced to a 1A fit. 1/2" to 1" All-Thread Rod is produced from 1006/1008/1010 steel. 1-1/8" to 2-1/2" is produced from 1018 steel. The entire threaded rod size range is manufactured in the United States from domestic and foreign raw material.

All Hot-Dip Galvanized threaded rod is plated according to ASTM A153 specifications. All Zinc Threaded Rod is plated according to ASTM B633.

Best Regards,



Jeff Hayes
Purchasing Manager

DAMIEN W. SERAUSKAS, P.E.
PROFESSIONAL ENGINEERING SERVICES

- No Exceptions Taken
- Rejected
- Approved As Noted
- Resubmit

Date: 3-18-09 By: 

Review is for general conformance with the design intent and general compliance with the information given in the Project Documents. The Contractor shall be responsible for confirming all dimensions, quantities, and installation methods.

HVAC + PLUMBING + FIRE PROTECTION + SITE UTILITIES

15 CYPRESS POINT LANE NEW ORLEANS, LA 70131
VOICE: (504) 866-2600 FAX: (504)-218-8480

1/4" THROUGH 5/8" MANUFACTURED FROM 1006-1010 STEEL
 3/4" THROUGH 1" MANUFACTURED FROM 1006 - 1010 OR A36 STEEL

ALL ALL-THREAD ROD WILL MEET MINIMUM TENSILE & YIELD
 REQUIREMENTS OF ASTM A307 GRADE C

ITEM	MANUFACTURER	MATERIAL AS DESCRIBED ON INVOICE
1	VULCAN THREADED PRODUCTS	1/4"-20 LOW CARBON STEEL THREADED ROD MELTED DOMESTICALLY AND INTERNATIONALLY MANUFACTURED IN THE UNITED STATES
2	VULCAN THREADED PRODUCTS	5/16"-18 LOW CARBON STEEL THREADED ROD MELTED DOMESTICALLY AND INTERNATIONALLY MANUFACTURED IN THE UNITED STATES
3	VULCAN THREADED PRODUCTS	3/8"-16 LOW CARBON STEEL THREADED ROD MELTED DOMESTICALLY AND INTERNATIONALLY MANUFACTURED IN THE UNITED STATES
4	VULCAN THREADED PRODUCTS	1/2"-13 LOW CARBON STEEL THREADED ROD MELTED DOMESTICALLY AND INTERNATIONALLY MANUFACTURED IN THE UNITED STATES
5	VULCAN THREADED PRODUCTS	5/8"-11 LOW CARBON STEEL THREADED ROD MELTED DOMESTICALLY AND INTERNATIONALLY MANUFACTURED IN THE UNITED STATES
6	VULCAN THREADED PRODUCTS	3/4"-10 LOW CARBON STEEL THREADED ROD MELTED DOMESTICALLY AND INTERNATIONALLY MANUFACTURED IN THE UNITED STATES
7	VULCAN THREADED PRODUCTS	7/8"-09 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES
8	VULCAN THREADED PRODUCTS	1"-08 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES

ITEM	HEAT#	CARBON	MANG.	PHOS.	SULPHUR	SILICON	CHROM.	NICKEL	MOLY.	COPPER
1	65800	.06	.47	.006	.010	.15	.06	.09	.02	.20
2	64241	.06	.45	.011	.024	.12	.15	.10	.03	.26
3	26863	.06	.40	.016	.025	.12	.13	.14	.00	.26
4	26864	.07	.42	.013	.02	.13	.10	.11	.00	.21
5	1030122	.04	.45	.018	.034	.11	--	--	--	--
6	65197	.17	.67	.014	.016	.18	.14	.10	.03	.32
7	62286	.22	.90	.006	.025	.23	.05	.07	.02	.16
8	62260	.15	.72	.012	.026	.19	.07	.08	.02	.21

ITEM	HEAT #	TENSILE PSI	YIELD PSI	%ELONGATION 1" GAGE	REDUCTION OF AREA	BEND TEST
1	65800	62,200	40,053	36.0	-----	-----
2	64241	61,500	40,611	34.0	-----	-----
3	26863	60,915	40,053	36.0	-----	-----
4	26864	61,641	40,611	34.0	-----	-----
5	1030122	58,853	39,885	40.0	-----	-----
6	65197	73,700	51,200	32.0	-----	-----
7	62286	78,600	50,700	31.0	-----	-----
8	62260	69,100	45,800	37.0	-----	-----

WE HEREBY CERTIFY THAT THE FOREGOING DATA IS A TRUE COPY OF THE DATA FURNISHED BY THE PRODUCING MILL. ALL DATA SUPPLIED IN THIS ABOVE TEST REPORT ARE TYPICAL OF MATERIAL FURNISHED BY VULCAN THREADED PRODUCTS.

DATE: 4/30/2004

VULCAN THREADED PRODUCTS
 #10 CROSSCREEK TRAIL
 PELHAM, AL 35124
 205 620-5100
 FAX 205 620-5150

By: [Signature]
 AUTHORIZED AGENT
 QUALITY CONTROL SUPERVISOR

SEP-12-2007 12:25

VULCAN THREADED PRODUCTS

1-1/8" THROUGH 2" MANUFACTURED FROM 1018 OF A36 STEEL
 2-1/4" THROUGH 2-1/2" MANUFACTURED FROM 1018 OF A36 STEEL

ALL ALL-THREAD ROD WILL MEET MINIMUM PHYSICAL AND
 CHEMICAL REQUIREMENTS OF ASTM A307 GRADE C

ITEM	MANUFACTURER	MATERIAL AS DESCRIBED ON INVOICE
1	VULCAN THREADED PRODUCTS	1-1/8"-7 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES
2	VULCAN THREADED PRODUCTS	1-1/4"-7 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES
3	VULCAN THREADED PRODUCTS	1-3/8"-6 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES
4	VULCAN THREADED PRODUCTS	1-1/2"-6 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES
5	VULCAN THREADED PRODUCTS	1-3/4"-5 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES
6	VULCAN THREADED PRODUCTS	2"-4.5 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES
7	VULCAN THREADED PRODUCTS	2-1/4"-4 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES
8	VULCAN THREADED PRODUCTS	2-1/2"-4 LOW CARBON STEEL THREADED ROD MELTED AND MANUFACTURED IN THE UNITED STATES

ITEM	HEAT#	CARBON	MANG	PHOS.	SULPHUR	SILICON	CHROM.	NICKEL	MOLY.	COPPER
1	589911120	.20	.80	.015	.026	.22	.10	.09	.03	.43
2	589915771	.17	.70	.02	.036	.16	.12	.10	.04	.41
3	319913248	.20	.60	.012	.040	.21	.11	.09	.04	.37
4	319913251	.18	.60	.012	.037	.21	.13	.10	.04	.33
5	151115	.14	.78	.008	.023	.21	.07	.15	.034	.37
6	151438	.17	.82	.005	.017	.23	.06	.09	.016	.21
7	681952	.18	.77	.01	.03	.22	-----	-----	-----	-----
8	640723	.18	.70	.02	.04	.22	-----	-----	-----	-----

HEAT #	TENSILE PSI MIN	YIELD PSI MIN	%ELONGATION 8" GAGE MIN %	REDUCTION OF AREA MIN %
589911120	77,400	52,100	27	-----
589915771	72,400	49,600	24	-----
319913248	71,338	48,408	25	-----
319913251	75,796	48,408	23	-----
151115	68,000	46,900	47	-----
151438	70,100	49,700	52	-----
681952	92,300	85,400	16	-----
640723	89,500	80,550	15	-----

WE HEREBY CERTIFY THAT THE FOREGOING DATA IS A TRUE COPY OF THE DATA FURNISHED BY THE PRODUCING MILL.
 ALL DATA SUPPLIED IN THE ABOVE TEST REPORT ARE TYPICAL OF MATERIAL FURNISHED BY VULCAN THREADED PRODUCTS.

DATE: 9/13/2003

VULCAN THREADED PRODUCTS
 #10 CROSSCREEK TRAIL
 PELHAM, AL 35124
 (205) 620-5100
 FAX (205) 620-5150

BY: [Signature]
 AUTHORIZED AGENT
 QUALITY CONTROL SUPERVISOR

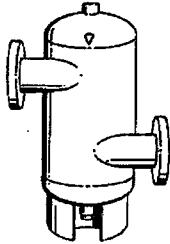


SUBMITTAL

A-326.8C

JOB: SOF RIVERINE & COMBATANT CRAFT OPER. FAC. REPRESENTATIVE: Hydronic Technology, Inc.

UNIT TAG: ORDER NO. DATE: 5/1/2009
 ENGINEER: SUBMITTED BY: BILLY MARTINEZ DATE:
 CONTRACTOR: GALLO MECHANICAL APPROVED BY: DATE:



ROLAIRTROL®
Air Separator
 Flanged Less Strainer
 Air Control and Elimination

DESCRIPTION

The Rolairtrol Air Separator is an ASME vessel designed with tangential openings to create a low velocity vortex where air is separated and removed from the circulating water.

CONSTRUCTION MATERIALS

- Designed and constructed per ASME Section VIII, Division 1
- Shell: Carbon Steel

MAXIMUM WORKING PRESSURE

125 PSIG (862 kPa)

MAXIMUM OPERATING TEMPERATURE

350°F (177°C)

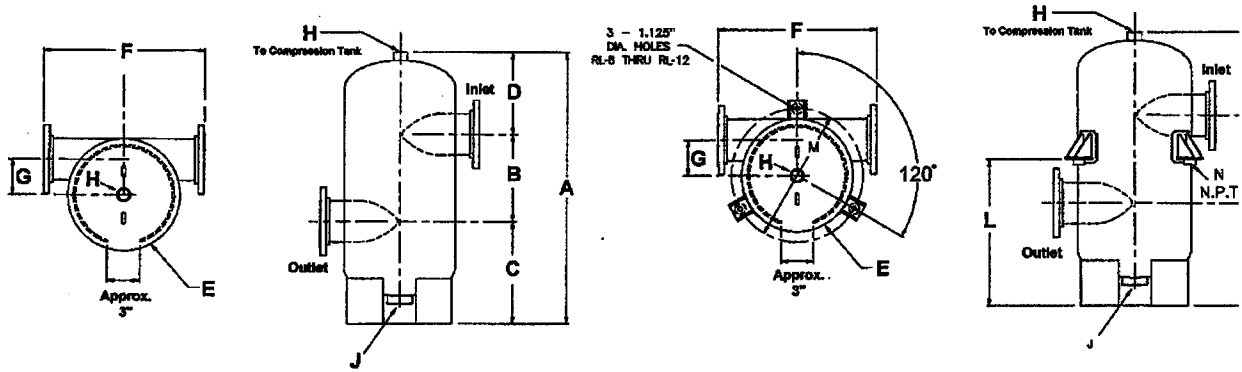
Consult factory for higher working pressures and temperatures.

PART NUMBER	MODEL NUMBER	Capacity GPM (m ³ /hr)	Flanged Tangential Opening in. (mm)	TAGGING INFORMATION	QUANTITY
5363-03F-12-003	RL-3F	190 (43.2)	3 (76.2)	AS-1	1
5363-04F-12-003	RL-4F	300 (68.1)	4 (101.6)		
5363-05F-12-003	RL-5F	530 (120.4)	5 (127.0)		
5363-06F-12-003	RL-6F	850 (193.0)	6 (150.0)		
5363-08F-12-004	RL-8F	1,900 (431.5)	8 (203.2)		
5363-10F-12-003	RL-10F	3,600 (817.6)	10 (254.0)		
5363-12F-12-003	RL-12F	4,800 (1090.1)	12 (300.0)		
5363-03F-12-004	RL-3FB	190 (43.2)	3 (76.2)		
5363-04F-12-004	RL-4FB	300 (68.1)	4 (101.6)		
5363-05F-12-004	RL-5FB	530 (120.4)	5 (127.0)		
5363-06F-12-004	RL-6FB	850 (193.0)	6 (150.0)		
5363-08F-12-005	RL-8FB	1,900 (431.5)	8 (203.2)		
5363-10F-12-004	RL-10FB	3,600 (817.6)	10 (254.0)		
5363-12F-12-004	RL-12FB	4,800 (1090.1)	12 (300.0)		

Model numbers with a B suffix include bracket supports.

ROLAIRTROL - Flanged Less Strainer

**A-3
F**



DIMENSIONS in Inches (mm) AND WEIGHTS in Lbs (kg.)

MODEL NUMBER	A	B	C	D	E	F	G	H	J	L*	M*	N*	Cv	Approx. Volume in Gallons (Ltr.)	Approx. Shpg. Wt. in Lbs. (Kg)	Flood Wt. Less Bracket in Lbs. (Kg)
RL-3F (B)	28-7/8 (683)	8 (203)	10-13/16 (275)	8-1/16 (205)	10-3/4 (273)	22-3/4 (578)	3-5/8 (92)	1-1/4 (32)	2 (51)	13-3/8 (340)	14 (358)	2 (51)	215	7 (26)	115 (52)	173 (79)
RL-4F (B)	31-7/16 (799)	10 (254)	11-15/16 (303)	9-1/2 (241)	12-3/4 (324)	20-1/2 (521)	4-1/8 (105)	1-1/2 (38)	2 (51)	15-3/8 (391)	16 (406)	2 (51)	370	13 (49)	155 (70)	263 (119)
RL-5F (B)	37 (940)	12 (305)	14-1/16 (357)	10-15/16 (278)	16 (406)	23-3/4 (603)	5-1/4 (133)	1-1/2 (38)	2 (51)	18-1/2 (470)	19-3/8 (492)	2 (51)	580	25 (95)	205 (93)	414 (188)
RL-6F (B)	44-1/16 (1119)	14 (356)	16-13/16 (427)	13-1/4 (337)	18 (457)	25-3/4 (654)	5-11/16 (144)	1-1/2 (38)	2 (51)	22-1/8 (562)	21-1/4 (540)	2 (51)	850	34 (129)	280 (127)	564 (256)
RL-8F (B)	54 (1372)	18 (457)	19-7/16 (494)	16-9/16 (421)	24 (610)	31-3/4 (806)	7-11/16 (195)	2 (51)	2 (51)	26 (660)	29-1/2 (749)	2 (51)	1,445	90 (341)	420 (190)	1,171 (531)
RL-10F (B)	64-11/16 (1643)	22 (559)	22-5/8 (575)	20-1/16 (510)	30 (762)	37-3/4 (959)	9-5/8 (244)	2 (51)	2 (51)	31-5/8 (803)	35-1/2 (902)	2 (51)	2,340	150 (568)	800 (363)	2,052 (930)
RL-12F (B)	75-3/8 (1915)	27 (586)	25-3/4 (654)	22-5/8 (575)	36 (914)	48-3/4 (1187)	11-5/8 (295)	2 (51)	2 (51)	37-5/8 (956)	41-1/2 (1054)	2 (51)	3,300	291 (1,101)	1,110 (503)	3,538 (1,605)

*Indicates measurements for models that have optional support brackets
 †Bracket weight should be added to flood weight and approximate shipping weight for models that are being supplied with optional support brackets.

Important Note: Dimensions not to be used for construction.

IMPORTANT NOTES:

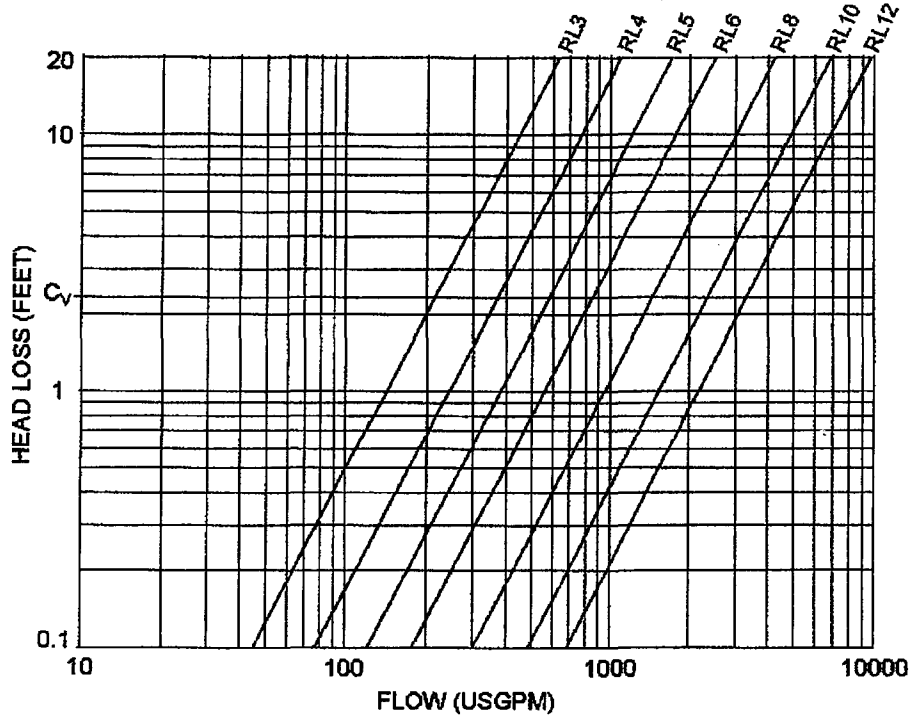
1. Consult IOM A85524 for safety and service instructions.
2. Lifting lugs are for the transportation and installation of the empty vessel, and are not to be used for complete or partial support of the flood vessel.
3. The RL skirt can support flooded vessel weight.
4. Welding to the pressure vessel boundary will void the ASME stamp.
5. Standard Rolairtrol design up to 12" can be hung from the nozzles using hangers. Optional, factory welded, support brackets are available for an additional cost.

ITT
 8200 N. Austin Avenue
 Morton Grove, IL 60053

ROLAIRTROL - Flanged Less Strainer

Rolairtrol® Air Separator Performance Coverage Chart

RL MODELS (WITHOUT STRAINERS)



Note: Pressure drops for a range of flow are indicated on this chart. Users should select Rolairtrol using B&G published capacity guidance, and ASHRAE pipe sizing recommendations for optimal performance.

TYPICAL ROLAIRTROL SPECIFICATIONS

Furnish and install, as shown on plans, a centrifugal type air separator. The unit shall have _____" Inlet and outlet flanged connections tangential to the vessel shell. The unit shall have the capability to direct accumulated air to the compression tank (air control system) or air vent (air elimination system) via an NPT vent connection at top of unit.

A blowdown connection shall be provided to facilitate routine cleaning. Specify B&G Model MBV-1 Rolairtrol accessory with appropriate fittings for manual blowdown.

Vessel shell diameter to be three times the nominal inlet/outlet pipe diameter, with a minimum vessel volume for sufficient velocity reduction.

The air separator must be designed, constructed and stamped for 125 psig @ 375°F (862 kPa @ 191°C) in accordance with Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code, and registered with the National Board of Boiler and Pressure Vessel Inspectors. The air separator (s) shall be painted with one shop coat of light gray air dry enamel.

Each air separator shall be Bell & Gossett Model No. _____ Rolairtrol Air Separator for _____ GPM (_____ m³), Shell Dia. _____" (_____ mm) and Min. Vessel Volume _____ Gal (_____ liters).

Refer to submittal A-329 for information on the MBV-1 manual blowdown valve.

ITT
8200 N. Austin Avenue
Morton Grove, IL 60053
Phone (847)966-3700
Facsimile (847)966-9052
www.bellgossett.com

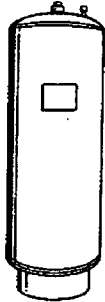




SUBMITTAL

A-346F

JOB: SOF RIVERINE & COMBATANT CRAFT OPER. FAC.		REPRESENTATIVE: Hydronic Technology, Inc.	
UNIT TAG:	ORDER NO.	DATE: 5/1/2009	
ENGINEER:	SUBMITTED BY: BILLY MARTINEZ	DATE:	
CONTRACTOR: GALLO MECHANICAL	APPROVED BY:	DATE:	



Series "D" (ASME) Pressurized Expansion Tanks Vertical

Not For Potable Water Systems

DESCRIPTION

Series "D" expansion tanks are ASME rated precharged diaphragm-type pressure vessels. The Series "D" tank is designed to absorb the expansion forces of heating/cooling system water while maintaining proper system pressurization under varying operating conditions. The heavy duty diaphragm separates system water from the tank air charge thereby eliminating waterlogging problems.

CONSTRUCTION

Shell: Carbon Steel
Diaphragm: Heavy Duty Butyl Rubber
System Connection: Forged Steel
Designed and Constructed per ASME Section VIII, Division 1

PERFORMANCE LIMITATIONS

Maximum Design Pressure: 125 PSI (862kPa)
Design Temperature: 240°F (115°C)

SCHEDULE

PART NUMBER	MODEL NO.	VOLUME GALLONS (LITERS)		TAGGING INFORMATION	QUANTITY
		TANK	ACCEPTANCE		
116491	D-15V	8.0 (30.3)	2.4 (9.1)		
116492	D-20V	10.9 (41.3)	2.4 (9.1)		
116493	D-40V	21.7 (82.1)	11.3 (42.8)		
116525	D-60V	33.6 (127.2)	11.3 (42.8)		
116526	D-80V	44.4 (168.1)	22.6 (85.5)	CT-1	1
116527	D-100V	55.7 (211.8)	22.6 (85.5)		
116528	D-120V	68.0 (257.4)	34.0 (128.7)		
116529	D-144V	77.0 (291.5)	34.0 (128.7)		
116530	D-180V	90.0 (340.7)	34.0 (128.7)		
116531	D-200V	110.0 (416.4)	34.0 (128.7)		
116532	D-240V	132.0 (500)	46.0 (174.1)		
116780	D-260V	159.0 (600)	58.0 (212.0)		
116781	D-280V	211.0 (800)	84.0 (318.0)		

TYPICAL SPECIFICATION

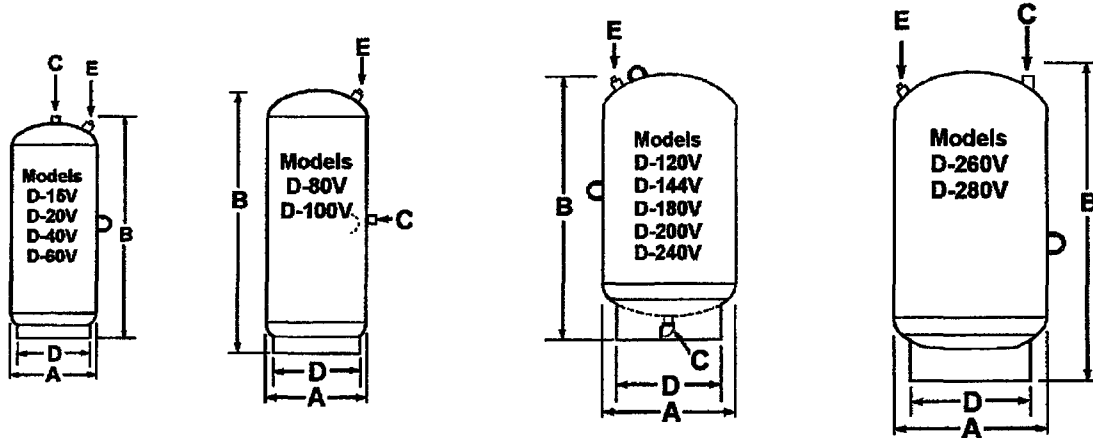
Furnish and install as shown on plans a _____ gallon (_____ liter) _____" (_____ mm) diameter x _____" (_____ mm) high pre-charged vertical steel expansion tank with integral heavy duty Butyl rubber diaphragm. The tank shall have _____" NPT system connection(s), and a .302"-32 charging valve connection (standard tire valve) to facilitate the on-site charging of the tank to meet system requirements.

The tank must be constructed in accordance with Section VIII of the ASME Boiler and Pressure Vessel Code and stamped 125 PSI (862 kPa) working pressure.

Each tank shall be ITT - Bell & Gossett Model No. _____

ASME EXPANSION TANKS - PRESSURIZED

A-346F



NOTE: Tanks are factory pre-charged at 12 psi (83 kPa)
Sight glass and seismic restraints available.
Tanks can also be installed in the horizontal position.

DIMENSIONS AND WEIGHTS

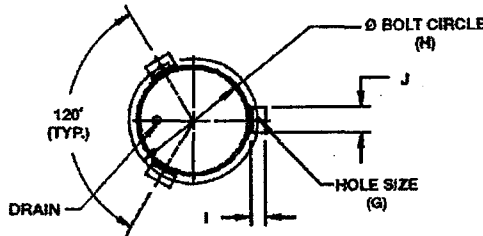
MODEL NUMBER	DIMENSIONS IN INCHES (MM)						APPROX. SHPG. WT. LBS. (Kg)	APPROX. WT* 100% FULL LBS. (Kg)
	A	B	SYSTEM CONNECTION C	SKIRT O.D. D	CHARGING VALVE E	SKIRT THICKNESS		
D-15V**	12 (305)	19-1/2 (495)	1/2 NPTM	10-3/4 (273)	.302"-32 NC	3/16 (5)	43 (20)	110 (50)
D-20V**	12 (305)	26-1/2 (673)	1/2 NPTM	10-3/4 (273)	.302"-32 NC	3/16 (5)	45 (21)	136 (62)
D-40V	16-1/4 (413)	29-1/2 (749)	1/2 NPTM	12-3/4 (324)	.302"-32 NC	3/16 (5)	90 (41)	271 (123)
D-80V	16-1/4 (413)	45-1/8 (1146)	1/2 NPTM	12-3/4 (324)	.302"-32 NC	3/16 (5)	110 (50)	390 (177)
D-80V	16-1/4 (413)	56 (1422)	1/2 NPTM	12-3/4 (324)	.302"-32 NC	3/16 (5)	146 (66)	517 (234)
D-100V	16-1/4 (413)	69 (1753)	1/2 NPTM	12-3/4 (324)	.302"-32 NC	3/16 (5)	167 (76)	632 (287)
D-120V	24 (610)	43-7/8 (1114)	1 NPTF	16 (406)	.302"-32 NC	1/4 (6)	224 (102)	791 (359)
D-144V	24 (610)	48-3/4 (1238)	1 NPTF	16 (406)	.302"-32 NC	1/4 (6)	244 (111)	887 (402)
D-180V	24 (610)	56-1/8 (1426)	1 NPTF	16 (406)	.302"-32 NC	1/4 (6)	268 (121)	977 (443)
D-200V	24 (610)	62-5/8 (1591)	1 NPTF	16 (406)	.302"-32 NC	1/4 (6)	296 (134)	1214 (551)
D-240V	30 (762)	53-1/2 (1357)	1 NPTF	24 (610)	.302"-32 NC	3/16 (5)	427 (194)	1529 (693)
D-260V	30 (762)	60-1/2 (1537)	1-1/4 NPTM	24 (610)	.302"-32 NC	3/16 (5)	478 (216)	1803 (818)
D-280V	30 (762)	78-1/4 (1989)	1-1/4 NPTM	24 (610)	.302"-32 NC	3/16 (5)	745 (338)	2506 (1137)

Dimensions are subject to change. Not to be used for construction purposes unless certified.

*Approximate weight 100% full occurs if diaphragm fails. **No Lifting Ring

OPTIONAL SEISMIC RESTRAINTS
DIMENSIONS IN INCHES (MM)

TANK DIAMETER A	G	H	I	J
12 (305)	9/16 (14)	12-3/4 (324)	2 (51)	2 (51)
16-1/4 (413)	9/16 (14)	14-3/4 (375)	2 (51)	2 (51)
24 (610)	9/16 (14)	18 (457)	2 (51)	2 (51)
30 (762)	7/8 (22)	28 (711)	3 (76)	3 (76)





Heating Systems Company

A subsidiary of **BRADFORD WHITE** Corporation

LAARS® Hot Water Custom Storage Tanks with Sprayed-on Rigid Polyurethane Foam (SPF) with Acrylic Top-Coat

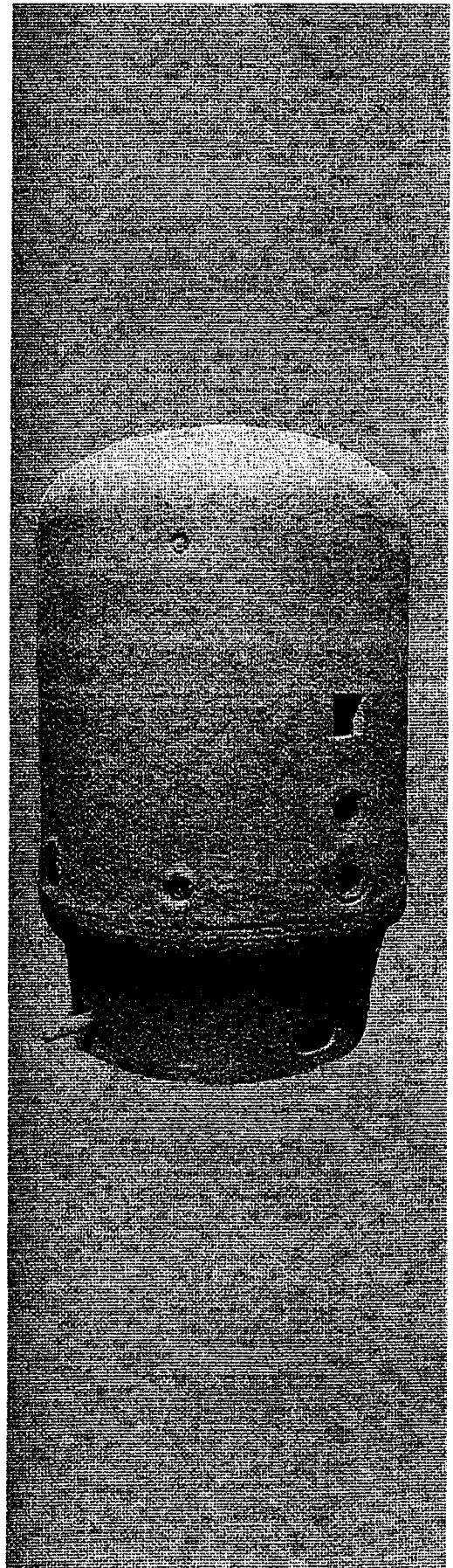
- Laars Heating Systems Tanks sprayed-on rigid insulation with acrylic topcoat exceeds ASHREE 90.1 requirements with 2.25" of high-density polyurethane foam with an "R" value of R-16. SPF meets requirements for California Title 24. Laars spray foam insulation has the best fire spread rating with a class I foam with less than a 25-flame spread rating suitable for boiler room applications.
- The 100% acrylic topcoat is formulated for applications over spray polyurethane foam and is designed to withstand extreme weather and a full range of environmental conditions.
- The 2-component polyurethane foam is applied at ambient temperatures, directly to the vessel in the desired thickness. The 2-coat topcoat is then applied from a high-pressure spray gun and allowed to dry between applications.
- Alternative for insulated and steel jacket.
- Any tank size or shape can be insulated.
- Field repairable.

SPRAY POLYURETHANE FOAM:

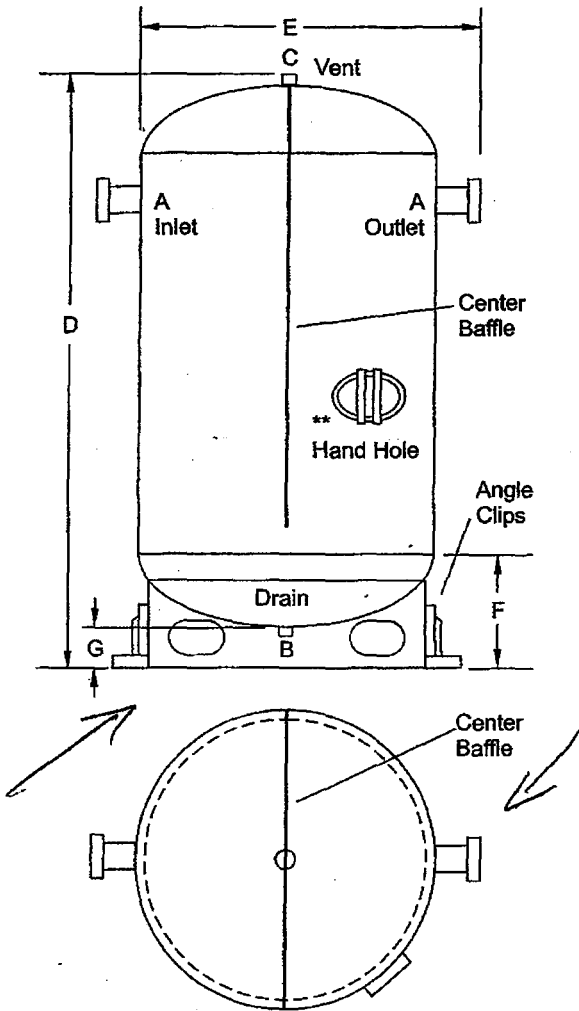
Specific Gravity:	1.17 - 1.19
Viscosity:	800 - 1300
Density:	@ 2" 2.10 - 2.35 @ 4" 1.88 - 1.99
Closed Cell Content:	>90%
K-Factor, Initial:	0.155 - 0.170
Permeance:	2.91 (perms) 2.99 (perm inch)
Dimensional Stability:	+3.3 to +8.2 - Dry Age 28 days (158°F, Dry) -0.37 to -0.96 - Freeze 14 day (-20°F)
Flame Spread:	25 - ASTM E-84
Smoke Development:	450
R Value:	7.2/ inch
Max. Thickness:	4"

ACRYLIC COATING

Topcoat:	2 coats white, 25 mils
Texture:	Smooth
Grade:	Spray or Roll
Base:	100% Acrylic
Solids by weight:	66% (+/-3)
Solids by volume:	55% (+/-3)
Weight per gallon:	11.65 (+/-2)
Tensile Strength:	300 psi (+/-25)
Elongation:	260% (+/-25)
Durometer hardness:	62 Shore A (+/-2)
Tear Resistance:	85 lbs/ in.
Permeance:	11 U.S. Perms @ 20 mils
Viscosity:	110 K.U. (+/-8)
Codes/ Approvals:	Energy Star, ICC, UL, ASTM D6083
Reflectivity:	New 85%, Aged 78%
Emmissivity:	.89



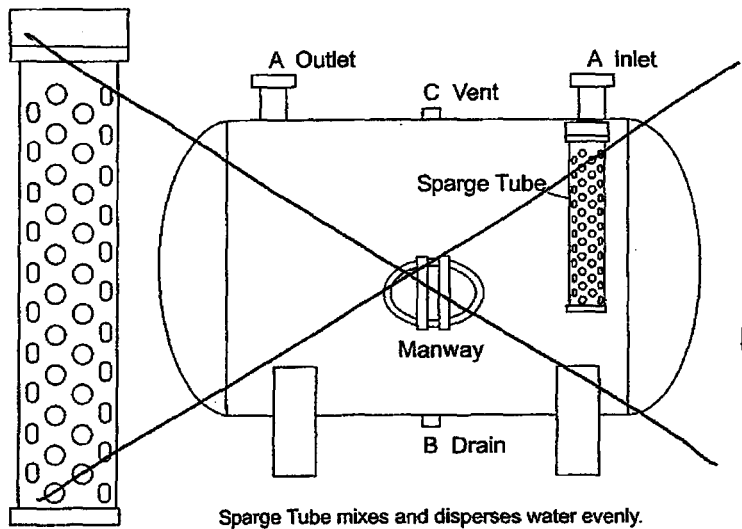
Chilled Water Buffer Tanks



** Hand Holes required on tanks above 36" diameter.

Standard Features

- Tanks constructed and certified in accordance with ASME Section VIII, Div. I Code
- Exterior is red oxide shop primer
- Spray foam insulation available (R-16 value)
- Custom sizes available upon request
- ~~Horizontal tanks are supplied with sparging tube~~
- ~~Horizontal tanks are same size as vertical tanks~~
- Vertical tanks are welded into a 6" base ring
- Vertical tanks are supplied with center baffle



Model	Cap. Gal.	A	B in	C in	D in	E in	F in	G in	Weight lbs
BT VNB 24 078 XASX XX	130	2 NPT	1	1	78	24	20	6	375
BT VNB 30 083 XFSX XX	210	3 FLG	1	1	83	30	24	6	425
BT VNB 36 078 XFSX XX	300	4 FLG	1	1	78	36	24	6	633
BT VNB 36 100 XFSX XX	400	4 FLG	1	1	100	36	30	6	715
BT VNB 48 083 HFSX XX	528	6 FLG	1	1	83	48	31	6	1150
BT VNB 54 102 HFSX XX	850	6 FLG	1	1	102	54	32	6	1630
BT VNB 60 102 HFSX XX	1040	8 FLG	1	1	102	60	32	6	2280