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Design Tanks

Formerly Raven Tanks

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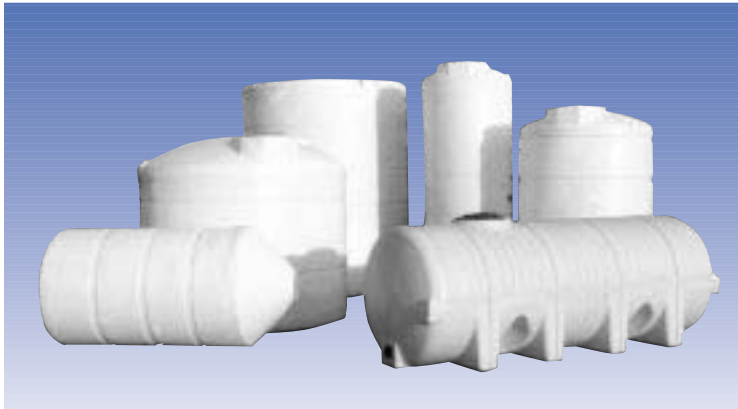


INTRODUCTION

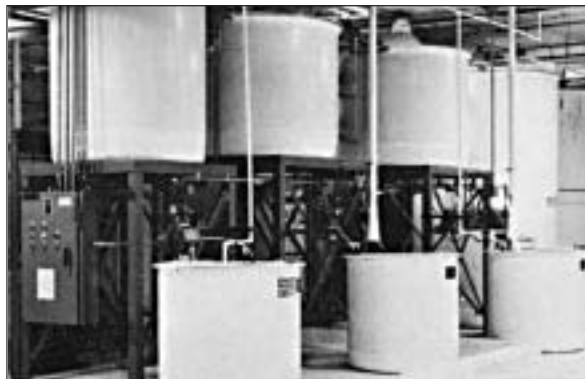
Design Tanks has been manufacturing fiberglass tanks for over forty years in the Midwest, we are located in Sioux Falls, South Dakota.

Although the name has changed, the faces have not. Through streamlining the manufacturing and administrative process, we are able to deliver our product to the customer quicker than ever; whether you need it in California, Texas, New Jersey or the Phillipines and any point in between.

Our in-house design staff can take care of your most difficult design specifications and provide you with the answers you require.



Large Horizontal Tank



Centrifugally cast fiberglass tanks



Chop-hoop filament wound fiberglass tanks



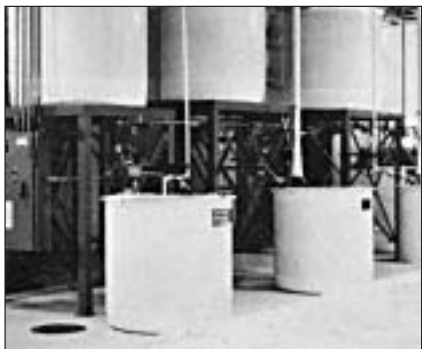
CENTRIFUGAL CASTING – *THE PROCESS*



End section is inserted into position determined by desired capacity.



Fiberglass mat is placed into the mold on top of a layer of plain or pigmented mold coat.



Industrial waste water treatment facility.

Originally pioneered by Raven more than four decades ago as a method to construct high performance gondolas for atmospheric test balloons, the centrifugally cast process developed into and remains one of the most versatile and economical methods of producing high-quality fiberglass tanks. It provides all of the mechanical strength necessary for liquid storage plus the superior chemical resistance capability of a high resin-to-glass ratio wall construction.

By utilizing centrifugal force to combine resin and glass, the process provides tanks with a dense uniform wall laminate capable of a 70% resin content. For all practical purposes, the entire wall becomes a resin-rich, chemical-resistant barrier that can be custom designed for specific requirements ranging from the storage of corrosive chemicals such as hydrochloric acid and sodium hydroxide to food grade applications.

The spin cast tank is produced inside a smooth metal cylinder. First the end section, which is sprayed up in a separate mold, is inserted into the cylinder at a point determined by tank capacity. This flexibility allows us to manufacture a variety of sizes without changing tooling. For example a 32" diameter tank can be made to hold any capacity between 100 and 300 gallons by adjusting the distance that the head is placed into the mold.

After the end section has been located, sidewall construction begins by applying a 10 to 15 mil layer of resin coat or gel coat to the spinning mold. This provides the tank with its desired color and the distinctive exterior finish.

The backbone of the tank, the structural wall and corrosion barrier, is constructed next by combining chemical resistant resin with chopped strand "E" glass for strength. Chopped glass or roving form, has been selected to minimize potential wicking problems sometimes associated with other reinforcements.

The resin saturated chopped strand reinforcement is introduced to the mold in layers and then rolled to remove trapped air bubbles to insure a dense uniform laminate. This process is then repeated with each additional resin/glass layer to meet the design wall thickness.

- A** A 10-15 mil layer of pure or pigmented resin is applied to the mold surface.
- B** Glass mat or chopped "E" glass is added to meet design thickness.
- C** 7-10 mils of pure resin is applied to the inside surface.



CENTRIFUGAL CASTING – *THE PROCESS*

SPECIFICATIONS:

Centrifugally cast tanks manufactured by Design Tanks are designed to meet or exceed the strength requirements of ASTM D4097-01.

Standard catalog tanks are built to hold liquid with a specific gravity of 1.3 at a safety factor of not less than 10:1. Tanks designed to hold heavier materials are available upon request. Contact the factory for specific requirements.

Centrifugally cast tanks can be manufactured for food grade applications depending upon resin selection.

In tanks 23" through 48" diameter, the entire wall is constructed from a single resin system throughout. Larger diameter tanks (60" through 90" diameter) feature the additional flexibility of manufacturing with a dual resin system to achieve a high quality tank at an economical price.

Upon completion of the wall, the inside surface is coated with 7 to 10 mils of pure resin to give the interior of the tank a smooth corrosion-resistant barrier. In highly corrosive applications, such as the storage of caustic materials, a layer of synthetic veil is added before the final resin coat to provide further resistance to chemical attack.

After curing in the mold, the tank is removed by air pressure, checked for quality and sent to the final assembly area for the installation of accessories. Centrifugally cast tanks are available in several sizes and styles. Each can be constructed from a number of resin systems to meet specific chemical and temperature requirements. Refer to resin selection guide to determine material compatibility.

PROPERTIES (MINIMUM)

Tensile strength (PSI).....14,000 ASTM D638-96

Tensile modulus (PSI)800,000 ASTM D638-96

Compressive strength (PSI)18,000 ASTM D695-96

Coefficient of thermal expansion

(in./in./°F x 10⁻⁶)12 ASTM D-696-91

Flexural modulus (PSI) 600,000 ASTM D790-96a

Flexural strength (PSI)....19,000 ASTM D790-96a



Polyester resin is sprayed onto the mat while the mold cylinder is revolving. This centrifugal action forces the resin through the mat, saturating it.



Each layer of glass and resin is rolled to remove air bubbles and to insure a dense uniform laminate.

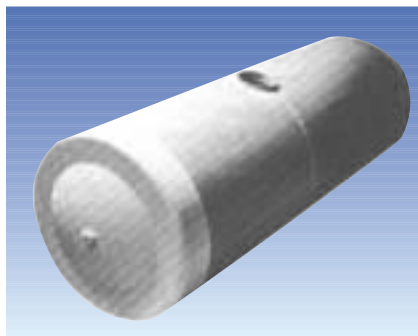


Finished product is removed from the mold.



HORIZONTAL FIBERGLASS TANKS

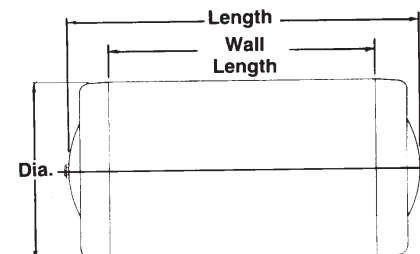
CENTRIFUGALLY CAST HORIZONTAL FIBERGLASS TANKS



Horizontal fiberglass tanks can be designed for either stationary storage or non/D.O.T. regulated mobile applications. Tanks must be properly supported during use.

- Isophthalic resin tanks, through 72" diameter, can be supplied with a variety of sidewall colors and white ends. Please specify when ordering. 90" diameter tanks and all vinylester tanks are natural in color.
- **Baffles are recommended for mobile applications whenever the tank length to diameter ratio exceeds 1.5.**

NOTES: 1) Tanks are designed for atmospheric pressure only and must be vented! Follow vent specifications. 2) 90" diameter tanks have two lifting lugs.



PART NO.	NOMINAL CAPACITY (GALS.)	DIAMETER x LENGTH (IN.)	APPROX. WALL LENGTH (IN.)	APPROX. WALL THK. (IN.)	APPROX. WEIGHT (LBS.)	NO. OF SADDLES REQUIRED
A1343	25	23 x 18	8	1/8	22	2
A1463	55	23 x 36	26	1/8	27	2
A2223	65	23 x 42	32	1/8	29	2
A2273	85	23 x 54	44	1/8	34	2
A2383	55	24 x 32	20	1/8	28	2
A2513	65	24 x 37	25	1/8	30	2
A2623	85	24 x 47	36	1/8	34	2
A3332	110	24 x 60	49	1/8	40	2
A3472	130	24 x 71	59	5/32	56	3
A3653	110	30 x 43	30	1/8	46	2
A4362	150	30 x 57	44	1/8	51	2
A4513	200	30 x 75	63	5/32	74	3
A4663	150	32 x 49	32	1/8	53	2
A4853	200	32 x 65	48	5/32	74	2
A5202	250	32 x 79	64	5/32	86	3
A5313	300	32 x 93	78	5/32	109	3
A5423	150	38 x 37	17	1/8	68	2
A5533	200	38 x 48	27	5/32	73	2
A5633	250	38 x 58	38	5/32	82	2
A5784	300	38 x 69	50	5/32	105	2
A5834	350	38 x 79	60	5/32	115	2
A6483	400	38 x 89	70	3/16	147	3
A6563	425	38 x 94	75	3/16	156	3
A6744	350	42 x 66	46	5/32	117	2
A6834	400	42 x 75	55	5/32	127	2

PART NO.	NOMINAL CAPACITY (GALS.)	DIAMETER x LENGTH (IN.)	APPROX. WALL LENGTH (IN.)	APPROX. WALL THK. (IN.)	APPROX. WEIGHT (LBS.)	NO. OF SADDLES REQUIRED
A7544	500	42 x 91	70	3/16	170	3
A7674	530	42 x 97	76	3/16	181	3
A7855	500	48 x 73	50	3/16	186	2
A7955	600	48 x 86	63	3/16	206	2
A7B25	700	48 x 100	77	7/32	266	3
A7C56	800	48 x 112	90	7/32	291	3
A8654	900	48 x 126	104	7/32	317	4
A8765	900	48 x 139	117	9/32	391	4
A8865	1000	60 x 97	60	3/16	393	2
A8955	1100	60 x 105	68	7/32	452	3
A8A35	1200	60 x 113	77	7/32	476	3
A8B26	1300	60 x 122	86	7/32	498	3
A8F66	1400	60 x 130	94	7/32	517	3
AF655	1500	60 x 138	102	9/32	590	3
AF985	2000	60 x 180	145	9/32	718	4
AFC87	1500	72 x 102	61	7/32	661	2
AFG18	2000	72 x 131	90	7/32	756	3
A9215	2500	72 x 160	120	5/16	990	3
A9585	3000	72 x 189	149	3/8	1211	4
A9956	1000	90 x 54	16	7/32	603	2
A9D28	2000	90 x 91	53	7/32	735	2
A9G9A	3000	90 x 128	90	1/4	945	2
A9K6C	4000	90 x 165	127	11/32	1418	2
	5000	90 x 202	164	13/32	1995	2
	6000	90 x 239	200	1/2	2649	2

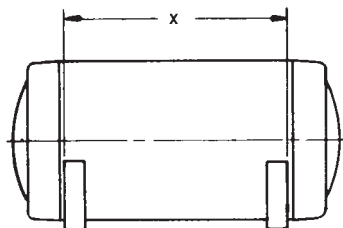
HORIZONTAL FRP TANK ACCESSORIES

SADDLE ASSEMBLY REQUIREMENTS

TANK PART NO.	SADDLE SPACING "X" IN INCHES		TANK PART NO.	SADDLE SPACING "X" IN INCHES		TANK PART NO.	SADDLE SPACING "X" IN INCHES	
	MIN.	MAX.		MIN.	MAX.		MIN.	MAX.
A1102	7	9	A5202	16	18	A8654	58	61
A1282	24	27	A5313	26	28	A8765	65	69
A1342	30	33	A5423	37	39	A8865	72	78
A1462	41	45	A5533	48	51	A8955	81	87
A2222	18	21	A5633	57	61	A8A35	89	95
A2272	23	26	A5784	67	71	A8B26	96	103
A2382	34	37	A5834	71	76	A8F66	139	146
A2512	46	50	A6483	41	45	AF655	58	62
A2623	56	60	A6563	50	54	AF985	87	91
A3332	29	31	A6744	67	71	AFC87	116	121
A3472	42	45	A6834	71	76	AFG18	144	150
A3653	60	64	A7544	47	51	A9215	16	17
A4362	31	33	A7674	60	64	A9585	51	54
A4513	46	49	A7855	73	78	A9956	85	91
A4663	61	65	A7955	86	91	A9D28	122	128
A4853	74	79	A7B25	99	105	A9G9A	158	165
			A7C56	111	118	A9K6C	195	202

All horizontal tanks must be properly supported either by Design Tank saddles or customer supplied saddles that have been approved by engineering. To insure adequate support, follow guidelines for saddle spacing that are provided on this page.

NOTE: Failure to comply with support requirements may void warranty.



X = measurement from outside edges of saddles. Additional saddles must be equally spaced between outside pair.

BAFFLES AND BULKHEADS FOR HORIZONTAL FIBERGLASS TANKS

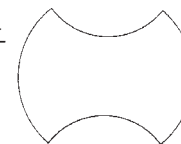
TANK DIAM.	BAFFLE PART NO.	BULKHEAD PART NO.
23	N/A	5015I
24	5088I	5016I
30	5089I	5017I
32	5090I	5018I
38	5091I	5019I
42	5092I	5020I
48	5093I	5021I
60	5103I	5107I
72	5305I	5306I
90	N/A	N/A

N/A - Not Available

Baffles and bulkheads are constructed of chemical-resistant FRP resin and bonded permanently to the interior of the tank wall.

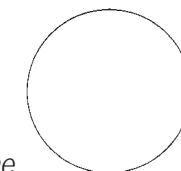
BAFFLES

Partial flow-through baffles eliminate excessive shifting of liquid in mobile applications.



BULKHEADS

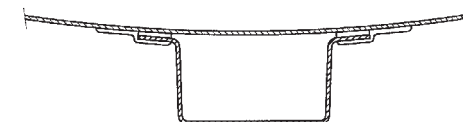
Bulkheads divide horizontal tanks into compartments allowing the storage of more than one chemical.



FRP SUMPS FOR COMPLETE DRAINAGE OF HORIZONTAL TANKS

PART. NO.	SUMP SIZE(IN.)
5145I**	10 x 10 x 6
5146I	4 x 4 x 2

***For tanks 42" diameter & larger*

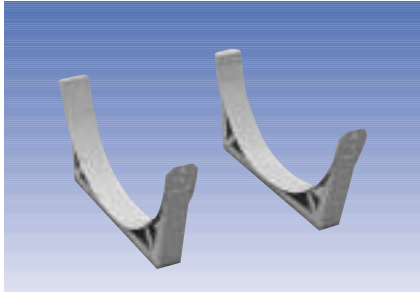


Sumps will accept either bulkhead fittings or fiberglass couplings.

FRP sumps can be factory installed on any horizontal fiberglass tank to provide nearly complete drainage.

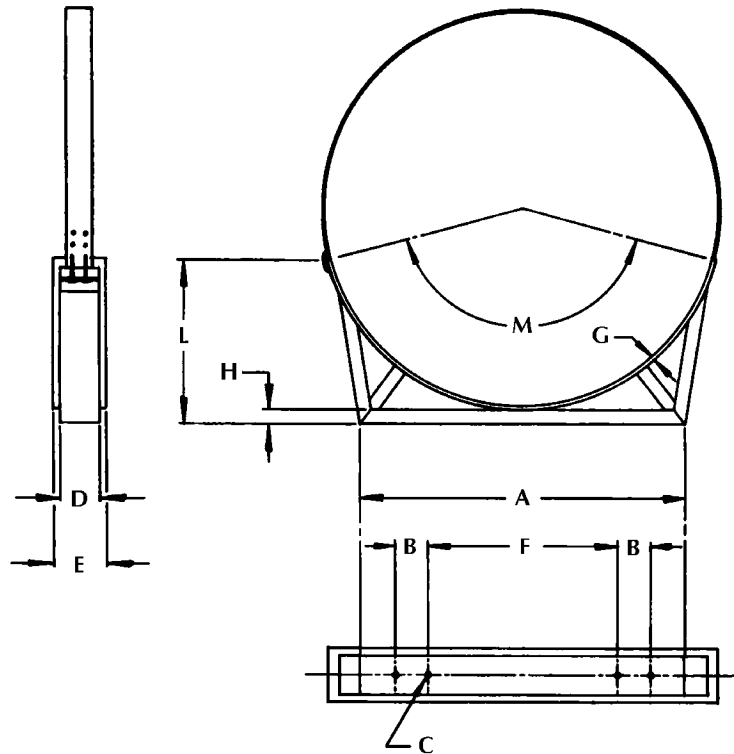
SADDLES-FRP

STANDARD SADDLE ASSEMBLIES



Standard steel saddles provide complete support for horizontal fiberglass tanks when guidelines are followed.

- Standard saddles feature minimum clearance between the tank bottom and floor.
- Saddles are supplied painted red.
- Lead-free Vinyl Alkyd Vogel #IC-5623
- Polyester straps hold tank to saddle.
- Standard saddles are intended for mobile applications.

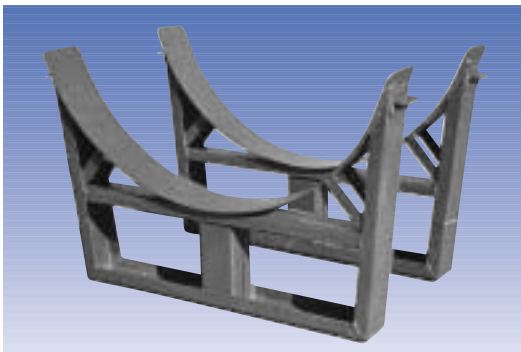


SADDLE PART NO.	TANK DIA. (IN.)	APPROX. WT. (LBS.)	DIM. (INCHES)					
			A	B	C	D	E	F
A5000	23	9	19	2 1/2	1 7/32	2 1/2	3	9 1/2
A5001	24	9	19	2 1/2	1 7/32	2 1/2	3	9 1/2
A5002	30	13	25	2 1/2	1 7/32	3	4	14 1/2
A5003	32	13	26 3/4	2 1/2	1 7/32	3	4	14 1/2
A5004	38	15	31	2 1/2	1 7/32	3	4	17
A5005	42	20	33	2 1/2	1 7/32	3 3/8	5	19 1/2
A5006	48	30	39	2 1/2	1 7/32	4 3/8	5	24 1/2
A5014	60	64	43 1/2	N/A	5/8	6 3/8	8	36

SADDLE PART NO.	TANK DIA. (IN.)	APPROX. WT. (LBS.)	G DIM. (GA.)	DIM. (INCHES)		M DIM. ANGLE (°)	M BAND LENGTH (IN.)
				H	L		
A5000	23	9	14	2.5	10	165	34
A5001	24	9	14	2.5	11	160	34
A5002	30	13	13	2.5	13 3/4	165	43
A5003	32	13	10	2.5	14 3/8	161	45
A5004	38	15	12	2.5	13 1/2	140	47
A5005	42	20	12	2.5	15 5/8	145	54
A5006	48	30	11	2.5	16	135	58
A5014	60	64	10	2.5	17 1/8	120	64

SADDLES-FRP

INDUSTRIAL SADDLE ASSEMBLIES

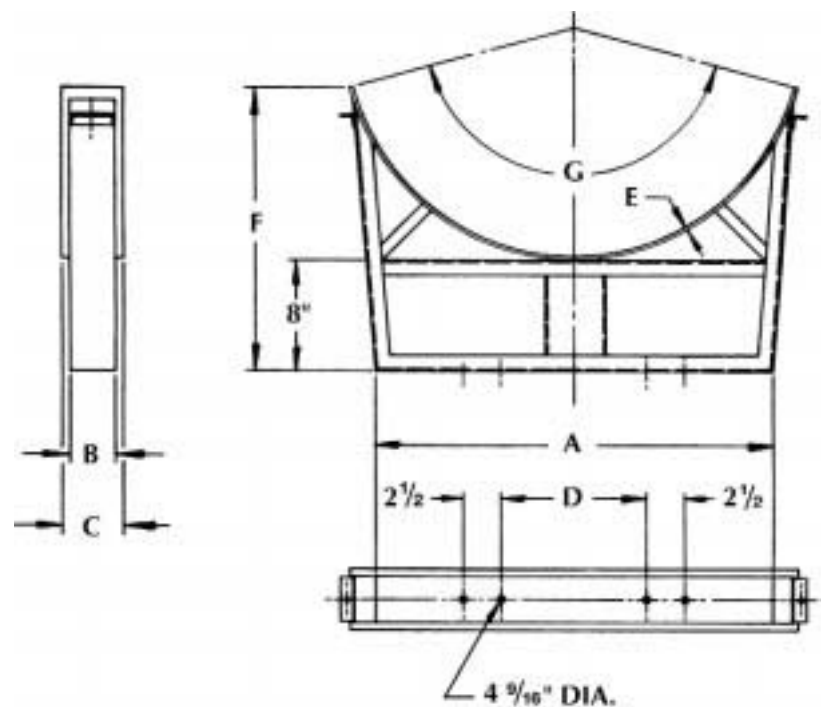


Industrial saddle assemblies feature an 8" clearance between the bottom of the tank and the floor and are recommended for support of horizontal tanks when plumbing access to a bottom drain fitting is required. When ordering, please specify either standard or industrial saddles. If no part number is called out, standard saddles will be shipped.

- Industrial saddles are shop primed with Vogel No. 5521 Rust Red Primer.
- Stainless steel straps and bolts are provided. Primed straps on 72".
- Heavy duty foam rubber pad is included with the saddle.
- Industrial saddles are not intended for mobile applications.

SADDLE PART NO.	TANK DIA. (IN.)	APPROX. WT. (LBS.)	DIM. (INCHES)			
			A	B	C	D
A5025	23	21	19 1/4	3	4	9 1/2
A5026	24	22	19 1/4	3	4	9 1/2
A5027	30	27	26	3	4	14 1/2
A5028	32	28	26 3/4	3	4	14 1/2
A5029	38	40	31	4	5	17
A5030	42	44	35 3/4	4	5	19
A5031	48	48	40 1/2	4	5	24 1/2
A5032	60	114	46 1/4	6 1/2	8	27
A5041	72	190	58 1/2	8	10	31

SADDLE PART NO.	TANK DIA.(IN.)	APPROX. WT.(LBS.)	E DIM.	F DIM.	G DIM.	G BAND
			(GA.)	(IN.)	ANGLE(°)	LENGTH(IN.)
A5025	23	21	10	16 1/2	150	30 1/4
A5026	24	22	10	17 1/16	150	32 1/4
A5027	30	27	10	19 1/8	150	39 3/8
A5028	32	28	10	20	150	42 3/4
A5029	38	40	10	21 11/16	146	49 1/4
A5030	42	44	10	23 11/16	150	55 3/4
A5031	48	48	10	24 5/16	142	60 1/4
A5032	60	114	7	30 7/16	150	79 3/8
A5041	72	190	7	34 5/8	150	95 1/16



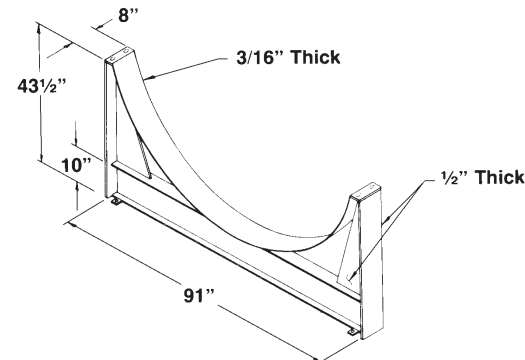
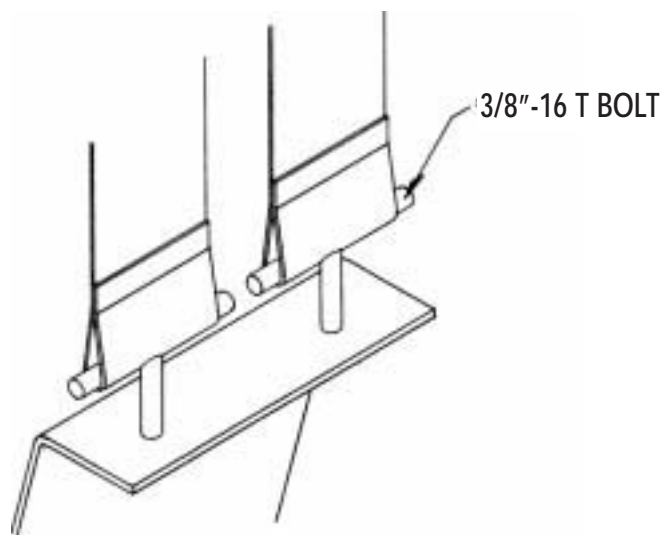
SADDLES-FRP

SADDLES – 90" DIAMETER TANKS

PART NO.	NUMBER OF SADDLES REQUIRED	WT. (LBS.) EACH
A5010	2	315

Primed heavy duty steel saddles for 90" diameter horizontal tanks feature 10" of clearance from bottom of tank to ground.

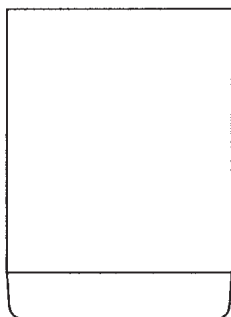
- 90" diameter horizontal tanks are designed to be supported by no more than 2 saddles.
- Saddle assembly provides contact with 120 degrees of tank side-wall to insure proper support.
- Customer must provide adequate concrete pad footings for saddle.
- Engineering recommendations are available for specific applications.



FLAT BOTTOM OPEN TOP

CENTRIFUGALLY CAST FLAT BOTTOM, OPEN TOP FIBERGLASS TANKS

Available in capacities to 6000 gallons, flat bottom open top tanks provide economical storage for a wide range of chemicals depending upon resin selection.



- Isophthalic resin tanks, through 72" diameter, are supplied with aqua sidewall and white end. 90" diameter tanks and all vinylester resin tanks are natural in color.
- Covers are not included. See chart on next page for options.

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER X HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
B1333	58	23 x 36	1/8	28
B1393	68	23 x 42	1/8	31
B1453	78	23 x 48	1/8	34
B2333	68	24 x 36	1/8	30
B2393	79	24 x 42	1/8	33
B2453	91	24 x 48	1/8	36
B2513	103	24 x 54	1/8	40
B2583	114	24 x 60	1/8	44
B2643	126	24 x 66	5/32	47
B2813	152	24 x 79	5/32	54
B3333	100	30 x 36	5/32	45
B3393	116	30 x 42	5/32	51
B3463	133	30 x 48	5/32	56
B3523	150	30 x 54	5/32	62
B3583	167	30 x 60	5/32	68
B3643	184	30 x 66	5/32	72
B3673	192	30 x 69	5/32	75
B4333	119	32 x 36	5/32	53
B4393	139	32 x 42	5/32	59

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER X HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
B4463	160	32 x 48	5/32	64
B4523	180	32 x 54	5/32	70
B4583	200	32 x 60	5/32	76
B4703	241	32 x 72	5/32	88
B4813	267	32 x 79	5/32	95
B5323	167	38 x 36	5/32	74
B5383	196	38 x 42	5/32	78
B5443	225	38 x 48	5/32	85
B5503	254	38 x 54	5/32	93
B5623	312	38 x 66	5/32	111
B5683	341	38 x 72	5/32	120
B5803	381	38 x 79	5/32	130
B6363	203	42 x 36	5/32	86
B6483	274	42 x 48	5/32	100
B6553	310	42 x 54	5/32	109
B6613	345	42 x 60	5/32	118
B6673	380	42 x 66	5/32	127
B6733	416	42 x 72	5/32	136
B6843	457	42 x 79	5/32	146

FLAT BOTTOM OPEN TOP

CENTRIFUGALLY CAST FLAT BOTTOM, OPEN TOP FIBERGLASS TANKS - CONTINUED

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
B7323	265	48 x 36	5/32	112
B7383	311	48 x 42	5/32	122
B7443	357	48 x 48	5/32	132
B7503	403	48 x 54	5/32	143
B7593	449	48 x 60	5/32	154
B7663	495	48 x 66	5/32	165
B7693	541	48 x 72	5/32	176
B7863	628	48 x 84	5/32	195
B7983	720	48 x 96	5/32	216
B7B03	812	48 x 108	5/32	236
B7C23	904	48 x 120	5/32	255
B7C83	950	48 x 126	5/32	268
B8524	530	60 x 48	7/32	219
B8644	670	60 x 60	7/32	245
B8804	810	60 x 72	7/32	272
B8924	955	60 x 84	7/32	298
B8A44	1090	60 x 96	7/32	324
B8B64	1240	60 x 108	7/32	350
B8C84	1380	60 x 120	7/32	377

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
B8D84	1500	60 x 130	7/32	399
BF564	1000	72 x 61	7/32	300
BF894	1500	72 x 90	7/32	378
BFB84	2000	72 x 119	7/32	447
BFF54	2500	72 x 148	7/32	536
BFJ44	3000	72 x 177	7/32	628
B9354	1000	*90 x 41	3/16	438
B9534	1500	*90 x 59	3/16	470
B9844	2000	*90 x 78	3/16-1/4	582
B9895	2500	*90 x 96	3/16-1/4	638
B9C15	3000	*90 x 115	3/16-5/16	775
B9C56	3500	*90 x 133	3/16-5/16	854
B9F86	4000	*90 x 152	3/16-3/8	1011
B9E18	4500	*90 x 170	3/16-3/8	1118
B9G58	5000	*90 x 189	3/16-3/8	1270
B9I78	5500	*90 x 207	3/16-3/8	1368
B9L18	6000	*90 x 226	3/16-3/8	1525

OPTIONAL COVERS

DUST COVER - removable non-load bearing cover designed to keep out unwanted debris.

FLOATING COVER - designed to float on top of liquid to reduce evaporation losses.

TANK DIAM.	DUST COVER PART No.	FLOATING COVER PART No.
23	B500C	B500F
24	B501C	B501F
30	B502C	B502F
32	B503C	B503F
38	B504C	B504F
42	B505C	B505F
48	B506C	B506F
60	B507C	B507F
72	B508C	B508F
90*	5164I*	N/A

*90" covers bolt down to an external flanged lip. Cover is not designed for loads and must be vented!

*90" diameter tanks include an external flanged lip measuring 2 3/4" wide and 1/2" thick. Actual outside diameter of open top 90" tanks is 95 1/2".

*90" diameter tanks 2000 gallon and below, have two lifting lugs. All other 90" tanks have three lugs included.

DISHED BOTTOM OPEN TOP

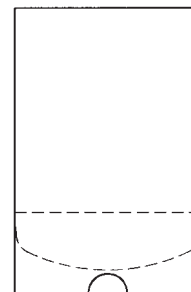
CENTRIFUGALLY CAST DISHED BOTTOM, OPEN TOP FIBERGLASS TANKS

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
C2353	50	24 x 35	1/8	25
C2613	100	24 x 61	1/8	35
C2793	125	24 x 75	5/32	60
C3283	50	30 x 28	5/32	39
C3443	100	30 x 44	5/32	51
C3623	145	30 x 62	5/32	64
C4263	50	32 x 26	5/32	39
C4403	100	32 x 40	5/32	52
C4553	150	32 x 55	5/32	65
C4693	200	32 x 69	5/32	78
C4793	220	32 x 75	5/32	85
C5223	50	38 x 22	5/32	40
C5323	100	38 x 32	5/32	54
C5423	150	38 x 42	5/32	68
C5533	200	38 x 53	5/32	80
C5633	250	38 x 63	5/32	92
C5774	300	38 x 73	7/32	135
C6194	50	42 x 19	7/32	59
C6284	100	42 x 28	7/32	71
C6364	150	42 x 36	7/32	83
C6454	200	42 x 45	7/32	95
C6534	250	42 x 53	7/32	107
C6624	300	42 x 62	7/32	119

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
C6704	350	42 x 70	7/32	131
C6794	380	42 x 75	7/32	137
C7374	200	48 x 37	7/32	95
C7444	250	48 x 44	7/32	108
C7504	300	48 x 50	7/32	121
C7574	350	48 x 57	7/32	134
C7644	400	48 x 64	7/32	147
C7814	500	48 x 77	7/32	173
C7944	600	48 x 90	7/32	199
C7A74	700	48 x 103	7/32	225
C7B84	785	48 x 114	7/32	247
C8486	425	60 x 48	5/16	290
C8606	570	60 x 60	5/16	328
C8736	710	60 x 72	5/16	365
C8A34	855	60 x 84	7/32	357
C8B54	1000	60 x 96	7/32	384
C8C74	1140	60 x 108	7/32	410
C8D94	1285	60 x 120	7/32	436
C8E54	1350	60 x 126	7/32	450
CF944	1000	72 x 80	7/32	412
CFC34	1500	72 x 109	7/32	481
CFF24	2000	72 x 138	7/32	550
CFI54	2500	72 x 167	7/32	628

Supported by an extension of the sidewall, our dished bottom tanks allow for complete drainage and easy cleaning.

This style features a 6" minimum clearance from bottom of the dish to floor to provide convenient access to plumbing through 5" radius scallop in the sidewall. (Standard clearance on 72" diameter tanks is 12".)



- Isophthalic resin tanks, through 72" diameter, are supplied with aqua sidewall. 90" diameter tanks and all vinylester resin tanks are natural in color.

DISHED BOTTOM OPEN TOP

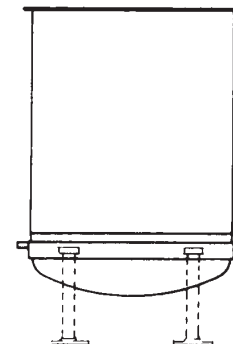
90" DIAMETER DISHED BOTTOM, OPEN TOP WITH LEG RING

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER X HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
CC314	1000	90 x 47	3/16	895
CC494	1500	90 x 65	3/16	955
CC754	2000	90 x 84	3/16-1/4	1040
CC815	2500	90 x 102	3/16-1/4	1120
CCA95	3000	90 x 121	3/16-5/16	1280
CCB56	3500	90 x 139	3/16-5/16	1385
CCE56	4000	90 x 158	3/16-3/8	1515
CCF07	4500	90 x 176	3/16-3/8	1640
CCH77	5000	90 x 195	3/16-3/8	1850
CCK37	5500	90 x 213	3/16-3/8	1980
CCN07	6000	90 x 232	3/16-3/8	2090

"90 diameter open top tanks include an external flanged lip and are supported by (4) 4" steel pipe legs threaded into a fiberglass encapsulated leg ring. Legs are not included with the tank and must be ordered separately.

1/2" thick external lip extends 2 3/4" outside tank wall.

Leg length required for 0" clearance is 18 5/8".



- **Seismic Zone design requires special consideration. Contact Engineering for full assistance.**

NOTE: 90" diameter tanks 2000 gallon and below, have two lifting lugs. All other 90" tanks have three lugs included.

FLAT BOTTOM ANNULAR DOMED TOP

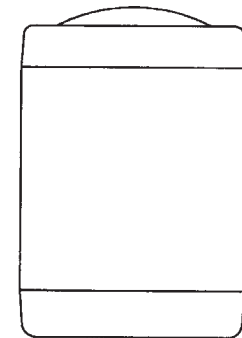
CENTRIFUGALLY CAST FLAT BOTTOM, ANNULAR DOMED TOP FIBERGLASS TANKS

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
D2243	60	24 x 34	1/8	32
D2503	110	24 x 60	1/8	47
D2813	160	24 x 87	1/8	61
D3163	70	30 x 28	1/8	40
D3333	120	30 x 45	5/32	55
D3533	170	30 x 63	5/32	72
D3643	200	30 x 75	5/32	85
D4133	75	32 x 26	5/32	41
D4283	125	32 x 41	5/32	59
D4423	175	32 x 55	5/32	72
D4583	225	32 x 70	5/32	81
D4733	275	32 x 84	5/32	102
D4813	290	32 x 89	5/32	106
D5183	145	38 x 34	5/32	71
D5293	195	38 x 44	5/32	85
D5393	245	38 x 55	5/32	98
D5493	295	38 x 65	5/32	111
D5603	345	38 x 76	5/32	127
D5703	395	38 x 86	5/32	143
D5803	425	38 x 92	5/32	149
D6243	205	42 x 39	5/32	98
D6333	255	42 x 48	5/32	110
D6413	305	42 x 56	5/32	121
D6503	355	42 x 65	5/32	132
D6593	405	42 x 73	5/32	143
D6683	455	42 x 82	5/32	155
D6803	505	42 x 90	5/32	168
D7213	275	48 x 41	5/32	134
D7273	325	48 x 48	5/32	146
D7343	375	48 x 54	5/32	158

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
D7413	425	48 x 61	5/32	172
D7473	475	48 x 67	5/32	188
D7613	575	48 x 80	5/32	207
D7784	675	48 x 93	7/32	238
D7914	775	48 x 106	7/32	250
D7A44	875	48 x 120	7/32	272
D7C44	1025	48 x 139	7/32	306
D8434	690	60 x 65	7/32	331
D8554	830	60 x 77	7/32	356
D8674	990	60 x 91	7/32	380
D8834	1115	60 x 101	7/32	405
D8954	1250	60 x 112	7/32	429
D8B94	1540	60 x 139	7/32	478
D8C94	1660	60 x 147	7/32	499
DF354	1000	72 x 66	7/32	488
DF654	1500	72 x 96	7/32	560
DF994	2000	72 x 124	7/32	641
DFD24	2500	72 x 153	7/32	720
DFG84	3000	72 x 182	7/32	806
D9224	1000	90 x 47	3/16	557
D9414	1500	90 x 66	3/16	613
D9594	2000	90 x 84	3/16	693
D9725	2500	90 x 103	3/16-1/4	763
D9925	3000	90 x 121	3/16-1/4	853
D9A56	3500	90 x 140	3/16-5/16	947
D9C96	4000	90 x 158	3/16-5/16	1071
D9C18	4500	90 x 177	3/16-3/8	1183
D9E58	5000	90 x 196	3/16-3/8	1339
D9G88	5500	90 x 214	3/16-3/8	1489
D9J18	6000	90 x 233	3/16-3/8	1596

Flat Bottom Annular Dome Top Tanks are totally enclosed and are designed for chemical and water storage applications requiring a dust-free environment.

- Annular head configuration allows for easy fitting installation.
- Isophthalic resin tanks, through 72" diameter are supplied with aqua sidewall and white ends. 90" diameter tanks and all vinylester resin tanks are natural in color.

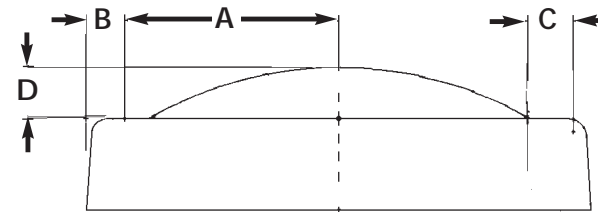


NOTES: 1. Enclosed tanks are designed for atmospheric pressure only and must be vented!
2. 90" diameter tanks 2000 gallon and below, have two lifting lugs. All other 90" tanks have three lugs included.

FLAT BOTTOM ANNULAR DOMED TOP

ANNULAR HEAD DIMENSIONS

TANK DIA.	DIM. (INCHES)			
	A	B	C	D
24	7 1/8	4 7/8	5	1
30	10 1/8	4 7/8	5	1 1/2
32	11	5	5	2
38	14	5	5	3
42	16	5	5	3
48	19	5	5	4
60	24 3/4	5 1/4	4 1/2	6
72	30	6	6	7 1/4
90	40	5	5	8 3/4



DISHED BOTTOM ANNULAR DOMED TOP

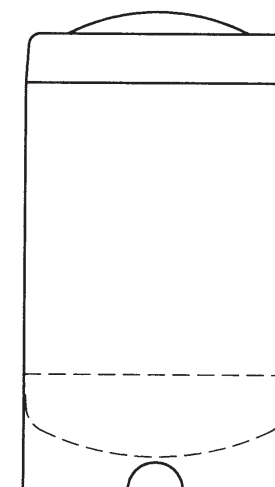
CENTRIFUGALLY CAST DISHED BOTTOM, ANNULAR DOMED TOP FIBERGLASS TANKS

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
E2353	60	24 x 44	1/8	32
E2613	110	24 x 70	1/8	44
E2793	135	24 x 84	5/32	67
E3283	70	30 x 37	5/32	49
E3443	120	30 x 53	5/32	61
E3623	170	30 x 71	5/32	74
E4263	75	32 x 36	5/32	50
E4403	125	32 x 50	5/32	63
E4553	175	32 x 65	5/32	76
E4693	225	32 x 79	5/32	89
E4793	245	32 x 85	5/32	96
E5323	145	38 x 44	5/32	73
E5423	195	38 x 54	5/32	87
E5533	245	38 x 65	5/32	99
E5633	295	38 x 75	5/32	111
E5774	345	38 x 85	7/32	154
E6364	205	42 x 48	7/32	107
E6454	255	42 x 57	7/32	119
E6534	305	42 x 65	7/32	131
E6624	355	42 x 74	7/32	143
E6704	405	42 x 82	7/32	155
E6794	435	42 x 87	7/32	161
E7374	285	48 x 51	7/32	133
E7444	335	48 x 58	7/32	146
E7504	385	48 x 64	7/32	154
E7574	435	48 x 71	7/32	172

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
E7644	485	48 x 78	7/32	185
E7814	585	48 x 91	7/32	211
E7944	685	48 x 104	7/32	237
E7A74	785	48 x 117	7/32	263
E7B84	870	48 x 128	7/32	285
E8534	590	60 x 65	7/32	395
E8654	735	60 x 77	7/32	421
E8814	875	60 x 89	7/32	448
E8934	1020	60 x 101	7/32	474
E8A54	1165	60 x 113	7/32	501
E8B74	1305	60 x 125	7/32	527
E8C94	1450	60 x 137	7/32	554
E8D54	1515	60 x 143	7/32	567
E8D64	1590	60 x 149	7/32	580
E8E74	1735	60 x 161	7/32	606
E8F14	1775	60 x 165	7/32	615
EF564	750	72 x 71	7/32	560
EF704	1000	72 x 85	7/32	594
EF894	1250	72 x 100	7/32	639
EFA34	1500	72 x 114	7/32	672
EFB84	1750	72 x 129	7/32	708
EFD24	2000	72 x 143	7/32	741
EFE74	2250	72 x 158	7/32	777
EFG54	2500	72 x 172	7/32	820
EFI04	2750	72 x 187	7/32	855

Totally enclosed tank features a dished bottom for easy cleanout and complete drainage. The 6" clearance (12" on 72" diameter tanks) provides easy access to plumbing through a 5" radius scallop cut in sidewall.

- Annular head configuration allows for easy fitting installation.
- Isophthalic resin tanks, through 72" diameter, are supplied with aqua sidewall. 90" diameter tanks and all vinylester tanks are natural in color.



NOTE: Enclosed tanks are designed for atmospheric pressure only and must be vented!

DISHED BOTTOM ANNULAR DOMED TOP

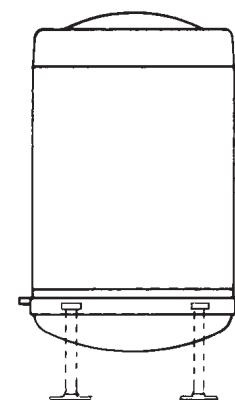
90" DIAMETER DISHED BOTTOM, ANNULAR DOMED TOP WITH LEG RING

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
EC184	1000	90 x 58	3/16	1145
EC364	1500	90 x 71	3/16	1205
EC554	2000	90 x 90	3/16-1/4	1290
EC675	2500	90 x 109	3/16-1/4	1370
EC885	3000	90 x 127	3/16-5/16	1530
EC996	3500	90 x 146	3/16-5/16	1635
ECC36	4000	90 x 164	3/16-3/8	1765
ECD37	4500	90 x 183	3/16-3/8	1890
ECG07	5000	90 x 202	3/16-3/8	2100
ECI67	5500	90 x 220	3/16-3/8	2230
ECL37	6000	90 x 239	3/16-3/8	2340

90" diameter tanks are supported by (4) 4" steel pipe legs threaded into a fiberglass encapsulated steel leg ring. Legs are not included with the tank and must be ordered separately.

Height shown is for tank only.

Leg length required for 0" clearance is 18 5/8".



- Seismic Zone design requires special consideration. Contact Engineering for full assistance.

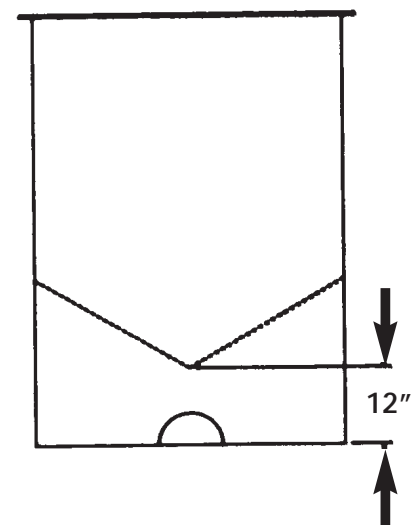
NOTE: 90" diameter tanks 2000 gallon and below, have two lifting lugs. All other 90" tanks have three lugs included.

30° CONE BOTTOM WITH SKIRT

30° CONE BOTTOM W/SKIRT, OPEN TOP

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER X HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
C34-250	250	48 x 55	7/32	178
C34-450	450	48 x 81	7/32	227
C34-650	650	48 x 107	7/32	272
C35-450	450	60 x 62	7/32	372
C35-650	650	60 x 79	7/32	421
C35-850	850	60 x 96	7/32	419
C35-1050	1050	60 x 113	7/32	453
C35-1250	1250	60 x 130	7/32	488
C35-1450	1450	60 x 147	7/32	522
C36-650	650	72 x 64	7/32	430
C36-850	850	72 x 76	7/32	458
C36-1050	1050	72 x 88	7/32	487
C36-1250	1250	72 x 100	7/32	516
C36-1450	1450	72 x 112	7/32	545
C36-1650	1650	72 x 124	7/32-1/4	584
C36-1850	1850	72 x 136	7/32-1/4	620
C36-2050	2050	72 x 148	7/32-1/4	656
C36-2250	2250	72 x 160	7/32-1/4	693

Open top skirted tanks include a flanged lip for tank stability and one scallop for plumbing access to the bottom of the tank. Standard clearance from the bottom of the cone to the floor is 12".



CONSTRUCTION NOTES:

30° Cone bottom skirted tanks are supported by an extension of the sidewall and feature one 5" radius scallop for plumbing access. Larger scallops are available upon request.

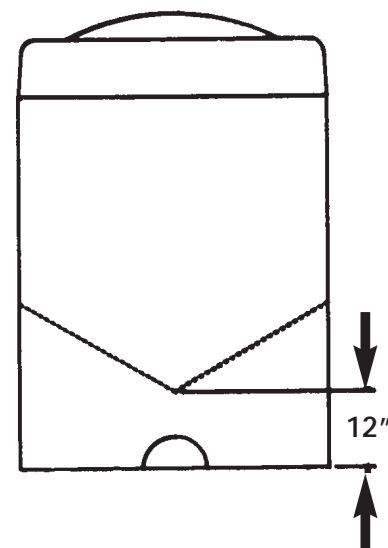
Standard clearance from the bottom of the cone to the floor is 12". Clearances to meet specific customer requirements are available at no additional cost but must be specified at the time of the order.

Tanks are supplied in natural resin color. Specific color options are available at additional cost.

30° CONE BOTTOM WITH SKIRT

30° CONE BOTTOM W/SKIRT, ANNULAR DOMED TOP

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
C34-25C	250	48 x 58	7/32	175
C34-45C	450	48 x 84	7/32	240
C34-65C	650	48 x 110	7/32	265
C35-45C	450	60 x 66	7/32	408
C35-65C	650	60 x 83	7/32	457
C35-85C	850	60 x 100	7/32	466
C35-105C	1050	60 x 117	7/32	500
C35-125C	1250	60 x 134	7/32	534
C35-145C	1450	60 x 151	7/32	569
C36-65C	650	72 x 70	7/32	497
C36-85C	850	72 x 82	7/32	524
C36-105C	1050	72 x 94	7/32	555
C36-125C	1250	72 x 106	7/32	584
C36-145C	1450	72 x 118	7/32	613
C36-165C	1650	72 x 130	7/32-1/4	652
C36-185C	1850	72 x 142	7/32-1/4	688
C36-205C	2050	72 x 154	7/32-1/4	724
C36-225C	2250	72 x 166	7/32-1/4	761



Annular dome top skirted tanks are totally enclosed for a dust free environment. Standard clearance from bottom of the cone to the floor is 12".

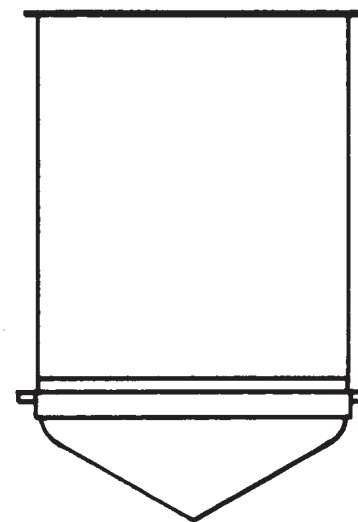
- Enclosed tanks must be vented.

30° CONE BOTTOM WITH LEG RING

30° CONE BOTTOM W/LEG RING, OPEN TOP

OPEN TOP PART NO.	NOMINAL CAPACITY (GALS.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICK. (IN.)	APPROX. WEIGHT (LBS.)	PIPE SIZE (IN.)	LEG LENGTH FOR 0" CLEARANCE
C34-250L	250	48 x 44	5/32	182	2	19
C34-450L	450	48 x 70	5/32	215	2	19
C34-650L	650	48 x 96	7/32	281	2	19
C35-450L	450	60 x 51	7/32	366	3	26
C35-650L	650	60 x 68	7/32	401	3	26
C35-850L	850	60 x 85	7/32	435	3	26
C35-1050L	1050	60 x 102	7/32	477	3	26
C35-1250L	1250	60 x 119	7/32	503	3	26
C35-1450L	1450	60 x 136	7/32	538	3	26
C36-650L	650	72 x 55	7/32	450	3	28 1/2
C36-850L	850	72 x 67	7/32	479	3	28 1/2
C36-1050L	1050	72 x 79	7/32	508	3	28 1/2
C36-1250L	1250	72 x 91	7/32	537	3	28 1/2
C36-1450L	1450	72 x 103	7/32	566	3	28 1/2
C36-1650L	1650	72 x 115	7/32	595	3	28 1/2
C36-1850L	1850	72 x 127	7/32	624	3	28 1/2
C36-2050L	2050	72 x 139	7/32	653	3	28 1/2
C36-2250L	2250	72 x 151	7/32	682	3	28 1/2
C37-1500L	1500	90 x 74	3/16	865	4	32
C37-2000L	2000	90 x 92	3/16	925	4	32
C37-2500L	2500	90 x 111	3/16-1/4	1017	4	32
C37-3000L	3000	90 x 129	3/16-1/4	1079	4	32
C37-3500L	3500	90 x 148	3/16-1/4	1213	4	32
C37-4000L	4000	90 x 166	3/16-5/16	1338	4	32

Open top leg ring tanks include a flanged lip and FRP encapsulated steel leg ring. Legs are not included and must be ordered separately.



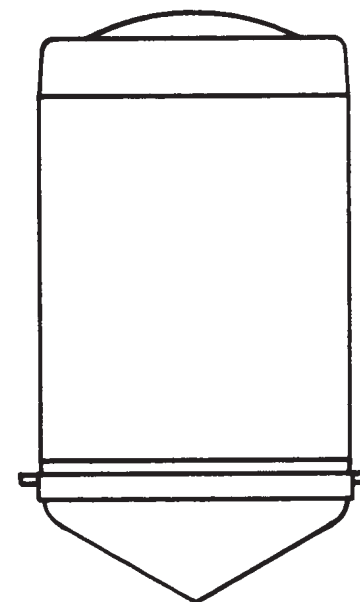
Tanks are supplied in natural resin color. Specific color options are available at additional cost.

- **Seismic Zone design requires special consideration. Contact Engineering for full assistance.**

30° CONE BOTTOM WITH LEG RING

30° CONE BOTTOM w/LEG RING, ANNULAR DOMED TOP

OPEN TOP PART NO.	NOMINAL CAPACITY (GALS.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICK. (IN.)	APPROX. WEIGHT (LBS.)	PIPE SIZE (IN.)	LEG LENGTH FOR 0" CLEARANCE
C34-25CL	250	48 x 47	5/32	187	2	19
C34-45CL	450	48 x 73	5/32	215	2	19
C34-65CL	650	48 x 99	7/32	272	2	19
C35-45CL	450	60 x 55	7/32	426	3	26
C35-65CL	650	60 x 72	7/32	458	3	26
C35-85CL	850	60 x 89	7/32	489	3	26
C35-105CL	1050	60 x 106	7/32	521	3	26
C35-125CL	1250	60 x 123	7/32	560	3	26
C35-145CL	1450	60 x 140	7/32	592	3	26
C36-65CL	650	72 x 61	7/32	534	3	28 1/2
C36-85CL	850	72 x 73	7/32	558	3	28 1/2
C36-105CL	1050	72 x 85	7/32	587	3	28 1/2
C36-125CL	1250	72 x 97	7/32	614	3	28 1/2
C36-145CL	1450	72 x 109	7/32	640	3	28 1/2
C36-165CL	1650	72 x 121	7/32	667	3	28 1/2
C36-185CL	1850	72 x 133	7/32	694	3	28 1/2
C36-205CL	2050	72 x 145	7/32	721	3	28 1/2
C36-225CL	2250	72 x 157	7/32	748	3	28 1/2
C37-150CL	1500	90 x 81	3/16	1022	4	32
C37-200CL	2000	90 x 99	3/16	1072	4	32
C37-250CL	2500	90 x 118	3/16-1/4	1154	4	32
C37-300CL	3000	90 x 136	3/16-1/4	1236	4	32
C37-350CL	3500	90 x 155	3/16-1/4	1336	4	32
C37-400CL	4000	90 x 173	3/16-5/16	1432	4	32



Annular dome top leg ring tanks are totally enclosed and are supported by a FRP encapsulated steel leg ring. Legs are not included and must be ordered separately.

- ***Enclosed tanks must be vented.***

NOTE: 90" diameter tanks have two or three lifting lugs included.

MIX TANKS

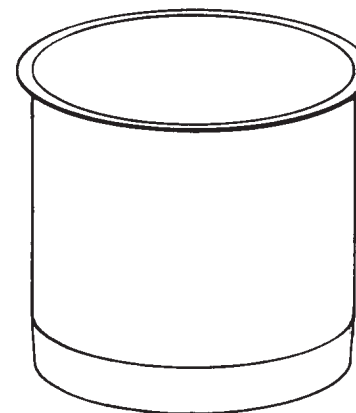
Mix Tanks

The Mix Tank line was developed to meet the more stringent performance requirements of industrial mixing applications. Offered in three styles, this series of tanks is a heavy-walled version of the standard line and features an external flanged lip which can accommodate mixers weighing up to 250 pounds.

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER X HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
J2273	50	24 x 29	5/32	45
J2403	75	24 x 42	5/32	53
J3364	100	30 x 38	7/32	65
J3454	125	30 x 47	7/32	78
J4394	125	32 x 39	7/32	73
J4454	150	32 x 47	7/32	84
J4524	175	32 x 54	7/32	105
J5404	200	38 x 44	7/32	104
J5454	225	38 x 49	7/32	110
J5514	250	38 x 54	7/32	117
J6425	250	42 x 45	1/4	127
J6475	275	42 x 50	1/4	143
J6515	300	42 x 54	1/4	148
J7456	350	48 x 49	9/32	183
J7516	400	48 x 55	9/32	199
J7586	450	48 x 62	9/32	216
J7656	500	48 x 69	9/32	230
J8366	500	60 x 45	9/32	257
J8456	600	60 x 54	9/32	283
J8536	700	60 x 62	9/32	306
J8636	800	60 x 70	9/32	335
JF385	750	72 x 46	1/4	345
JF526	1000	72 x 60	9/32	406
JF678	1250	72 x 75	3/8	526
JF818	1500	72 x 89	3/8	589

FLAT BOTTOM

flanged lip included



Heavy duty flat bottom mix tanks are ideal for applications where complete drainage is not critical.

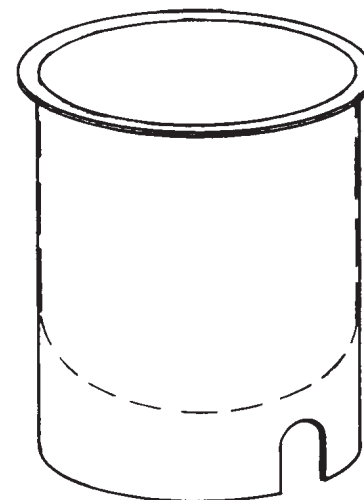
- Hold down lugs are recommended for mixing applications.
- Isophthalic resin tanks are supplied with aqua sidewall and white ends. Vinylester resin tanks are natural in color.

MIX TANKS

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
K2433	50	24 x 43	5/32	55
K2563	75	24 x 56	5/32	63
K3524	100	30 x 52	7/32	85
K3614	125	30 x 61	7/32	94
K4534	125	32 x 53	7/32	95
K4614	150	32 x 61	7/32	104
K4684	175	32 x 68	7/32	112
K5594	200	38 x 59	7/32	130
K5644	225	38 x 64	7/32	136
K5704	250	38 x 70	7/32	144
K6595	250	42 x 59	1/4	167
K6645	275	42 x 64	1/4	176
K6685	300	42 x 68	1/4	183
K7646	350	48 x 64	9/32	237
K7706	400	48 x 70	9/32	250
K7816	450	48 x 77	9/32	276
K7886	500	48 x 84	9/32	292
K8636	500	60 x 63	9/32	365
K8716	600	60 x 71	9/32	391
K8806	700	60 x 80	9/32	414
K8886	800	60 x 88	9/32	437
KF656	750	72 x 65	9/32	494
KF807	1000	72 x 80	5/16	590
KF949	1250	72 x 94	13/32	749
KFA9A	1500	72 x 109	15/32	882

DISH BOTTOM W/SKIRT

flanged lip included



Skirted mix tanks feature a 12" clearance to the floor and are designed to provide complete drainage.

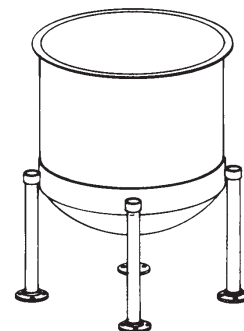
- Hold down lugs are recommended for mixing applications.
- Isophthalic resin tanks are supplied with aqua sidewall. Vinylester resin tanks are natural in color.

MIX TANKS

DISH BOTTOM W/LEG RING

flanged lip included

OPEN TOP PART NO.	NOMINAL CAPACITY (GALS.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICK. (IN.)	APPROX. WEIGHT (LBS.)	PIPE SIZE (IN.)	LEG LENGTH FOR 0" CLEARANCE
M2253	50	24 x 31	5/32	66	1 1/2	6 1/4
M2383	75	24 x 44	5/32	74	1 1/2	6 1/4
M3354	100	30 x 40	7/32	96	1 1/2	7 1/2
M3444	125	30 x 49	7/32	105	1 1/2	7 1/2
M4354	125	32 x 41	7/32	105	1 1/2	8 1/2
M4424	150	32 x 49	7/32	112	1 1/2	8 1/2
M4504	175	32 x 56	7/32	121	1 1/2	8 1/2
M5384	200	38 x 47	7/32	144	2	10
M5434	225	38 x 52	7/32	150	2	10
M5494	250	38 x 58	7/32	158	2	10
M6395	250	42 x 47	1/4	181	2	10
M6445	275	42 x 52	1/4	189	2	10
M6485	300	42 x 56	1/4	196	2	10
M7426	350	48 x 52	9/32	239	2	12 1/4
M7486	400	48 x 58	9/32	252	2	12 1/4
M7556	450	48 x 65	9/32	268	2	12 1/4
M7626	500	48 x 72	9/32	285	2	12 1/4
M8356	500	60 x 49	9/32	407	3	17 3/4
M8446	600	60 x 58	9/32	433	3	17 3/4
M8526	700	60 x 66	9/32	456	3	17 3/4
M8606	800	60 x 74	9/32	479	3	17 3/4
MF396	750	72 x 51	9/32	552	3	18 3/4
MF547	1000	72 x 66	5/16	631	3	18 3/4
MF689	1250	72 x 80	13/32	756	3	18 3/4
MF83A	1500	72 x 95	15/32	873	3	18 3/4



Dished bottom leg ring tanks are designed to achieve complete bottom access and maximum floor clearance. Legs are not included and must be ordered separately. See below for details.

- For best results, legs should be anchored to the floor. Maximum length = 48".
- Isophthalic resin tanks are supplied with aqua sidewall and white ends. Vinylester resin tanks are natural in color.

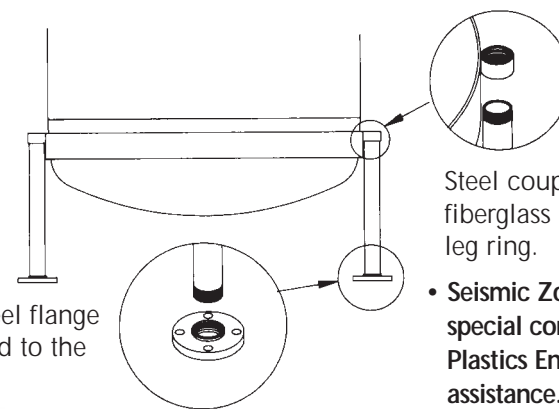
STEEL PIPE LEGS

Legs must be ordered separately on all leg ring tanks and can either be factory or customer supplied. If legs are to be customer supplied refer to specific tank to determine correct pipe size. All centrifugally cast tanks require four (4) pipe legs.

Legs available are primed steel pipe with NPT threads on both ends and are designed to fit into steel couplings welded onto a fiberglass encapsulated steel leg ring. Lower portion of leg threads into a primed steel flange pad with ASA 150# bolting geometry.

When ordering legs refer to specific tank part number and add the amount shown for 0" clearance to the amount that you require between the bottom of the tank and the floor.

For example to get 12" of clearance on a M7486 (shown above) you would add 12" to a 0" clearance of 12 1/4". Proper leg length would be 24 1/4".



Steel coupling is welded to fiberglass encapsulated steel leg ring.

- Seismic Zone design requires special consideration. Contact Plastics Engineering for full assistance.

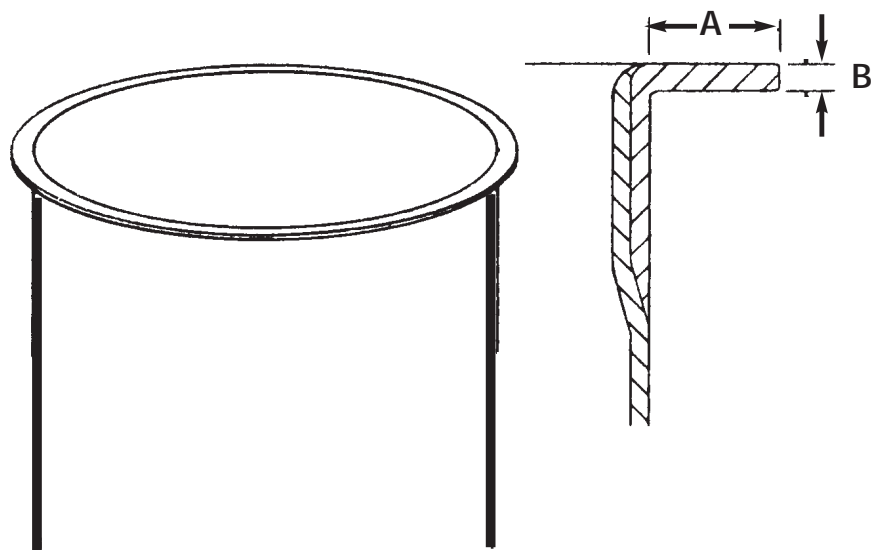
Pipe leg threads into steel flange pad. Pads can be bolted to the floor for stability.

MIX TANK ACCESSORIES

FRP FLANGED LIPS

Fiberglass flanged lips are included as standard equipment on all Mix Tanks and are also available as an option on other open top tanks. Constructed from the same resin as the tank corrosion barrier, reinforced lips add rigidity to the top and allow for the use of bolt-down covers.

- Lips are constructed as an integral part of the tank wall.
- Lip is supplied without bolting holes unless otherwise specified.



TANK PART. No.	A DIA. (IN.)	B DIM. (IN.)	DIM. (IN.)
5108B	23	2	3/8
5109B	24	2	3/8
5110B	30	2	3/8
5111B	32	2	3/8
5112B	38	2	3/8
5113B	42	2	3/8
5114B	48	2	3/8
5115B	60	2	3/8
5303B	72	2 1/4	1/2
5150I	90	2 3/4	1/2
7007B	96	2 1/2	1/2

MIX TANK ACCESSORIES

BOLT DOWN COVERS



Fiberglass bolt-down covers are designed for use with mix tanks or standard open top tanks that have flanged lips. When ordered in conjunction with a tank, cover and flanged lip will be match-drilled. If ordered as a replacement item, cover will be supplied without holes in order that customer can field drill.

Solid Covers available either plain or with an 8" x 8" mixer shaft cutout.

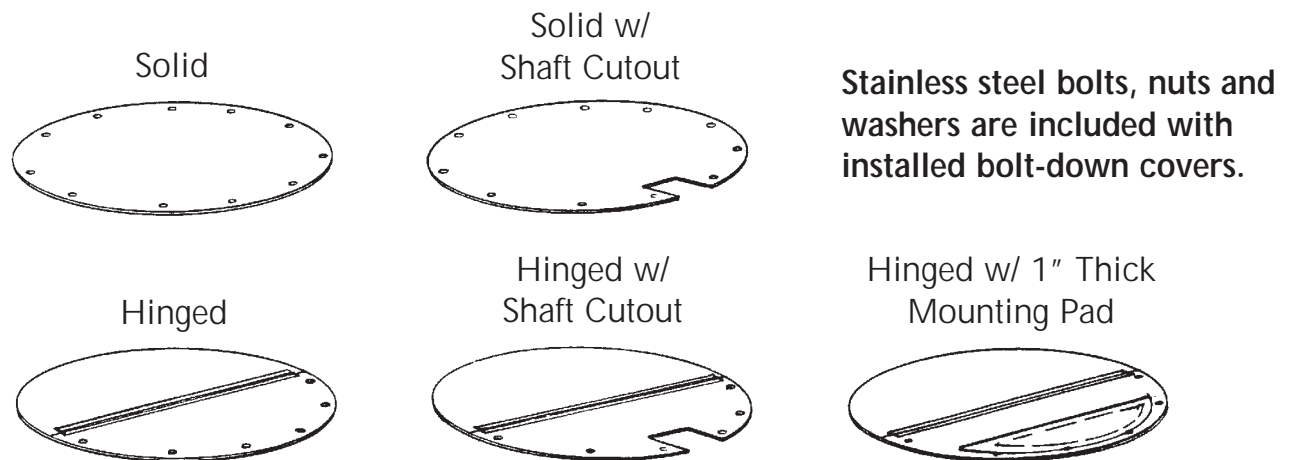
Hinged Covers split with 304 stainless steel hinge to provide easy access to the tank interior. 24" - 72" diameter tanks feature a center split with 1 1/2" wide hinge. 90" & 8' diameter tanks are split at 1/4 of tank diameter and have a 5" wide stainless hinge. 8' hinge and solid covers are reinforced to take 350 lb. load.

Hinged covers are available plain, with an 8" x 8" shaft cutout, or with a 1" thick FRP encapsulated pad for mixer mount.

TANK DIA. (IN.)	SOLID COVER	WITH CUTOUT	HINGED COVER	HINGED WITH CUTOUT	WITH MFG. PAD
23	5108I	NA	5108F	NA	NA
24	5109I	5109C	5109F	5109H	5109G
30	5110I	5110C	5110F	5110H	5110G
32	5111I	5111C	5111F	5111H	5111G
38	5112I	5112C	5112F	5112H	5112G
42	5113I	5113C	5113F	5113H	5113G
48	5114I	5114C	5114F	5114H	5114G
60	5115I	5115C	5115F	5115H	5115G
72	5303I	5303C	5303F	5303H	5303G
90	5164I*	5164C*	5239F*	5164H*	5164G*
8'	7007I	NA	7007F	NA	NA

**90" solid covers are not designed for loads.*

Hinged 90" & 8' covers are ribbed and are capable of supporting up to 350 lbs.



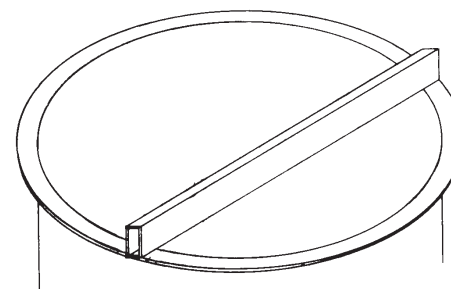
MIX TANK ACCESSORIES

Mixer Bars

Mixer bars for open top tanks 60" diameter and smaller consist of 2" x 4" rectangular fiberglass tubing with wood cores. Bars are designed to hold mixers weighing up to 125 pounds and are secured to flanged lip with stainless bolts.

Tank Dia. (in.)	Part No.
24	5195C
30	5195D
32	5195E
38	5195F
42	5195G
48	5195H
60	5195J

24" - 60" Diameter

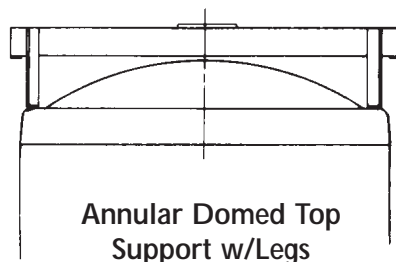


Agitator Supports

90" diameter tanks utilize a primed carbon steel agitator support constructed from two 6" x 8.2 lb./ft. channels and feature a 15" square mounting plate. Agitator supports designed to be used on an annular domed top tank require four (4) steel legs for clearance. When ordering include part numbers for support and legs.

Supports for 72" diameter tanks are constructed from two 4" x 7.25 lb./ft. channels and feature a 12" square mounting plate.

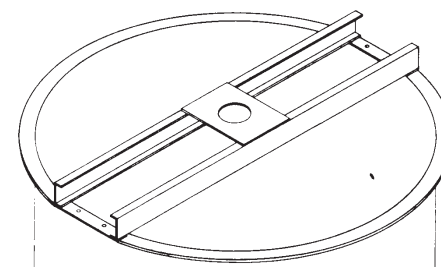
Engineering assistance is available from the factory to meet custom applications and for larger tanks or special installations.



Annular Domed Top Support w/Legs

Tank Dia. (in.)	Part No.	Leg Part No.*
72	5314R	5315R
90	5278R	5279R

72" and 90" Diameter



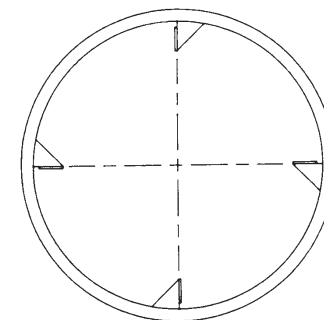
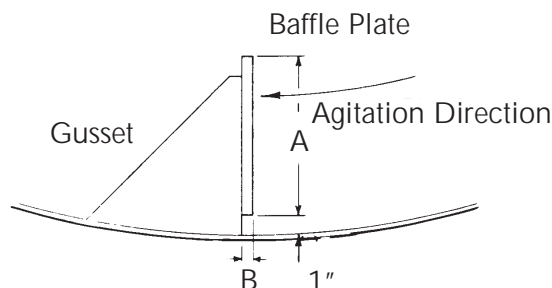
*legs required only on domed top tanks.

MIX TANK ACCESSORIES

Anti-Vortex Baffles

Fiberglass anti-vortex baffles minimize problems associated with vortexing during agitation.

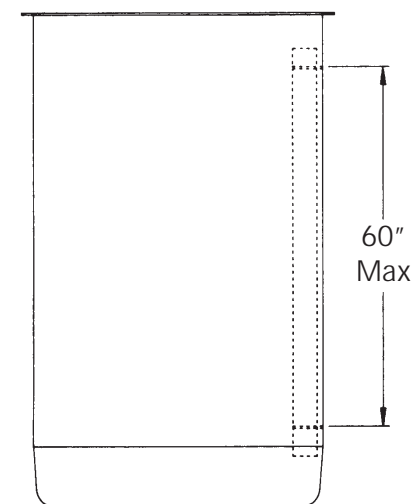
- Flat plate baffles are positioned to oppose agitation direction specified by customer.
- For best results four baffles are recommended per tank.
- Baffles are attached to tank by fiberglass gussets permanently bonded to sidewall.



Ordering Guidelines

- When ordering specify number of baffles per tank, length of each baffle, and number of gussets per baffle.
- Typical baffle length will equal sidewall length minus 3" for 32"-72", sidewall length minus 12" for 90" diameter.
- Top and bottom gussets should be located within 3"-6" of end of baffles. Distance between gussets should not exceed 60".

Tank Dia.	Baffle Part #	Baffle Width	Baffle Thick.	Gusset Part No.
		A	B	
32	5159E	3	1/4	5158E
38	5159F	3	1/4	5158F
42	5159G	4	1/4	5158G
48	5159H	4	1/4	5158H
60	5159J	6	3/8	5158J
72	5159K	6	3/8	5158K
90	5159L	8	3/8	5158L



SECTIONALIZED TANKS

Centrifugally Cast Sectionalized Fiberglass Tanks



Our unique sectionalized fiberglass tank provides an excellent option for retrofit applications such as solar energy storage and domestic fire protection systems.

Part No.	Dia. x Ht. (in.)	Nominal Capacity (gals.)	Total Sections	Approx. Weight (lbs.)	Approx. Thick. (in.)
S42-150	42 x 29	150	1	75	5/32
S42-300	42 x 55	300	2	107	5/32
S42-450	42 x 81	450	3	139	5/32
S48-200	48 x 29	200	1	101	5/32
S48-400	48 x 55	400	2	137	5/32
S48-600	48 x 81	600	3	173	5/32
S48-800	48 x 107	800	4	209	5/32

- Modular design allows for storage up to 800 gallons with a tank capable of passing through a 30" door.
- Factory pre-sanded sections can be assembled on site with no special equipment or training.
- Tanks include adhesive kit and installation instructions.
- Sectionalized tanks are not recommended for the storage of highly aggressive chemicals or for use in food grade applications.
- Available in either isophthalic polyester or vinylester resins.

SECTIONALIZED TANKS

INSTALLATION INSTRUCTIONS



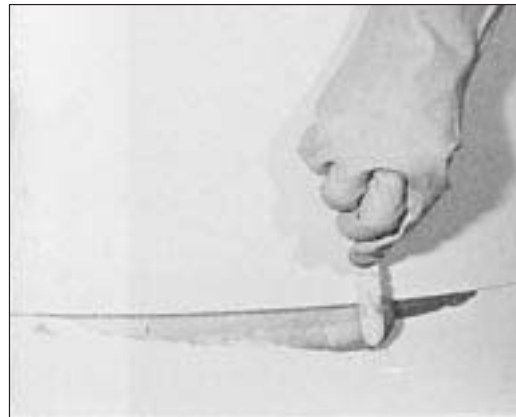
Clean both factory pre-sanded bonding surfaces with MEK or acetone to insure positive seal.



Mix vinyl ester adhesive per instructions enclosed with kit. Butter bonding surfaces on spigot joint (base) and bell portion (top) with material, making sure all pre-sanded surfaces are evenly covered.



Slip top half of tank smoothly over the base until seams meet.



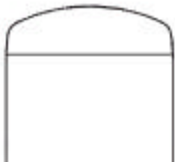

Strip off excessive adhesive on both outside and inside seams with wooden paddle and wipe off seams with a solvent soaked cloth to produce smooth appearing seams.



Slip top on assembled tank and installation is complete. Tank should be allowed to cure overnight and be water tested before being put into service.

CAPACITY AND DIMENSION CHARTS





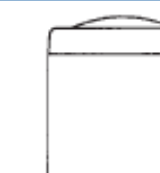
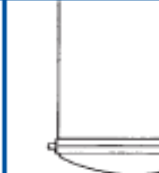
CAUTION! The following chart is intended to be used as a guide only. Variations in mold taper and head preparation will affect actual dimensions. For applications requiring strict tolerances contact the factory for details. .

					
TANK DIAMETER	GALS. / IN	DOME		FLANGE LIP	
		GALS.	HT. (IN.)	GALS.	HT. (IN.)
8'	31.3	425	20	240	8*
9'	39.6	630	23	300	8
10'	48.9	875	25	370	8
12'	70.5	1340	28	600	9
14'	95.9	1900	31	858	9

*NOTE: The 8' is also available in an external flange lip. Height of the external lip is 6". Capacity of the external 8' lip is 235 gallons.

CAPACITY AND DIMENSION CHARTS

CAUTION! The following chart is intended to be used as a guide only. Variations in mold taper and head preparation will affect actual dimensions. For applications requiring strict tolerances contact the factory for details.

														
NOMINAL TANK DIA. (IN.)	ACTUAL TANK DIA. (IN.)	GAL./INCH OF SIDEWALL	BOTTOM FLAT HEAD		BOTTOM DISHED HEAD		BOTTOM 30 CONE		BOTTOM 45 CONE		TOP ANNULAR HEAD		BOTTOM DISHED HEAD	
			GALS.	Ht. (IN.)	GALS.	Ht. (IN.)	GALS.	Ht. (IN.)	GALS.	Ht. (IN.)	GALS.	Ht. (IN.)	GALS.	Ht. (IN.)
23	22.60	1.70	7	5	11	9	NA	NA	NA	NA	NA	NA	NA	NA
24	24.25	1.94	11	6	12	9	14	12	NA	NA	11	6.5	12	9
30	29.25	2.84	16	6	21	10	23	14.2	NA	NA	16	7	21	10
32	32	3.41	19	6	29	11	31	15	NA	NA	23	8	29	11
38	38	4.84	32	7	46	13	49	17.75	NA	NA	38	10.5	46	13
42	42	5.89	30	6	59	13	65	19	NA	NA	55	12	59	13
48	48	7.65	70	10	85	15	93	21.75	NA	NA	74	13	85	15
60	60	11.9	152	14.5	165	20.5	180	27.62	NA	NA	165	18.25	165	20.5
72	72	17.26	215	13.5	192	19	222	29.5	NA	NA	253	20.5	192	19
90	90	27	310	10	390	21.25	444	33.87	608	50	330	20.25	390	21.25
96	96	31.3	240	8	NA	NA	470	34	670	55	NA	NA	425	20
108	108	39.6	300	8	NA	NA	670	35	1000	62	NA	NA	630	23
120	120	48.9	370	8	NA	NA	910	42	1320	67	NA	NA	875	25
144	144	70.5	600	9	NA	NA	NA	NA	2180	79	NA	NA	NA	NA
168	168	95.9	858	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

CHOP-HOOP FILAMENT WINDING

Chop-hoop filament winding is a unique blend of two proven fabrication techniques: chopped glass spray-up and continuous filament winding. This combination provides the benefits of maximum corrosion resistance plus the strength required for vertical storage.

The chop-hoop filament wound tank is produced over a smooth male mandrel in four automated steps:

1. The bottom head is produced in a separate spray-up process and affixed to the mandrel. A resin rich inner surface is applied to the mandrel and reinforced either with a glass veil or a synthetic veil (Nexus[®]) in those applications requiring maximum chemical resistance. This layer is a minimum of 10 mils thick with a glass/resin ratio of approximately 20/80.
2. The interior corrosion barrier is constructed next by combining resin with chopped "E" glass in two 45 mil passes. Total thickness is a minimum of 90 mils with an approximate glass/resin ratio of 30/70.
3. The structural wall is produced using a process of simultaneous glass chopping, resin spraying, and hoop filament winding. The

glass/resin ratio is approximately 50/50 with the glass roving (filament) providing the required hoop strength. The thickness of the structural wall is varied according to tank height, application, and specific gravity of the contents.

4. Finally, a 5 mil resin coat or a 45 mil exterior corrosion barrier is added depending upon projected service. The exterior corrosion barrier consists of a layer of resin and chopped "E" glass strand applied in an approximate resin to glass ratio of 70/30.



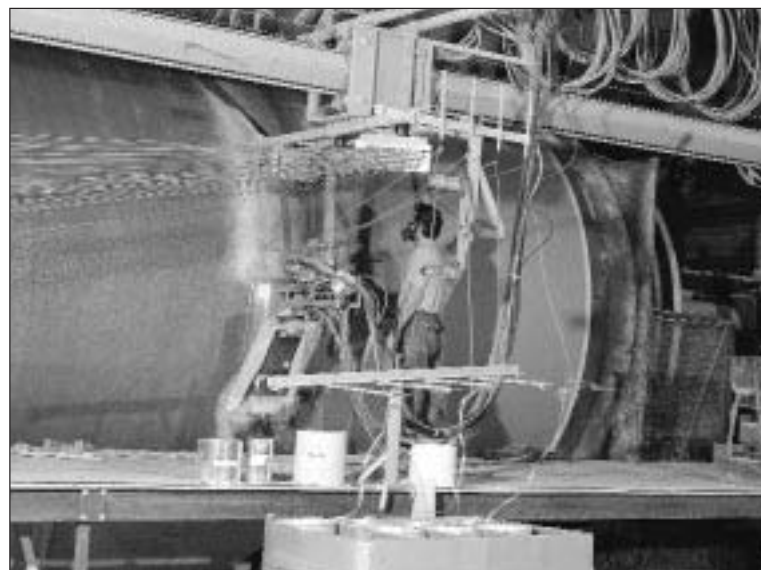
Structural wall is constructed by simultaneous glass chopping, resin spraying and hoop filament winding. (Winding glass is visible at top of photo.)

SPECIFICATIONS

Using chop-hoop filament wound fabrication, fiberglass reinforced plastic tank walls manufactured by Design Tanks meet or exceed the design criteria of ASTM D 3299-00.

Our standard storage vessels are designed for liquids with a specific gravity of up to 1.3. Tanks designed to hold heavier materials are available upon request.

Chop-hoop filament wound tanks can be manufactured for food grade applications depending on resin selection.



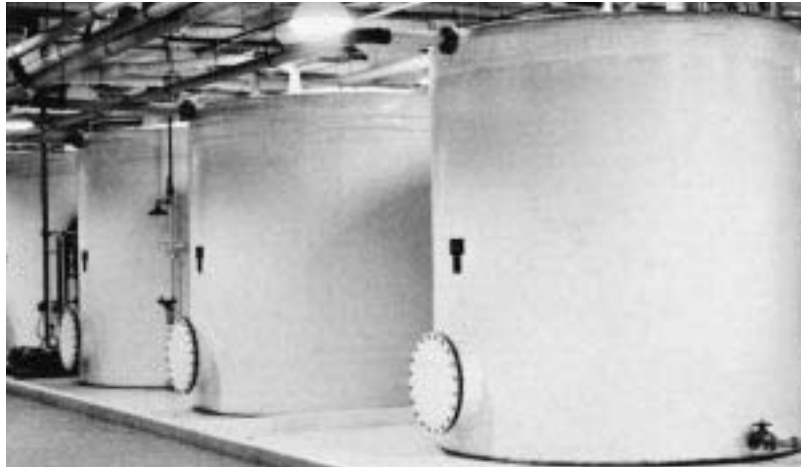
An interior corrosion barrier is fabricated by spraying a chopped roving glass and resin mixture.

CHOP-HOOP FILAMENT WINDING

TYPICAL PROPERTIES

Hoop Direction	
Tensile Strength PSI	42,000
Tensile Modulus PSI	2,400,000
Flexural Strength PSI	58,000
Flexural Modulus PSI	1,800,000

AXIAL DIRECTION	
Tensile Strength PSI	13,500
Tensile Modulus PSI	1,450,000
Flexural Strength PSI	33,600
Flexural Modulus PSI	1,330,000



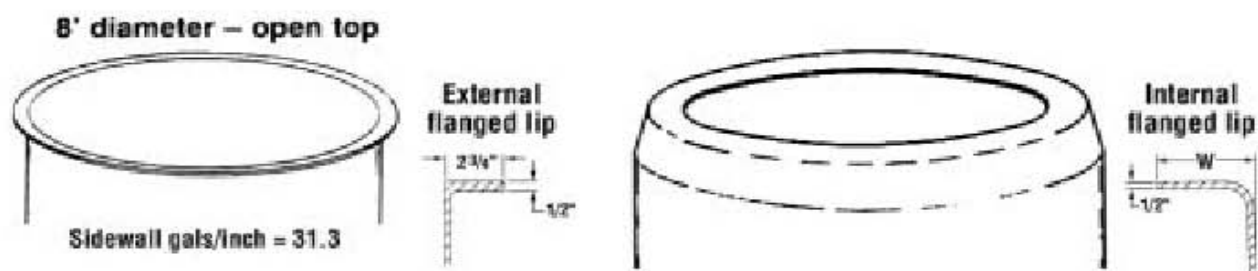
Series of 9000 gallon storage tanks for treatment of waste water at an industrial plating operation.

FLAT BOTTOM OPEN TOP

CHOP-HOOP FILAMENT WOUND, FLAT BOTTOM, OPEN TOP FIBERGLASS TANKS



- 8' diameter open top tanks include external flanged lips. 9', 10', 12' and 14' diameter tanks are supplied with internal flange lips. See drawing below for dimensions.
- Standard tank is designed for 1.3 specific gravity material. 1.8 and 2.1 versions are available upon request.
- All filament wound tanks include three lift lugs.



NOTE: Tank bottom must be fully supported and pad must remain level within 1/8" over a ten foot span.

- Consult a local engineer for specific site requirements.
- Seismic Zone design requires special consideration. Contact Engineering for full assistance.

Tank diameter	"W" dimension
9'	6"
10'	7"
12'	9"
14'	10"

FLAT BOTTOM OPEN TOP

CHOP-HOOP FILAMENT WOUND, FLAT BOTTOM, OPEN TOP FIBERGLASS TANKS - CONTINUED

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
F082OT	2000	8' x 5' 10"	1/4	720
F092OT	2000	9' x 4' 9"	1/4	778
F083OT	3000	8' x 8' 6"	1/4	860
F093OT	3000	9' x 6' 11"	1/4	908
F084OT	4000	8' x 11' 2"	1/4	1000
F094OT	4000	9' x 9' 0"	1/4	1033
F104OT	4000	10' x 7' 5"	1/4 - 9/32	875
F085OT	5000	8' x 13' 9"	1/4 - 9/32	1220
F095OT	5000	9' x 11' 1"	1/4	1157
F105OT	5000	10' x 9' 1"	1/4 - 9/32	1006
F086OT	6000	8' x 16' 5"	1/4 - 9/32	1410
F096OT	6000	9' x 13' 2"	1/4 - 5/16	1327
F106OT	6000	10' x 10' 9"	1/4 - 11/32	1136
F126OT	6000	12' x 7' 8"	1/4 - 5/16	1110
F087OT	7000	8' x 19' 1"	1/4 - 9/32	1610
F097OT	7000	9' x 15' 4"	1/4 - 5/16	1498
F107OT	7000	10' x 12' 6"	1/4 - 11/32	1280
F127OT	7000	12' x 8' 10"	1/4 - 5/16	1230
F147OT	7000	14' x 6' 5"	1/4	1476
F088OT	8000	8' x 21' 9"	1/4 - 11/32	1830
F098OT	8000	9' x 17' 5"	1/4 - 3/8	1662
F108OT	8000	10' x 14' 2"	1/4 - 11/32	1447
F128OT	8000	12' x 10' 0"	1/4 - 5/16	1350
F148OT	8000	14' x 7' 4"	1/4	1550
F109OT	9000	10' x 15' 11"	1/4 - 11/32	1613
F129OT	9000	12' x 11' 3"	1/4 - 5/16	1493
F149OT	9000	14' x 8' 2"	1/4 - 5/16	1655

PART No.	NOMINAL CAPACITY (GAL.)	DIAMETER x HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
F1010OT	10000	10' x 17' 7"	1/4 - 7/16	1788
F1210OT	10000	12' x 12' 5"	1/4 - 3/8	1635
F1410OT	10000	14' x 9' 1"	1/4 - 5/16	1770
F1012OT	12000	10' x 21' 0"	1/4 - 7/16	2190
F1212OT	12000	12' x 14' 9"	1/4 - 3/8	1940
F1412OT	12000	14' x 10' 10"	1/4 - 5/16	2003
F1014OT	14000	10' x 24' 5"	1/4 - 1/2	2620
F1214OT	14000	12' x 17' 2"	1/4 - 7/16	2290
F1414OT	14000	14' x 12' 7"	1/4 - 5/16	2357
F1015OT	15000	10' x 26' 1"	1/4 - 1/2	2900
F1215OT	15000	12' x 18' 4"	1/4 - 7/16	2475
F1415OT	15000	14' x 13' 5"	1/4 - 3/8	2490
F1216OT	16000	12' x 19' 6"	1/4 - 7/16	2660
F1416OT	16000	14' x 14' 3"	1/4 - 3/8	2618
F1218OT	18000	12' x 21' 10"	1/4 - 1/2	3075
F1418OT	18000	14' x 16' 0"	1/4 - 3/8	2775
F1220OT	20000	12' x 24' 3"	1/4 - 1/2	3305
F1420OT	20000	14' x 17' 9"	1/4 - 1/2	3054
F1221OT	21000	12' x 25' 5"	1/4 - 1/2	3525
F1421OT	21000	14' x 18' 7"	1/4 - 1/2	3232
F1222OT	22000	12' x 26' 7"	1/4 - 9/32	4210
F1422OT	22000	14' x 19' 6"	1/4 - 1/2	3430
F1225OT	25000	12' x 30' 2"	1/4 - 5/8	5275
F1425OT	25000	14' x 22' 1"	1/4 - 9/16	4103
F1230OT	30000	12' x 36' 0"	1/4 - 23/32	6675
F1430OT	30000	14' x 26' 5"	1/4 - 5/8	5127

*Wall thickness is stepped.



FLAT BOTTOM DOMED TOP

CHOP-HOOP FILAMENT WOUND FLAT BOTTOM, DOMED TOP FIBERGLASS TANKS



- Domed top tanks are designed for atmospheric pressure only and must be vented.
- Standard tank designed for 1.3 specific gravity material. 1.8 and 2.1 versions are available upon request.
- All filament wound tanks include three lift lugs.
- **Seismic Zone design requires special consideration. Contact Plastics Engineering for full assistance.**

NOTE: *Tank bottom must be fully supported and pad must remain level within 1/8" over a ten foot span.*

Consult a local engineer for specific site requirements.

FLAT BOTTOM DOMED TOP

CHOP-HOOP FILAMENT WOUND FLAT BOTTOM, DOMED TOP FIBERGLASS TANKS

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER X HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
F082DT	2000	8' x 6' 4"	1/4	840
F092DT	2000	9' x 5' 4"	1/4	850
F083DT	3000	8' x 9' 0"	1/4	980
F093DT	3000	9' x 7' 5"	1/4	974
F084DT	4000	8' x 11' 8"	1/4	1140
F094DT	4000	9' x 9' 6"	1/4	1098
F104DT	4000	10' x 8' 0"	1/4 - 9/32	1075
F085DT	5000	8' x 14' 3"	1/4 - 9/32	1280
F095DT	5000	9' x 11' 7"	1/4	1223
F105DT	5000	10' x 9' 9"	1/4 - 9/32	1206
F086DT	6000	8' x 16' 11"	1/4 - 9/32	1520
F096DT	6000	9' x 13' 9"	1/4 - 5/16	1384
F106DT	6000	10' x 11' 5"	1/4 - 11/32	1336
F126DT	6000	12' x 8' 5"	1/4 - 5/16	1375
F087DT	7000	8' x 19' 7"	1/4 - 9/32	1710
F097DT	7000	9' x 15' 10"	1/4 - 5/16	1549
F107DT	7000	10' x 13' 1"	1/4 - 11/32	1480
F127DT	7000	12' x 9' 7"	1/4 - 5/16	1500
F147DT	7000	14' x 7' 5"	1/4	1767
F088DT	8000	8' x 22' 3"	1/4 - 11/32	1900
F098DT	8000	9' x 17' 11"	1/4 - 3/8	1715
F108DT	8000	10' x 14' 10"	1/4 - 11/32	1647
F128DT	8000	12' x 10' 10"	1/4 - 5/16	1625
F148DT	8000	14' x 8' 3"	1/4	1876
F109DT	9000	10' x 16' 6"	1/4 - 11/32	1813
F129DT	9000	12' x 12' 0"	1/4 - 5/16	1768
F149DT	9000	14' x 9' 1"	1/4 - 5/16	1983

PART NO.	NOMINAL CAPACITY (GAL.)	DIAMETER X HEIGHT (IN.)	APPROX. WALL THICKNESS (IN.)	APPROX. WEIGHT (LBS.)
F1010DT	10000	10' x 14' 10"	1/4 - 7/16	1988
F1210DT	10000	12' x 12' 0"	1/4 - 5/16	1910
F1410DT	10000	14' x 10' 0"	1/4 - 5/16	2105
F1012DT	12000	10' x 21' 8"	1/4 - 7/16	2390
F1212DT	12000	12' x 15' 6"	1/4 - 3/8	2215
F1412DT	12000	14' x 11' 9"	1/4 - 5/16	2337
F1014DT	14000	10' x 25' 1"	1/4 - 1/2	2820
F1214DT	14000	12' x 17' 11"	1/4 - 7/16	2565
F1414DT	14000	14' x 13' 6"	1/4 - 3/8	2614
F1015DT	15000	10' x 26' 9"	1/4 - 1/2	3100
F1215DT	15000	12' x 19' 1"	1/4 - 7/16	2750
F1415DT	15000	14' x 14' 4"	1/4 - 3/8	2745
F1216DT	16000	12' x 20' 3"	1/4 - 7/16	2935
F1416DT	16000	14' x 15' 3"	1/4 - 3/8	2894
F1218DT	18000	12' x 22' 7"	1/4 - 1/2	3350
F1418DT	18000	14' x 16' 11"	1/4 - 3/8	3208
F1220DT	20000	12' x 25' 0"	1/4 - 1/2	3580
F1420DT	20000	14' x 18' 8"	1/4 - 1/2	3465
F1221DT	21000	12' x 26' 2"	1/4 - 1/2	3800
F1421DT	21000	14' x 19' 10"	1/4 - 1/2	3683
F1222DT	22000	12' x 27' 4"	1/4 - 9/32	4410
F1422DT	22000	14' x 20' 5"	1/4 - 1/2	3794
F1225DT	25000	12' x 30' 10"	1/4 - 5/8	5550
F1425DT	25000	14' x 23' 0"	1/4 - 9/16	4540
F1230DT	30000	12' x 36' 9"	1/4 - 23/32	6950
F1430DT	30000	14' x 27' 4"	1/4 - 5/8	5548

*Wall thickness is stepped.



30° CONE BOTTOM

CHOP-HOOP FILAMENT WOUND 30° CONE BOTTOM FIBERGLASS TANKS

30° CONE - OPEN TOP



NOMINAL OPEN TOP PART No.	CAPACITY (GAL.)	WALL* DIA. x HEIGHT (IN.)	APPROX. THICK. (IN.)	WEIGHT (LBS.)	NO. OF LEGS
C38-2MO	2000	8' x 7'1"	1/4	1280	4
C39-2MO	2000	9' x 6'3"	1/4	784	4
C38-3MO	3000	8' x 9'9"	1/4	1430	4
C39-3MO	3000	9' x 8'4"	1/4	914	4
C38-4MO	4000	8' x 12'5"	1/4	1570	4
C39-4MO	4000	9' x 10'6"	1/4	1039	4
C310-4MO	4000	10' x 9'3"	1/4	2230	6
C38-5MO	5000	8' x 15'1"	1/4-5/16	1710	4
C39-5MO	5000	9' x 12'7"	1/4	1164	6
C310-5MO	5000	10' x 11'0"	1/4	2340	6
C38-6MO	6000	8' x 17'9"	1/4-5/16	1950	4
C39-6MO	6000	9' x 14'8"	1/4-5/16	1323	6
C310-6MO	6000	10' x 12'8"	1/4-5/16	2450	6
C39-7MO	7000	9' x 16'9"	1/4-5/16	1489	6
C310-7MO	7000	10' x 14'5"	1/4-5/16	2560	6
C39-8MO	8000	9' x 18'11"	1/4-3/8	1658	8
C310-8MO	8000	10' x 16'1"	1/4-5/16	2720	8
C310-9MO	9000	10' x 17'9"	1/4-5/16	2860	8
C310-10MO	10000	10' x 19'6"	1/4-5/16	3010	8

*Wall thickness is stepped.

30° CONE BOTTOM

CHOP-HOOP FILAMENT WOUND 30° CONE BOTTOM FIBERGLASS TANKS

- 30° cone bottom tanks are supported by a fiberglass encapsulated steel leg ring which will accept threaded steel pipe legs.
- 8' diameter open top tanks include an external flanged lip. 9' and 10' diameter tanks include an internal flanged lip.
- Closed top tanks are designed for atmospheric pressure only and must be vented.
- Standard tank designed for 1.3 specific gravity material. 1.8 and 2.1 versions are available upon request.
- **Seismic Zone design requires special consideration. Contact Engineering for full assistance.**

30° CONE - CLOSED TOP

NOMINAL OPEN TOP PART NO.	CAPACITY (GAL.)	WALL* DIA. X HEIGHT (IN.)	APPROX. THICK. (IN.)	WEIGHT (LBS.)	NO. OF LEGS
C38-2MC	2000	8' x 7'8"	1/4	1340	4
C39-2MC	2000	9' x 6'9"	1/4	830	4
C38-3MC	3000	8' x 10'4"	1/4	1480	4
C39-3MC	3000	9' x 8'10"	1/4	955	4
C38-4MC	4000	8' x 13'0"	1/4	1620	4
C39-4MC	4000	9' x 11'0"	1/4	1086	4
C310-4MC	4000	10' x 9'11"	1/4	2350	6
C38-5MC	5000	8' x 15'8"	1/4-5/16	1760	4
C39-5MC	5000	9' x 13'1"	1/4	1209	6
C310-5MC	5000	10' x 11'7"	1/4	2460	6
C38-6MC	6000	8' x 18'4"	1/4-5/16	1980	4
C39-6MC	6000	9' x 15'2"	1/4-5/16	1334	6
C310-6MC	6000	10' x 13'3"	1/4	2570	6
C39-7MC	7000	9' x 17'3"	1/4-5/16	1514	6
C310-7MC	7000	10' x 15'0"	1/4	2680	6
C39-8MC	8000	9' x 19'5"	1/4-3/8	1686	8
C310-8MC	8000	10' x 16'8"	1/4-5/16	2830	8
C310-9MC	9000	10' x 18'5"	1/4-5/16	2970	8
C310-10MC	10000	10' x 20'1"	1/4-5/16	3120	8

*Wall thickness is stepped.

30° CONE BOTTOM

CONE BOTTOM

TANK DIAMETER	SIDEWALL GAL./INCH	30° CONE CAP. (GALS.)	CLEARANCE LEG LENGTH (IN.)
8'0"	31.3	470	34"
9'0"	39.6	670	35"
10'0"	48.9	910	42"

STEEL PIPE LEGS

30° cone bottom tanks are supported by steel pipe legs threaded into a fiberglass encapsulated steel leg ring. Legs must be ordered separately.

LEG ORDERING INFORMATION

To order legs, specify number required and overall length. Overall length is determined by adding amount of leg for 0" clearance (shown above) to desired clearance between the bottom of the cone and the floor.

(NOTE: Design Tanks recommends that clearance not exceed 24" unless specific application has been reviewed by the factory.)

EXAMPLE: Legs for an 8' diameter 6000 gallon tank (part #C38-6MC) with a 24" clearance from bottom of cone to the floor would be ordered as follows:

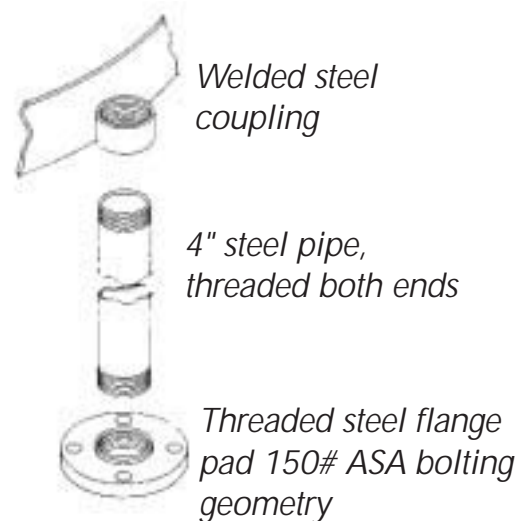
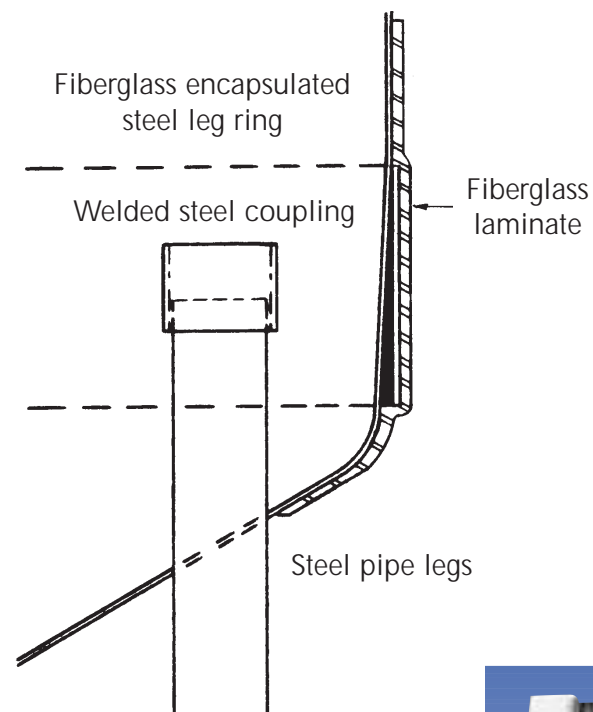
Number of legs required = 4

Leg length = 0" clearance

+ required clearance

34" + 24"

Correct order would be (4) 58" tall legs.



45° CONE BOTTOM

CHOP-HOOP FILAMENT WOUND 45° CONE BOTTOM FIBERGLASS TANKS

45° CONE - OPEN TOP



OPEN TOP PART NO.	NOMINAL CAPACITY (GAL.)	DIMENSIONS DIA. X HEIGHT (IN.)	WALL* THICK. (IN.)	APPROX. WEIGHT (LBS.)	NO. OF LEGS
C47-1.5MO	1500	+90" x 87"	3/16	1050	4
C47-2MO	2000	+90" x 106"	3/16	1130	4
C48-2MO	2000	8' x 8'4"	1/4	1190	4
C49-2MO	2000	9' x 7'10"	1/4	645	4
C47-2.5MO	2500	+90" x 124"	3/16-1/4	1230	4
C47-3MO	3000	+90" x 143"	3/16-1/4	1320	4
C48-3MO	3000	8' x 11'	1/4	1330	4
C49-3MO	3000	9' x 9'11"	1/4	770	4
C47-3.5MO	3500	+90" x 161"	3/16-5/16	1410	4
C47-4MO	4000	+90" x 180"	3/16-5/16	1580	4
C48-4MO	4000	8' x 13'8"	1/4	1478	4
C49-4MO	4000	9' x 12'0"	1/4	896	4
C410-4MO	4000	10' x 10'8"	1/4	2060	6
C48-5MO	5000	8' x 16'4"	1/4-5/16	1620	4
C49-5MO	5000	9' x 14'1"	1/4	1019	6
C410-5MO	5000	10' x 12'4"	1/4	2170	6
C48-6MO	6000	8' x 19'0"	1/4-5/16	1840	4
C49-6MO	6000	9' x 16'3"	1/4-5/16	1149	6
C410-6MO	6000	10' x 14'1"	1/4	2280	6
C412-6MO	6000	12' x 11'8"	1/4-5/16	2970	8
C49-7MO	7000	9' x 18'4"	1/4-5/16	1331	6
C410-7MO	7000	10' x 15'9"	1/4	2390	6
C412-7MO	7000	12' x 12'10"	1/4-5/16	3070	8
C49-8MO	8000	9' x 20'5"	1/4-3/8	1496	8
C410-8MO	8000	10' x 17'6"	1/4-5/16	2540	8
C412-8MO	8000	12' x 14'0"	1/4-5/16	3170	8
C410-9MO	9000	10' x 19'2"	1/4-5/16	2680	8
C412-9MO	9000	12' x 15'2"	1/4-5/16	3370	8
C410-10MO	10000	10' x 20'10"	1/4-5/16	2820	8
C412-10MO	10000	12' x 16'4"	1/4-3/8	3550	#4
C412-11MO	11000	12' x 17'7"	1/4-3/8	3680	#4
C412-12MO	12000	12' x 18'9"	1/4-3/8	3810	#4
C412-13MO	13000	12' x 19'11"	1/4-3/8	4050	#4
C412-14MO	14000	12' x 21'1"	1/4-3/8	4210	#4

+ 90" diameter tanks are constructed by centrifugally cast method.

Requires steel I-beam legs.

* Wall thickness is stepped.

45° CONE BOTTOM

CHOP-HOOP FILAMENT WOUND 45° CONE BOTTOM FIBERGLASS TANKS - CONTINUED

45° CONE - CLOSED TOP

- 45° cone bottom tanks are supported by a fiberglass encapsulated steel leg ring which will accept threaded steel pipe legs or steel I-beams depending on capacity.
- 8' diameter open top tanks include external flanged lips. 9', 10' and 12' diameter tanks include internal lips.
- Closed top tanks are designed for atmospheric pressure only and must be vented.
- Standard tank designed for 1.3 specific gravity material. 1.8 and 2.1 versions are available upon request.
- **Seismic Zone design requires special consideration. Contact Engineering for full assistance.**

OPEN TOP PART NO.	NOMINAL CAPACITY (GAL.)	DIMENSIONS DIA. X HEIGHT (IN.)	WALL* THICK. (IN.)	APPROX. WEIGHT (LBS.)	NO. OF LEGS
C47-1.5MC	1500	+90" x 93"	3/16	1230	4
C47-2MC	2000	+90" x 112"	3/16	1300	4
C48-2MC	2000	8' x 8'9"	1/4	1250	4
C49-2MC	2000	9' x 8'4"	1/4	711	4
C47-2.5MC	2500	+90" x 130"	3/16-1/4	1400	4
C47-3MC	3000	+90" x 149"	3/16-1/4	1490	4
C48-3MC	3000	8' x 11'5"	1/4	1380	4
C49-3MC	3000	9' x 10'5"	1/4	836	4
C47-3.5MC	3500	+90" x 167"	3/16-5/16	1580	4
C47-4MC	4000	+90" x 186"	3/16-5/16	1750	4
C48-4MC	4000	8' x 14'1"	1/4	1530	4
C49-4MC	4000	9' x 12'6"	1/4	946	4
C410-4MC	4000	10' x 11'3"	1/4	2180	6
C48-5MC	5000	8' x 16'9"	1/4-5/16	1670	4
C49-5MC	5000	9' x 14'8"	1/4	1090	6
C410-5MC	5000	10' x 13'0"	1/4	2290	6
C48-6MC	6000	8' x 19'5"	1/4-5/16	1830	4
C49-6MC	6000	9' x 16'9"	1/4-5/16	1215	6
C410-6MC	6000	10' x 14'8"	1/4	2400	6
C412-6MC	6000	12' x 12'5"	1/4-5/16	3064	8
C49-7MC	7000	9' x 18'10"	1/4-5/16	1384	6
C410-7MC	7000	10' x 16'4"	1/4	2510	6
C412-7MC	7000	12' x 13'7"	1/4-5/16	3170	8
C49-8MC	8000	9' x 20'11"	1/4-3/8	1547	8
C410-8MC	8000	10' x 18'1"	1/4-5/16	2620	8
C412-8MC	8000	12' x 14'9"	1/4-5/16	3270	8
C410-9MC	9000	10' x 19'9"	1/4-5/16	2780	8
C412-9MC	9000	12' x 15'11"	1/4-5/16	3360	8
C410-10MC	10000	10' x 21'6"	1/4-5/16	2920	8
C412-10MC	10000	12' x 17'1"	1/4-3/8	3630	#4
C412-11MC	11000	12' x 18'4"	1/4-3/8	3760	#4
C412-12MC	12000	12' x 19'6"	1/4-3/8	3890	#4
C412-13MC	13000	12' x 20'8"	1/4-3/8	4020	#4
C412-14MC	14000	12' x 21'10"	1/4-3/8	4270	#4

+ 90" diameter tanks are constructed by centrifugally cast method.

Requires steel I-beam legs.

* Wall thickness is stepped.



45° CONE BOTTOM

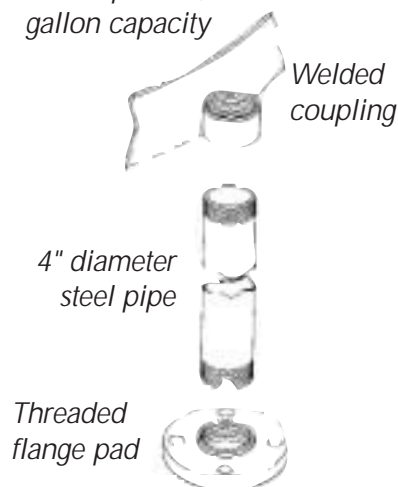
CONE BOTTOM

TANK DIAMETER	SIDEWALL GAL./INCH	45° CONE CAP. (GALS.)	0" CLEARANCE LEG LENGTH (IN.)
90"	27	608	50 3/8"
8'	31.3	670	54 1/2"
9'	39.6	1000	62"
10'	48.9	1320	68"
12'	70.5	2180	79"

STEEL LEGS

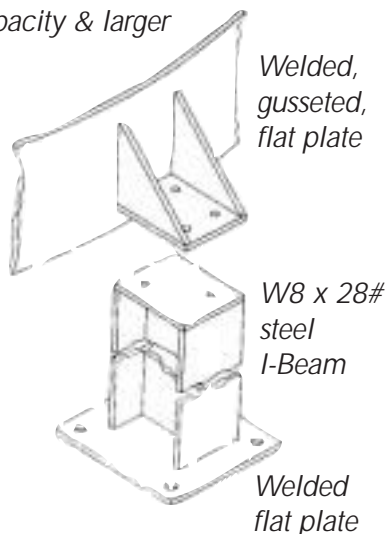
PIPE LEGS

All 8', 9', 10' and 12' tanks up to 10,000 gallon capacity



I-BEAM LEGS

Used with 12' diameter tanks, 10,000 gallon capacity & larger



LEG ORDERING INFORMATION

To order legs, specify number required and overall length. Overall length is determined by adding amount of leg for 0" clearance (shown above) to desired clearance between the bottom of the cone and the floor. (NOTE: We recommend that clearance not exceed 24" unless specific application has been reviewed by the factory.)

EXAMPLE: Legs for an 10' diameter 10,000 gallon tank (part #C410-10MO) with an 18" clearance from bottom of cone to the floor would be ordered as follows:

Number of legs required = 8

Leg length = 0" clearance

+ required clearance

68" + 18"

Correct order would be (8) 86" tall legs.

DISHED BOTTOM

CHOP-HOOP FILAMENT WOUND DISHED BOTTOM FIBERGLASS TANKS

DISHED BOTTOM - OPEN TOP



OPEN TOP PART NO.	NOMINAL CAPACITY (GAL.)	DIMENSIONS DIA. X HEIGHT (IN.)	WALL* THICK. (IN.)	APPROX. WEIGHT (LBS.)	NO. OF LEGS
D8-2MO	2000	8' x 6'2"	1/4	1195	4
D9-2MO	2000	9' x 5'4"	1/4	1052	4
D8-3MO	3000	8' x 8'10"	1/4	1350	4
D9-3MO	3000	9' x 7'5"	1/4	1176	4
D8-4MO	4000	8' x 11'6"	1/4	1495	4
D9-4MO	4000	9' x 9'6"	1/4	1300	4
D10-4MO	4000	10' x 8'0"	1/4	1120	6
D8-5MO	5000	8' x 14'2"	1/4-5/16	1650	4
D9-5MO	5000	9' x 11'7"	1/4	1425	6
D10-4MO	5000	10' x 9'8"	1/4	1300	6
D8-6MO	6000	8' x 16'0"	1/4-5/16	1900	4
D9-6MO	6000	9' x 13'9"	1/4-5/16	1586	6
D10-6MO	6000	10' x 11'5"	1/4	1490	6
D9-7MO	7000	9' x 15'10"	1/4-5/16	1751	6
D10-7MO	7000	10' x 13'1"	1/4	1670	6
D9-8MO	8000	9' x 17'11"	1/4-3/8	1917	8
D10-8MO	8000	10' x 14'9"	1/4-5/16	1920	8
D10-9MO	9000	10' x 16'6"	1/4-5/16	2150	8
D10-10MO	10000	10' x 18'2"	1/4-5/16	2360	8

* Wall thickness is stepped.

DISHED BOTTOM

CHOP-HOOP FILAMENT WOUND DISHED BOTTOM FIBERGLASS TANKS - CONTINUED

DISHED BOTTOM - CLOSED TOP

- Dished bottom 8', 9' and 10' diameter tanks are available either open top or closed top in capacities to 10,000 gallons.
- 8' open top tanks include a 1/2" thick x 2 3/4" wide external flanged lip. 9' and 10' tanks have an internal flanged lip.
- Closed top tanks are designed for atmospheric pressure only and must be vented.
- Dished bottom chop-hoop filament wound tanks are supported by a fiberglass encapsulated steel leg ring and 4" diameter steel pipe legs.
- Tanks include three lift lugs to facilitate positioning of empty tank on site.
- **Seismic Zone design requires special consideration. Contact Engineering for full assistance.**

OPEN TOP PART NO.	NOMINAL CAPACITY (GAL.)	DIMENSIONS DIA. x HEIGHT (IN.)	WALL* THICK. (IN.)	APPROX. WEIGHT (LBS.)	NO. OF LEGS
D8-2MC	2000	8' x 6'8"	1/4	1280	4
D9-2MC	2000	9' x 5'10"	1/4	1117	4
D8-3MC	3000	8' x 9'4"	1/4	1430	4
D9-3MC	3000	9' x 7'11"	1/4	1242	4
D8-4MC	4000	8' x 12'	1/4	1580	4
D9-4MC	4000	9' x 10'10"	1/4	1368	4
D10-4MC	4000	10' x 8'7"	1/4	2002	6
D8-5MC	5000	8' x 14'8"	1/4-5/16	1730	4
D9-5MC	5000	9' x 12'1"	1/4	1419	6
D10-5MC	5000	10' x 10'3"	1/4	2182	6
D8-6MC	6000	8' x 17'4"	1/4-5/16	1980	4
D9-6MC	6000	9' x 14'3"	1/4-5/16	1621	6
D10-6MC	6000	10' x 12'0"	1/4	2372	6
D9-7MC	7000	9' x 16'4"	1/4-5/16	1803	6
D10-7MC	7000	10' x 13'8"	1/4	2562	6
D9-8MC	8000	9' x 18'5"	1/4-3/8	1968	8
D10-8MC	8000	10' x 15'5"	1/4-5/16	2826	8
D10-9MC	9000	10' x 17'1"	1/4-5/16	3046	8
D10-10MC	10000	10' x 18'10"	1/4-5/16	3276	8

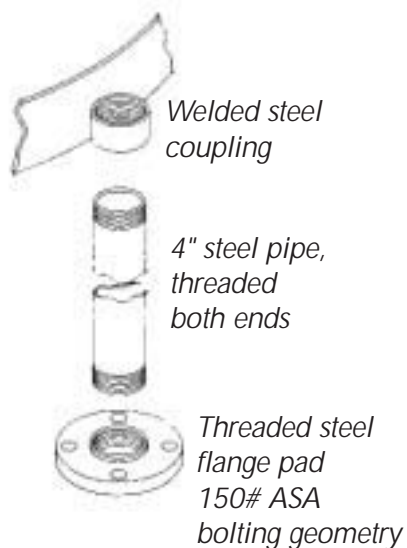
* Wall thickness is stepped.

DISHED BOTTOM

DISH BOTTOM

TANK DIAMETER	SIDEWALL GAL./INCH	DISH CAP. (GALS.)	0" CLEARANCE LEG LENGTH (IN.)
8'0"	31.3	425	20
9'0"	39.6	630	23
10'0"	48.9	875	25

STEEL PIPE LEGS



LEG ORDERING INFORMATION

To order legs, specify number required and overall length. Overall length is determined by adding amount of leg for 0" clearance (shown above) to desired clearance between the bottom of the dish and the floor.

(NOTE: We recommend that clearance not exceed 24" unless specific application has been reviewed by the factory.)

EXAMPLE: Legs for an 8' diameter 6000 gallon tank (part #D8-6MO) with a 24" clearance from bottom of dish to the floor would be ordered as follows:

Number of legs required = 4

Leg length = 0" clearance
+ required clearance
20" + 24"

Correct order would be (4) 44" tall legs.

FLANGED CONNECTIONS–FRP

FLANGED CONNECTIONS

Hand lay-up vinylester flanges with stub pipe are available in sizes from 1" to 24" and are permanently bonded to the tank. Flanges can be located either above or below liquid level and can be ordered in three different styles based upon intended use.

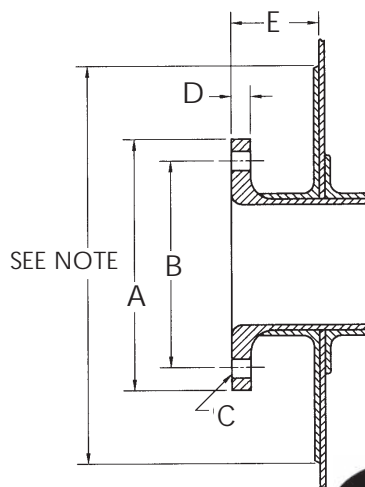
- Gaskets, bolts, washers, and nuts are not included with flanges. We recommend the use of a 40 to 60 durometer full faced gasket, 1/8" thick, and a maximum bolt take up torque of 30 ft.-lbs.
- Flange face is 150 lb. A.S.A. bolting geometry.
- Sidewall mounted flanges protrude inside tank a minimum of 1" as shown. Bottom flanges are flush mounted unless otherwise specified.

NOTE: Bonding area equals three times the nominal pipe size on all pipe through 8". On 10" through 24", patch diameter is 16" larger than pipe size.

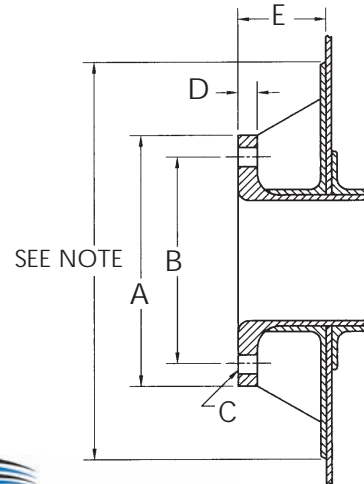
PIPE SIZE(IN.)	NON GUSSET	BLADE GUSSET	CONICAL GUSSET	A DIM. (IN.)	B DIM. (IN.)	C DIM. (IN.)	D DIM. (IN.)	E DIM. (IN.)	NO. OF HOLES
1	6058B	6174B	6269B	4 1/2	3 1/8	5/8	5/8	4	4
1 1/2	6058C	6174C	6269C	5 1/2	3 7/8	5/8	11/16	4	4
2	6058D	6174D	6269D	6 1/2	4 3/4	3/4	11/16	4	4
3	6058F	6174F	6269F	8	6	3/4	13/16	4	4
4	6058G	6174G	6269G	9 1/2	7 1/2	3/4	15/16	4	8
6	6058H	6174H	6269H	11 1/2	9 1/2	7/8	7/8	4	8
8	6058J	6174J	6269J	14	11 3/4	7/8	1	6	8
10	6058K	NA	NA	16 1/2	14 1/4	1	1 3/16	8	12
12	6058L	NA	NA	19 1/2	17	1	1 7/16	8	12
14*	6058M	NA	NA	21 1/2	18 3/4	1 1/8	1 1/2	8	12
18*	6058P	NA	NA	25 1/2	22 3/4	1 1/4	1 3/4	8	16
20*	6058R	NA	NA	28	25	1	1	8	20
24*	6123I	NA	NA	32 1/2	29 1/2	1	1 1/8	9	20

* Flange must include appropriate blind flange if used as below liquid level access. Larger sizes available upon request

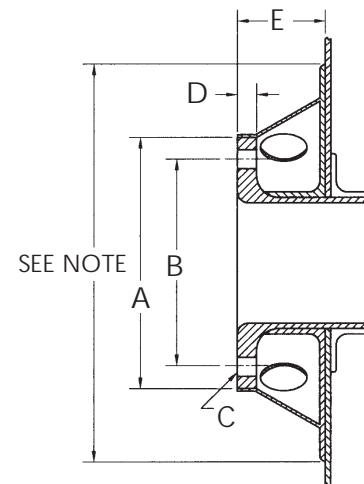
Non-Gusseted Flanges



Blade-Gusseted Flanges



Conically-Gusseted Flanges



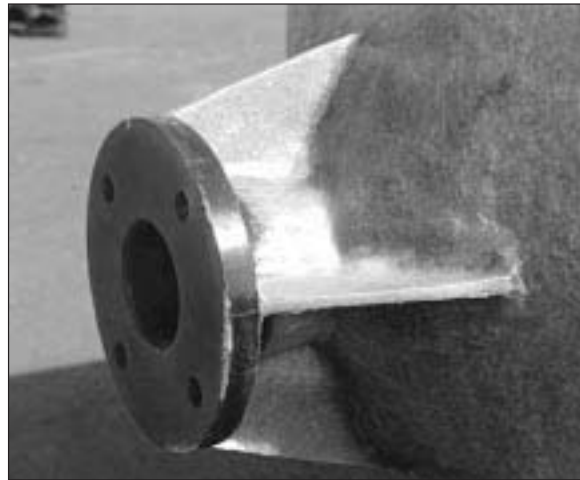
FLANGED CONNECTIONS–FRP

NON-GUSSETED FLANGES



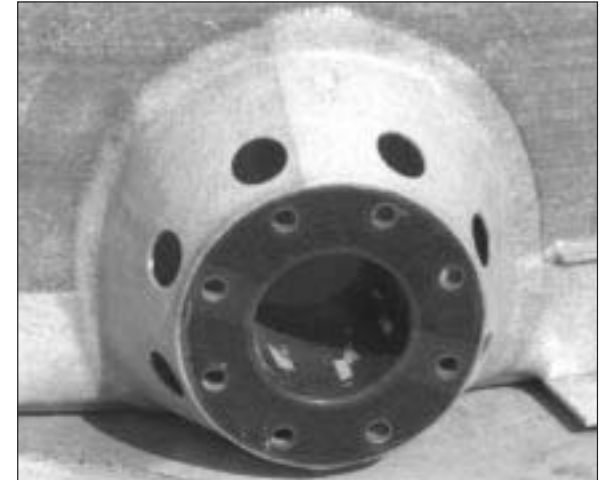
Non-gusseted flanges through 8" pipe size are designed for light duty, non-weight bearing applications on tanks 72" diameter or smaller. We recommend the use of gusseted flanges on all tanks 90" diameter and larger.

BLADE-GUSSETED FLANGES



Blade gusseted flanges are reinforced by flat fiberglass plates bonded the full length of the flange assembly. They are recommended for heavy-duty applications where ease of access to the back of the flange face is important.

CONICALLY-GUSSETED FLANGES



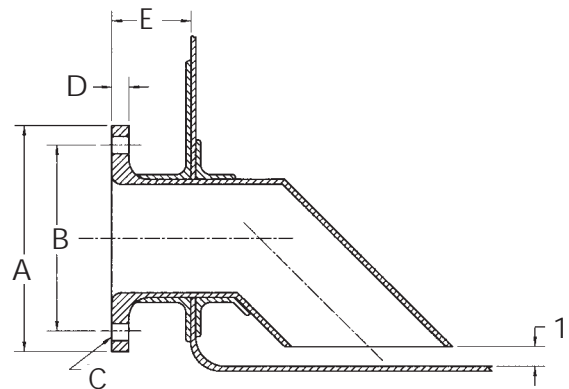
Conically gusseted flanges are reinforced by a fiberglass bonded cone and are recommended for applications where maximum strength is required.

FLANGED CONNECTIONS–FRP

SIPHON DRAIN FLANGES

PIPE SIZE(IN.)	NON GUSSET	BLADE GUSSET	CONICAL GUSSET	A DIM. (IN.)	B DIM. (IN.)	C DIM. (IN.)	D DIM. (IN.)	E DIM. (IN.)	No. OF HOLES
1 1/2	6122C	6175C	6270C	5 1/2	3 7/8	5/8	11/16	4	4
2	6122D	6175D	6270D	6 1/2	4 3/4	3/4	11/16	4	4
3	6122F	6175F	6270F	8	6	3/4	13/16	4	4
4	6122G	6175G	6270G	9 1/2	7 1/2	3/4	15/16	4	8
6	6122H	6175H	6270H	11 1/2	9 1/2	7/8	7/8	4	8
8	6122J	6175J	6270J	14	11 3/4	7/8	1	6	8

**NOTE: Bolts are not included with flanges unless a blind flange is also ordered. Column listing number of bolt holes and size refers to maximum size that flange will accommodate and does not necessarily reflect standard installation. See blind flanges below to determine standard size bolts.*

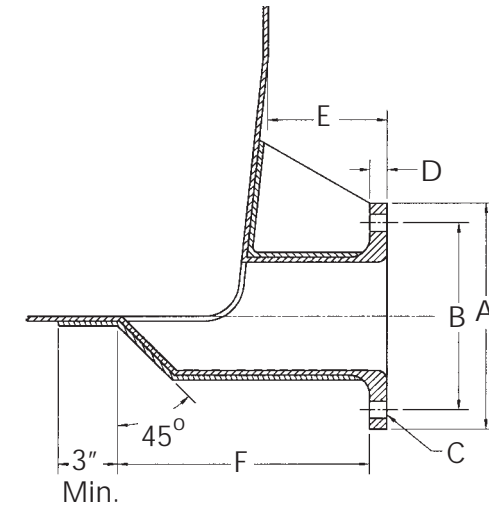


Available either non-gusseted (shown above) or gusseted, siphon drains provide drainage within 1" of tank bottom.

FLANGED CONNECTIONS–FRP

SIDE BOTTOM DRAIN FLANGES

PIPE SIZE(IN.)	NON GUSSET	BLADE GUSSET	CONICAL GUSSET	A DIM. (IN.)	B DIM. (IN.)	C DIM. (IN.)	D DIM. (IN.)	E DIM. (IN.)	No. OF HOLES
1 1/2	6198C	6271C	5 1/2	3 7/8	5/8	11/16	4	8	4
2	6198D	6271D	6 1/2	4 3/4	3/4	11/16	4	8	4
3	6198F	6271F	8	6	3/4	13/16	4	8 1/2	4
4	6198G	6271G	9 1/2	7 1/2	3/4	15/16	4	8 1/2	8
6	6198H	6271H	11 1/2	9 1/2	7/8	7/8	4	11	8
8	6198J	6271J	14	11 3/4	7/8	1	6	12	8

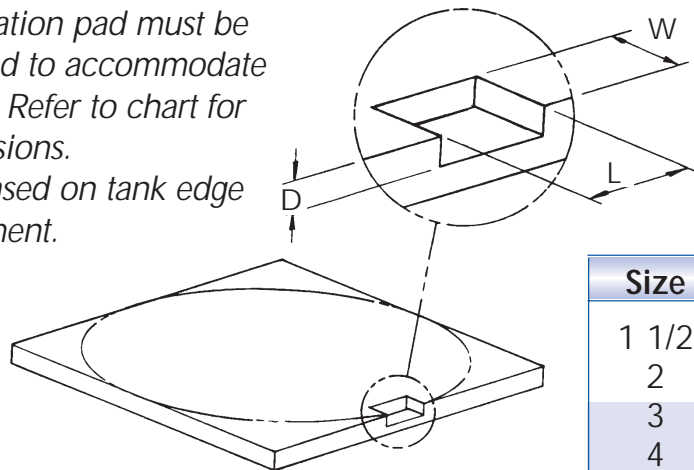


Bonding Leg

Side bottom drains extend below the tank bottom to provide nearly complete drainage of flat bottom tanks. Must be gusseted.

Foundation pad must be notched to accommodate flange. Refer to chart for dimensions.

"W" based on tank edge placement.



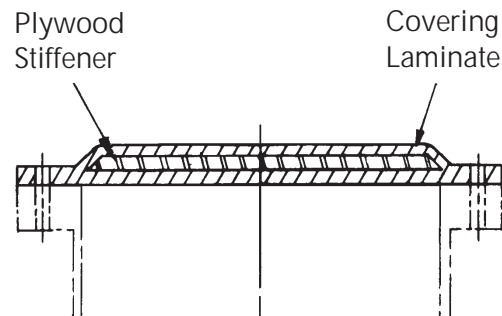
(inches)

Size	L	W	D
1 1/2	12	8	4
2	13	8	4
3	14	8	5
4	15	8	6
6	20	10	7
8	24	10	8

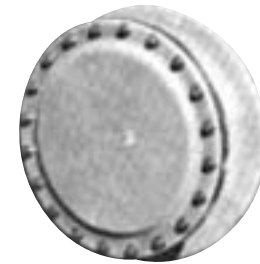
FLANGED CONNECTIONS–FRP

BLIND FLANGES (Larger sizes available upon request)

PIPE SIZE (IN.)	PART NO.
1	5163B
1 1/2	5163C
2	5163D
3	5163F
4	5163G
6	5163H
8	5163J
10	5163K
12	5163L
14	5163M
18	5163P
20	5163R
24	5123B



*NOTE: Diagram shows 10" – 18" blind flanges
1" – 8" are flat
20" – 24" are domed*



Blind flanges provide a sealed cap for flanges that are not currently plumbed to.

NOTE: All blind flanges are installed with full face gaskets, and stainless steel bolts, nuts, and washers. Bolting hardware supplied for all sizes. Chemical compatability determines gasket material, 1/8" thickness is standard.

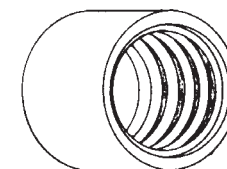
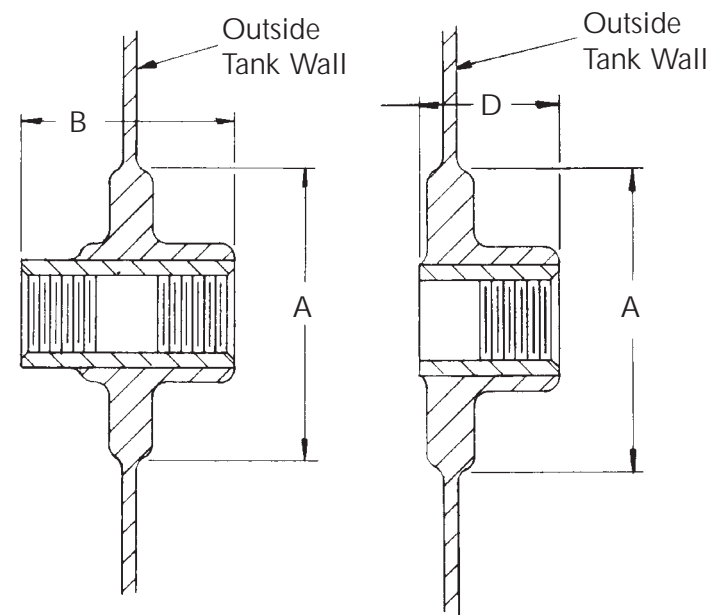
COUPLINGS-FRP

FULL AND HALF FRP COUPLINGS

PIPE PART No.	PIPE SIZE (IN.)	FULL OR HALF OD (IN.)	FULL OR HALF DIM. A(IN.)	FULL DIM. B(IN.)	HALF DIM. D(IN.)
6059B	1/2	1 1/4	4	4 3/8	2 3/16
6059C	3/4	1 5/8	5	4 3/8	2 3/16
6059D	1	1 7/8	6	4 3/8	2 3/16
6059E	1 1/2	2 1/2	8	4 3/8	2 3/16
6059F	2	3	9	4 1/2	2 3/16
6059G	2 1/2	3 3/8	10	4 1/2	2 3/16
6059H	3	4 3/8	13	4 3/8	2 3/16
6059J	4	5	15	4 3/8	2 3/16
6059K	6	7 1/4	20	4 1/4	2 3/16

Fiberglass female pipe threaded couplings are bonded permanently into the tank to eliminate potential leak problems. Full and half couplings are available in sizes from 1/2" to 6" and can be located anywhere on the tank except the saddle assembly contact area on horizontal fiberglass tanks.

- Manufactured from corrosion-resistant vinylester resin.
- Outside bonding area at the coupling is equal to or greater than tank wall thickness.
- Inside surface is sealed with 2 layers of 1 1/2 oz. glass mat and the same resin as the tank wall on all tanks 60" diameter and larger. On smaller diameters inside sealing may not be possible unless tank is equipped with a manway.
- All side wall penetrations protrude as shown unless otherwise specified.
- Bottom fittings are flush mounted for complete drainage.
- Full couplings provide for internal piping. Please specify either full or half when ordering.
- 1 1/2" minimum edge to edge of couplings.
- 2" minimum edge to bottom of tank.



BULKHEAD FITTINGS-FRP

FIBERGLASS TANK BULKHEAD FITTINGS

DESCRIPTION	INSTALLED FITTING ASSEMBLIES		REPLACEMENT FITTING ASSEMBLIES	
	WITH NITRILE GROMMET	WITH FLOUREL GROMMET	WITH NITRILE GROMMET	WITH FLOUREL GROMMET
1/2"	5029IN	5029IF	5029AN	5029AF
1/2" double thread	5030IN	5030IF	5030AN	5030AF
3/4"	5031IN	5031IF	5031AN	5031AF
3/4" double thread	5032IN	5032IF	5032AN	5032AF
1"	5033IN	5033IF	5033AN	5033AF
1" double thread	5034IN	5034IF	5034AN	5034AF
1 1/4"	5035IN	5035IF	5035AN	5035AF
1 1/4" double thread	5036IN	5036IF	5036AN	5036AF
1 1/4" anti-vortex	5037IN	5037IF	5037AN	5037AF
1 1/2"	5038IN	5038IF	5038AN	5038AF
1 1/2" double thread	5039IN	5039IF	5039AN	5039AF
1 1/2" anti-vortex	5040IN	5040IF	5040AN	5040AF
2"	5041IN	5041IF	5041AN	5041AF
2" double thread	5042IN	5042IF	5042AN	5042AF
2" anti-vortex	5450IN	5450IF	5450AN	5450AF

Design Tanks, Inc. bulkhead fittings for fiberglass tanks feature an expanding grommet (Nitrile or Flourel) which allows for location on most curved surfaces. Available in either PVC or glass filled polypropylene, bulkhead connections provide an economical option for tank penetrations on fiberglass tanks 48" diameter or less. Bonded in couplings are recommended for larger sizes. Before ordering, please consult corrosion guide to determine selection of fitting and grommet material.

INSTALLATION INSTRUCTIONS - FIBERGLASS TANKS

Use a standard hole saw that fits any 1/4" electric drill motor to cut the proper size hole in the fiberglass tank. A 2 1/8" hole is required for 1/2", 3/4" and 1" threaded fittings. A 3 1/4" hole saw is required for 1 1/4", 1 1/2", and 2" bulkhead fittings.

STEP 1 Place your finger through the fitting and install the body in the hole by placing one lug through the hole first. A slight tap with a hammer will slip the second lug through the hole.

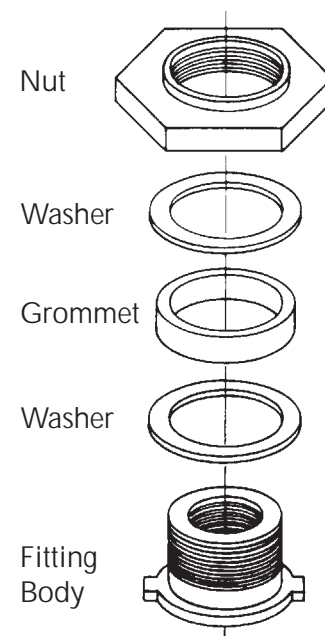
STEP 2 Flex the back-up washer through the hole and over the fitting body.

STEP 3 Slip the grommet over the fitting body but do not slide it all the way down the body at this point.

STEP 4 While holding the fitting body with your finger, work the grommet down the fitting body until it is in the hole in the tank wall. (The grommet will protrude slightly on both the inside and outside of the tank.)

STEP 5 Place the washer on the fitting, then install the nut. Tighten until snug.
(Note that nut is left hand thread!)

Sealing is accomplished by the grommet expanding against the circumference of the hole you cut in the tank.



BULKHEAD FITTINGS-FRP

REPLACEMENT PARTS

DESCRIPTION	FITTING BODY	WASHER	GROMMET	NITRILE GROMMET	FLOUREL NUT
1/2"	5029R	5046R	5044N	5044F	5048R
1/2" double thread	5030R	5046R	5044N	5044F	5048R
3/4"	5031R	5046R	5044N	5044F	5048R
3/4" double thread	5032R	5046R	5044N	5044F	5048R
1"	5033R	5046R	5044N	5044F	5048R
1" double thread	5034R	5046R	5044N	5044F	5048R
1 1/4"	5035R	5047R	5045N	5045F	5049R
1 1/4" double thread	5036R	5047R	5045N	5045F	5049R
1 1/4" anti-vortex	5037R	5047R	5045N	5045F	5049R
1 1/2"	5038R	5047R	5045N	5045F	5049R
1 1/2" double thread	5039R	5047R	5045N	5045F	5049R
1 1/2" anti-vortex	5040R	5047R	5045N	5045F	5049R
2"	5041R	5047R	5045N	5045F	5049R
2" double thread	5042R	5047R	5045N	5045F	5049R
2" anti-vortex	5450R	5047R	5045N	5045F	5049R

- Bulkhead fittings can be factory installed or shipped loose to be installed in the field.
- Fittings are available either with standard single thread or with double thread for applications requiring internal plumbing.
- Anti-vortex fittings feature an elevated interior plate designed to reduce vortexing problems.

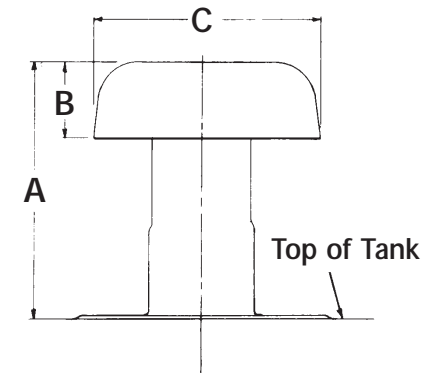
NOTE: As in any gasketed fitting installation, grommets should be checked regularly and replaced if leaks are detected.

VENTS AND VENTING SPECIFICATIONS–FRP

FRP MUSHROOM VENTS

PIPE SIZE (IN.)	PART NO.	A(IN.)	B(IN.)	C(IN.)
2	6293D	7 7/8	1 5/8	5
4	6293G	9 1/8	2 3/4	8 1/2
8	6293J	11 1/8	4 3/4	14

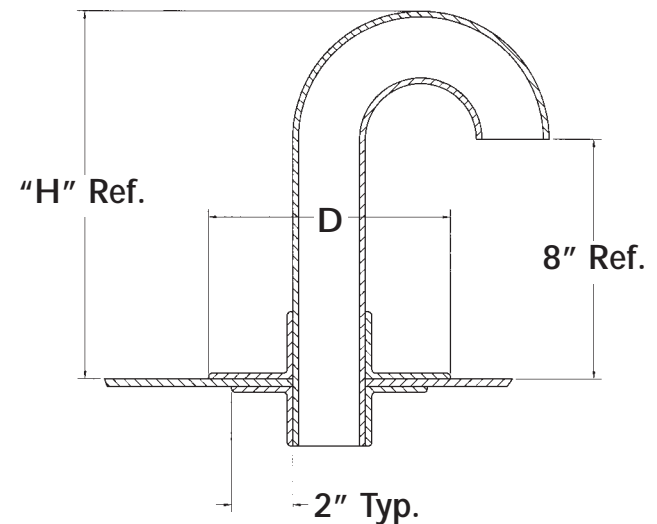
- Mushroom vents are constructed from corrosion-resistant vinylester resin and are permanently bonded directly to the top of the tank.
- Vent screen to keep out birds and bugs is available upon request. Use of a screen reduces vent capacity. Please contact the factory for recommendations and pricing.



FRP U-VENTS 2", 3", 4"

PIPE SIZE (IN.)	PART NO.	D (IN.)	H (IN.)
2	6155B	9	12
3	6155C	13	14
4	6155D	15	16

- 2", 3", and 4" U-vents are permanently bonded to the top of the tank.



VENTS AND VENTING SPECIFICATIONS–FRP

FRP U-VENTS 6", 8"

PIPE SIZE (IN.)	PART NO.	A (IN.)	B (IN.)	C (IN.)
6	6155E	21"	24"	12"
8	6155F	25"	32"	16"

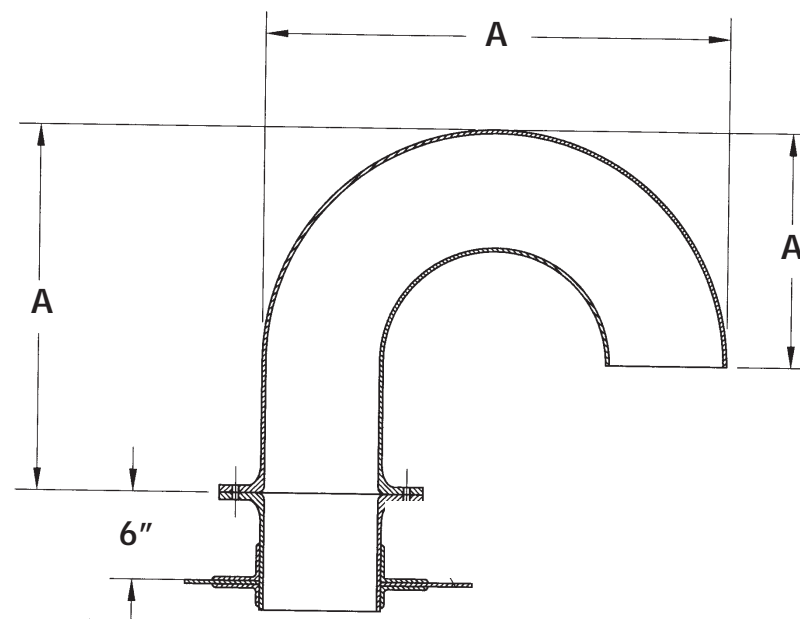
- 6" and 8" U-vents are bolted to the corresponding size non-gusseted duct style flange that is bonded into the top of the tank.

VENTING INFORMATION

All closed top tanks must have a vent of equal or greater size than the largest inlet or outlet. In addition to a standard vent, tanks being loaded by air pressure must have a minimum 18" quick access manway open and hold down lugs in use in order to prevent over pressurization and potential failure. Precautions must also be taken to avoid vacuum. If there is any question concerning the adequacy of the venting system contact the factory for recommendations.

CAUTION!

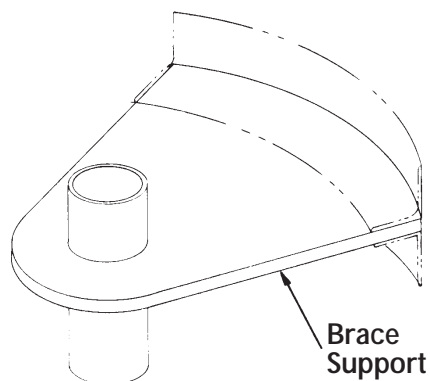
All tanks are designed for atmospheric pressure only and must be properly vented. Design Tanks, Inc. assumes no liability for any tank vented improperly.



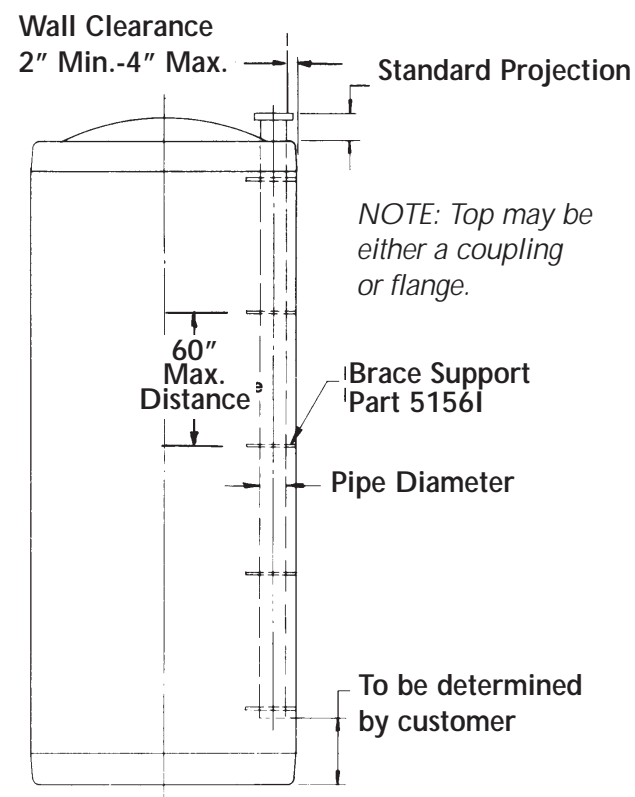
DOWN PIPES, BAFFLES, GUSSETS-FRP

FIBERGLASS DOWNPIPES

PIPE SIZE	PART NUMBER
1"	5157B
1 1/2"	5157C
2"	5157D
3"	5157G
4"	5157H
6"	5157J
8"	5157K



- Fiberglass downpipes are designed for either exterior or interior installation and are used for foam reduction, control of flow, and as a siphon drain.
- Standard installation features pipe permanently bonded to tank wall utilizing fiberglass brace supports. Maximum distance between supports is 60".
- External pipe support is provided using mounting lugs.

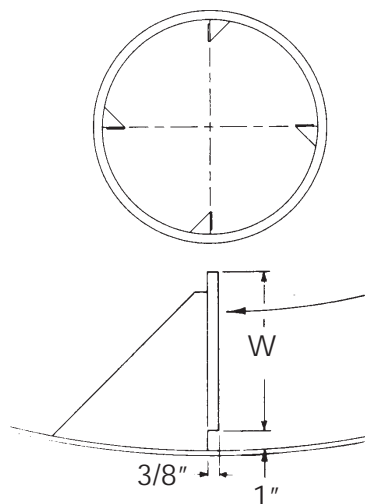


DOWN PIPES, BAFFLES, GUSSETS–FRP

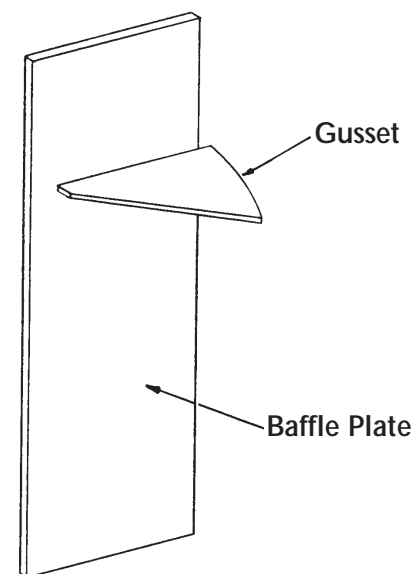
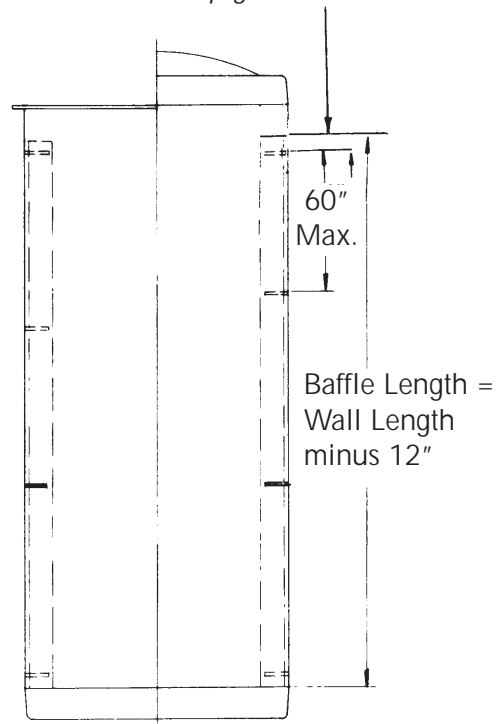
AGITATION BAFFLES

TANK DIA.	GUSSET PART NO.	BAFFLE PART NO.	BAFFLE WIDTH "W"
8'	5158M	5159M	8"
9'	5158K	5159K	8"
10'	5158N	5159N	10"
12'	5158P	5159P	10"

Typical Orientation



Locate top gusset 3-6" from end of baffle.



- Fiberglass baffles are designed to reduce vortexing in mixing applications.
- Flat plate baffles are bonded to tank wall utilizing fiberglass gussets. See drawing at left for baffle dimensions.
- Top and bottom gussets should be located within 3-6" of end of baffles. Distance between gussets should not exceed 60".

FILLWELLS & COVERS-FRP

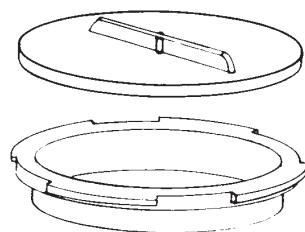
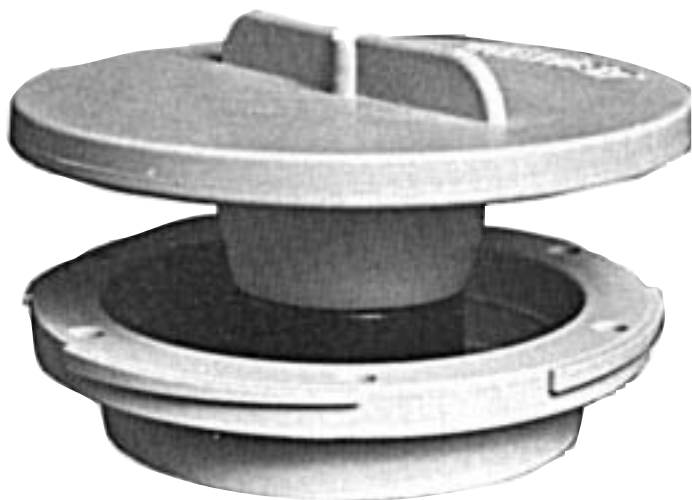
FILLWELLS & COVERS

Fillwells provide an economical means for quick top access for filling or for inspection of contents. 5" and 10" quarter turn fillwell covers are available plain or with a splash guard for mobile applications. 10" threaded fillwell cover is designed with a center vent.

INSTALLED* DESCRIPTION	FILLWELL FILLWELL	PART COVERS	NUMBER
5" quarter-turn	5050I	plain w/splash guard	5051R 5052R
10" quarter-turn	5079I	plain w/splash guard	5080R 5082R
10" threaded	5479I	threaded	5478R

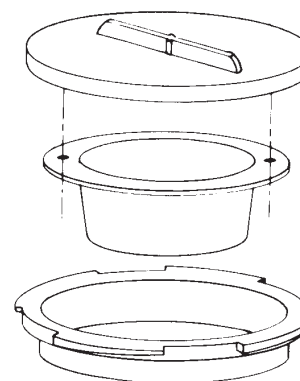
**NOTE: Part number represents installed fillwell only and does not include a cover. Cover must be ordered separately from Fillwell Cover column.*

5" QUARTER TURN W/SPLASH GUARD



5" Quarter Turn
Plain

PVC or Filled
Nylon



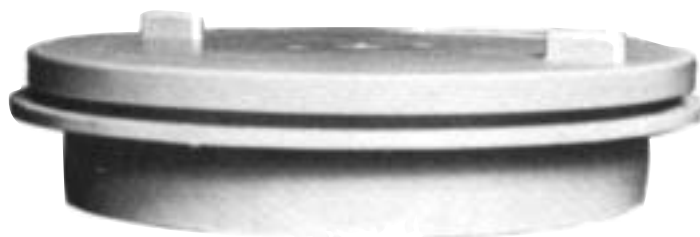
5" Quarter Turn
w/ Splash Gaurd

PVC or Filled
Nylon

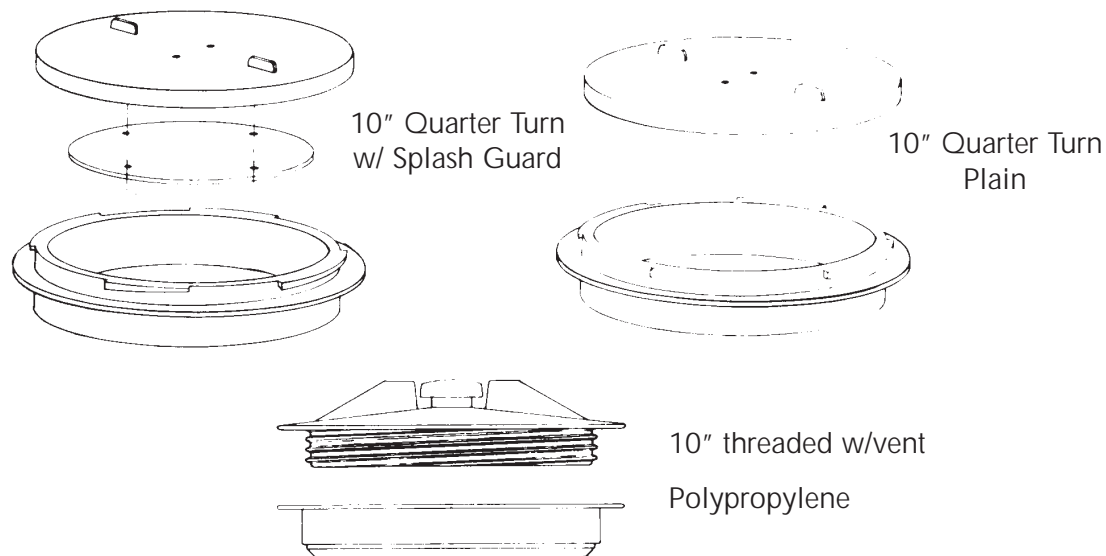
Can be used on either flat or curved surfaces above liquid level.

FILLWELLS & COVERS-FRP

10" QUARTER TURN PLAIN



- Can be used on flat or curved surfaces on tanks 30" diameter or larger.



10" THREADED (VENTED)



- Can be used only on flat surfaces.

- Flat Wells - PVC or Filled Polypropylene
- Curved Wells - PVC or Filled Nylon

REPLACEMENT PARTS

DESCRIPTION	REPLACEMENT FILLWELL	COVER GASKET	FILLWELL SEALANT	POP RIVETS	HOLE SIZE
5" quarter-turn	5050R	5076R	5105R	(6)5075R	5 3/4"
10" quarter-turn	5079R	5078R	5105R	(8)5075R	10 1/2"
10" threaded	5479R	5078R	5105R	(8)5075R	10 7/8"

- Specify fiberglass tank diameter when ordering replacement fillwells.
- Gaskets are 1/16" neoprene closed cell sponge rubber.
- Fillwell sealant is RTV silicone supplied in a 12 oz. tube which will seal (8) 10" fillwells.
- Pop rivets are 3/16" stainless steel.

FILLWELLS AND MANWAYS-FRP

16" & 22" FILLWELLS AND COVERS (ABOVE LIQUID LEVEL)

DESCRIPTION	16" PART NUMBER	22" PART NUMBER
Installed Fillwell	5464I	5490I
Cover Assembly	5470R	5491R
Replacement Fillwell	5464R	5490R
Replacement Center Cap	5469R	5469R
Pop Rivets (8)	5075R	-
Self Tapping Screws (8)		110053864

NOTE: Must be installed in flat surface.

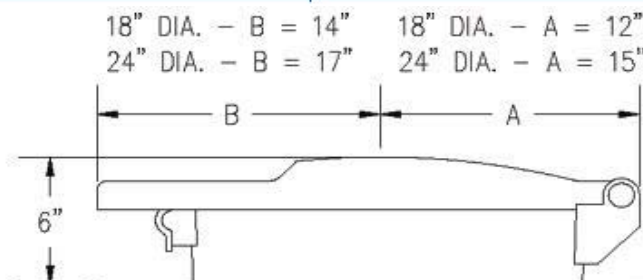
Polypropylene threaded fillwells feature large precision threads and are ideal for oval and vertical polyethylene tanks where inside access is required.



HINGED QUICK ACCESS MANWAYS (ABOVE LIQUID LEVEL) - 18" AND 24"

DESCRIPTION	18" PART NUMBER	24" PART NUMBER
Installed manway	6137I	6247I
Replacement manway	6137R	6247R
Replacement cover only	6138R	6248R
Latch assembly only (plated zinc)	6140R*	6140R*
Hinge assembly only (stainless steel)	6141R	6141R
Gasket (neoprene)	6144R	6246R

Available in either 18" or 24" diameter, hinged quick access manways provide quick and easy access to fiberglass tanks for above liquid level service.

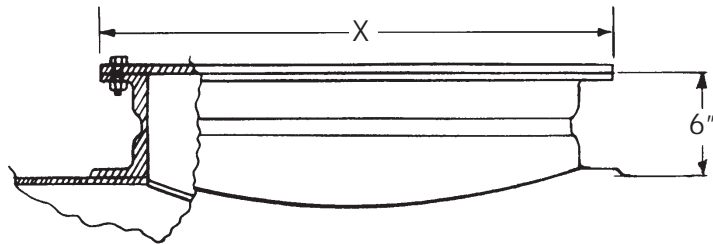


**CAUTION: When HCL acid is present a fiberglass latch is required! Contact factory for details.*

FILLWELLS AND MANWAYS-FRP

BOLT DOWN MANWAYS (ABOVE LIQUID LEVEL) - 24" AND 32"

DIAMETER (IN.)	PART NO.	NO. BOLTS	X (IN.)
24	6118I	8	28 5/16
32	6119I	8	36 1/4



Caution: Tank must be vented to atmosphere when manway is installed.

Available in either 24" or 32" size, the bolt down manway features a 3/8" thick FRP over fastened to a 3/8" flanged lip and can be located anywhere above liquid level that does not interfere with a head seam.



HOLD DOWN LUGS-FRP

STEEL HOLD DOWN LUGS LIGHT DUTY

DESCRIPTION	GALVANIZED STEEL	304 STAINLESS	316 STAINLESS
Light Duty	5081I	5081J	5081K

Light duty hold down lugs are designed to provide stability for fiberglass tanks 48" diameter and smaller.

- Available in galvanized steel or in 304 and 316 stainless steel for more corrosive environments.
- Lugs are bonded permanently to tank wall and are intended to be bolted into a concrete mounting pad. Anchor bolts should be located after tank has been placed on pad (bolts not included).

STEEL HOLD DOWN LUGS HEAVY DUTY

DESCRIPTION	GALVANIZED STEEL	304 STAINLESS	316 STAINLESS
Heavy Duty with holes	5362I	5362J	5362K
Heavy Duty w/out holes	5363I	5363J	5363K
Clamp	5161R	5161J	5161K

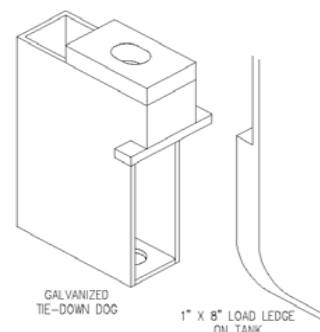
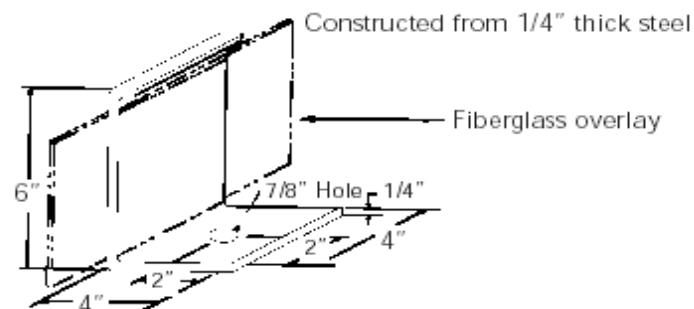
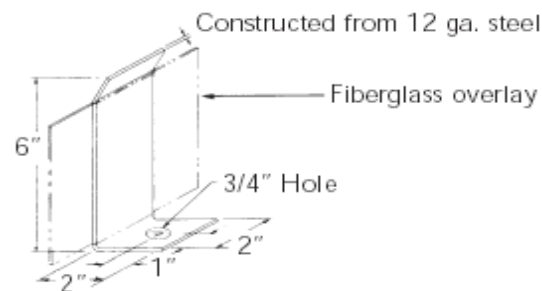
Heavy duty steel hold down lugs are designed for use with tanks 60" diameter or larger where there are seismic, mixing, or wind loading concerns. For specific seismic zone information contact the factory.

- Available in galvanized steel, or in 304 and 316 stainless steel.
- Lug can be ordered with or without holes. Lugs without holes are secured by steel clamps as shown in fiberglass lug drawing at right.

EXTRA HEAVY DUTY TIE DOWN

DESCRIPTION	GALVANIZED STEEL	304 STAINLESS	316 STAINLESS
Heavy Duty	5081G	5081S	5081SS

Heavy duty dogs and fiberglass molded load ledge for applications involving high winds or seismic zone 3 or 4. Galvanized carbon steel is standard, for special applications 304 and 316 stainless steel can be purchased.



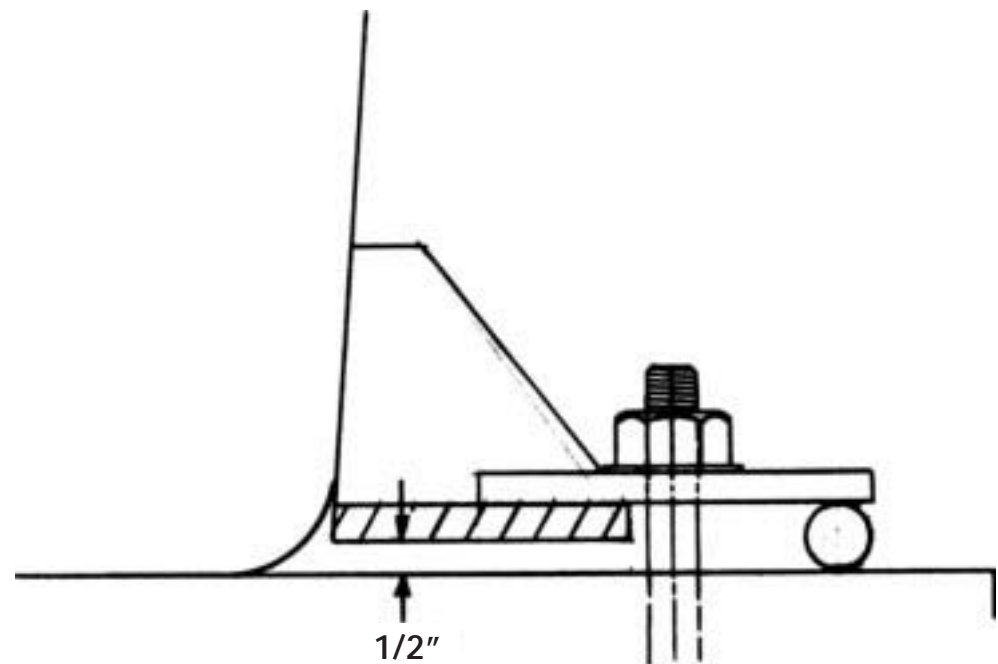
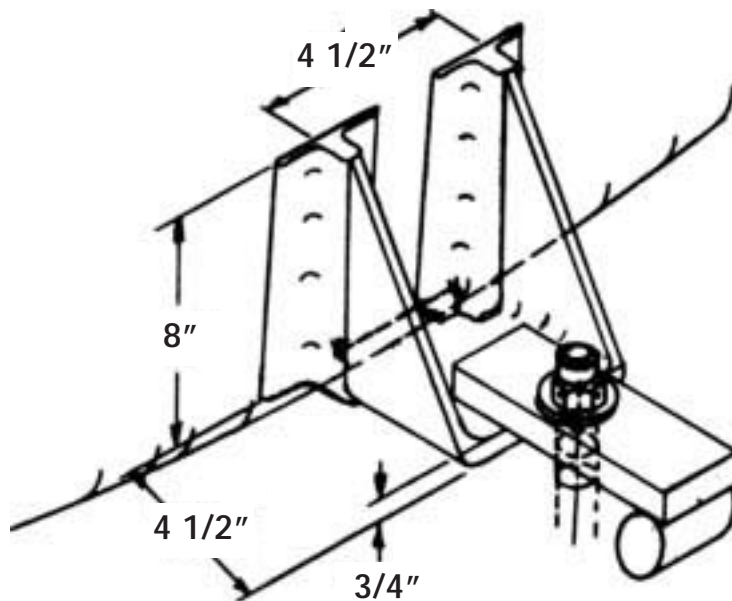
HOLD DOWN LUGS-FRP

FIBERGLASS HOLD DOWN LUGS HEAVY DUTY

DESCRIPTION	PART NUMBER
Fiberglass - heavy duty	5162I
304 stainless clamp	5161J
316 stainless clamp	5161K
Galvanized carbon steel	5161R

Heavy duty fiberglass hold down lugs are designed for use in highly-corrosive environments where there are mixing or wind loading concerns.

- Fiberglass hold down lugs are secured to pad by clamps. Clamp anchoring bolts should be located after tank is mounted on pad (bolts not included).
- Lug is bonded permanently to tank sidewall with laminate equal to or greater than tank wall thickness.



LIFT LUGS, MOUNTING LUGS-FRP

LIFT LUGS

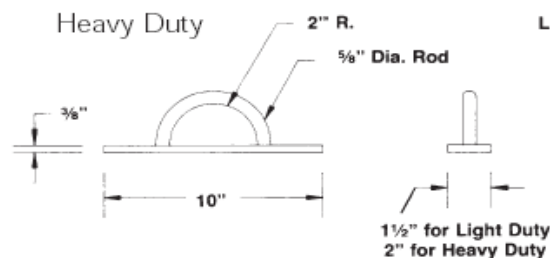
DESCRIPTION	304 STAINLESS	316 STAINLESS	RECOMMENDED USE
Light duty	5197J	5197K	23"-72" diameter tanks
Heavy duty	5153J	5153K	90" diameter and larger
Foamed tank-sidewall	5238J	5238K	insulated tanks
Foamed tank-knuckle	5240J	5240K	insulated tanks-top knuckle

Lift lugs provide a safe, economical means to lift **empty** fiberglass tanks for on site handling.

- Lift lugs are required on all tanks 90" diameter and larger.
- Lugs are attached to tank wall with hand-layed laminate equal to or greater than the tank wall thickness.
- Lugs are available in 304 or 316 stainless steel.

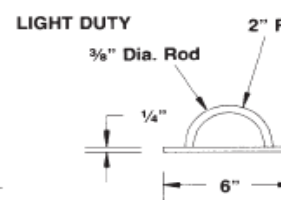
HEAVY DUTY LIFT LUGS

Heavy duty lugs are required on all tanks 90" diameter and larger and are included with the tank. Refer to specific tank size on separate price sheet to determine number of lugs that are included as a standard. Additional lugs are available as an option.



LIGHT DUTY LIFT LUGS

Light duty lugs are designed to be used on fiberglass tanks 72" diameter and less.

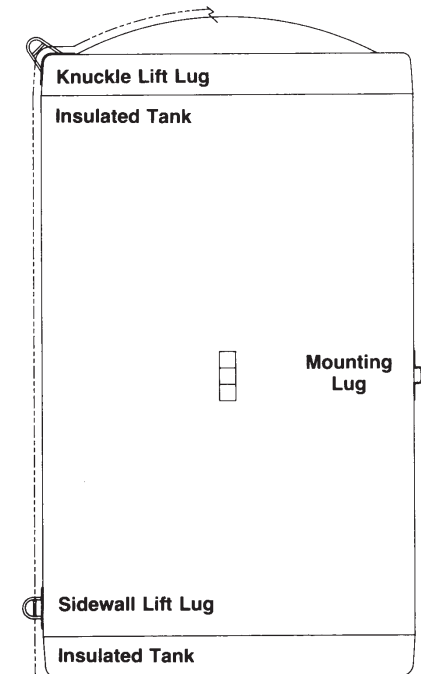
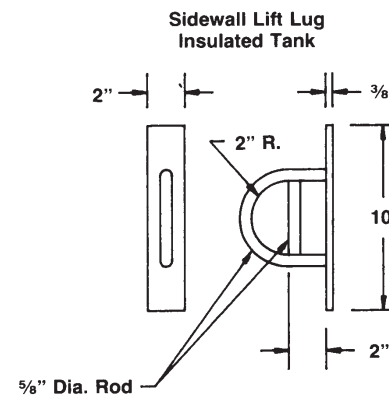
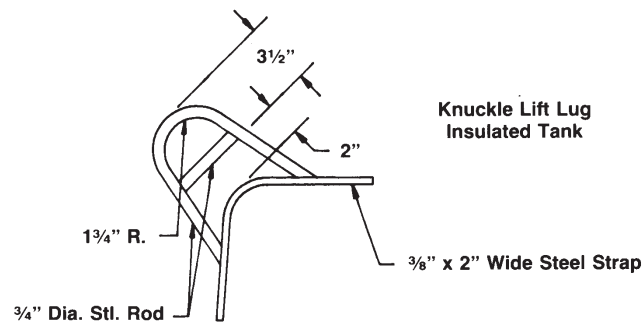


LIFT LUGS, MOUNTING LUGS-FRP

FOAMED TANK LIFT LUGS

Lift lugs for polyurethane insulated tanks feature additional height to compensate for 2" foam thickness. Typical installation would consist of:

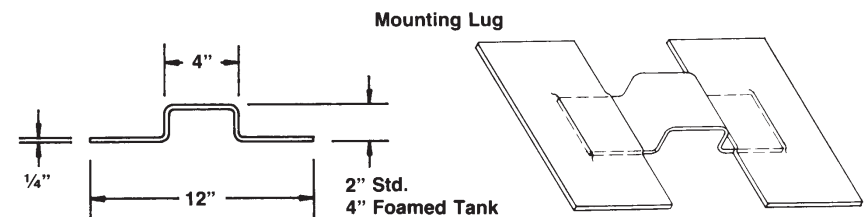
- (1) SIDEWALL LIFT LUG near the bottom.
- (2) KNUCKLE LIFT LUGS at the top. Refer to drawings on this page for detail.



MOUNTING LUGS

Mounting lugs are available in galvanized steel or fiberglass and are designed to bolt accessories (gauges, level indicators, etc.) to the tank wall.

- Attached to wall with hand-layed laminate equal to or greater than wall thickness.
- May be located on any style tank per customer specifications.



MOUNTING LUGS	PART NO.
Fiberglass	52141

LADDERS & CAGES-FRP

LADDERS & CAGES

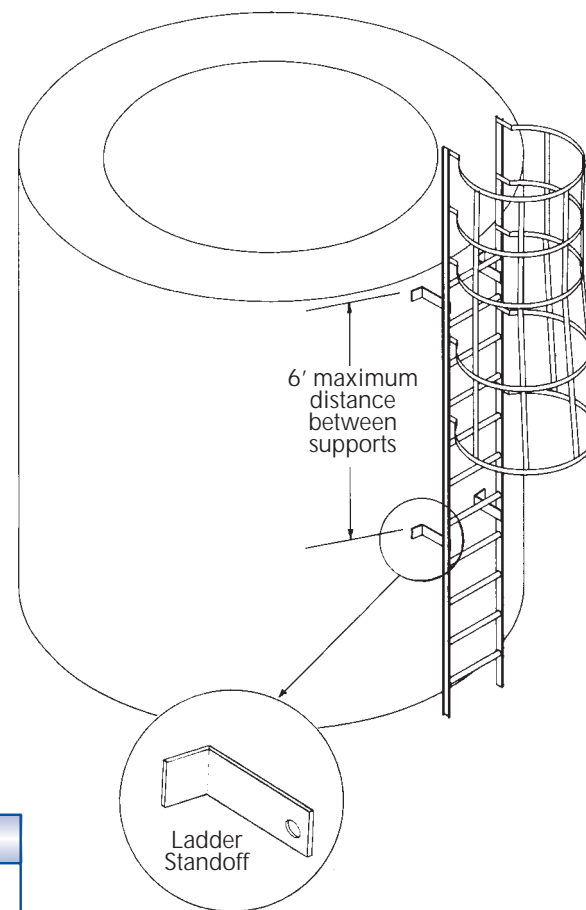


Ladders and cages meeting OSHA standards are available on any style fiberglass tank in carbon steel, fiberglass, or aluminum. Standard ladders include 3'6" walk thru.

Ladders are secured to tank wall by bolting to an "L" shaped mounting lug bonded permanently to the tank. See drawing for detail.

To order follow the guidelines listed below:

- Total ladder length = tank height + 3'6".
- Total cage length = ladder length - 7'.
- Maximum center to center distance on mounting lugs is 6'.
- See example on right for assistance.



EXAMPLE

Calculate ladder length, cage length, and required number of supports for a tank that is 20' tall.

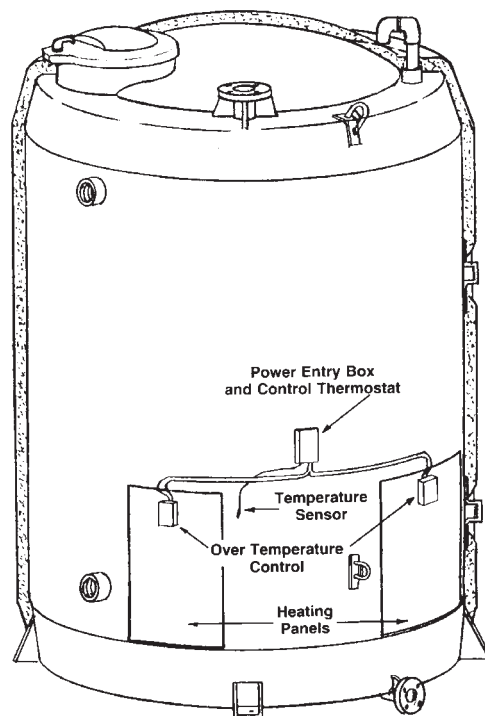
$$\begin{aligned}\text{Ladder length} &= \text{Tank height} + 3'6'' \\ 20' + 3'6'' &= 23'6''\end{aligned}$$

$$\begin{aligned}\text{Cage length} &= \text{Ladder length} - 7'0'' \\ 23'6'' - 7'0'' &= 16'6''\end{aligned}$$

$$\begin{aligned}\text{Lugs Required} &= \text{Tank height}/6' \text{ (rounded up to next whole no.)} \\ 20'/6' &= 3.33 \text{ (round to 4) ladder requires 4 pair of lugs.}\end{aligned}$$

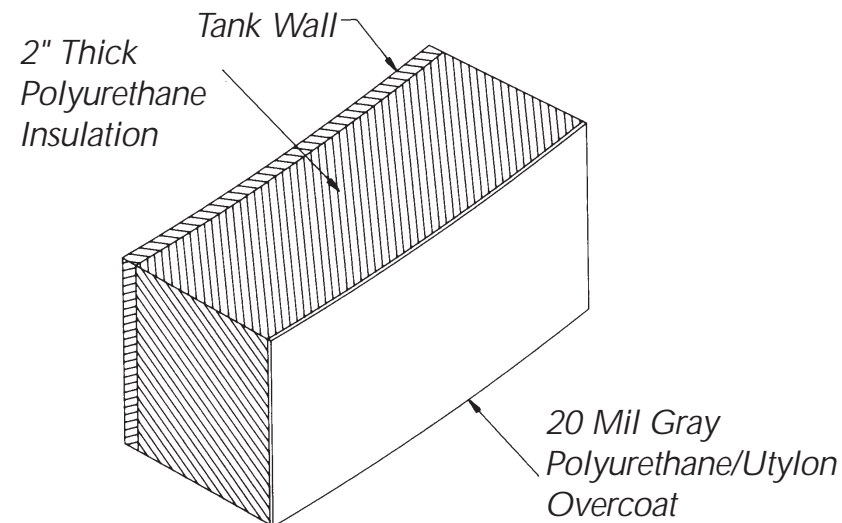
HEATING AND INSULATION-FRP

HEATING SYSTEMS



- Heating systems for fiberglass tanks are designed for temperature maintenance only. Sketch above reflects one style of heating system.
- Operate from 120 VAC power source with a low watt/in² output.
- Enclosed, weatherproof NEMA 4 thermostat operates up to four panels in a parallel circuit.
- To adequately design a system we require tank dimensions, anticipated minimum ambient temperature, wind velocity, and the desired minimum temperature of the contents.
- Alternate heating systems can be designed. In all cases, consult with factory for pricing.

URETHANE INSULATION WITH UTYLON OVERCOAT



- Spray-on two part polyurethane foam, 2 to 2.5 pounds per cubic foot density. R value is 7.8 per inch of thickness.
- Overcoat consists of a two-part polyurethane base and a top coat of Utylon material. Total thickness is approximately 20 mils.
- Standard top coat color is gray.
- Materials exhibit excellent weathering characteristics and good corrosion resistance.
- Any damage resulting from handling or shipping should be immediately repaired to avoid moisture entry.
- Deep insulation gouges may be repaired with aerosol polyurethane foam.
- Overcoat abrasion may be recoated with the Utylon elastomer overcoat.
- If temperature is below 50°F, an industrial grade RTV silicone caulking may be used.

NOTE: Other lower cost options may be available. Please consult with the factory.

GALLONAGE TAPES & SIGHT TUBE ASSEMBLIES

GALLONAGE TAPES—FRP



Tapes are marked in gallons and liters.

Gallonage tapes are available for cataloged vertical and horizontal fiberglass tanks 23" thru 72" diameter and are supplied with black lettering on white adhesive backed tape.

Tapes for 90" diameter tanks are 3 1/2" wide and are supplied with black lettering on white adhesive backed tape.

Tapes for 8', 9', 10', and 12' diameter tanks are marked in 500 gallon and 2000 liter increments and are supplied on Pellon veil bonded to the tank wall.

NOTE:

Due to limited translucency of tank wall, liquid level may be difficult to see in low light environments. We recommend the use of a sight tube assembly for those applications where viewing liquid level is critical.

TANK DIA.	GAL. RANGE	PART No.	GALLONAGE INCREMENT
23-38	To capacity	5056I	10
42-48	To capacity	5056I	20
60	To capacity	5056I	50
72	To capacity	5056I	100
90	0-2000	5264I	200
90	0-4000	5265I	200
90	0-6000	5266I	200
8'	0-2000	5337I	500
8'	0-4000	5338I	500
8'	0-6000	5339I	500
8'	0-8000	5340I	500
9'	0-2500	5341I	500
9'	0-5000	5342I	500
9'	0-7500	5343I	500
9'	0-10000	5344I	500
10'	0-3500	5350I	500
10'	0-7500	5351I	500
10'	0-12000	5352I	500
10'	0-15000	5354I	500
12'	0-5000	5355I	500
12'	0-10000	5356I	500
12'	0-15500	5357I	500
12'	0-21000	5358I	500
12'	0-26000	5360I	500
12'	0-30000	5361I	500

GALLONAGE TAPES & SIGHT TUBE ASSEMBLIES

PVC SIGHT TUBE ASSEMBLIES

Rigid PVC sight tube assemblies provide a relatively simple and economical method to positively view liquid level in fiberglass tanks. Direct measurement mechanical systems are also available by factory quotation.

Standard assembly is available in either 3/4" or 1" size and features one bottom angle valve for emergency shut off. If contents are potentially hazardous, we recommend that a top shut off valve be added as a precaution.

An intermediate support is required when overall sight tube length reaches 10' and one additional support is required for each 6' length thereafter.

PARTS LIST

ITEM No.	DESCRIPTION
1	Fiberglass Coupling*
2	PVC Close Nipple
3	PVC Angle Valve
4	PVC Male Adapter
5	PVC Pipe
6	PVC 90° Elbow
7	PVC Union, Socket, Socket

**Coupling bonded into tank
Specify either 3/4" or 1" - 1 valve or 2 valve*

EXAMPLES:

SIGHT TUBE LENGTH	NUMBER OF SUPPORTS
<10'	0
10'-17'11"	1
18'-23'11"	2

NOTE: When storing hazardous materials or located (tank) in a high traffic area, an ultrasonic level transmitter is strongly recommended.

