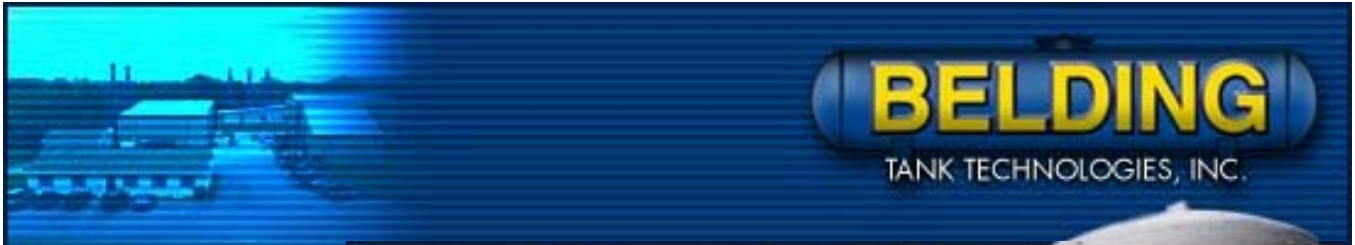


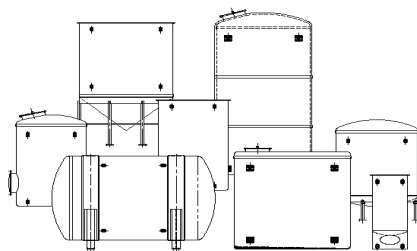
HANDLING & INSTALLATION OPERATION & MAINTENANCE INSTRUCTIONS



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At Belding Tank Technologies, quality is our standard and customer service is our specialty. It's this commitment to superior construction and the highest standards of service that has made us your number one choice for fiberglass tank construction.



**FRP
TANKS**

200 N. GOODING STREET - P.O. BOX 160 – BELDING, MI 48809-0160
TELEPHONE: (616) 794-1130 TOLL FREE: (800) 253-4252 FAX: (616) 794-3666
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WARRANTY STATEMENT



HANDLING AND INSTALLATION INSTRUCTIONS

ABOVE GROUND STORAGE TANKS

The following handling and installation instructions are intended to help customers install tanks properly and efficiently.

Handling and installation instructions are only recommendations. They do not relieve the purchaser from full responsibility for proper inspection, handling and installation. Improper handling or installation, which results in damage or tank failure, is the sole responsibility of the purchaser. Failure by the customer to comply with the handling or installation instructions will void the tank warranty. Unknown situations or conditions are also the burden of the purchaser.

The presence of BELDING TANK TECHNOLOGIES personnel or an authorized representative at the installation site does not relieve the purchaser of their responsibilities.

INSPECTION

At the time of delivery the customer shall be responsible for inspecting the tank for damage during transit. Both the inside and the outside of the tank must be inspected. If damage has occurred it should be noted on the delivery receipt prior to signing acceptance, whether it be a BELDING TANK TECHNOLOGIES truck or common carrier. In the case of a common carrier, claim should be immediately filed by the customer with the delivering carrier. If delivery is made by a BELDING TANK TECHNOLOGIES truck, the factory should be immediately contacted prior to unloading or acceptance. The customer accepts all future responsibility for a damaged tank if the procedures set forth are not followed.

Minor damage can be repaired at the delivery site.



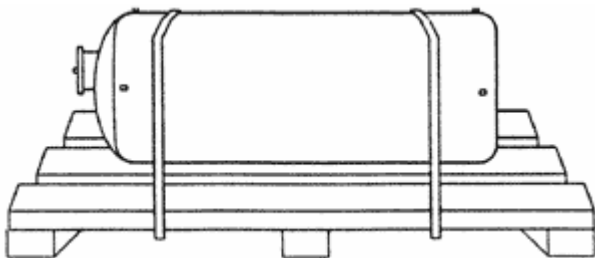
HANDLING AND INSTALLATION INSTRUCTIONS

BELDING TANK TECHNOLOGIES tanks are designed to withstand normal handling. Note the following handling precautions.

1. NEVER roll or slide a tank. Lift the tank using a crane or other approved method.
2. Operators of hoist equipment should follow proper rigging procedures at all times. NEVER allow tank to swing out of control.
3. Do not drop or allow hard impact from tools, spreader bars, etc.
4. Avoid the use of equipment inside the tank that could scratch or damage the inner corrosion barrier
5. NEVER use cables or chains around tank.
6. NEVER lift tank by using fittings. Use designated lifting lugs.
7. If tanks are being stored prior to installation, be sure to lay on padded surface and tie down securely.

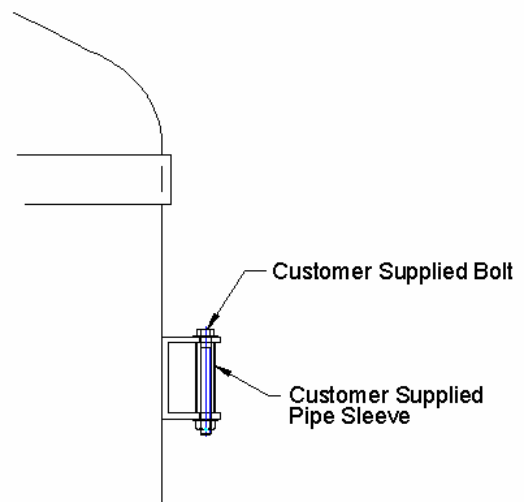
HANDLING TANKS SHIPPED HORIZONTALLY

Small tanks shipped by common carrier are palletized to facilitate handling by forklift. To remove tank, pull on the bottom of the skid. DO NOT PULL ON THE TANK.



LIFTING / HANDLING LUGS

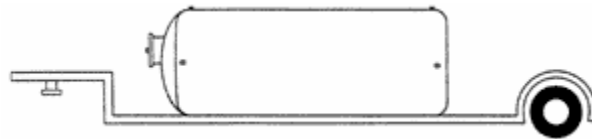
The lugs are designed for equal load on both ear tabs of the lug. BELDING TANK TECHNOLOGIES recommends using a pipe spacer between the ear tabs to achieve equal load.



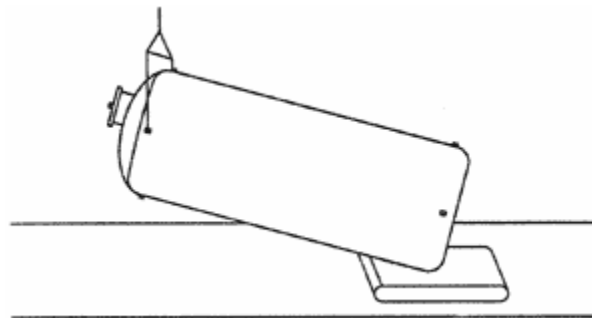
HANDLING AND INSTALLATION INSTRUCTIONS

FLAT BOTTOM TANKS

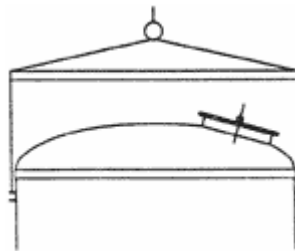
Larger tanks shipped by BELDING TANK TECHNOLOGIES truck and special built trailers, require a spreader bar and slings attached to the appropriate lifting lugs to unload tanks. Use a guide line to keep the load under control.



Large tanks should be stood up by hoisting with spreader bar and lines to lifting lugs, adequate padding is necessary to protect the pivot point. Control the tank with guide lines to insure tank is gently set on its base.



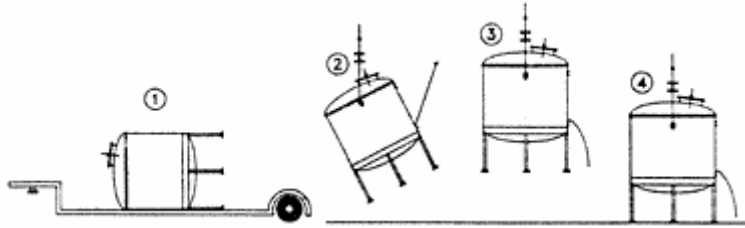
Use a spreader bar and lines attached to appropriate lifting lugs to move tank when in upright position.



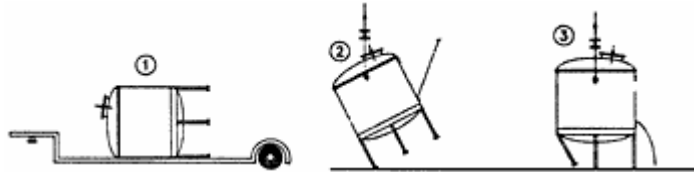
HANDLING AND INSTALLATION INSTRUCTIONS

DISHED OR CONE BOTTOM TANKS

NOTE: When standing a tank with legs, DO NOT pivot tank on legs. Lift the entire tank. Rotate to a vertical position. Set straight down on all legs.

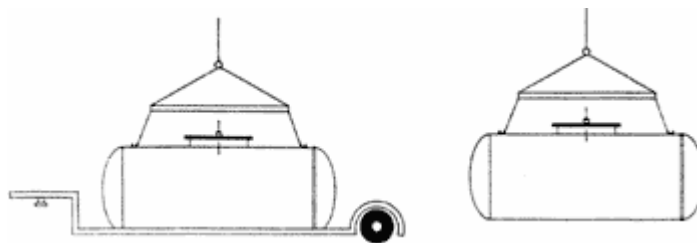


Proper



Improper

HORIZONTAL TANKS



Proper

See Installation Page 10

HANDLING AND INSTALLATION INSTRUCTIONS

TANK BOTTOM SUPPORT PAD

BELDING TANK flat bottom and slope bottom tanks require continuous bottom support. The most common support pad is a concrete slab. However, any other support structure with sufficient strength to support the combined weight of the tank and its contents, with a reasonable factor of safety, is acceptable. Design for bearing strength of support pad is the responsibility of the purchaser. The support pad must exceed tank diameter by 6" minimum, and be flat within +/- 1/16".

INSTALLATION NOTE: Support pad must be clean and free of all foreign objects prior to settling tank in place.

TANK BOTTOM BUFFER PAD

Liquid grout such as concrete, epoxy, etc., MUST NOT be used under standard flat bottoms. BELDING TANK recommends using two layers of 30 pound roofing felt as a buffer between tank support and tank bottom. When applying the roofing felt, be sure there are no overlaps or wrinkles causing ridges under the bottom. It is the responsibility of the purchaser to see that tanks are properly installed. Any deviation from the above outlined procedure must be approved by BELDING TANK TECHNOLOGIES or it will void your warranty.

PIPE CONNECTIONS

Flexible pipe connections should be used wherever possible. If rigid piping must be used, be certain it is self-supporting. If rigid piping is used and is not self-supporting, and results in damage to a tank fitting, your warranty will be void. **CAUTION: METALLIC FITTINGS MUST NOT BE USED ON FRP NIPPLES OR COUPLINGS.**

WATER FILL TESTING

BELDING TANK recommends that each tank be water filled (hydro tested) for a 24 hour period after the tank is installed, and prior to use.

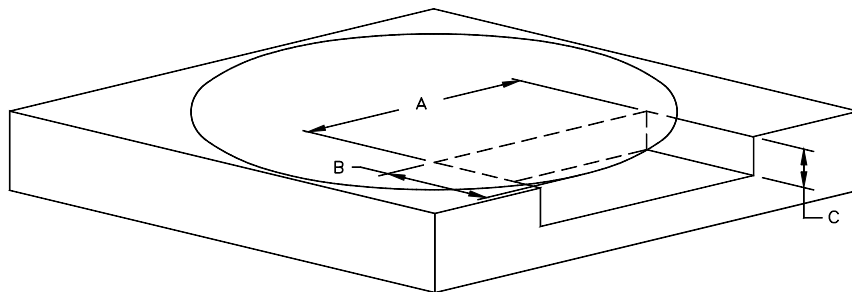


HANDLING AND INSTALLATION INSTRUCTIONS

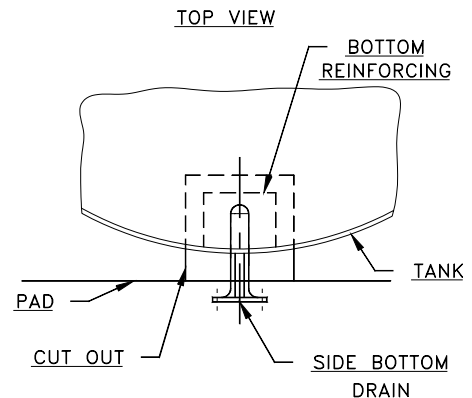
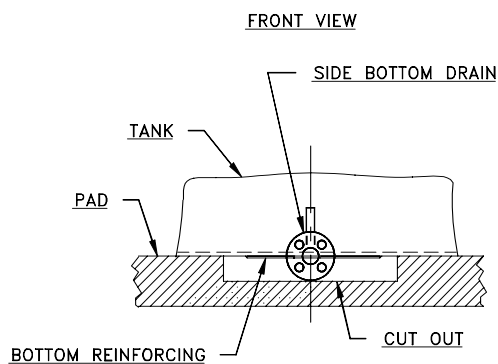
SIDE BOTTOM FLANGE PAD CUT OUT:

CAUTION: When installing any BELDING TANK TECHNOLOGIES tank with a side bottom flange, your pad cut-out dimensions must conform to the specifications as detailed below. Any deviation without the written consent of BELDING TANK TECHNOLOGIES may cause serious damage and will void warranty.

Consult the factory if you have any questions. 1-800-253-4252.



Drain Size	A	B	C
2"	9	8	3-1/4
3"	10	8	3-3/4
4"	11	8	4-3/4
6"	13	8	5-3/4
8"	15	8	6-3/4
10"	18	8	8-1/2
12"	21	8	10

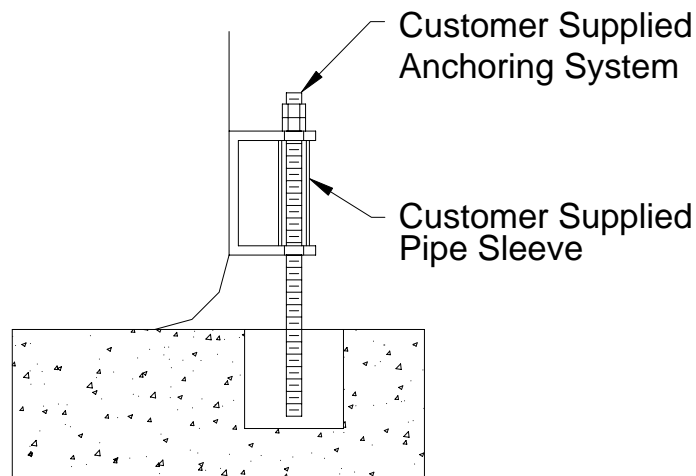


HANDLING AND INSTALLATION INSTRUCTIONS

HOLD DOWN LUGS - Standard

The required hold down lugs are supplied as standard equipment on all BELDING TANK TECHNOLOGIES tanks. Anchor bolts and hold down hardware are supplied by the customer.

Preferred Method of Anchor Installation:



Expansion anchor or resin capsule anchor.

Belding Tank recommends the use of two nuts on the top of the lug. When the tank is EMPTY, hand tighten the first nut onto the top of the lug. Hand tighten the second (jam nut) nut onto the top of the bottom nut. Then, using two wrenches, HOLD the bottom nut and tighten the jam nut onto the bottom nut.

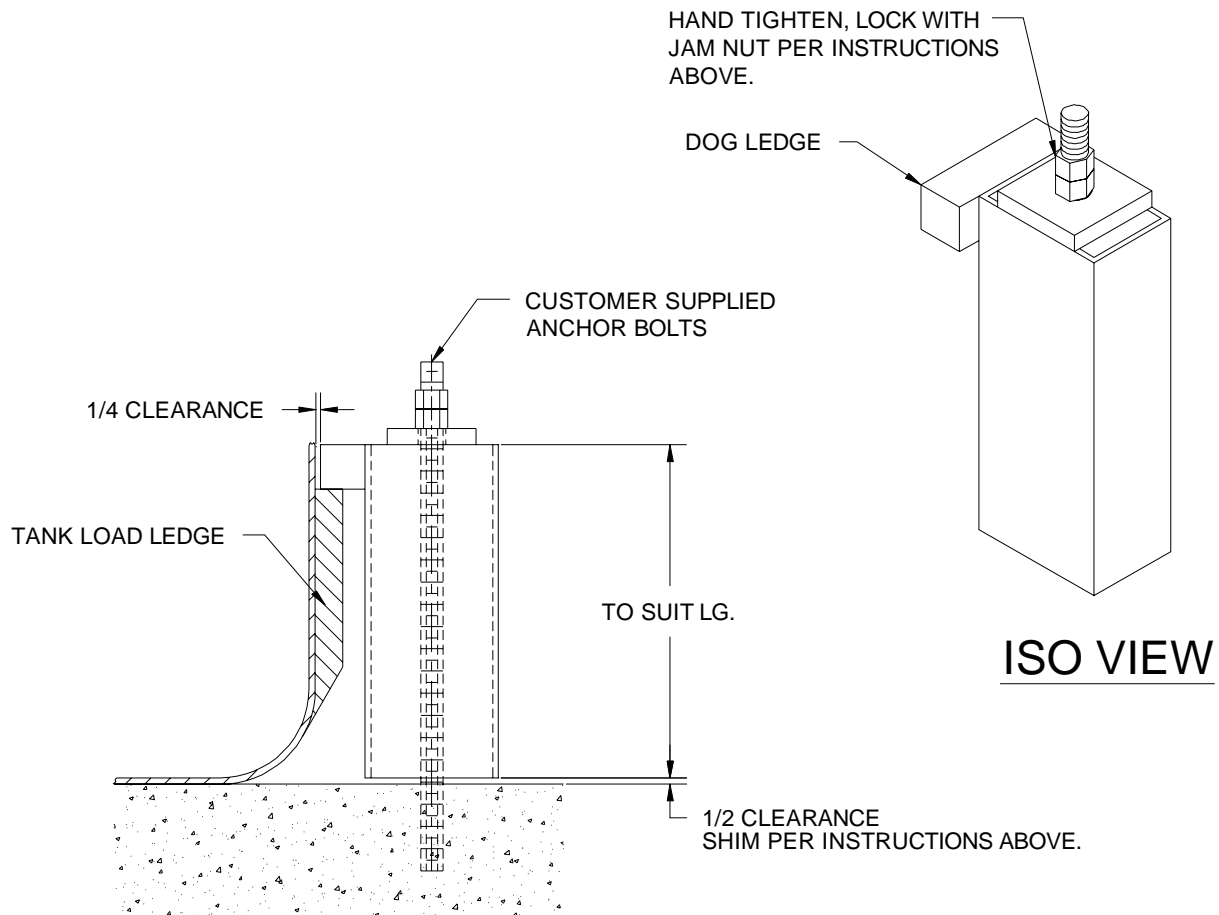
Do not over tighten hold down lugs.

INSTALLATION NOTE: Do not locate or pre-set anchor holes/bolts in the tank pad before receipt of tank. BELDING TANK will not be responsible for pre-set anchor holes/bolts.

HANDLING AND INSTALLATION INSTRUCTIONS

HOLD DOWN LUGS – Anchor “DOG” / Load Ledge

1. Position & set Anchors -- See Tank Drawing for position.
2. Minimum height of anchors above tank base = height of “DOG” + top plate + height of (2) nuts + ½” minimum.
3. Position anchor “DOGS” over anchor bolts; locate dog ledge ¼” away from sidewall and on top of load ledge & level “DOGS”; -- shim if needed.
4. When tank is empty fill anchor “DOG” box with non-shrink grout.
5. Put cover plate over anchor “DOG” box and hand- tighten bottom nut.
6. Hand tighten second “JAM” top nut onto bottom nut.
7. Lock bottom nut onto top nut. Do not adjust after tank is filled.



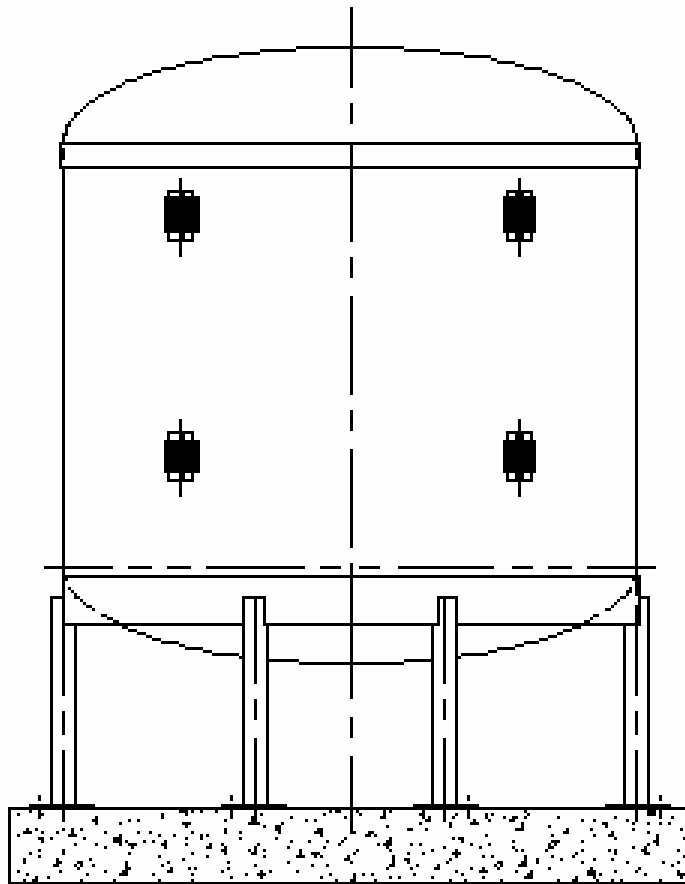
HANDLING AND INSTALLATION INSTRUCTIONS

DISHED BOTTOM TANKS

The pad surface must be smooth and level. Consideration must be given to the concentrated nature (4-10 points) of the loading, the magnitude of which could require footings beneath each leg to spread the load over a larger area. The design of footings is the responsibility of the purchaser.

The tank is designed to rely upon firm even support at each of its legs. In order to allow for uneven pads, floors, and legs, the floor pads on each leg may require shims to insure uniform support.

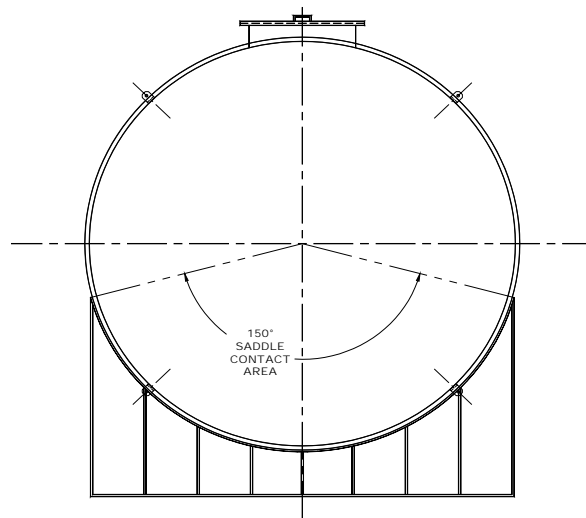
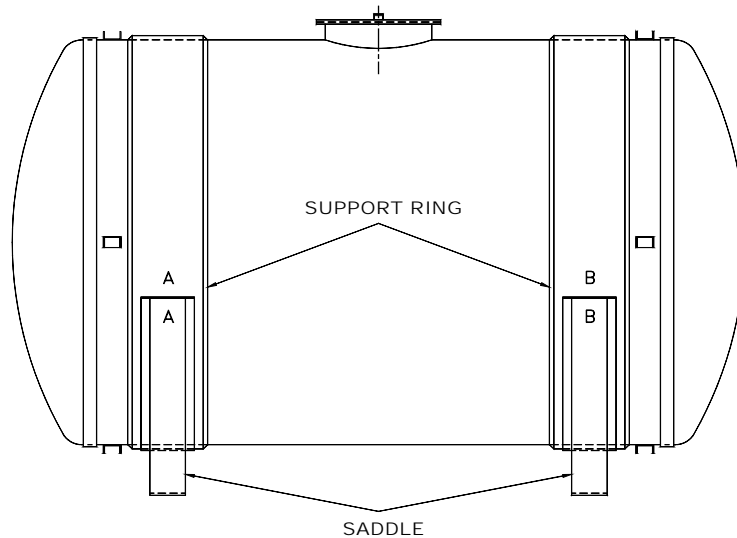
Consult factory if you have any questions. (1-800-253-4252)



HANDLING AND INSTALLATION INSTRUCTIONS

HORIZONTAL TANK INSTALLATION

Installation of horizontal tanks is much the same as the dished bottom. Tanks are supplied with the required number of steel support saddles. These saddles are to be placed under the designated support rings. The saddles must be centered on the support ring and through the centerline of the tank. Caution must be taken to insure that the tank support ring is in contact with each saddle.



Caution: Modification of saddles in any way voids your warranty.

OPERATION AND MAINTENANCE INSTRUCTIONS

Because of FIBERGLASS REINFORCED PLASTIC tanks unique, physical and structural characteristics; they are flexible, lightweight, corrosion resistant, and stronger than tanks made of other plastic materials.

Care, however, should be taken to follow the Handling and Installation instructions. Once the tank has been properly installed and placed in service, BTT recommends regular routine inspections as a part of your preventative maintenance program.

The care and operation of FRP vessels rely mostly on common sense. To maximize trouble free service, Belding Tank recommends:

1. Inspect your vessel thoroughly upon receipt.
2. Follow the Handling and Installation instruction.
3. Wash your vessel thoroughly w/detergent and rinse before putting in service (see FDA Requirements)

AFTER THE TANK IS PUT IN SERVICE:

1. Keep the vessel clean.
 - a. It will remain more aesthetically pleasing.
 - b. If the tank is ever damaged, it will be evident.
2. Make a visual tank inspection inside and outside the tank every 6-12 months.

TANKS FOR FOOD APPLICATION:

BELDING TANK TECHNOLOGIES tanks will comply with U.S. Food, Drug and Cosmetic Act, as amended, and applicable FDA regulations (21 cfr 177.2420). These tanks may be used as components intended for repeated use in contact with food, subject to certain limitations described in that regulation.

BELDING TANK TECHNOLOGIES tanks are chemically acceptable in processing or storage areas for contact with meat or poultry food products prepared under federal inspection and used at temperatures below 250° F. This acceptance has been given by the United States Department of Agriculture.

Prior to shipping your tank, B.T.T. applies a (4) hour heat cure followed by a hot water wash to the tank interior.

After installation and before your tank is put into service, attention to the following procedures is important to achieve FDA compliance:

1. After tank installation, steam-treat or steep tank with hot water for 8-16 hours at 160° – 180° F. This should remove all residual styrene from the laminate surface.
2. Wash the tank thoroughly with detergent and rinse it thoroughly.
3. Check state and local regulations for required compliance in addition to the above recommendations.



OPERATION AND MAINTENANCE INSTRUCTIONS

AIR LOADING

“Tanks are often filled with liquids from tanker trucks by pressurizing the headspace above the liquid within the tanker with compressed air to force tanker contents into the receiving tank. This is most typically done when the liquid being transferred is a corrosive chemical, which could damage a pump. Although such a procedure eliminates the need for a pump, a possibility does exist that the pressurized air within the tanker will follow the liquid into the receiving tank, and destroy the tank, due to excessive pressure.

Generally speaking, the tanker is connected to the receiving tank by a hose. The compressed air pushing down on the liquid forces the liquid through the hose and into the receiving tank. The frictional resistance offered by the hose and the fitting limits the maximum velocity of the liquid moving through the hose to a reasonable value. The air displaced by the liquid entering the tank escapes through the normal vent provided on the tank.

However, when the last of the liquid passes through the hose, the compressed air within the tanker rushes through the hose at an extremely high velocity, because this air does not meet significant frictional resistance in the hose, as the liquid does. This air enters the headspace in the receiving tank and expands with almost explosive speed and force. The conventional tank vent cannot relieve this excessive pressure within the tank. When the pressure within the receiving tank exceeds that for which the tank is designed, either the tank head blows off or some other portion of the tank ruptures.

Preferably, the person operating the tanker will interrupt the liquid flow before the last of the liquid leaves the tanker, preventing the compressed air from entering the tank. However, through inattention or carelessness, the operator will occasionally forget to interrupt the liquid at the "appropriate time" ...RESULT...POSSIBLE TANK FAILURE.”

The quoted description above is the possible occurrence when the tank is air loaded...IMPROPERLY; proper procedure requires that the operator interrupt the liquid at the appropriate time. PROPER PROCEDURE WILL NOT CAUSE TANK FAILURE.

To guard against tank failure when the tank is air loaded, opening the manhole cover is suggested. This precaution, if the tank is air loaded improperly, does NOT eliminate the possibility of tank failure...but it may lessen the possibility.

TO ELIMINATE TANK FAILURE DUE TO IMPROPER AIR LOADING:

- A. BUILD A PRESSURE VESSEL, OR
- B. ELIMINATE THE POSSIBILITY OF THE AIR PAD PRESSURE IN THE TANKER FROM REACHING THE TANK EXTERIOR BY:
 - 1. Suspending the fill line above the manway (i.e. line is not to enter tank), OR...
 - 2. Monitoring a flow meter to determine when the tanker will be empty, OR...
 - 3. Install a "No-Flow" switch in tandem with a control valve.

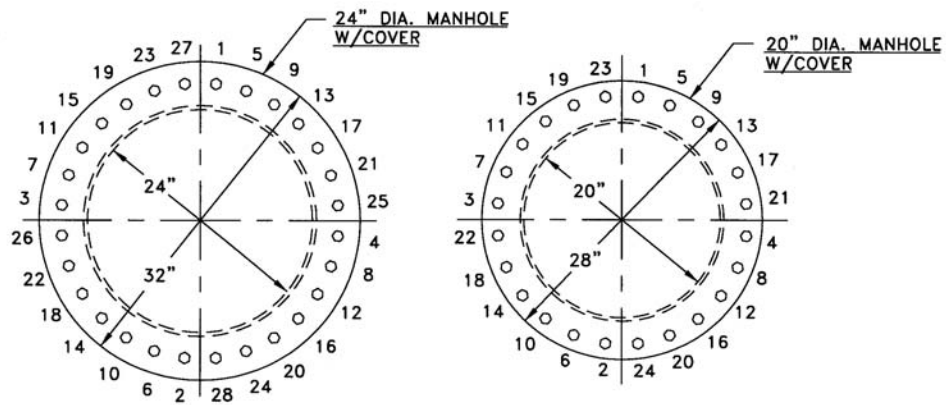
Note: B.T.T. recommends consulting with a reputable firm in reference to flow meters and no flow switches. If you have any questions or special circumstances that require discussion, please feel free to contact us at... 1-800-253-4252.



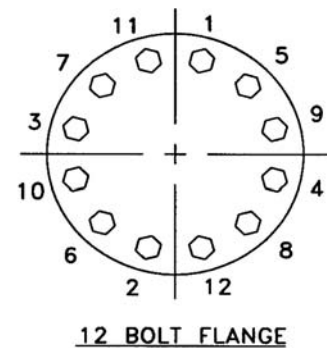
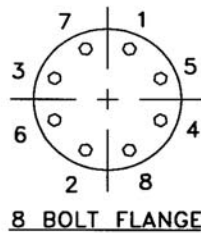
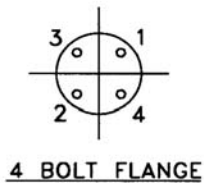
OPERATION AND MAINTENANCE INSTRUCTIONS

BOLTING SEQUENCE

Maximum Manhole Bolt Torque = 60 ft. lbs.



Drawings not to scale



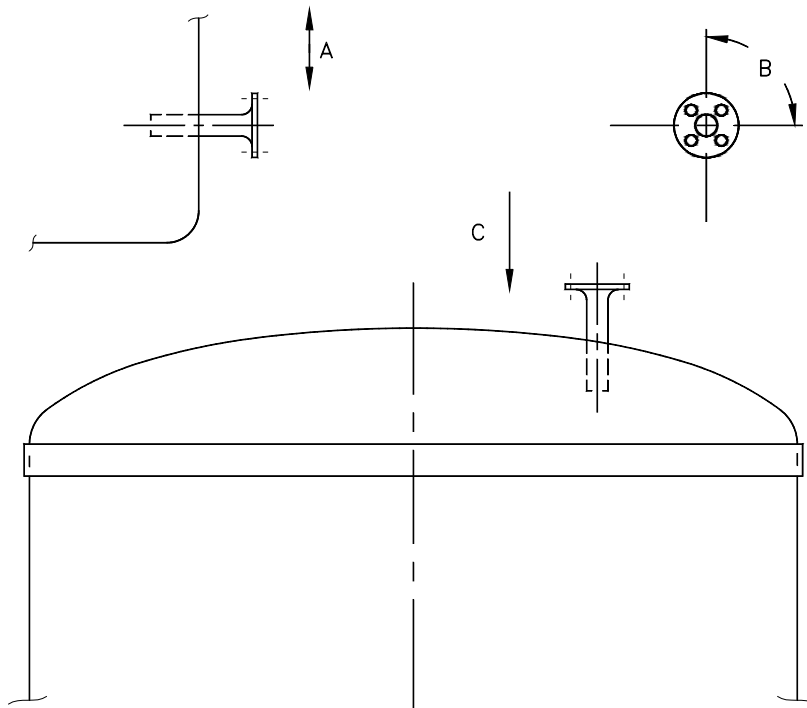
Flanged Nozzle Maximum Bolt Torque

Nozzle Size	Bolt Torque
1" - 12"	25 ft. lbs. max
14" - 16"	30 ft. lbs. max.
18" - 20"	35 ft. lbs. max
24"	40 ft. lbs. max.

OPERATION AND MAINTENANCE INSTRUCTIONS

Flanged Nozzle Allowable Loads Without Gussets

Size	A	B	C
1	30 LBS.	50 FT./LBS.	30 LBS.
1-1/2	50 LBS.	50 FT./LBS.	50 LBS.
2	50 LBS.	50 FT./LBS.	50 LBS.
3	50 LBS.	50 FT./LBS.	50 LBS.
4	50 LBS.	50 FT./LBS.	50 LBS.
6	50 LBS.	50 FT./LBS.	50 LBS.
8	100 LBS.	50 FT./LBS.	100 LBS.
10	100 LBS.	50 FT./LBS.	100 LBS.
12	100 LBS.	50 FT./LBS.	100 LBS.



OPERATION AND MAINTENANCE INSTRUCTIONS

TANK USAGE

This tank has been sold for a specific chemical storage application. Before changing the chemical environment, consult with BELDING TANK TECHNOLOGIES (your warranty may be void without written authorization from B.T.T.)

BELDING TANK standard tanks are NOT designed for pressure or vacuum other than liquid head. Be sure tanks are properly vented to avoid accidental pressure or vacuum.



STATEMENT OF WARRANTY

Belding Tank Technologies, Inc. warrants its manufactured products against any defects in the material and workmanship only for a period of (12) months from shipment.

In the event that the purchaser asserts and Belding Tank Technologies, Inc. agrees that the product is defective per this warranty, Belding Tank Technologies, Inc. may, at its election replace, repair or credit the customer, on the condition that the product is in possession of the original purchaser and the product has been used for its originally intended purpose and design.

Any component parts that are on products manufactured and designed by Belding Tank, are warranted only to the extent of the manufacturer of each component part and to the extent as is enforceable by Belding Tank Technologies, Inc.

Any alterations, modifications, or changes to any products manufactured or supplied by Belding Tank Technologies, Inc., automatically voids this warranty.

No warranty, either expressed or implied, is made by Belding Tank Technologies, Inc. as to the fitness, merchantability, condition, capacity, or efficiency of any products or goods sold, and no claims for labor or for consequential damages will be allowed.

If purchaser attempts to repair product or take any other action, prior to giving prompt notice and providing a reasonable opportunity for Belding Tank Technologies, Inc. to inspect and correct said product, as deemed necessary by the manufacturer, Belding Tank Technologies, Inc. shall not be held liable for any expenses incurred by the purchaser.

No product may be returned for credit or replacement unless first authorized by Belding Tank Technologies, Inc.

Belding Tank Technologies, Inc.'s liability and the purchaser's exclusive remedies are limited to those set forth in this warranty, to the exclusion of all others.

