

TAMDID PIPES ABOVE GROUND FIBERGLASS

STORAGE TANKS

Tamdid Pipes Fiberglass tanks provide an excellent vessel for drinking water, waste water and fire protection water needs. These tanks are made from Polyester or Vinylester resin reinforced with glass fiber and may be also used for storage of certain chemical materials after consultation with Tamdid Pipes engineers.

There are many reasons why Tamdid Pipes FRP Above ground non-pressure Tanks is an excellent choice to meet your requirements:

- FRP tanks are manufactured from a “food contact” grade resin and are safe for the temporary storage of drinking water (potable water).
- Fiberglass is a poor conductor of heat and electricity so insulation is not required in most applications.
- Tanks will never rust or corrode. While, steel Tanks eventually do with or without protective coating, it is just a matter of time.
- Fiberglass tanks are light in weight and easy to move and position on site.
- FRP tanks are less expensive compared to reinforced concrete and steel Tanks.
- Maintenance requirements are minimal: periodic exterior and interior maintenance is generally accomplished by simply washing with water.

Governing Standards:

- ASTM-D3299: Standards specification for filament-wound fiber reinforced thermoset resin chemical storage tanks.
- ASTM-D2583: Standard test method for identification hardness of rigid plastics by means of Barcol impressor
- ASTM-D3567: Standard method for determining dimensions of “fiberglass” (Glass Fiber Reinforced Thermosetting Resin) pipe and fittings
- ASTM-D2584: Ignition Loss cured reinforced resin.

Note: After a long exposure to sunlight and ambient atmosphere, tank external layer might have difference in color or some chalking. Therefore, painting the outer shell of the pipe by good quality solved paint (protective polyurethane paint) is an periodically required.

Procedure for painting:

- Clean the outside surface with thinner.
- Apply tone layer of primer color red brown or beige, re-coatable after 8 hours at 20 deg Celsius (approx. coverage 5.5 m²/l)
- Apply one layer of topcoat polyurethane HB, color white, re-coatable after 8 hours at 20 deg Celsius. (approx. coverage 4.8 m²/l)

Standard Horizontal Above-Ground Storage Tanks

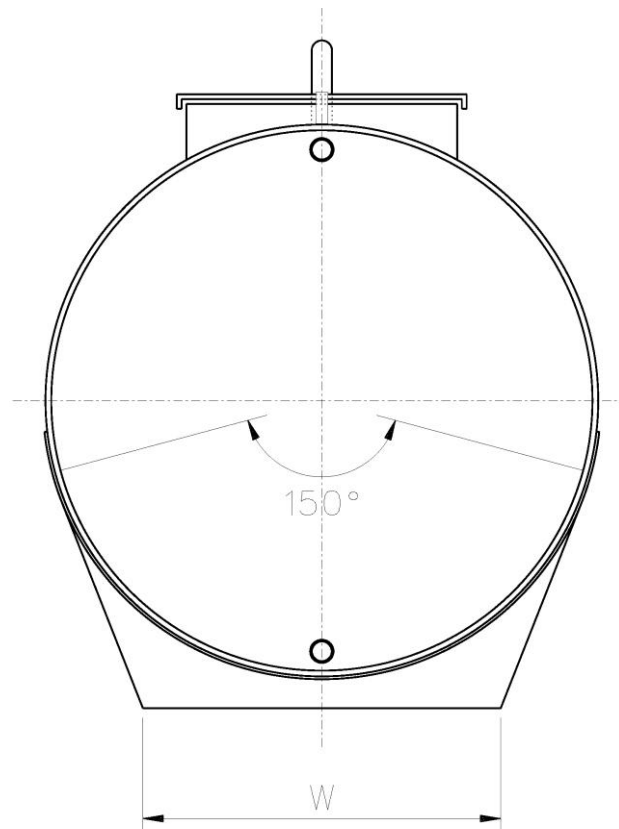
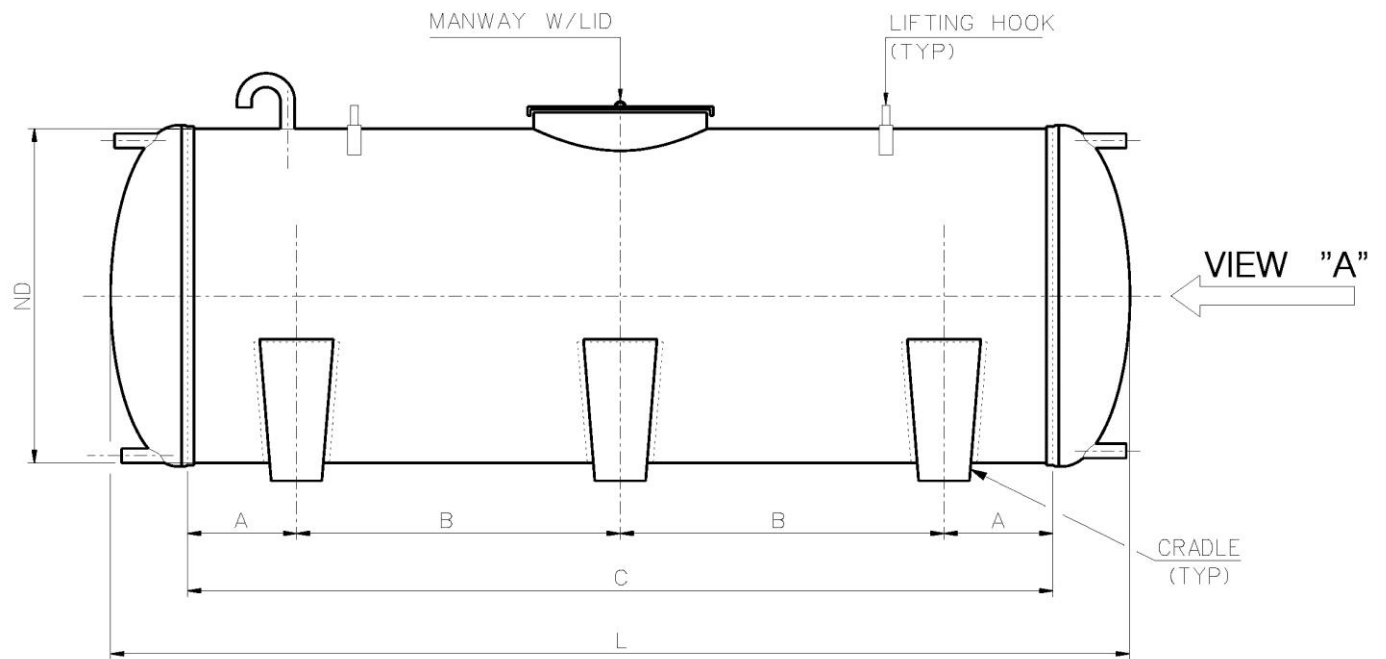
Tamdid pipes horizontal storage tanks for above ground application are available from 1000 to 130,000 liters. These Tanks shall not be subjected to pressure or vacuum.

Typical Tank configuration and dimensions are shown in Figure 1 + Table 1 respectively. However, customized drawings will be issued for client approval.

MODEL	NOMINAL CAPACITY (LITER)*	"DIA" (mm)	"A" (MM)	"B" (MM)	"C" (MM)	"L" (MM)	"W" (MM)	NUMBER OF CRADLES
1	2000	1200	300	780	1380	2792	868	2
2	3000	1200	350	1560	2260	3672	868	2
3	4000	1200	400	1175	3150	4562	868	3
4	6000	1600	400	1095	2990	4868	1182	3
5	8000	1600	400	1590	3980	5858	1182	3
6	12000	1800	500	1855	4710	6826	1339	3
7	16000	1800	750	2395	6290	8406	1339	3
8	19000	1800	600	2090	7470	9586	1339	4
9	23000	2000	900	2435	6670	9014	1496	3
10	30000	2000	900	2367	8900	11244	1496	4
11	38000	2200	900	2553	9460	12042	1653	4
12	40000	2400	750	2187	8060	10870	1811	4
13	56000	2600	750	2213	10350	13398	1968	5
14	70000	2800	800	2215	10460	13736	2125	5
15	80000	3000	800	2185	10340	13852	2282	5
16	95000	3400	800	1940	9360	13340	2596	5
17	105000	3600	800	1888	9150	13368	2753	5
18	120000	3800	900	1888	9350	13796	2910	5
19	130000	4000	900	1813	9050	13734	3067	5

Table 1 – Tank Dimensions

Each Tank Will Include One 600 mm Diameter Manway With Cover, Inlet, Outlet And Vent. All 80 mm In Diameter.



VIEW "A"

Figure 1: Typical Tank configuration

Tank Installation instructions:

Tamdid Pipes are designed to withstand normal handling procedures. The following handling and installation instructions serve as a guide to help contractors install tanks properly and efficiently. It remains the responsibility of the contractor to exercise good judgment and enforce local safety rules.

Below are some basic guidelines to follow:

- 1) Never roll or slide a tank. Use a crane or other method to lift it
- 2) Never allow tank to swing out of control
- 3) Do not allow hard impact from tools to damage the tank
- 4) Do not use any equipment inside the tank that could damage the inner layer (anti-corrosion layer) of the tank.
- 5) Never use steel cables or chains around the tank in order not to damage its outside surface. Place card board between tank surfaces and any material equipment.
- 6) When tank is being stored prior to installation, be sure to lay it on a padded surface and tie it down securely.

Tank Inspection:

Customer shall be responsible for inspecting the Tank for any damage during delivery. Therefore, a claim should be filled by the customer before signing the receipt if any damage occurs.

The most important guidelines that the inspector should check are:

- Check The load for any signs of breakage, abrasion, shifting, or rotation that may have caused in damage of the tank
- If shipping cradles are used, check if any movement, shifting or rotation occurs which may cause damage to the tank.
- Check all nozzles to see if any damage has occurred.

* INSPECTION POINTS WHERE DAMAGE MAY OCCUR

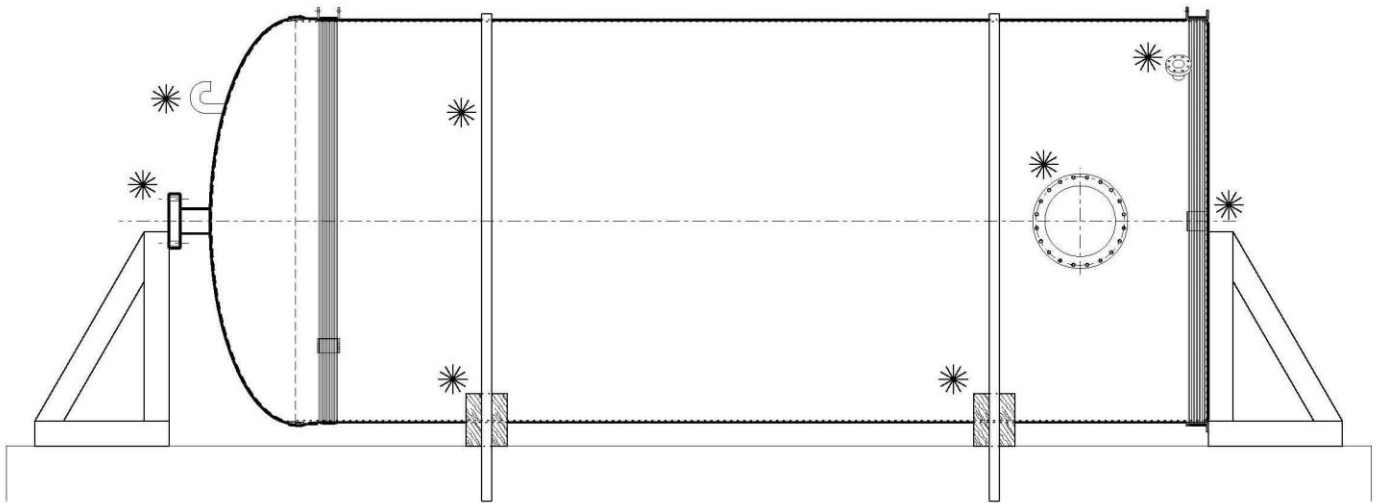
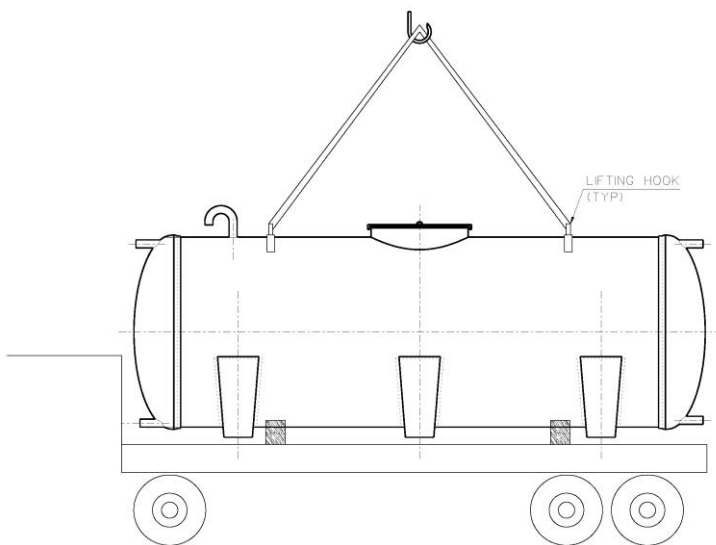
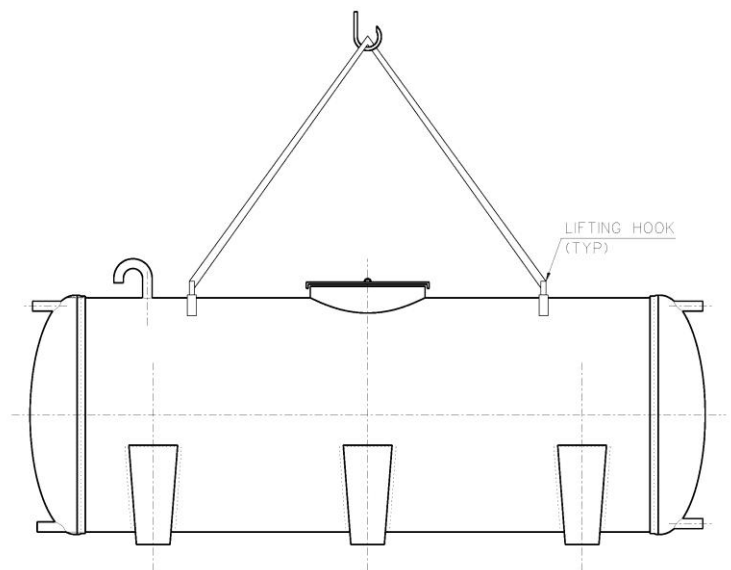


Figure 2

Installation instructions for Horizontal Tanks:



Step 1



Step 2

Figure 3

Standard Vertical Flat-Bottom Storage Tanks

Tamdid Pipes FRP vertical storage tanks are available in capacities ranging from 1000 to 120,000 liters. These Tanks shall not be subjected to pressure or vacuum. Tank design and drawings will be customized to client needs.

Note: Vertical Tanks will be subjected to wind loads. Therefore, a study must be done to ensure proper design on a case by case basis

Table A- Side Bottom Drain Dimension:

Drain Size ND	(w)*	(X)*	Min Depth (Y)*	Min Pad Thick for Side Bottom Drain Clearance (Z)*
50	225	255	80	130
80	250	255	90	140
100	275	255	105	175
150	325	255	125	200
200	375	255	155	250

**** These dimensions have a tolerance of + 17mm, -0***

Table 2

Installation instructions for Vertical Tanks:

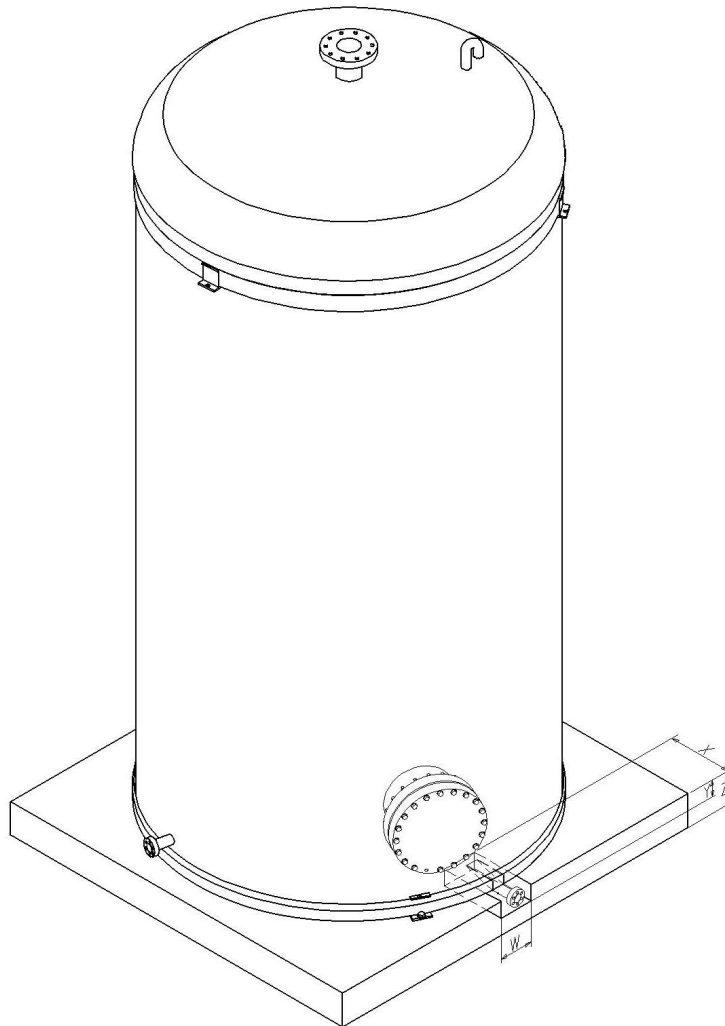


Figure 4

- 1- The support base should sustain all the entire bottom area. This support should be designed to prevent settling or deflection under maximum design loads.
- 2- The support base should be of reinforced concrete, free of cracks depressions and vertical projections.
- 3- The flat bottom should be set on a laying pad to reduce the stresses derived from seams and shrinkage.
- 4- This pad should be manufactured from a resistant material which could be used for the roofing felt
- 5- Where the vertical vessel has a bottom drain, care must be taken in order not to have any contact between the pad, nozzle or nozzle flange.
- 6- All flat bottom equipment should be bolted to the base pad through hold down lugs in order to minimize any damage at the nozzle locations.

Precautions:

- Fill the tank before tightening down the hold down lugs.
- Avoid building up the shims beneath the tie-down in order to prevent the load from being carried by the tie-down lugs rather than by the tank bottom.
- Valves which are attached to tank nozzles should be independently supported so that closing and opening a valve does transmit the total torque load directly to the nozzle.

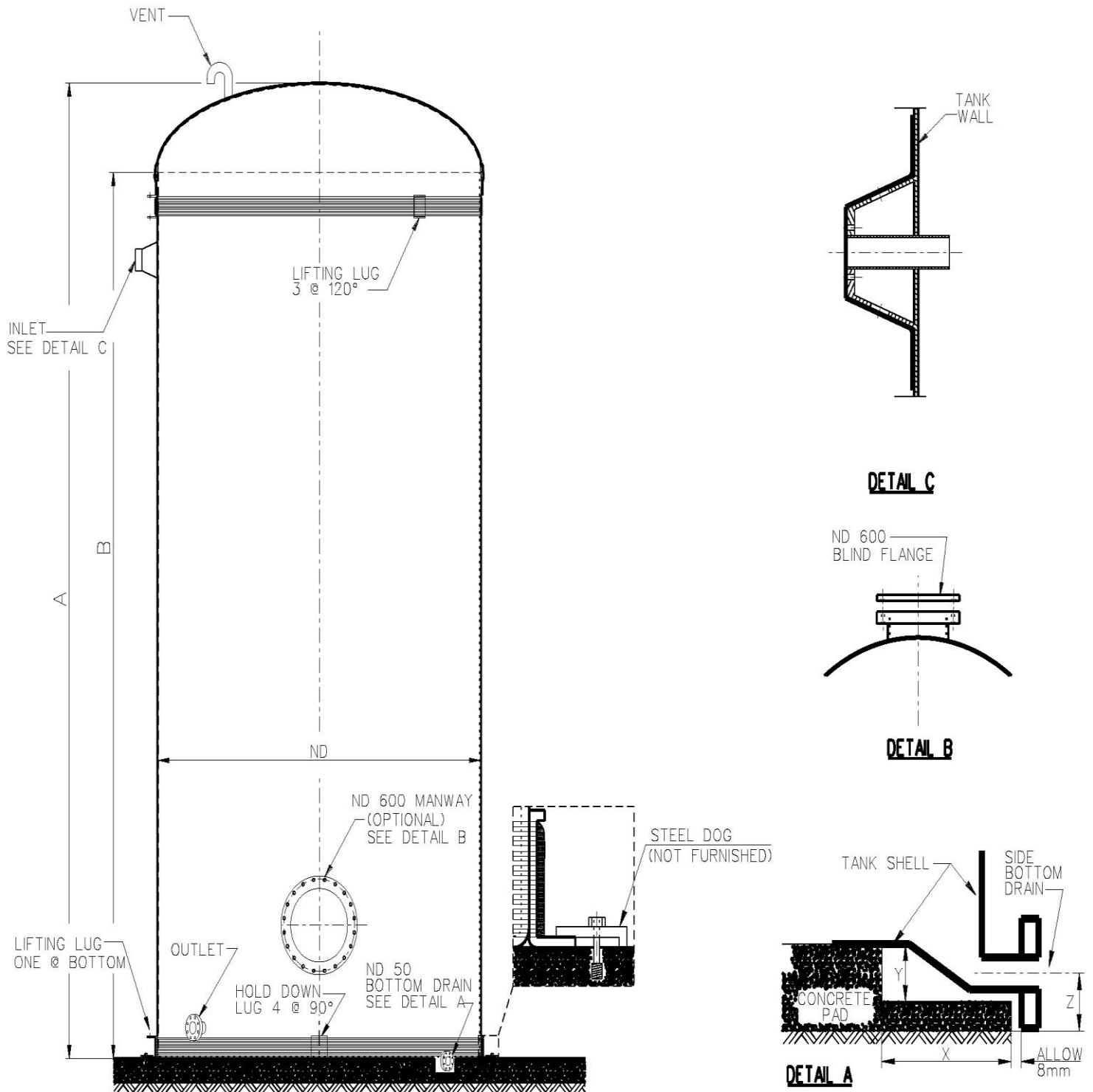
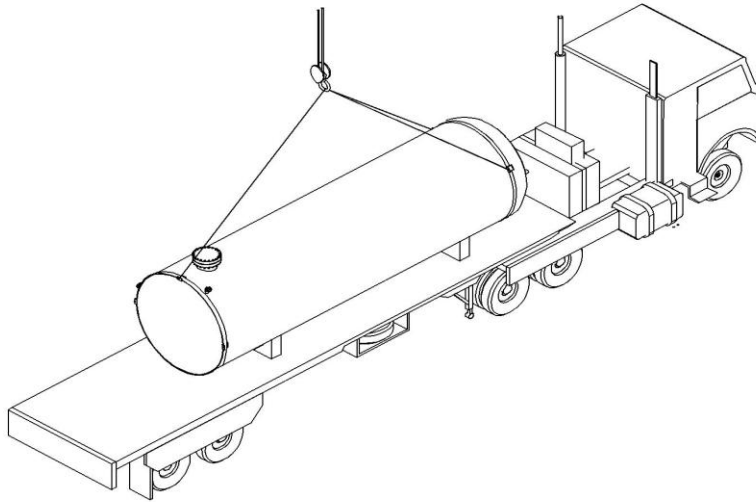
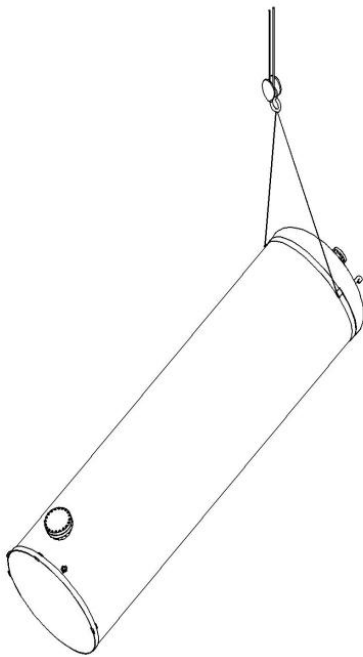


Figure 5

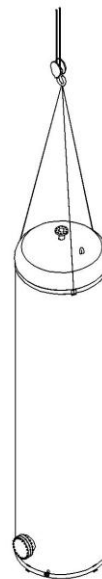
Handling instructions for Vertical Tanks:



Step 1



Step 2



step 3

Figure 6