Fiberglass Tank Installation & Warranty Guidelines

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1

General Information

All the instructions and procedures in this user guide hold great importance and must be followed with care to avoid safety issues and to be able to install the JBros Storage tank and its accessories. If the installer did not take the necessary measures while installing the JBros Storage tank can result in tank failure due to the void of the product's obligation under warranty. This can cause serious injury or harm to any material goods.

According to the instructions described in this installation manual, the warranty of JBros limited only concerns to the tank installations. Please refer Local, Provincial and federal guideline for safe and secure operations.

2

UNLOADING AND HOISTING TANKS

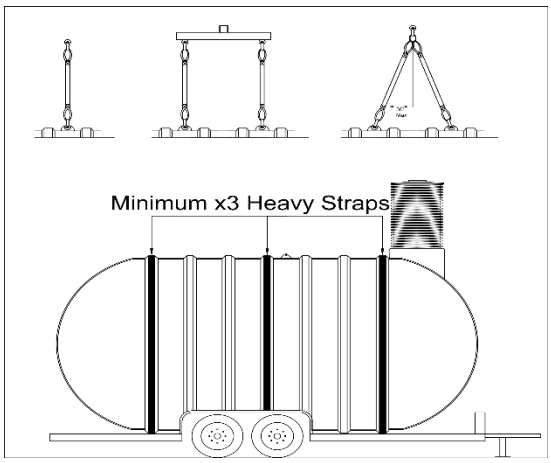
The tank needs to be observed and externally examined. The tank must be examined thoroughly in case it is damaged or dented as any such damage can be caused during the handling of the product. While examining the tank, try focussing on deep scrapes or cracks. The equipment being used for the tank lifting purpose must be of high quality and approved to handle the weight of the tank.

-The area where the tank has to be put must not be rocky or filled with wreckages and trash. It should be smooth and solid enough to balance the tank.

-The trailer bed must be cleared before placing the tank down. If any tools used for unloading the tank or such other material left behind it would damage the tank.

-It is the duty of the tank owner or his representative to make the installation team set the tank in the manner that secures it from rolling down the truck at the time of unloading the tank. The straps that attach the tank with the truck must not be released before the tank has been secured by the lifting lugs. Once the lifting equipment that could be a crane has got control of the tank and the tank is safety attached with its lifting lugs, make sure to position the people, the ones standing in the way of the tank's movement towards the lifting equipment towards a safe spot, as the tank will swing once the straps connecting it to the truck released. The people standing in the way can be seriously injured if these safety precautions are neglected and the

straps are released before following all these steps.



Appropriate suspenders must be used for the purpose of lifting the tank up.

The maximum limit for the lifting lugs is 30 degrees. The set angle must never exceed the maximum limit. This will be applicable in the case when numerous lifting lugs are being used.

The tanks that are shipped are placed in the rotated state on the trucks. These tanks are provided with extra lifting lugs that help with unloading it from the truck and loading it on the ships.

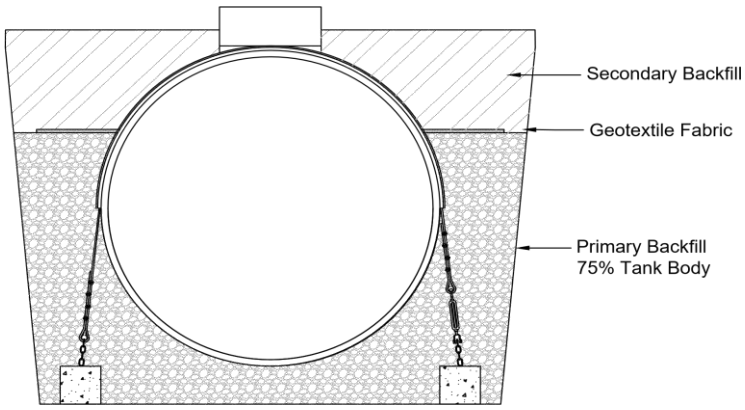
Cables or chains must not be wrapped around the tanks at all. Guide ropes should be used in order to guide the directions or movements of the tank whenever required.

Tanks with fitting or a bottom sump can be risky to handle, and so it should be done being extra careful. Being rough can cause damage to the fitting or the bottom sump as it can be dented or ruined if an object got into its contact or if the ground or the truck bed hit it.

3

Bed and Backfill

Backfill Material and Geotextile; primary backfill material comes first and then comes, secondary backfill material that is used in the backfilling process while installing the JBros tank. The primary backfill material fills up to seventy-five percent, in the vertical direction of the tank's diameter. The secondary backfill material is poured above the primary material.



3.1
Primary Backfill

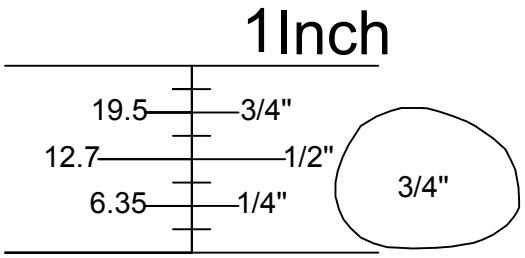
The Primary materials used for the backfilling purpose while installing any tank must either be crushed stone or rounded stone.

JBros will not be responsible for covering any damage done to the tank due to the usage of the inadvisable form of backfill material and bedding which can damage the tank and the surrounding property.

The recommended materials that can be used for backfilling purpose must possess the following specifications,

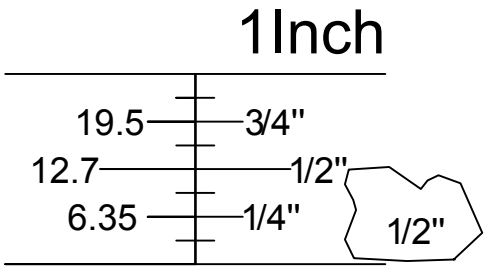
The primary material being used for backfilling must not be frozen or contain any frozen particles. It must not contain any sort of rubbish, sand, rocks, organic substances, roots, dirt, ice or snow. The substance being used must be washed clean and, in a state, to flow free.

Rounded stone the size used for these other round particles must be in between 0.125 or 1/8 inch and 0.75 or 3/4 inch.



Pea Gravel *is small rounded stones. Each stone is about the size of a pea. They usually range in size from one eighth of an inch to three quarters of an inch.*

Crushed stone to make use of the crushed stone, make sure it is mixed with angular particles. The size for these angular particles must be between 0.125 or 1/8 inch or 0.5 or 1⁄2 inch.



Crushed rock *also known as angular rock is a form of aggregate construction. Broken down to desired sizing*

Sandstone, limestone, seashells, and sea shale are forbidden for the use of bedding and backfilling purpose while installing a tank. These materials can breakdown with the course and time

which will result in tank failure. Hardness and stability are one of the most important features of good backfill and bedding materials. Any material used for this purpose must be stable enough to endure water pressure and heavy loads.

3.2

Secondary Backfill

The secondary backfill material must be compressed. It should attain at least eighty-five percent of the standard proctor density.

The rammer compactors must not be used on top of JBros tanks.

For the installation of secondary backfill material, lifts of about twelve inches that are compatible with the compaction apparatus must be used.

You need to be ready to face frost related issues while placing the secondary backfill material as there is a possibility that you might come across frost heave during the process. Make sure if you face such issues you have the preferred material to counter the issue.

The surface slab, roadway or the piping may help in determining the necessities of the secondary backfill material's specifications and compaction that are to be placed above the layer made of filter-fabric.

You can refer to the principles or codes of the base and sub-base course material and the requirements of the compaction process.

Some of the recommended secondary backfill materials are, coarse sand, clean native backfill, or gravel.

The hundred percent of the material used for the purpose of secondary backfill must be capable of passing through a one-inch sieve.

3.3

Geotextile

Geotextile filter fabric is a textile material that allows water to pass through it both ways in as well as out of the cavity without letting the backfill material migrate or mix with the situ soil. This fabric material helps in preserving the integrity of the backfill material that is used for covering the tank's surroundings and supporting the tank.

A Layer of the geotextile filter fabric must be spread over the complete surface of the primary backfill prior to placing secondary backfill material.

The joints of the geotextile filter fabric ought to be overlapped at least by twelve inches.

It is the duty of the owner of the tank or his representative to make sure which filtering technique is more suitable for their specific tank's installation process. For the filtering purpose, they can use geotextile filtering fabric or select any other suitable technique.

Recommended Geotextile filtering fabric for the installation of any tanks as it is considered a good option but under some certain conditions, it is more preferable. These conditions are,

- It can be used for the areas where the groundwater conditions frequently change or if that particular area suffers from tidal fluctuations.
- If the area of the installation has unstable soil.
- If the water present in that particular area has its conditions with situ or silty soil.

You can contact the geotextile supplier installation instructions or guidelines for further details regarding the geotextile specifications.

Polyethylene films are not preferred as the filtration techniques during the tank installation process. The polyethylene films can degrade or tear off any time in service and so, cannot be a reliable filtration source.

4
Installation of tank

The installation process starts with finding Location of tank, excavation depth.

4.1
Location of tank

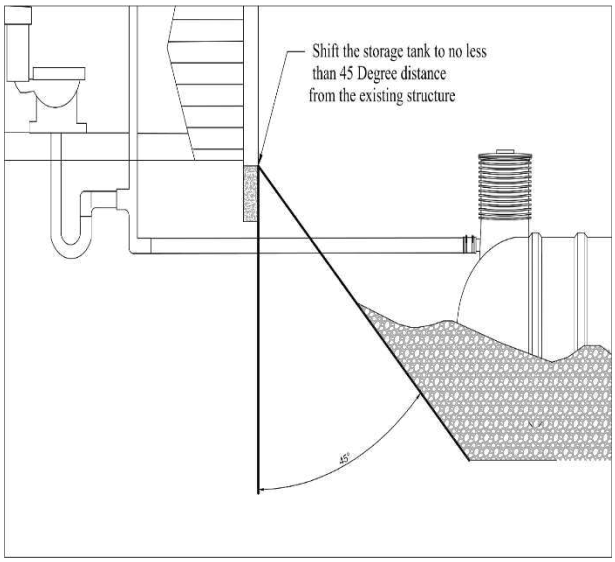
It is the responsibility of the tank's owner or his technical representative to provide the workers with the exact location for the digging to begin for the excavation process such as

Other structure positioned nearby can affect the storage tank's location. The tank's location must be selected keeping in mind all the surrounding foundations and also the ones going to be built in the near future. Necessary precautions must be taken in order to avoid the disruptive influence of the surrounding structures.

It is to be made sure if the weight carried by the surrounding structures or the nearby building's support system along with gravitational force influence the storage tank.

In order to confirm the appropriate tank's location in relationship with the surrounding structures, you must pursue the following steps

- Decide the hole depths required for installing the storage tanks. Pinpoint the foot of each structure that needs to be considered.
- Identify the line which would drop into the land from a forty-five-degree angle depicted descending from the corners of the surrounding structures that are situated near to the storage tanks.



The location of the tanks must not lie within the forty-five degrees line drawn. The storage tanks must be placed away from the forty-five degrees shadow drawn beginning from the foot of the nearby structures.

If the structure influencing the storage tanks has not been built yet, move its foundation to a respectable distance from the storage tank.

4.2
The excavation depth

The excavation depth of site can be determined by the following aspects,

The groundwater situation, the traffic situations at the site and the base of the excavation. In case the bottom of the excavation is uneven or soft.

The excavation must be deep enough to accommodate twelve inches of backfill material to sit between the tank's bottom and the base of the excavation.

While preparing for the excavation, consider the right depth specified for the covers.

The bottom bed of the excavation prepared must be made smooth. This can easily be done by using the primary backfill material and leveling the land where necessary, special the low areas.

If you are using deadmen while installing your tank and want to place it below the bottom or in the bedding of the tank, you need to put the deadmen in before setting the bottom of the tank and making it smooth using the backfill bedding.

To counter the soft soil conditions and the water accumulation issues, you can

raise the bedding thickness. It is possible that the pit created to act as the excavation for the tank has soft soil or it is difficult to manage the water accumulation in that area. This can cause serious issues before and after installing the tank but eighteen-inch thick bedding can help in overcoming this hurdle. After raising the bedding from twelve to eighteen inches, also fix the anchors six inches off the bedding of the excavation.

The next step in the installation process to place the tank on the bed.

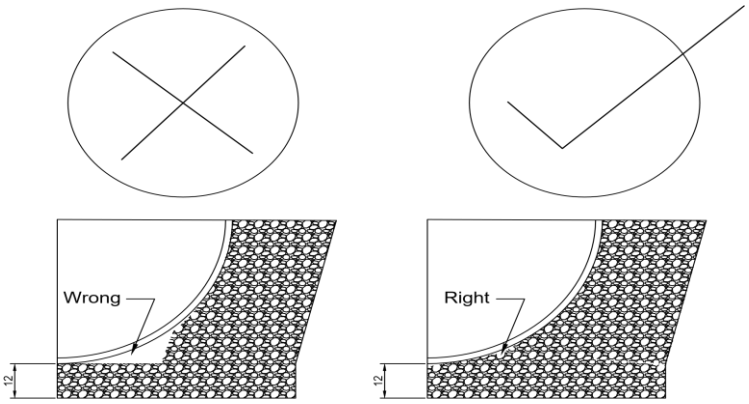
If deadmen are placed in the bottom of the excavation, place the tanks in the center of the deadmen. The tanks must not be settled directly on the timbers, slab, in situ soil or cradles. If these specified instructions are not followed while placing down the tanks on the bedding, it might damage the tank.

Place the tanks in alignment with the anchors. It will help in placing the anchor straps properly.

Install the anchor straps now if they are to be used. The anchor strap's positions are marked on the ribs of the tank. The mark is the arrowhead symbol. place the straps carefully on the exact marked position, after this install the anchoring hardware.

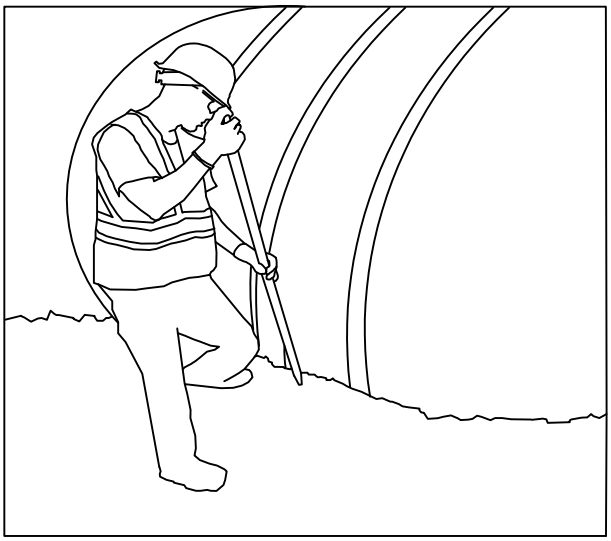
To adjust the straps in the proper position over the rib, you need to keep tightening all the anchor straps. Once you have achieved the right adjustments, stop with the tightening. All the straps need to be uniformly tight.

The water tanks with piping and bottom fittings must be installed now. About twelve inches of the primary backfill material needs to be placed between the tank ribs and bottom and also below the end domes.



A non-metal long rod should be used at this point to push the material present beneath the tank and its domes. Continue the pushing until it becomes solid enough. This means that the tank is being fully supported now as every void is filled. Metal probes must not be used for this purpose. The tank might receive serious damage if these specific instructions are not followed.

NOTE: Strong wood sticks are the preferable choice for this process.



Both the above points should be repeated again now, by lifts of about twelve inches of primary backfill material.

The backfill material must be distributed evenly around the tank filling all the space surrounding the tank so that it supports the tanks strongly enough and doesn't let it shift.

Make sure the tank doesn't shift while getting done with the backfilling process. It will be required to reinstall the tank from the start if the tank shifts during this process or if there are any voids left beneath the tank.

Once 75 percent surrounding of the tanks have been filled with the primary backfill material, it is time to place geotextile Fabric, then start filling excavation area with secondary backfill material

Finish with the venting and or piping now.

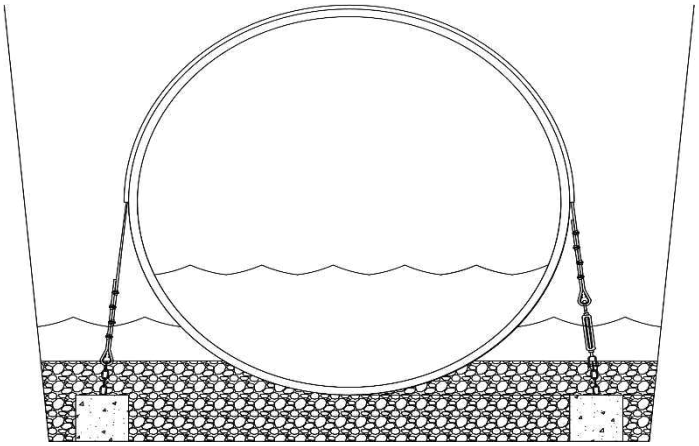
This is the time to bed in the reinforced concrete if required.

The cover depth should be with the specified limits shown on tank body label

In a situation where the water level is higher than required and it becomes difficult to maintain it lower than the surface of the bedding material while installation, it is advised to ballast part of

the tank to settle the tank strongly to the bedding so it doesn't float on the surface.

4.3
High Water Conditions



Liquid in tank must not be more than 12 inches [30 cm] higher than water in the excavation hole during installation.

After that, the tank should be ballasted when backfilling becomes equal with the surface of the tank. Contact JBros for installation confidence in high water table applications

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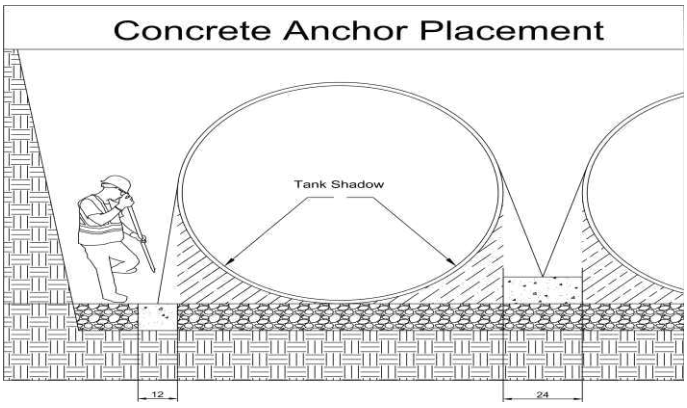
5
Anchoring tanks

5.1
Dead men Anchor

Tank's diameter, water-table height and burial depth are factors which determine the width and thickness of deadmen. Usually strengthened concrete beams are deadmen. The ideal length of deadmen is usually equal to the length of the tank It is recommended that all slabs should spread at least 18 inches from each side of the tank. There must be an adequate depth of 12 inches in the middle of the anchor slab and the tank while using the concrete anchor slab.

Deadman should be laid in the excavations parallel to the tank and outside of the tank Shadow



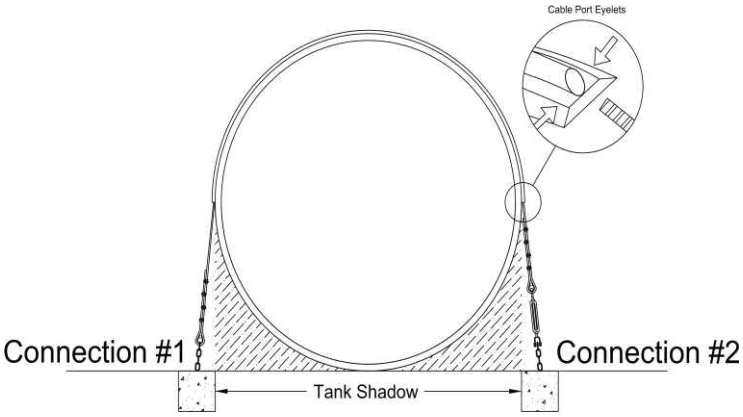
Each hold-down strap should have a separate anchor point.

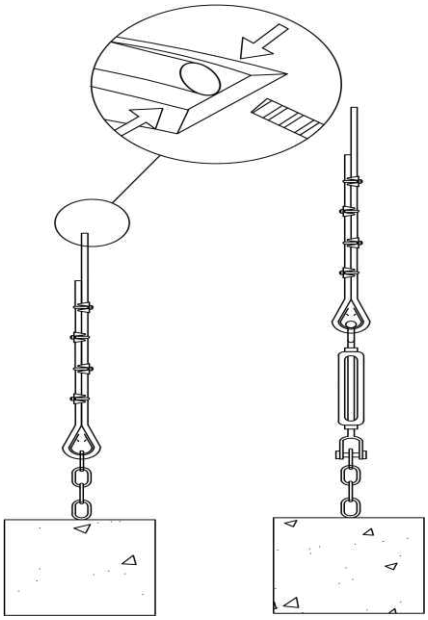
Till the final adjustment, take care to maintain the backfill from entering the anchor-point slot. Using multiple sections, the deadmen should be butted together.

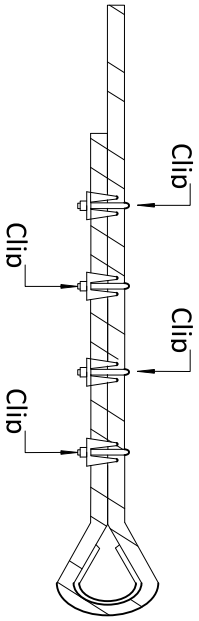
Warning: Only anchor points can be used for the purpose of positioning and lifting the Anchors. It is suggested to use a spreader bar to lift longer sections of deadmen. For lifting purpose, guide ropes can be used. Failure in doing so can cause serious injury or even death.

5.2
Anchoring load points

While fastening wire rope approved and suitable engineering practices should be practiced by the installer. Industry accepted standards should be used while selecting, using, attaching or joining wire rope further refer to recommendations of wire-rope manufacturer and supplier.







To protect against corrosion all exposed metal on the anchoring system should be coated or galvanized. At least 3 clips should be used to fasten the 3/8-inch wire rope on each termination and 4 in case of 1⁄2-inch wire rope.

6
Riser Installation

Determine length of the riser needs to be, cut a riser from bottom to desire size with skill saw. Use Ocenco's grade ring adaptor to extend existing riser to needed lengths. Ocenco's Grade ring inserts connect sections of access riser pipe for strong, watertight bonding.

7
VENTING

It is really important to maintain the atmospheric pressure of the installed underground storage tank at all times, and so to ensure that the vents of the storage tanked must be considerately sized. The vents installed in the storage tank requires to be of the same size or even of greater size as compared to the fill. The storage tank must be capable of maintaining the atmospheric pressure even at the time of filling and emptying the tank.

The instructions and guidance of the overfill protection device's manufacturer will be required at the time of installing overfill protection. This overfill protection can be an automatic shut-off device like an alarm, flapper valve, or a ball-float valve that is a vent restriction device.

Warranty

JBros fiberglass Underground Tanks

We provide warranty to all fiberglass tank manufactured by JBros, if installed strictly in accordance with the JBros installation guideline – having in mind specifically soil condition, ground water level (water table), invert depth, handling tank (loading and unloading tanks) and back fill material.

Warranty will be in effect for 10 years form purchase date of tanks which is solely used for storage of septic water, Rainwater storage and potable water at ambient temperatures.

There are various factors affect life expectancy of tanks such as storage contents, functional condition and FRP specification. Our liability under the warranty Is limited to,

- Replacement of existing tanks
- Repair existing tank
- Refund purchase price

JBros shall not liable under the warranty as following

- Replacing existing tank in terms of transport, labour or installation cost
- Indirect or consequential loss or damages in connection with such tanks
- Accessories of tanks such as Access cover, caller extensions, high level alarm and pumping equipment etc.

We are committed to provide quality product with warranty limited to tanks, we would love to serve you better.

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