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# PRESSURE TANKS

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## HANDLING & INSTALLATION INSTRUCTIONS

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## INSTALLATION MANUAL

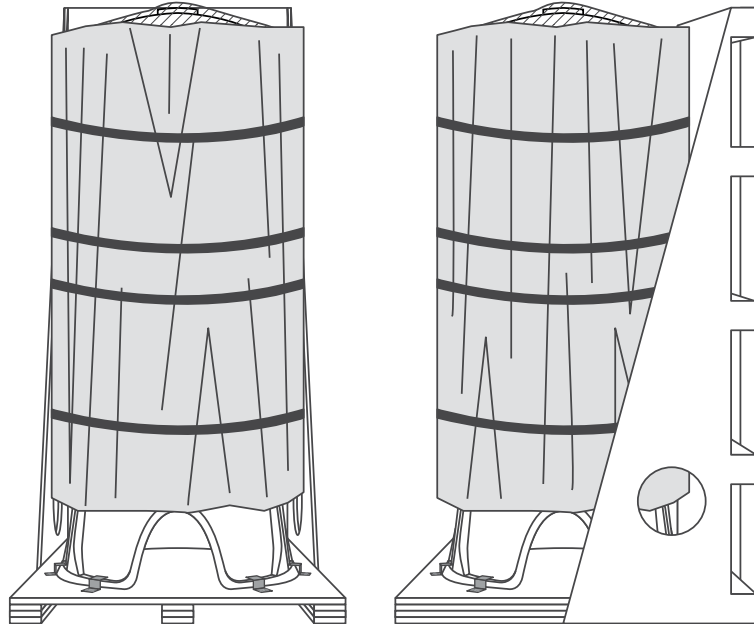
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**Receiving**

Pressure tanks from Aquatrol are protected during shipment by custom-size pallets and padding.

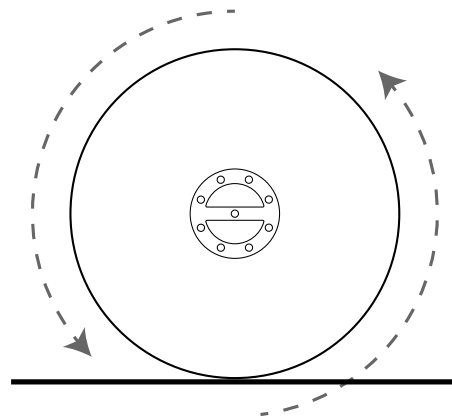
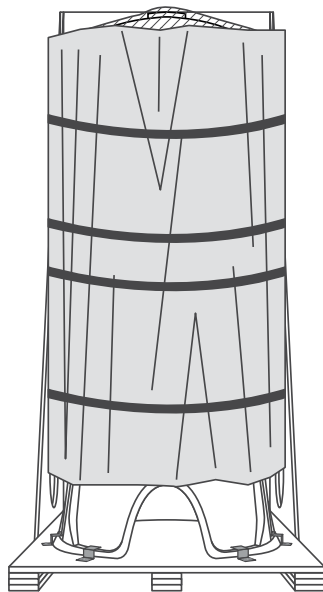


**Basic Handling Rules**

Pressure tanks should always be handled and installed properly. Improper handling or installation can result in damage or pressure tank failure.

1) If pressure tanks are being stored prior to installation, leave them in their protective shipping pallet until ready to install.

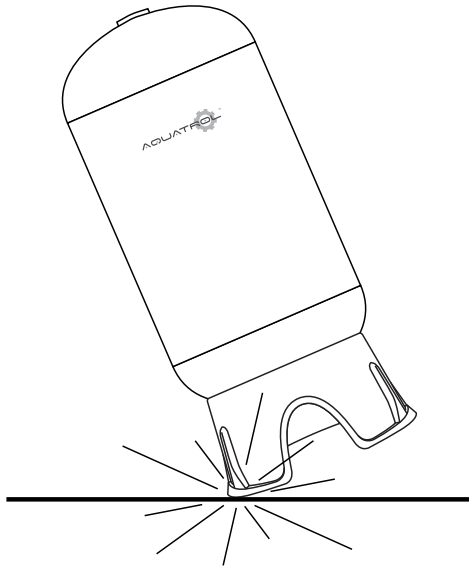
2) Never roll or slide a pressure tanks on its side.



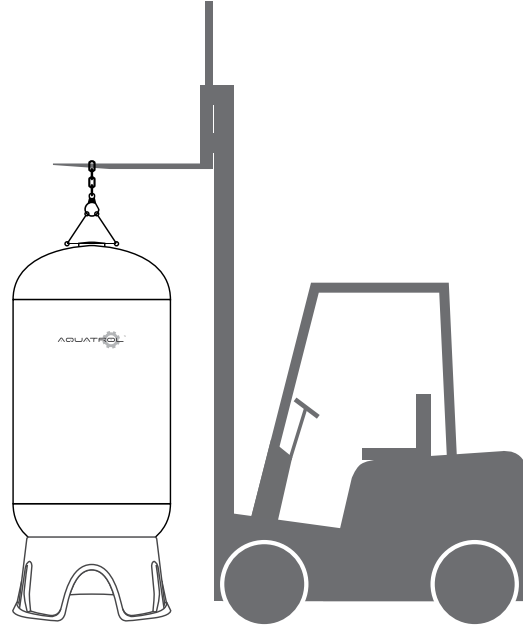
## Basic Handling Rules

Continued

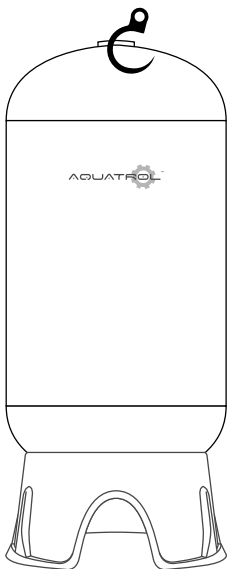
- 3)** Never drop a pressure tank or allow hard impact or abrasion of the pressure tank.



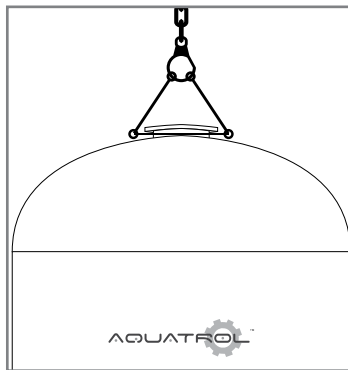
- 4)** Always lift the pressure tank using a crane or forklift and the approved methods shown on page 5.



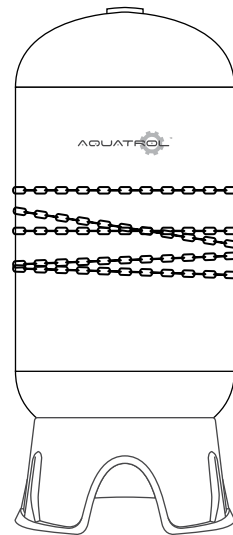
- 4)** Do NOT use hooks or equipment on the inside of the pressure tank as this may result in damage not visible and lead to product failure.



- 5)** Rigging to lift should always be done from outside. Inside rigging could damage the tank liner. Proper rigging procedures should be followed by hoist equipment operators.



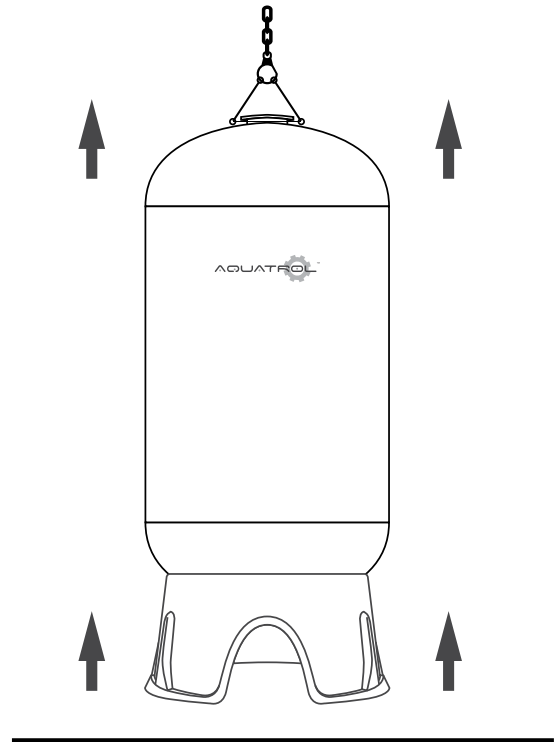
- 5)** Never use cables or chains around pressure tanks. Use canvas or nylon straps to avoid damage to flange areas.



**By Flange**

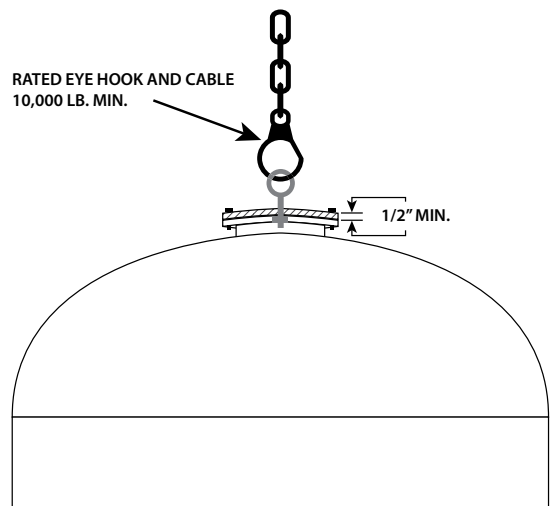
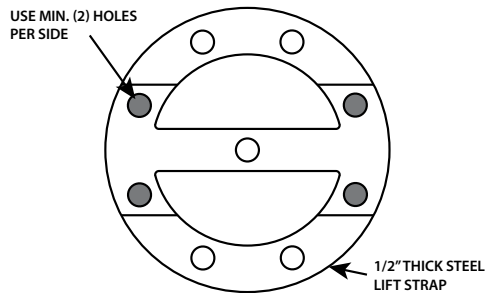
Only empty pressure tanks are to be lifted by placing a user-supplied, webbed nylon reinforced sling, Penco, or rated steel cable around the top flange. Sling must be rated at minimum of 10,000 lbs. (4,500 kg).

CAUTION: Steel cables must have protective coating to prevent scratching of the flange's coating.



**By Lift Strap**

Attach a 1/2" (12.7 mm) thick, user-supplied steel lift strap to the top flange, using at least two (2) holes per side. Then connect to a rated (10,000 lbs. / 4,500 kg min.) eye hook and cables



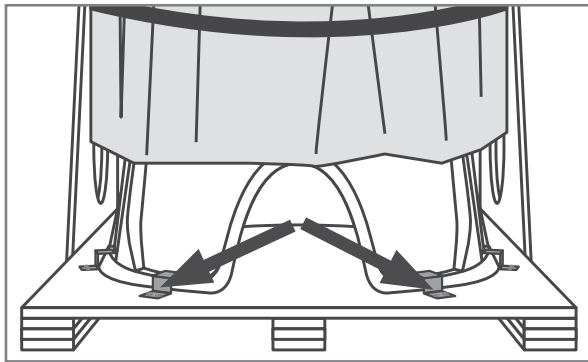
# Installing Pressure Tank

With Fiberglass Tripod or Skirt Base

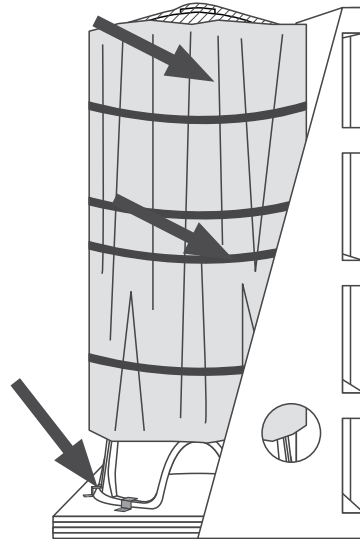


To prevent breakage of the fiberglass base, the following procedure is recommended for handling, unloading and installing these pressure tanks.

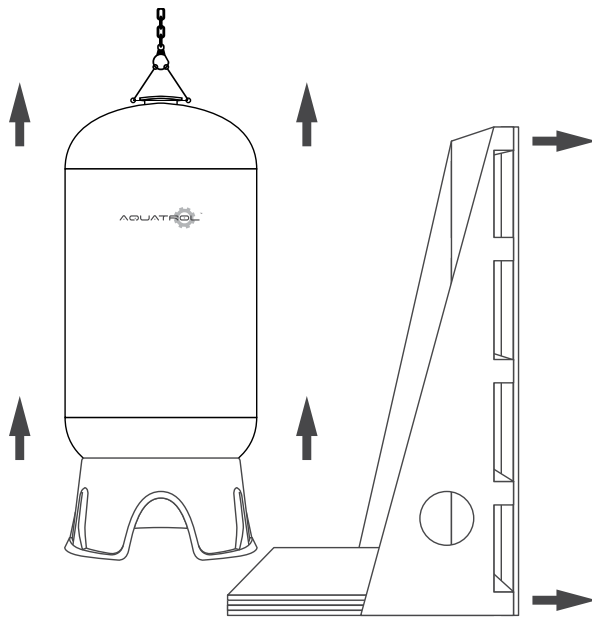
- 1) When delivered, the pressure tank and pallet will be in an upright position. Start by removing the leg bolts and Brackets which are holding the pallet to the base of the pressure tank.



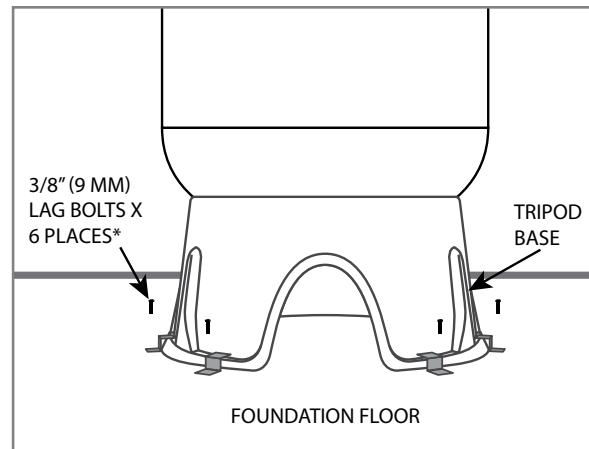
- 2) Remove all straps that secure the tank to the pallet. Remove the protective cardboard and padding. Make sure to check that all brackets and straps have been removed before continuing to step 3.



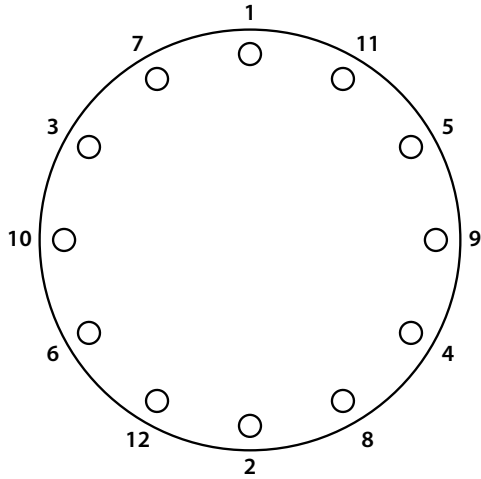
- 3) Using one of the approved lifting methods shown on page 5, lift the pressure tank from the pallet, and remove the pallet.



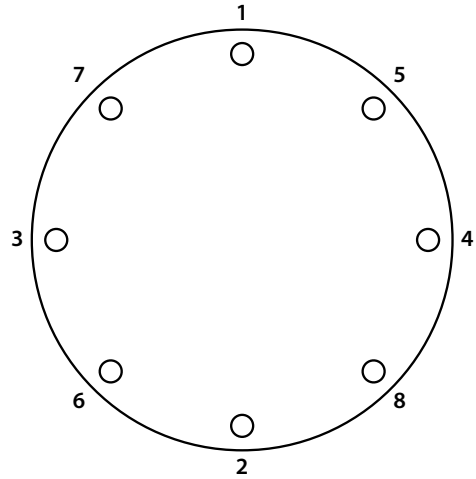
- 4) Lower the pressure tank to the floor, level the pressure tank and anchor it with 3/8" lag bolts and brackets to the floor.



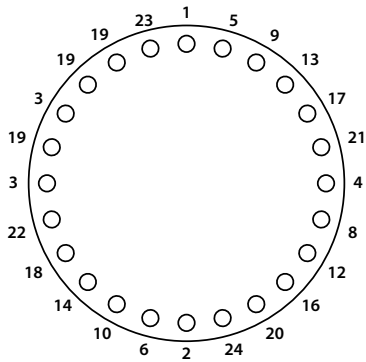
12 - bolt Flange Cover (6", 152 mm Flange)  
Tightening Sequence for 5/16" (7.9 mm) Stainless Steel Bolts.  
Torque to 11 ft.-lbs. (15 NM)



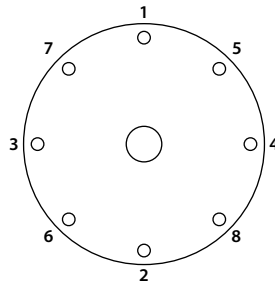
8 - bolt Flange Cover (4-1/2", 114 mm Flange)  
Tightening Sequence for 3/4" (19 mm) Stainless Steel Bolts.  
Torque to 130 ft.-lbs. (176 NM)



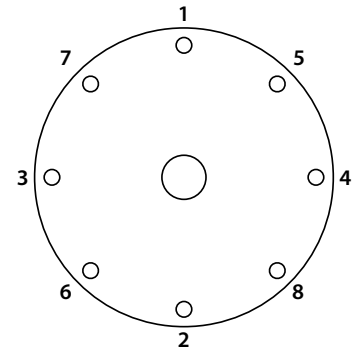
**For All Tanks Larger than 24" Diameter**



24 - bolt Manway Flange Cover  
Tightening Sequence for 1/2" (12.7 mm)  
Stainless Steel Bolts  
Torque to 45 ft. - lbs. (61 NM)



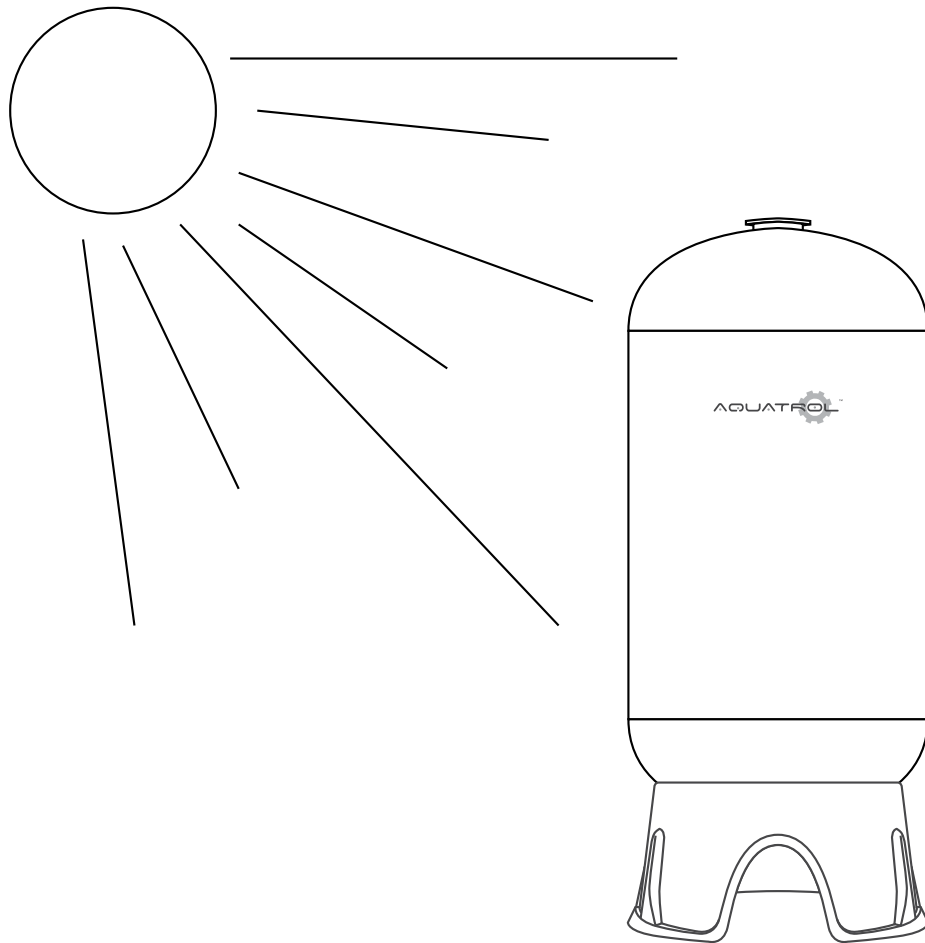
8 - bolt, 4" (102 mm) ANSI Flange  
Tightening Sequence for 5/8" (15.9 mm)  
Stainless Steel Bolts  
Torque to 90 ft. - lbs. (122 NM)



8 - bolt, 6" (152 mm) ANSI Flange  
Tightening Sequence for 3/4" (19 mm)  
Stainless Steel Bolts  
Torque to 130 ft. - lbs. (176 NM)

**Torque Chart**

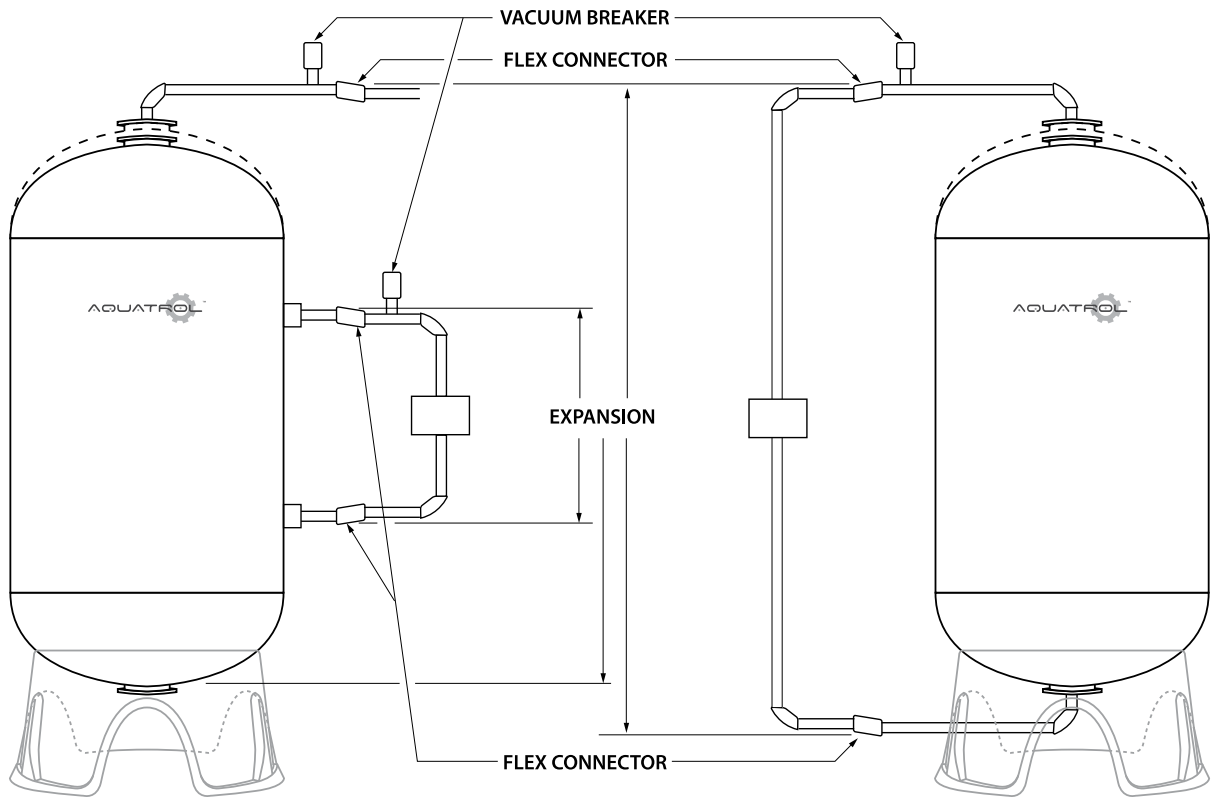
Torque Chart	
5/16" (7.9 mm) s/s* Bolts	11 ft. lbs. (15 NM)
3/8" (9.5 mm) s/s* Bolts	18 ft. lbs. (24 NM)
1/2" (12.7 mm) s/s* Bolts	45 ft. lbs. (61 NM)
5/8" (15.9 mm) s/s* Bolts	90 ft. lbs. (122 NM)
3/4" (19 mm) s/s* Bolts	130 ft. lbs. (176 NM)



**Painting a Composite Pressure Tank for UV Protection**

- 1)** Wash the pressure tank with detergent and water, using a scrub brush. Use the brush actively over the pressure tank surface to remove oil and grim.
- 2)** Rinse the pressure tank several times with water to remove soap residue and let dry.
- 3)** In an open ventilated area use a clean rag wetted with acetone, rinse the pressure tank thoroughly with acetone. Make sure that the rag does not become grimy, and use as much acetone as is practical to perform a "wet rinse" over the pressure tank surface.  
**NOTE:** Acetone is extremely flammable. Should not be inhaled. Requires use of gloves.
- 4)** Pressure tanks can be painted using spray paint, roller or brush. A 100% interior/exterior acrylic latex enamel is preferred. The paint has a good adhesion and will not chalk. This is a one-step paint with water clean-up. The 100% acrylic latex enamel can be purchased at any local paint store.
- 5)** Coat the UV exposed areas first, such as the top of the pressure tank and the sides, where sun rays directly hit the pressure tank.
- 6)** A light colored pigmented paint is recommended. White paint provides the best protection against sun rays.



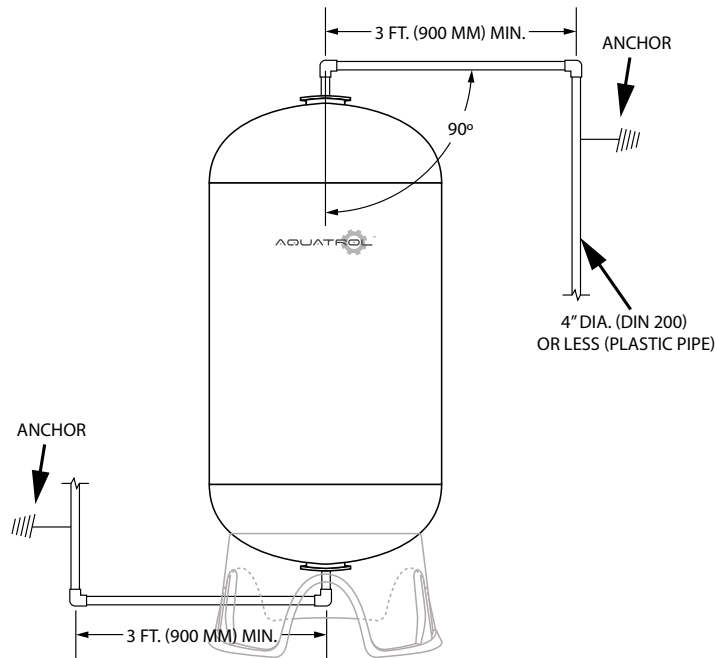


The pressure tank is rated for an internal negative pressure of 5" Hg (17 Pa) vacuum below atmospheric. If negative pressure could ever exceed 5" Hg (17 Pa), an adequate vacuum breaker must be installed between the pressure tank inlet and any valves, as shown in the illustration above.

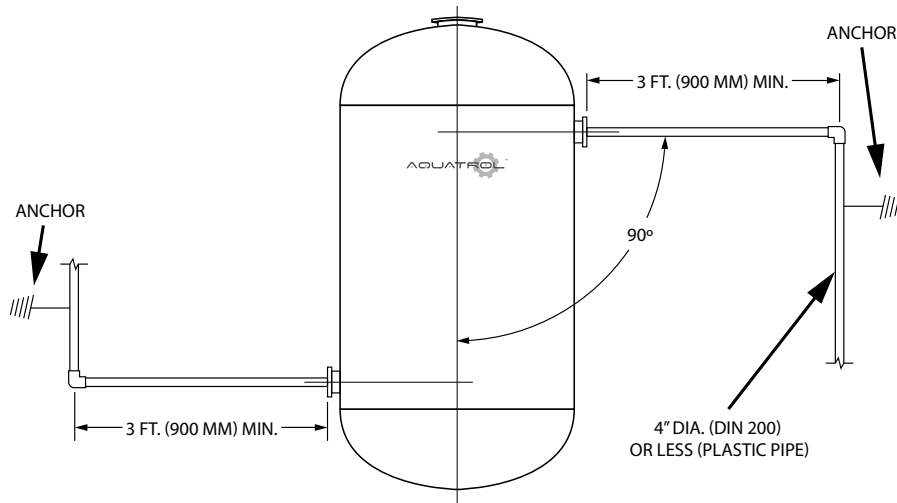
System connections to the pressure tank must accommodate vertical expansion between side, top and bottom openings. Either flexibility in piping, as shown on page 10, or flex connectors as shown above, are recommended.

# Flexibility In Piping

Diagrams



An effective alternative to flex connectors uses the inherent flexibility of right angle system design. By calculating the amount of cantilever over-hang needed to absorb the torsional effect created by the pressure vessel's vertical movement, it is possible to build the needed flexibility right into the piping system. This can be done with both top/bottom and side flow piping setups.



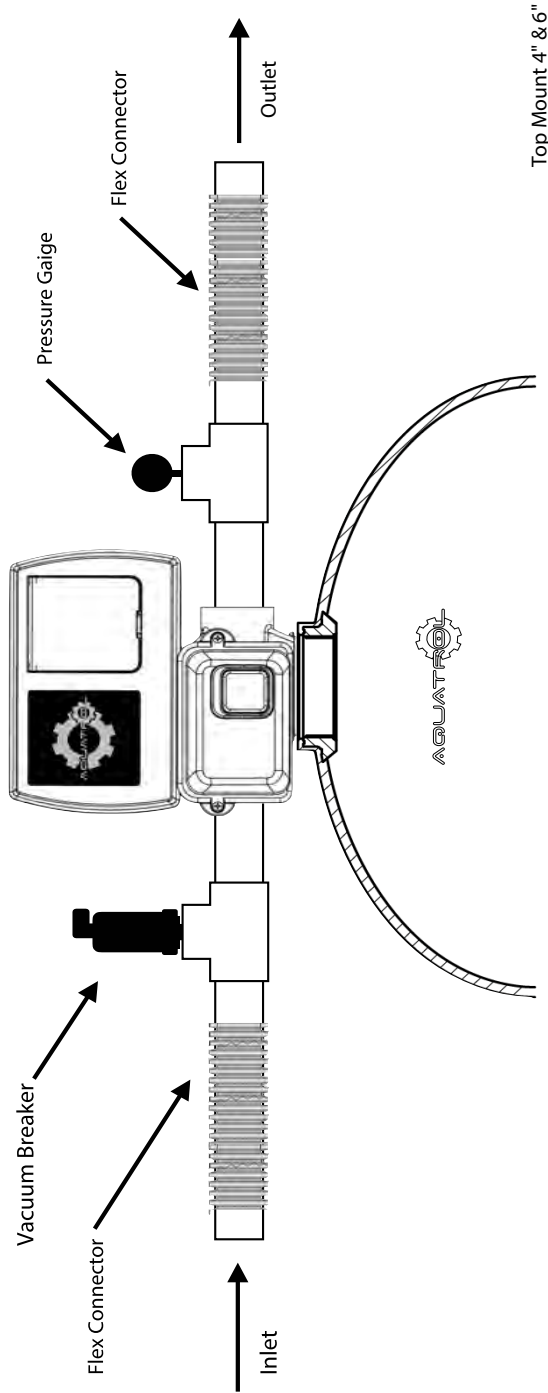
The figures shown here are the acceptable minimums for the pressure tank at its rated pressure of 150 psig. When using the pressure tank at lower pressure, the minimum pipe run length can be reduced, using this formula:

Minimum pipe Formula:

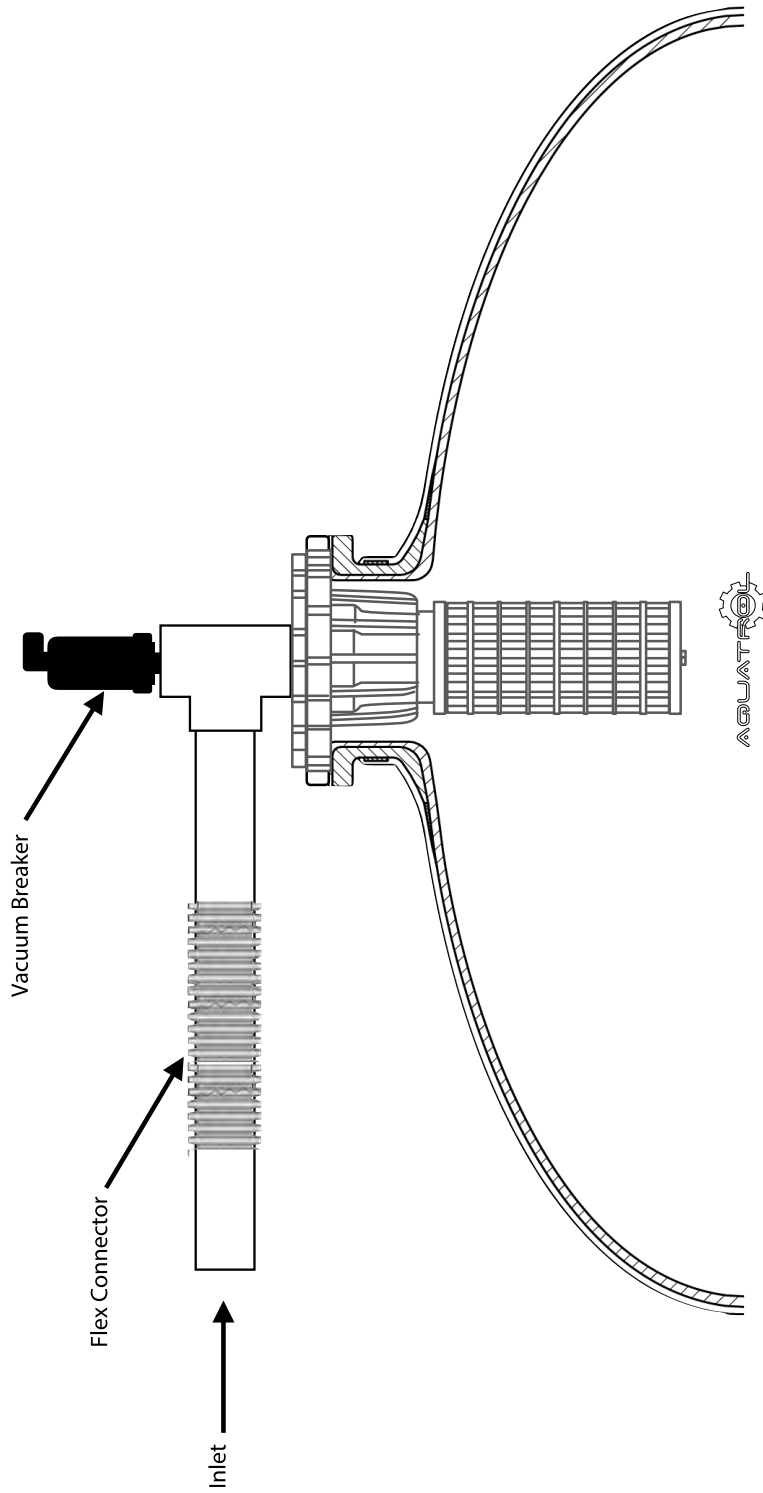
- Multiply pressure tank in psi x 36
- Divide above by 150
- Result is minimum span of horizontal piping in inches.

For example, if the pressure tank pressure is 29 inches:

- $120 \times 36 = 4,320$
  - $4,320 \text{ divided by } 150 = 28.8$
- Minimum span of horizontal piping is 29 inches



Top Mount 4" & 6"



Side Mount



**1. Implosion Tank - Total Colapse**  
Negative Pressure caused by siphon.  
No Vacuum Breaker installed.



**2. Implosion Tank - Broken Fiber**  
Negative Pressure caused by siphon and Pressure Pump (RO) after filtration media tank. No Vacuum Breaker installed. Polyethylene inner shell damaged.



**3. Implosion Tank - Partial Colapse & Broken Fiber**  
Negative Pressure caused by siphon. No Vacuum Breaker installed. Polyethylene inner shell damaged and Fiber completely broken.

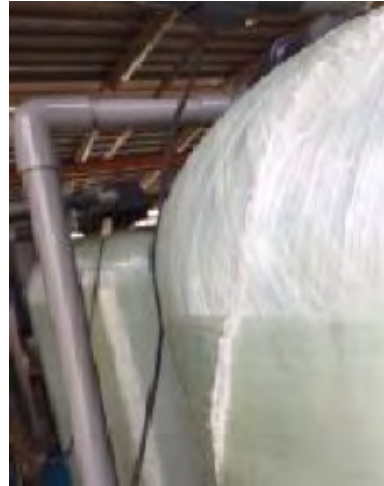


**4. Broken Fiber and Inner Polyethylene Shell**  
Negative Pressure caused by siphon and Pressure Pump (RO) after filtration media tank. No Vacuum Breaker installed.



**5. Complete Collapse**

Negative Pressure caused by constant pressure pump (RO) or siphon caused by drain incorrect installation. No Vacuum Breaker installed.



**6. Fiber Damage**

Negative Pressure caused by siphon and Pressure Pump (RO) after filtration media tanks. No Vacuum Breaker installed. Polyethylene inner shell damaged.

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**Important Notes and Considerations:**

Every time tanks collapses due negative pressure the fiber breaks and the inner polyethylene shell collapses (implosion). Once we start running our system again, positive pressure expands the polyethylene inner shell again. Because the fibers are broken, the polyethylene shell does not have any external protection and breaks, causing leaking from filtration media tanks.

Is important to consider a Flex Connector in all installations so vibration doesn't affects the structure of the fiber glass, specially in those parts with more stress like the neck.

All the images are examples of different cases may have been prevented by the installation of a Vacuum Breaker and Flex Connectors. We recommend to use our Vacuum Breaker AQT-VB. Is responsibility of the engineer, plumber or installers, to read installation manuals from other Vacuum Breakers or Flex Connectors Manufacturers prior installation.

**Operating Parameters**

Maximum Operating Pressure:  
150 PSI (10 Bar)  
Maximum Operating Temperature:  
104°F (40°C)

**Design Parameters**

Cycle Test  
Safety Factor

**Safety Factors**

100,000 Cycle Test without leaks  
Safety Factor 4:1  
(Minimum burst at 600 psi)

**Warranty**

10 Year Warranty for 6" - 13" vessels  
5 Year Warranty for 14" - 16" vessels

**Materials Of Construction**

Polyethylene inner shell: 7" - 36"  
FRP: 40" - 60"

**Operating Specifications**

Max. Pressure: 10.5 Bar (150 PSIG)  
Max. Temperature: 49°C (120°F)  
Min. Temperature: 1°C (34°F)  
Max. Vacuums: 140 mmHg (5.5" Hg)  
DO NOT EXCEED SPECIFICATIONS

**Handling Instructions**

This Vessel Is Only Approved For Water Pressure Use. All Other Uses Or Solutions To Be Used Must Be Approved By Manufacturer.

Do Not Use For Pneumatic Or Hydro-Pneumatic Application. Vessel Must Not Be Exposed To Temperature Below -29°C (-20°F)



Certified to  
NSF/ANSI Standard 61 for  
materials requirements only.

COMPONENT

**NOTES:**

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