



ISO
9001:2015

Installation Use and Maintenance Manual



Pressure & Expansion Vessels For Potable and Hot Water Systems

MODELS COVERED

All vertical and horizontal membrane tanks up to 10000L (2642 Gals) featuring flanged access and replaceable membranes

ATTENTION: Please read this manual thoroughly before attempting the installation of the tank. The manufacturer of this tank will not be liable for any damages caused by failure to comply with the installation and maintenance instructions outlined in this manual. If you lack the necessary skill required to properly install this tank or you have difficulty following the directions, you should not proceed but have a qualified person perform the installation and maintenance of this tank.

About the Product

These tanks are pressurized (expansion) vessels with membranes separating air from water. The membrane is designed to hold water while the air is kept in the space between the membrane and the tank inner wall. Without water, the inside of the tank is occupied solely by the membrane and the air. When water goes into the membrane, the membrane expands to take in water volume, and the air gets compressed. The membrane interior is put under pressure.

Applications

These tanks are suitable for pump pressure systems, water heating volume expansion, water cooling and solar heating systems. For chilled water applications, glycol content may not exceed 50% of the total liquid volume. This tank is not suitable for oil and other hydrocarbons. Please consult before use of any chemical additives.

Operating Limits

Membrane Type	Operating Temperature Range	
EPDM	-20° C to 100° C / 12° O C	-4° F to 212° F
Butyl	-20° C to 100° C / 12° O C	-4° F to 212° F

Pressure Rating	Maximum Operating Pressure	
-10xx	10 bars	145 psi
-16xx	16 bars	232 psi
-25xx	25 bars	362 psi

Safety Guide

Always observe general safety instructions!

Storage and Handling For safety reasons, during storage or handling, pre-charge pressure must not exceed 4 bars (60 PSI). When setting up for operations, do not set the pre-charge pressure above maximum operating pressure.

Handle the tanks with care. Always prioritize the safety of persons handling the equipment as well as other persons, animals, and equipment in the vicinity. Do not operate the tank when there are visible damages due to transportation or handling. If the tank weight is more than 30 kg, use lifting and transport machines to avoid injuries to persons or damages to the tank or the surrounding.

Installation and Operations

Never drill, torch, or open the pressure tank with force. These tanks should be operated within the temperature and pressure limits of the vessels.

Only authorized technicians, trained in this factory should install the tank. Before installation, make the authorized technician confirm correct sizing of the tank. The authorized technician should ensure the pre-charge pressure is set according to the system requirements. Only air or nitrogen can be used to set pre-charge pressure. Do not use any other kinds of gases. Attention! Operating the tank under incorrect pre-charge pressure will void the warranty of the product. Do not set pre-charge pressure above maximum operating pressure!

To protect the tank against system over-pressure, the use of a pressure relief valve rated below the maximum operating pressure of the tank is strongly recommended. To prevent corrosion due to stray and galvanic currents, the system must be grounded properly according to local electrical and plumbing codes and standards. Do not use this expansion vessel with chemicals, solvents, petroleum products, acids or any fluids that may be detrimental to the vessel itself.

When used as part of a heating system, ensure that the supplied membrane matches the operating temperature of the system. Furthermore, provide warning signs that indicate that the water inside the tank is very hot and will cause scalding burns.

Maintenance

High quality butyl or EPDM membranes minimize the escape of pre-charge air from the tank. Nevertheless, these tanks should be regularly checked and maintained by trained personnel. For EPDM membranes, we recommend

quarterly checks, for Butyl membrane, twice a year. Warning: Before doing any maintenance, make sure the system is switched off, no electricity is running. If you need to remove any parts, make sure the tank is free of both air and water before doing so maintenance is done to check that the membrane is intact, the quality of water is acceptable, and that the pre-charge pressure is correct.

Membrane Checkup

Push the pre charged air valve. If water bleeds from the valve, the membrane is burst. Please contact authorized service center and request for membrane replacement.

Water Quality Check

Release water from the system and check water quality. If the water has a reddish or strange color, or it is very hard, or contains mineral deposits, trace the problem first. Make sure the quality of water is acceptable before using the system.

Pre-Charge Pressure Check

Check the pre-charge pressure by releasing all the water inside the tank. Reset the pre-charge according to system requirements. System pressure pre charged requirement should be written on the name plate. If possible, check the tank with foam to check for any leaks or cracks.

Pre-Charge Pressure

Required Pre-charge pressure setting depends on the application for pump pressure systems using standard pressure switch, recommended pre-charge is set 0.14 bars (2 psi) below cut-in pressure. For example, with a 20 - 40 psi pressure switch setting,

tank pre-charge is set at 18 psi. For constant pressure systems (CPS), pre-charge is typically set at around 70% the target operating pressure of the system. When there are multiple set points for the CPS, pre-charge setting is based on the lower setpoint.

Percentage factor may vary depending on application for hot water or chilled water expansion, pre-charge is set at system pressure. For example, as an expansion tank for the water heater installed in a 20-40 psi booster pump system, pre-charge is set at 40 psi.

Replacing the Membrane

These tanks feature quality membranes that can be replaced when damaged. Steps to properly replace the membrane follow:

1. Disconnect tank from system connections.
2. Release air and drain water from the tank.
3. Carefully lay the tank on its side. Avoid damaging the tank surface.
4. Remove the connection flange (bottom of the tank).
5. If available, unscrew the hanger nut located at the top of the tank. This nut connects to the membrane connection hanger (plus extension rod for certain sizes).
6. Remove the inside membrane through the flange access at the bottom opening.
7. Detach the connection hanger (plus extension rod) from the membrane. This will be reused, so clean the hanger before installing the replacement membrane.
8. Attach the connection hanger to the new membrane. For one-piece connection hangers, this is done by inserting the hanger through the membrane and pulling it out through the top opening. For two-piece connection hangers, the bottom part is attached similarly through the membrane; the top end is then connected to the bottom part at the top of the membrane.
9. The membrane must now be placed inside the tank. Connect a wire or other tool as long as the tank to the membrane hanger. With this, you can put the membrane inside the tank and pull through the top of the tank. Be careful not to damage the membrane by avoiding contact with the bottom flange opening.
10. Once the membrane hanger goes through the top of the tank, partially lock it with the hanger nut from Step 5.
11. Reinstall the inlet flange, making sure the bolts align with the membrane holes. Do not overtighten the bolts.
12. Tighten the top nut. Do not overtighten, or else the membrane may get damaged.
13. Through the pre-charge air valve, fill the tank with 2 bars of air. Check for leaks around the air valve, pressure gauge, hanger nut, and connection flange.
14. Set the tank upright and connect to the system as before. Set the tank to the correct systems pre charged pressure, pressure gauge, hanger nut, and connection flange.
15. Set the tank upright and connect to the system as before. Set the tank to the correct systems pre charged pressure

To ensure maximum life of the membrane, you can alternately fill in air and water to required pressure settings. This will prevent expansion shocks to the membrane.

WARRANTY CONDITIONS

We hereby guarantee that;

Our pressure & expansion changeable membrane tanks for potable water are guaranteed against defects in material and workmanship for 2 years from the date of sales. Details in the Warranty Certificate must be completed in order for the after-sales warranty process to begin. In particular, the invoice date and number, the serial number on the tank sold must be written on the certificate. This warranty is valid only for the tank which is purchased through an authorized and appointed dealership. Within the warranty period, repair, or replacement of parts or whole will be performed without charge, except in the case of damage caused by accidents, misuse, tampering, or lack of care.

After the defective product reaches our factory or our dealer or distributor site, according to the technical report to be written as a result of the evaluation of our technical team, if there is a manufacturing defect, the product will either be repaired or replaced with a new one, or the product value will be refunded. The warranty period of the goods replaced under the warranty is limited to the remaining warranty period of the purchased goods.

In addition to these, damage-loss, repair expenses or insurance costs that may occur in the customer or 3rd parties due to the product cannot be charged to our company. Our warranty coverage is only related to the product we manufacturer.

To use this warranty;

To qualify for the service under the warranty, you must present our product together with the warranty card at the dealership from where you purchased the product. Postage, insurance, and freight are to be paid by the owner of the product.

We are not liable for;

- 1.) Any damage to the product during transportation from our factory to the customers warehouse which is performed by third-party companies or customers directly,
- 2.) Defects caused by the customer's neglect of the product instruction & manual before installation and operation,
- 3.) Tank's damages due to the fact that its' pre-charge pressure is not adjusted properly according to pump start up - cut off pressure,

- 4.) Any damage caused by a safety valve not assembled to the system. It is strongly recommended that the system is protected by a suitable pressure relief valve set at or below the maximum tank pressure rating,
- 5.) Any damage due to wrong usage or improper installation or using the product for inappropriate applications,
- 6.) In case of tank failures caused by the failure of other equipment (such as pressure switch) on the system,
- 7.) Failures that may occur due to voltage drop or rise or due to faulty electrical installation,
- 8.) Consumables and spare parts can be purchased from authorized services or from the manufacturer for a fee. In case of malfunctions in the product due to non-original parts that are not purchased from authorized services or the manufacturer,
- 9.) Any damage caused by natural disasters such as fire, flood, hurricane, thunderbolt, or earthquake; and calcification, dirt & clay in systems; humidity, damp, dust etc. all kind of environmental issues,
- 10.) The product tampered or damaged by a non-authorized technician, 11.) Damaged tank due to freezing. Be sure to protect tank, piping, and all system components from freezing temperatures,
- 12.) The tank which is stocked and also installed in inappropriate conditions,
- 13.) Any damage due to running system over max working temperature and max working pressure rate. Check the tanks data label for maximum operating pressure and temperature prior to installing,
- 14.) Any damage because of stones, sands, rocks inside of the water. Please use pre-filter before water enters tank,
- 15.) In the event that by authorized services or third- party services at least once in every 3-month period, the product is not periodically maintained and not checked from point of pre-charged pressurized air, and in case the service reports of these checks are not submitted to the manufacturer,
- 16.) Before the pre-charged pressurized air is increased in the tanks, the tanks must be pre-filled with water. If an attempt is made to change the tank pre- charged pressurized air without pre-filling the water,

Attention;

- 1. This guarantee is valid only if properly filled in and dated by an authorized and appointed dealer from where you purchased the tank.
- 2. The record must be made at the purchase date completely.

WARRANTY CERTIFICATE (Changeable Membrane Tanks)

Producer;

Name :
Address :
Phone :
Fax :
e-mail :

Authorized Person Signature
Company Stamp

Dealer & Distributor & Importer

Name
Address
Phone:
Fax
e-mail

Invoice Date & Number:
Delivery Place & Date

Authorized Person Signature
Company Stamp

Product:

Type : Changeable Membrane Pressure & Expansion Tanks
Brand
Model
Warranty Period : 2 Years,
Maximum Repair Period : Maximum 15 working days
Serial Number

The warranty period starts from the delivery date of the goods to the final customer. The warranty period will automatically expire even if the product is not fully used or installed within the warranty period.

- In case the goods are found to be defective, the consumer may use one of their rights listed below ;

- a) Withdrawing from the contract
- b) Requesting a discount from the sales price,
- c) Requesting a free repair,
- d) Requesting that the sold item be replaced with a non-defective item

- If the consumer chooses the right to free repair from these rights, the seller is obliged to make the goods repaired without any charge under any other name, such as labor cost, replacement part cost or any other name. The consumer can also use the right of free repair against the manufacturer or importer. The seller, the manufacturer and the importer are jointly responsible for the use of this right by the consumer.

- If the consumer uses his right to free repair, in case that the maximum period of the goods repairment is exceeded, and it is determined by the authorized service station, the seller, the manufacturer or the importer by a report that the repair is not possible, the consumer may demand the refund of the value of the goods, a reduction in the tank price at the rate of the defect or, the replacement of the goods with a non-defective one if possible,


- The repair period of the goods cannot exceed the maximum duration of goods. This period starts from the date of notification of the malfunction related to the goods to the authorized service station or the seller within the warranty period. If the defect of the goods cannot be repaired within the maximum repair period; the manufacturer or importer has to allocate another good with similar characteristics to the use of the consumer until the repair of the good is completed. in case the product fails within the warranty period, the time spent in repair is added to the warranty period.


- Defects resulting from the use of the product contrary to the terms in the user manual are not covered by the warranty.

IMPORTANT WARNINGS

EXPLOSION OR RUPTURE HAZARD


*Inspect for shipping damage and immediately inform freight carrier or dealers or sales shop where purchased if you see a damage on the tank.

 *To avoid the risk of personal injury and property damage, if the tank appears to be malfunctioning or shows signs of corrosion, call a licensed professional immediately.

 *Use proper safety equipment when installing.


EXPLOSION HAZARD.

*Failure to follow the instructions in the product manual can cause a rupture or explosion; possibly causing serious or fatal injury, leaking or flooding and/or property damage.

 *Use only with a potable water system.
*Do not operate in a setting with freezing temperatures or where the temperature can exceed 100°C and do not exceed the maximum working pressure specified for this product in the manual.

Chlorine & Aggressive Water:

The water quality can significantly influence the life of this product. You should test for corrosive elements, acidity, total solids and other relevant contaminants, including chlorine and treat your water appropriately to ensure satisfactory performance and prevent premature failure.

 *This product, like most other products under pressure, may over time corrode, weaken and burst or explode, causing serious or fatal injury, leaking or flooding and/or property damage. To minimize risk, a licensed professional must install and periodically inspect and service the product.
*A drip pan connected to an adequate drain must be installed if leaking or flooding could cause property damage. Do not locate in an area where leakage of the tank or connections could cause property damage to the area adjacent to the appliance or lower floors of the structure.

*A relief valve must be installed to prevent pressure in excess of maximum working pressure designated in the product manual, whichever is less.

*Do not expose the product to freezing temperatures or temperatures in excess of 100°C.

*Do not adjust the pre-charge or re-pressurize this product, if the product is corroded, damaged or has diminished integrity. Adjustments to pre-charge must be done at ambient temperature only.

*Failure to properly size the product or follow these instructions may result in excessive strain on the system, lead to product failure, serious or fatal personal injury, leakage and/or property damage.

DANGER! EXPLOSION HAZARD.

*When the tank has been in service and a change to a higher pre-charge pressure is necessary due to a required change in the pressure switch settings, failure to follow instructions below can cause a rupture or explosion, possibly causing serious or fatal personal injury, and/or property damage.

*Do not adjust or add pressure if there is a loss of air on tank metal body.

*Do not adjust the pre-charge pressure if there is visible exterior corrosion.

*Do not adjust the pre-charge pressure if there has been a reduction of the pump cycle time, or the pre-charge pressure compared to its initial setting. This is because reduction in pump cycle time can result from loss of tank air pressure which in turn can mean there may be internal corrosion and any re-pressurization or additional pressure could result in rupture or explosion.

⚠ MAXIMUM WORKING PRESSURE.

Every tank model is designed according to **1,5 times higher pressure of its maximum working pressure**. But it should not be operated at over its maximum working pressure.

⚠ RELIEF VALVE REQUIRED.

A relief valve should be installed which is set to open at excessive pressures (at tank max. working pressure limit). This will protect the tank and other system components. The relief valve should be installed at the connection of the tank to the system piping

⚠ •As in all plumbing products and water storage tanks, bacteria can grow in your tank, especially during times of non-use. After this non-use period, before starting re-using, please drain water from tank for **few minutes**.

•A water test must be taken before installation of any water treatment equipment.

⚠ DANGER! EXPLOSION HAZARD.

*If you adjust the pre-charge pressure or add pressure to a tank that is corroded or damaged or with diminished integrity, the tank can burst or explode, possibly causing serious or fatal personal injury and/or property damage.

*Only adjust the pre-charge pressure as described in this manual when the tank is new or when the integrity of the tank and minimum level of internal or external corrosion is confirmed.

*Only licensed professionals should check, adjust or re-charge the pre-charge of tanks.

⚠ For your safety, the information in this manual must be followed to minimize the risk of electric shock, property damage or personal injury.

⚠ Do not install in direct sunlight. Excessive sun heat may cause distortion or other damage to non-metallic parts.

⚠ ELECTROCUTION AND EXPLOSION HAZARDS.

Before work is performed on the tank, turn off the power to the pump and release all water pressure in the tank and pumping system.

⚠ WARNING: The amount of water delivered between pump cycles is called drawdown. The larger tank, the greater the drawdown capacity, the less the pump needs to run. This saves energy and money and extends pump life. Larger tank sizes also increase the water storage volume to provide more consistent water pressure.

THE BIGGER TANK, THE LESS TANK WORKING.

THE LESS TANK WORKING, THE LONGER TANK'S DIAPHRAGM LIFE &
THE LESS TANK PRE-CHARGE PRESSURE CONTROL.

ALWAYS CHOOSE CORRECT TANK SIZE FOR YOUR INSTALLATIONS

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