



## Expansion Tanks

### Installation, Operating and Maintenance Instructions

## Maintenance

ETNA expansion tanks should be checked by our authorized services periodically once a year.

- Release all the water and the air before disassembling the parts exposed to pressure such as flanges make sure that the system is switched off and no electricity or electrical devices are running.
- Membrane maintenance push pre-charge gas valve, if water bleeds from the valve, then membrane is burst. Please call authorized service and provide membrane to be replaced according to membrane replacing instructions.
- Checking the quality of the water.
- Check water clearness with the valve on the system. If the water is rusted, calcified, deposited then determine the reasons and provide to be normal.
- Setting pre-charge pressure
- Check the pre-charge pressure by releasing all the water inside of the tank. Re-set according to the value on the name plate. Check pre charge pressure valve and if possible check with foam whether there is any leak or crack. Tank is now ready to operate.

## Membrane Replacement Instructions

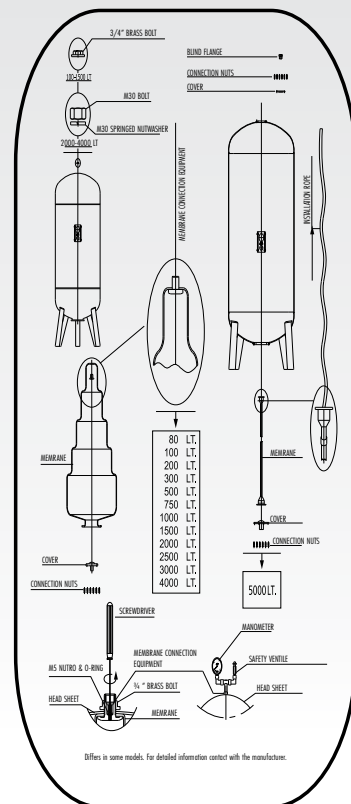
- Release the air and water from the tank.
- Take off the cover on the water input - output mouth, by pulling off the bolts.
- Pull off the nut that is on the ending side of the membrane connection hanger on the upper side of the tank of which provides membrane to remain hung in the tank. (For 100 LT - 1.500 LT 3/4 " 2.000 LT - 4.000 LT M 30) (The mentioned hang do not exist in 8 LT - 60 LT expansion tanks. See article 10) (Also do not exist in 5000 Lt expansion tank. However, the membrane is hung on the upper throat for this reason pull off the bolts of the cover take off the cover save the membrane from the throat and let into tank.)
- Take off the membrane from the water input - output mouth.
- Take off the membrane connection hanger.
- For 100 LT - 200 LT - 500 LT expansion tanks attach the membrane connection hanger to new membranes ending side by passing inside through the membrane for 300-750-1000 LT - 1500 LT expansion tanks make the hanger's ending side place into the membrane's ending side. Firstly attach the scale (Ø90 / Ø27 x5) its place from inside of the membrane then screw the R 3/4 yellow nut to the hanger's ending side from inside of the membrane and squeeze. When screwing reverse the ending side of the membrane and be sure that the brass bolt is reliably fixed. For 2.000 LT -4.000 LT expansion filling tanks through the hole on the ending side of the membrane assemble M27 bolt Ø90 scale M27 spring nut

washer nut by taking into consideration the figure on the side and squeeze.

- Assemble Ø90/ Ø27x6 rubber joint to the other ending side of the connection hanger.
- The inside of the membrane connection hanger is clogged screw a bar that is longer than tank and the ending side of it is suitable for the mentioned cog (for 100 LT -1.500 LT ½ / 2.000 LT - 4.000 LT M for 5.000 LT interchangeable membrane expansion tanks apply this operation by attaching an appropriate equipment (like lifting rope)
- Take off the installation bar from the hole on the top , by passing it through inside the tank and pull with the mambrane until the hanger's ending side comes up from the hole For 5.000LT pull the installation rope until the membrane's upper, throat comes up.
- Screw the bolt ( for 100LT - 1500 LT 3/4 brass connection bolt / for 2000 LT- 4000 M30 spring nut washer + M30 nut) to the membrane connection hanger by passing it through the installation bar and than squeeze . For 5000 LT place the upper throat attach the cover screw the connection screws and squeeze.
- By placing the membrane to the water input - output mouth , attach the cover, screw the connection nuts alternate and balanced and squeeze. (Torque Meter is recommended)
- From the pre-charge valve on the tank, fill pre-charge pressure suitable for the system
- Absolutely ! Check the water input - output mouth cover connection around of the valve and the pin by foam test ( For 5.000 LT the upper cover connection )



**ATTENTION : (PRE-CHARGE PRESSURE MUST CHECKED ONCE (1) A MONTH WITH A SUITABLE MANOMETER. %10 DECLINATION IS ACCEPTABLE, WHEN MORE DECLINATION OCCURRED SET THE SUITABLE PRE-CHARGE PRESSURE±.)**



## Start-Up

Observe General Safety and General Installation Instructions!



### Attention!

If the pre-charge pressure is incorrectly set, the operation of ETNA expansion tank is not guaranteed. This may cause other defects equip the system with suitable device sets at a pressure no higher than the expansion tank maximum pressure; for instance safety valve. How to operate ETNA expansion tanks with heating, centrifugal pump and submersible pump is shown in figure 1,2,3, when installing, it strictly must not be connected, if the contributory equipments shown in figures are not provided.

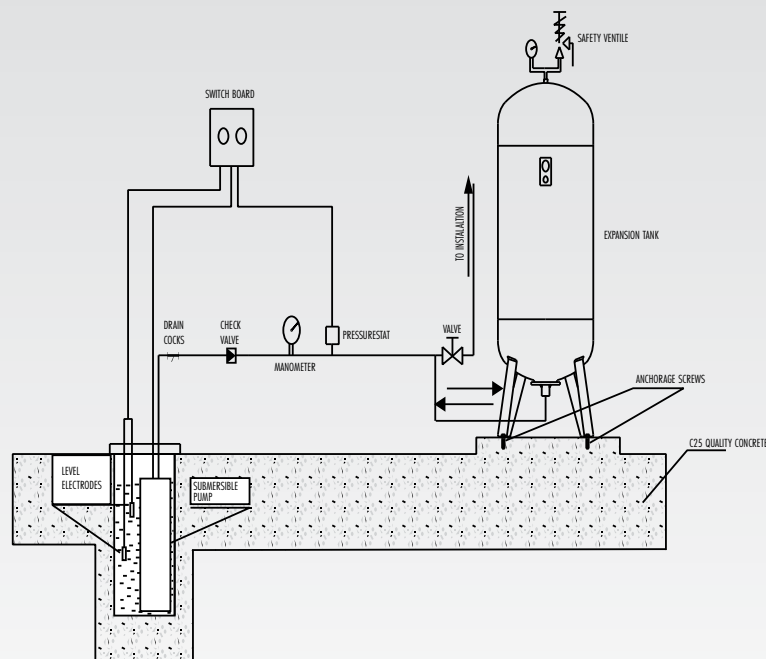


Figure 1: Using Etna Expansion Tanks With Submersible Pump

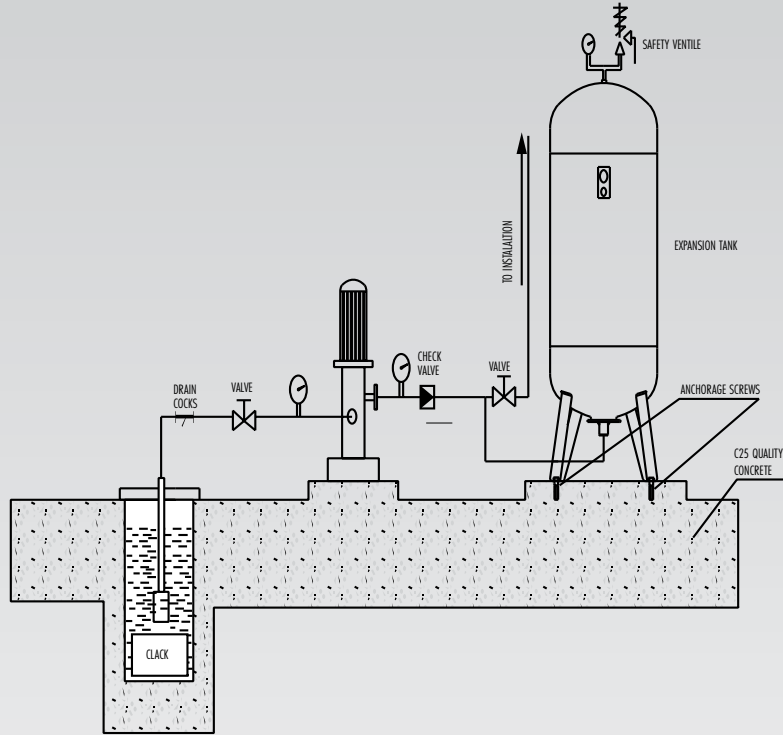


Figure 2: Using Water Expansion Tanks With Centrifugal Pump

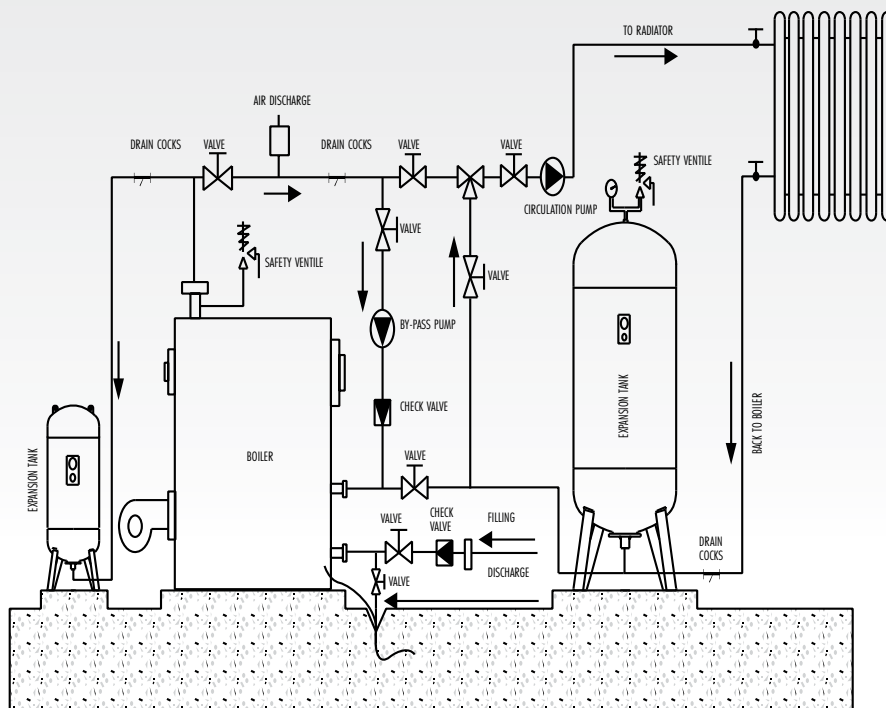


Figure 3: Using Etna Expansion Tank in Heating Systems

## Application, Operating Parameters

ETNA expansion tanks are suitable for pressure holding and volume compensation in water heating, water cooling and solar systems. The glycol content in the water may not exceed %50. Necessary precautions must be taken with regard to prevent membrane corrosion. ETNA expansion tanks are unsuitable for oil and toxic medias.

- Minimum operating temperature:  $-10^{\circ}\text{C}$  (Only with addition of suitable anti-freeze agent)  $T_{\text{con}} + 70^{\circ}\text{C}$
- Max. Continuous operating temperature on the diaphragm  $+ 100^{\circ}\text{C}$
- Permissible operating pressure  $P_{\text{max}}$  according to name plate
- Min.operating pressure  $P_{\text{min}}=0$  Bar

## General Installation Instructions

Observe General Safety Instructions

- Under no circumstances, never drill, flame or open the expansion tank with violence.
- ETNA expansion tanks may only be used with accurate pressures and temperatures and for purposes according to name plate on the vessel.
- In order to avoid corrosion caused by electrolysis it is necessary to ground it.
- In the design phase the following external stresses have not been considered; stress due to snow, earthquake, traffic; these should be taken into consideration in the installation phase.
- If the expansion tanks heavier than 30 kg, it is necessary to handle it with special machines to avoid damages persons or tank itself.
- Before installation of the expansion tank, make the authorized technician re-check the determined volume, and confirm calculations. (In addition make sure that the calculations, transportation and installation instructions of the country of where the vessel will be used are observed.)
- The installation of an incorrectly sized tank could cause injury to persons and pets or damage to property and actual system.
- To avoid such a situation, it is strictly forbidden to use incorrect sized vessels other than calculated.
- The pre charge pressure of the vessel may be set in accordance to your system by authorized service technicians.
- However in such a situation, it is necessary to write the pre charge pressure changed on the vessel, for instance "Pre Charge Pressure re-set X" from all sides; the gas filling valve, pump shut-off switch and the name plate remains visible, assemble the vessel by using anchorage screws to ground covered with minimally C25 quality concrete.

### Installation Positions

ETNA-A: vertically by joining to C25 concrete with anchorage screws.

ETNA-D: vertically fixed on the pump.

ETNA-K: vertically fixed on the pump.

ETNA-Y:for ETNA-24-Y ..ETNA-100Y models, by fixing to ground covered with anchorage screws, the motor is fixed on the vessel. For ETNA-100Y.... ETNA-10000Y models, fixed by connecting with anchorage screws on the C25 quality concrete.

### General Safety Instructions

- ETNA expansion tanks are pressure devices that apply EU guidelines 2014/68/EU.
- They have gas cushion.
- A diaphragm (membrane) separates its outer wall from gas (air or nitrogen) and water.
- The gas between the water replenished into membrane and vessel's outer wall is put under pressure.
- Due to this fact it applies; volume incrementing due to increase in temperature in heating systems and pressure storing in pressurized systems.
- When operating in water heating systems it is imperative to check the membrane whether it matches operating temperature. After purchasing, changes to the vessel for instance, welding operations or mechanical deformations are impermissible.
- Inspection and repair operations may only be performed by our authorized bodies.
- Only original parts, provided by on our inspection and repair operations may only be performed by our authorized bodies.
- Only original parts, provided by on our own, may be used in case of replacing parts.
- Do not operate or switch the vessel with visible damage due to transportation. Carrying etc... Furthermore.
- Our company may not be responsible for damages concerning transportation or carrying.
- It is strictly necessary for the tank to be carried by ensuring the safety of the persons and pets and equipments.
- Details concerning our company; Year of manufacture, serial number, operating and test pressure pre-charge pressure, fluid type, minimum and maximum working temperature, technical data and model is provided on the name plate
- Suitable measures must be taken so that specified permissible maximum and minimum operating parameter to. When operating or filling pre-charge pressure, must the permissible measures must not!

- On no account must the pre-charge pressure exceed the permissible operating pressure. Even with vessels have a permissible operating pressure above 4 bar. The pre charge pressure must not exceed 4 bar when storage and transportation. When filling pre charge pressure except for air or nitrogen, no other gases must be used.
- If ETNA expansion tanks are to be used in heating systems, there must be a warning instruction stating that hot water must be provided to prevent people from being harmed by extreme temperatures. Taking into account the ETNA expansion tank tired with water, it is necessary to firm it with anchorage screws (available in hardware) on a ground provided with minimal C25 quatily concrete.
- Failure to heed these and others in this instructor manual can result in destruction and defects on ETNA expansion tanks injuring and endangering death of person. Any claims of warranty and liability are excluded if these instructions are violated.



## NOTES

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Dudullu Organize Sanayi Bölgesi 2. Cad. No: 14  
34775 Ümraniye - İstanbul / Türkiye  
Tel : +90 216 561 47 74 (Pbx) • Fax : +90 216 561 47 50  
www.etna.com.tr • info@etna.com.tr



**ETNA®**

**0850 455 38 62**  
customer service