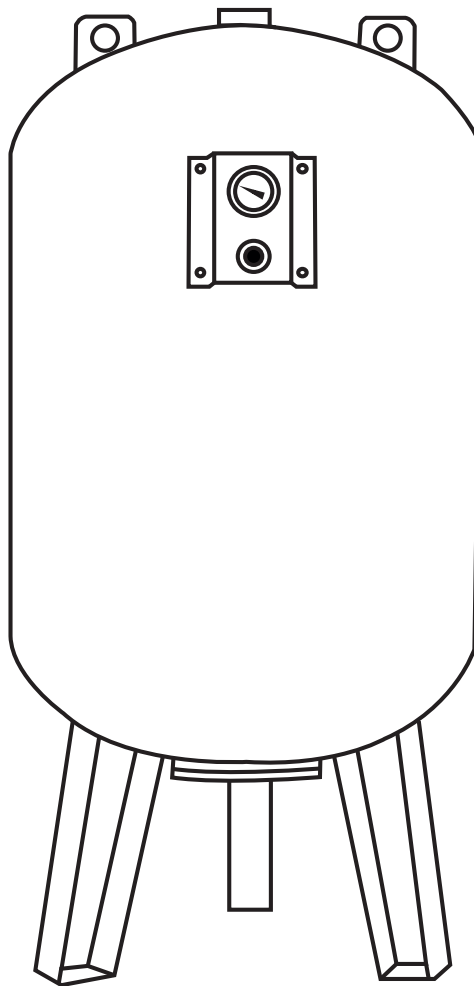


**EXPANSION TANK**  
**TGT Series**

**INSTALLATION, OPERATION AND  
MAINTENANCE MANUAL**



[www.tanpera.com](http://www.tanpera.com)

The contents of this publication are based on the latest information available and the materials that are used at the time of printing. However, because of rapid developments in this field we cannot be held liable for changes in specifications affecting the contents of this publication.

**COPYRIGHT**

Copyright © Tanpera A. Ş. All rights reserved. No part of this publication may be reproduced or distributed without prior written permission of Tanpera A. Ş.

---

## CONTENTS

	<b>Page</b>
1. FOREWORD .....	1
2. INTRODUCTION.....	1
3. SAFETY ALERT NOTICES .....	1
4. GENERAL .....	2
4.1. Identification of the product .....	2
4.2. Correct Operation .....	3
4.3. Cautions .....	3
5. CONSTRUCTION .....	5
6. INSTALLATION .....	6
6.1. Siting .....	6
6.2. Space requirements for the installation location .....	6
6.3. Transport, lifting, storage .....	7
6.4. Installing the pipe connections .....	8
7. COMMISSIONING .....	11
7.1. Pre-checks .....	11
7.2. Setting pre-charge pressure and operation .....	11
8. MAINTENANCE .....	13
9. PROBLEM SOLVING .....	15
10. AFTER SALES SERVICE .....	16

---

## 1. FOREWORD

This manual is a guide for installation, commissioning and maintenance of TGT series expansion tanks produced and supplied by TANPERA.

It is meant for those who are responsible for the installation, the use and maintenance of the expansion tanks. We recommend that you read this manual carefully before commencing any work.

## 2. INTRODUCTION

This manual is applicable for the TGT series expansion tanks produced and supplied by TANPERA.

**TANPERA cannot be held responsible or liable for damage as a result of incorrect installation, use and/or maintenance of TANPERA expansion tank as well as not complying with the instructions in this manual.**

**Please note that our expansion tanks are specially designed and built for the operating conditions (pressures, temperatures, capacities and type of fluids) indicated on the name plate. Sudden pressure peaks beyond the normal operating pressure (or pressure surges) which can occur during the operation can severely damage the product and should be prevented. TANPERA can not be held responsible for any damages as a result of any operation deviating from the original design conditions.**

## 3. SAFETY ALERT NOTICES

### Safety Alert Notice

Following must be respected by installing/running/servicing expansion tanks:

Keeping current local safety regulations.

Before any work begins ensure that the tanks are pressureless and cooled till under 40°C.

In all cases ensure that all laws and regulations are strictly kept concerning human/environment protection.



### YELLOW TRIANGLE

Refer to applicable SAFETY ALERT notices within the manual!

All SAFETY ALERT notices are applicable to personal injury and identified by the following symbol.

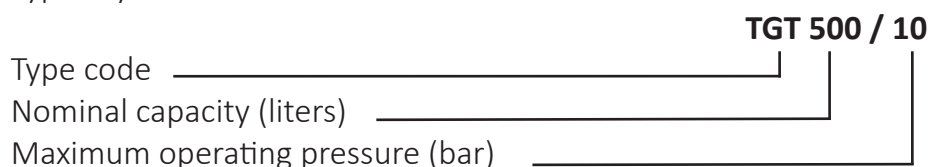
## 4. GENERAL



### 4.1 Identification of the product

All expansion tanks supplied by TANPERA are provided with a name plate. On this plate the following details are specified:

- type of product
- serial number
- nominal capacity in liters
- maximum working pressure in bar
- maximum working temperature in °C
- pre-charged pressure in bar
- pre-charged gas
- tank material
- bladder material
- connection diameter in inches
- main dimensions in mm
- empty weight in kg

Type key:



	
<b>EXPANSION TANK</b>	
<b>Type</b>	TGT 500/10
<b>Nominal Capacity</b>	500 l
<b>Pre-charged Gas</b>	Dry air
<b>Pre-charged Pressure</b>	4 bar
<b>Set Pre-charge Pressure</b>	..... bar
<b>Max. Working Temperature</b>	100°C
<b>Max. Working Pressure</b>	10 bar
<b>Tank Material</b>	Carbon steel
<b>Bladder Material</b>	EPDM
<b>Connection Diameter</b>	1 1/4"
<b>Diameter</b>	750 mm
<b>Height</b>	1500 mm
<b>Empty Weight</b>	70 kg
<b>CAUTIONS!</b>	
<p>In closed circuit systems, a safety valve with opening pressure of maximum 9 bar should be used.</p> <p>The pre-charge pressure should be checked every 6 months.</p> <p>You can call the TANPERA service for the periodical maintenance of your product.</p>	
Serial No:.....	Part & Service www.tanpera.com servis@tanpera.com.tr
	

## 4.2. Correct operation

This user manual provides information and instructions for correct and safe operation of the unit.

Many accidents are caused by incorrect use!

It is essential that you study the instructions carefully, and above all, ensure the availability to those who install, maintain and operate the product on a daily basis.

**This manual is of no value if it is not available at the time when your staff needs it.**

If a problem occurs with your TANPERA expansion tank which is beyond the scope of this manual, do not hesitate to contact us. The installation should not be put into operation before all indistinctnesses have been solved!

To avoid injuries and damages, follow the instructions and local applicable safety regulations. Also take the necessary protective measures, depending on the nature of your process or circumstances related to it, at your plant.

Please note that our products are especially designed and built for the operating conditions (pressures, temperatures, capacities etc.) indicated on the name plate. Sudden pressure peaks (or pressure surges) and fluid temperatures, which may occur during operation and exceed normal operating values, can severely damage the product and should be prevented.

TGT series expansion tanks are for compensating the expansion/contraction of water due to temperature changes in heating, cooling, solar energy and domestic hot water systems; also for reducing the number of pump switching and damping pressure shocks in pressure boosting, water transfer and water supply systems. The products should not be used for any other purpose.

TANPERA can not be held responsible for any damage as a result of any operation deviating from the original design conditions.

**A long period of trouble-free use of your product depends on proper maintenance and cleaning. To do so, carefully follow the instructions in Chapter 8 of this manual.**

## 4.3. Precautions

All potential personal injury hazards are identified by safety alert symbol.

Bodily harm can be caused by:



- burning as a result of touching the tank or other parts of the installation;
- the uncontrolled release of pressurized media with which the danger of burning and other injuries is present;
- burning and other injuries due to explosion of the tank;
- touching the sharp edges of the installation.

Damage to equipment can be caused by:

- external forces;
- corrosion;
- chemical action;
- erosion;
- material exhaustion;
- water hammer;
- thermal and/or mechanical shock;
- freezing;
- wrong transport/lifting.



**WARNING: The expansion tank must be continuously controlled externally. Damaged, deformed and corroded tanks carry a risk of explosion and may cause serious damage, personal injury/death. In this case, the system must be stopped, all electrical devices in the system should be turned off, the pressure of the tank should be relieved and the tank should be removed from the system and replaced with a new one.**

**The chemical and physical nature of the fluid to be used in the system must comply with the scope of Group-2 fluids specified in Article-16 of the Pressure Equipment Directive - 2014/68/EC. The vapor pressure of the fluid at the highest operating temperature must not exceed the value “atmospheric pressure + 0.5 bar”.**

The physical and chemical properties of the water in the system are very important for product life and trouble-free operation. Therefore, the condition of the system water must be checked before commissioning the tank. Water must not contain corrosive substances such as chlorine, acid, dissolved salts, oxygen etc. Also solid particles and contaminants such as clay, sand, weld residue should not be contained. If necessary, it must be filtered and/or conditioned.

**Failure and damage to expansion tanks used with unsuitable fluids other than those specified above are not covered by the warranty.**

When a tank (filled with water or water mixture) which is not in operation is exposed to temperatures below zero, the tank can be damaged.

**If a danger of frost occurs, the tank should be drained completely.**

Sudden pressure and temperature changes should be prevented.

Even after stopping the installation some parts of it can still be hot! Therefore, it must be allowed to cool down to intervene.

If welding activities have to be carried out near the equipment, never use the tank for earthing. Electric currents can cause severe damage to product. If you have to weld, dismantle the connections and isolate the equipment from the system.

## 5. CONSTRUCTION

For proper and regular operation of the system, the capacity and the operation pressure of the expansion tank must be determined/calculated by a qualified technical expert. TANPERA cannot be held responsible for the tanks which fail to meet the required function in the system or cause damage, as a result of incorrect calculation and selection.

TANPERA expansion tanks are manufactured in accordance with the Pressure Equipment Directive - 2014/68/EC.

Information on the physical structures and dimensions of the expansion tank is below.

- **Capacity:** 100 – 5000 liters
- **Designated use:** Hot water not exceeding 100°C
- **Operation pressure<sup>(1)</sup>:** 10 bar / 16 bar (50 and 24 liter tanks only 8 bar)
- **Mounting position:** Vertical (Horizontal mounting alternative for only 50 liter tank available)
- **Tank material<sup>(2)</sup>:** Carbon steel
- **Bladder material<sup>(3)</sup>:** EPDM
- **Gas charge<sup>(4)</sup>:** 4 bar dry air (optional nitrogen) (1,5 bar for 50 and 24 liter tanks only)

<sup>(1)</sup>As special request expansion tank at 25 bar operating pressure can also be delivered.

<sup>(2)</sup>As special request stainless steel expansion tank can also be delivered.

<sup>(3)</sup>As special request expansion tank with "butyl" bladder can also be delivered.

<sup>(4)</sup>As special request nitrogen charged expansion tank can also be delivered.

Type	Operating Pressure (bar)	Capacity (liters)	Dimensions		Empty Weight (kg)
			ØD (mm)	H (mm)	
TGT-24/8-spherical	8	24	360	330	6
TGT-24/8	8	24	280	465	6
TGT-50/8-horizontal	8	50	380	590	12
TGT-50/8	8	50	380	750	12
TGT-100/10	10	100	460	970	20
TGT-200/10	10	200	590	1120	45
TGT-300/10	10	300	640	1230	45
TGT-500/10	10	500	750	1500	70
TGT-750/10	10	750	750	1900	120
TGT-1000/10	10	1000	800	2180	160
TGT-1500/10	10	1500	960	2400	260
TGT-2000/10	10	2000	1100	2520	400
TGT-2500/10	10	2500	1100	2800	420
TGT-3000/10	10	3000	1200	2800	450
TGT-4000/10	10	4000	1450	3180	750
TGT-5000/10	10	5000	1450	3720	880
TGT-100/16	16	100	460	970	50
TGT-200/16	16	200	590	1120	55
TGT-300/16	16	300	640	1230	65
TGT-500/16	16	500	750	1500	95
TGT-750/16	16	750	750	1900	220
TGT-1000/16	16	1000	800	2180	260
TGT-1500/16	16	1500	960	2400	400
TGT-2000/16	16	2000	1100	2520	530
TGT-2500/16	16	2500	1100	2800	640
TGT-3000/16	16	3000	1200	2800	770
TGT-4000/16	16	4000	1450	3180	1000
TGT-5000/16	16	5000	1450	3720	1200





## 6. INSTALLATION

**The expansion tank must be installed by authorized expert personnel in accordance with the local safety and technical regulations and standards.**

### 6.1. Siting

The place where the unit is to be installed must be dry, closed and free from risk of freezing. Damage to products, located in places with temperatures below +5°C or above +50°C, in extremely humid environments, in extremely corrosive environments and in external spaces is not covered by the warranty. If there is a risk of temporary freezing (<0°C outdoor temperatures), the tank must be completely drained.

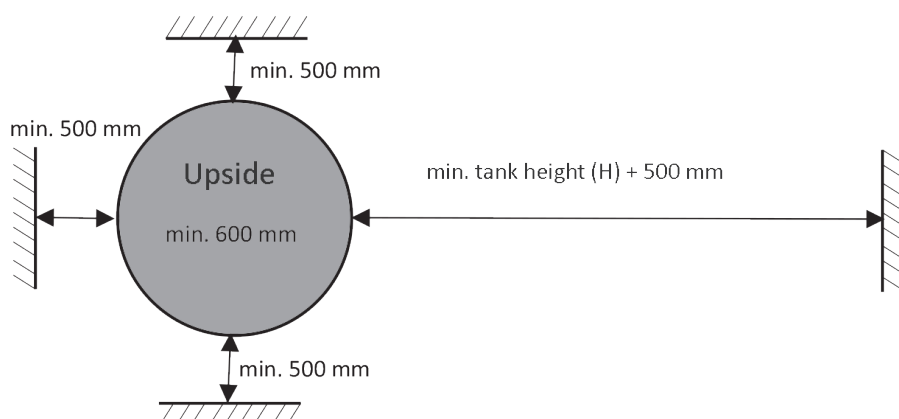
The floor on which the unit will be placed must be strong enough to carry the filled weight and must be leveled. If the location is leveled and protected against flooding, the unit can be installed without any pedestal. However, it is recommended to place the unit on a suitable pedestal at a height of at least 10 cm to protect it from environmental influences. This pedestal can be of concrete or steel construction. The tank should be fixed to the ground by using the mounting holes at the legs specially in places where there is an earthquake risk.

At the place where the unit is installed, precautions must be taken against flooding. For this purpose, a suitable drainage system (floor drain, sump pit and pump etc.) capable of discharging water should be provided on the floor. TANPERA shall not be liable for water leak damages that may be caused by the product or the piping, in places where such a measure is not taken.

For the necessity of replacing (or repairing/modifying) the product, suitable passage and exit spaces and transportation facilities should be provided in order to be able to remove the unit and to install the new one in the same place.

### 6.2. Space requirements for the installation location

When locating, it is very important that there is sufficient space around the unit for connections and servicing. The gas charging valve, pressure gauge and nameplate on the tank must be visible and accessible. During installation, there must be sufficient working space left to intervene in the product for troubleshooting or to remove/install any connection/accessory. Since in some cases the tank must be lied on the ground in order to replace the bladder, it is particularly advisable to leave a suitable space at the installation site and to install an eyebolt to the ceiling for attaching a chain hoist. Otherwise, the proper servicing will not be provided.



### 6.3. Transport, lifting, storage

Precautions should be taken to prevent damage to the tank during transportation. The tank must be carefully inspected from the outside for any damage that may have occurred during transport or due to any other reason.



**WARNING: Externally damaged and corroded tanks should never be installed in the system. Also no pressure adjustment should be made on it.**



**WARNING: To prevent personal injury always use appropriate hoisting equipment. If you are to lift the unit itself or lay it on the ground to remove the pallet, straps should be used.**

#### Transporting:

Depending on their size, the products are shipped in cardboard packaging or on a pallet. Depending on the size, it can be placed vertically or horizontally on the pallet.

Products shipped on pallets can be easily transported with a fork lift truck.



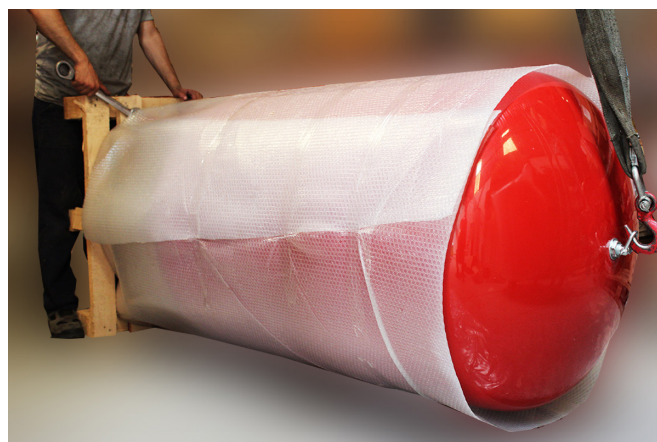
Depending on its size, the expansion tank is provided with appropriate number and size of transport eyebolts. The tank can be lifted and transported using this eyebolts. Fasten the straps to the eyebolts as shown on the picture.



### Rising of the unit:

For products shipped on pallets, the pallet should be removed before mounting.

To remove the pallet, lay down the unit on the ground, holding the eyebolts with the straps. For horizontally shipped tanks, one of the straps can be attached to the foot of the tank when lifting. Do not remove the bubble wrap around the tank when carrying out this operation. When doing this take maximum care to ensure that the tank is not damaged and deformed.



Remove all tightening elements from the pallet.

Place the unit in its position on the floor, by holding from the eyebolts with the straps and bringing it back to the vertical position and lowering it on the legs.

Remove the straps and tighten the unit to the floor/pedestal using the mounting holes on the feet.

**On the tank, any operation (such as welding, drilling etc.) that will lead to mechanical deformation must not be performed.  
Never fix the unit to its place by welding!**

### Storage:

Should it be necessary to store the product for a longer period without installing, it should be stored on the pallet with original packaging, in a closed place, which is absolutely free of external weather conditions.

**If the product is to be out of operation for a long time, drain the water and take precautions against freezing.**

### 6.4. Installing the pipe connections

TANPERA expansion tanks will be provided with internal thread connection ports.

**When connecting the pipe system to the product make sure that no stress or strain is imposed, by the pipe system, on the unit!**

### We advise you of the following:

Pipe connections must be made according to an approved installation project.

At least one safety valve must be used having the appropriate diameter and opening pressure, in the system. The opening pressure of the safety valve must not exceed 90% of the product and system operating pressure. **Safety valves are available from our company.**

**Drain port of the safety valve should not be blocked in any way and the drain piping should be downward inclined and as short as possible. The drain line of the valve should be directed to the drain in such a way that water can be easily seen from outside.**

TANPERA cannot be held responsible for the damages that occur in the products which do not have a properly sized safety valve having the above mentioned qualifications.

Tanks with feet must be mounted on their feet. Tanks without feet can be mounted directly to the pipe. In this case, the tank must be installed in a vertical position.

The diameter of the connection pipe between the tank and system should be at least equal to the diameter of the tank connection. During operation, it is very important to prevent this line from blocking and the entry of foreign matter / air into the tank. For this, the connection made from a horizontal line or main must be made from the side of the pipe, not from the top or bottom. In cases where it is necessary to connect from the bottom of the pipe, a dirt pocket with drain valve must be installed to prevent contamination from the line immediately after the connection point.

There must be a drain cock on the tank side of the connection line.

The pipes must be thoroughly flushed and cleaned before the product is connected.

If there is more than one tank in the system, it is recommended that the tanks be at the same level as possible and connected to the system with a common main pipe to ensure that all of them operate in a balanced manner under the same system pressure.

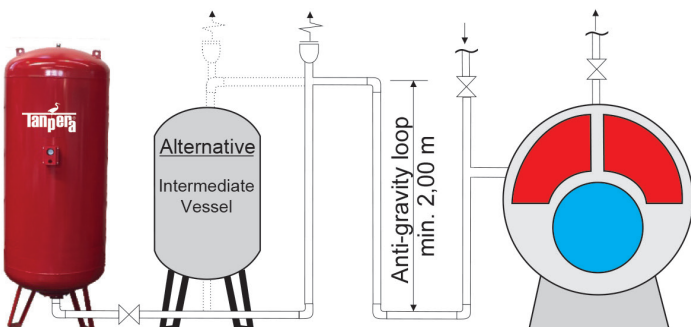
The tank must be properly grounded against galvanic corrosion.

### Heating systems;

Unless otherwise required, the expansion tank must be connected to the system from the nearest point to the heat source (boiler etc.).

The operating temperatures of the system should be taken into account when installing the tank. In order to extend the operating life of bladder, the tank should be connected to the boiler return pipe where the water is coldest.

To increase the operating life of bladder, especially in systems operating at temperatures of 80°C and above, the volume of water in the connection pipes of the tank must be at least as large as the expansion amount. If this is not possible (it is usually not possible to achieve this in large systems), to prevent hot water from reaching the bladder as much as possible, it is advisable to connect an intermediate vessel at the appropriate capacity into the pipework between the boiler and the expansion tank, or at least, an anti-gravity loop (at min. 2 m height) should be incorporated in the pipework to prevent circulation within the tank. **When necessary, intermediate tank at the required capacity can be supplied from our company.**



The intermediate vessel and the connecting pipe must never be insulated.



**WARNING: The safety pipe and the intermediate vessel can be very hot. Therefore, necessary precautions should be taken against personnel burns.**

The line (safety pipe) connecting the expansion tank to the system must be correctly dimensioned (in accordance with EN 12828) with minimum water velocity and pressure loss. If the diameter specified in the project is greater than the tank connection diameter, the diameter should be enlarged immediately after the tank.

The connection line must not be routed in places where there is a risk of freezing.

To be able to intervene in the tank without draining the system, it is recommended that a **lockshield valve** must be installed in the connection line. Except that valve, there should be nothing blocking the flow on the line. There must be a drain plug on the tank side of the line. **Lockshield valve is available from our company.**

#### **All Closed heating/cooling systems;**

It is very important to prevent the entry and accumulation of air into the expansion tank. To ensure this, the system must include deaerators and air vents in the appropriate number and capacity, and if possible, the connection line should be installed with a slope descending towards the tank.

**Deaerators and air vents can be supplied from our company.**

The tank must be on the suction side of the pump in order to prevent the system pressure falling below the atmospheric pressure and causing cavitation and air entrainment.

Water filling / make-up connection must be made at another part of the system, not at the tank connection line.

It should be ensured that the volumetric ratio of anti-freeze additive in the system water does not exceed 50%. In case of hesitation about the type and ratio of the antifreeze additive to be used, approval should be taken in consultation with our company.

#### **Pressure booster sets;**

It is beneficial to connect the tank with a short pipe, at a point closest to the discharge side of the pump.

The connection line of the tank must be equipped with a cutting valve and a drain plug.

#### **Domestic hot water systems;**

The expansion tank must be installed in the cold water inlet line of the water heater.

A pressure gauge must be installed on the line before the expansion tank in order to read the mains pressure (or pressure regulator outlet pressure, if available).

## 7. COMMISSIONING

### 7.1. Pre-checks

Commissioning of the expansion tanks may only be done by qualified and authorized staff specially trained for the job.

Check the pressures and temperatures of the media and make sure that these are within the limit the values specified on the name plate.

Before starting up for the first time, check that the lockshield valve on the tank connection line is closed, the drain valve is open and the tank is completely drained.

Make sure that any foreign matter in the connection line is thoroughly cleaned.

### 7.2. Setting pre-charge pressure and operation



**WARNING: No pressure adjustment should be made on the tanks that are externally damaged, corroded and lost structural integrity.**

As standard, TANPERA expansion tank is delivered as charged with dry air at 4 bar pressure.

**Except the initial commissioning and controls, the pressure of the tank must not be changed and the gas charging valve should not be tampered with.**

**When the tank is put into operation for the first time, before filling with system water, the pre-charge pressure inside the tank must be adjusted as follows.**

- Remove the plastic cover of the gas charging valve and measure the gas pressure in the tank. Since the gas charging valve is the same as the car tire valve, the pressure measurement can be performed with a calibrated tire pressure gauge.
- If the pressure in the tank is higher than the pressure to be set, with a tool such as screwdriver depress the centre valve core stem and slowly vent off the gas charge. While doing this, check the pressure in the tank continuously to avoid over-discharging the gas.
- If the measured pressure is below the pressure to be adjusted (using a suitable compressor or manual air pump, depending on the size of the tank) raise the pressure to the required value with dry and oil-free air at ambient temperature. While doing this, check the pressure in the tank continuously to avoid over-charging the gas.



**Warning!**

**Never use flammable or explosive gas for gas charging. Failure to do so may result in explosion and fire, resulting in serious damage and personal injury / death.**

**Warning!**

**Exceeding the maximum allowable pressure when charging the tank with gas may cause the tank to explode, causing serious damage and personal injury / death.**

- Tightly close the plastic cover of the gas charging valve.
- Write down the set pre-charge pressure to the space left on the tank nameplate.
- If there is more than one expansion tank in the same system, all of them must be adjusted to the same pre-charge pressure.
- Slowly open the lockshield valve on the line and allow the system water to fill the tank. After the air in the line has been vented, close the drain valve.
- Lock the lockshield valve so that it remains in the open position.

**Particularly in heating systems, if the shut-off valve in the line is left in the closed position, the tank will be dysfunctional and system water will be discharged from the safety valve in each expansion period. This results in significant loss of water and energy.**

The optimal pre-charge pressure for expansion tanks in various systems can be determined, in “bar”, as follows:

- Heating systems:  
Static height pressure (static height of the system in meters/10.2) + ~0.3 bar  
Regardless of the calculated value, the pre-charge pressure must not be less than 0.7 bar.
- Chilled water systems:  
Equal to the static height pressure (static height of the system in meters/10.2)
- Domestic hot water systems:  
Equal to the city main pressure, or cut-out pressure of the booster pump  
Regardless of the calculated value, the pre-charge pressure must not be higher than 5.5 bar. If necessary, a pressure regulator must be used before the tank.
- Pressure booster sets:  
Pomp cut-in pressure x 0.9  
(in multi-pump systems, switching pressure of the pressure switch that controls the upper pressure range)

## 8. MAINTENANCE

In order to ensure effective operation of the expansion tank it must be continuously observed, and general inspection and maintenance performed at least twice a year.

**Inspection and maintenance of the product must only be carried out by authorized, trained and qualified personnel.**

If you wish, TANPERA service can perform inspection and periodic maintenance of your product.

**Before starting maintenance, the product must be switched off, depressurized and the water inside must be cooled down below 40°C.**

The operations to be carried out during the inspection and maintenance are as follows:

### General inspection and cleaning

Depending on the environment and operating conditions, the expansion tank may corrode over time and its structural integrity may be destroyed. Like all devices operating under pressure, this condition may cause to splitting or explosion of the expansion tank, leading to undesirable consequences such as serious damage and injuries. In order to minimize this risk, signs of corrosion and damage at the tank must be continuously checked externally.

The tank must be kept clean to reduce the risk of corrosion caused by external conditions. Therefore, it should be periodically cleaned from the outside using warm water and soap.

If the expansion tank is not operated for a long period of time, bacteria harmful to health may grow inside. For this reason, expansion tanks, especially in booster and domestic hot water systems, must be completely drained before long downtimes, and disinfected in accordance with local rules and regulations before re-use. In this process, any substance and detergent that may be harmful for the tank and human health should not be used. If contaminated tanks can not be disinfected, they must be replaced.

### Checking the pre-charged pressure

**In cases where the expansion tank is charged with air, It is inevitable that some of the air in the tank will penetrate through the membrane over time and dissolve in hot water. In addition, the gas charging valve may fail and there may be gas leakage from here. Inadequate compensation of expansion in the system due to insufficient gas pressure in the tank causes the system water to be discharged from the safety valve during each heating period. Oxygen contained in the make-up water added to the system is released when the water is heated, increasing the risk of corrosion and causing air locks in the system. For this reason, periodically checking the gas charge in the expansion tank and completing it if it is insufficient is very important for the proper operation of the system.**



**WARNING: No pressure adjustment should be made on the tanks that are externally damaged, corroded and lost structural integrity.**



**Pre-charge pressure control should always be carried out when the tank is not filled with water and isolated from the system.**

To check and complete the pre-charge pressure, follow the steps below:

- Stop system operation, deactivate heat source and all electrical devices.
- Allow the system water to cool down to ambient temperature (max. 40°C).
- Close the lockshield valve at the tank connection line.
- Drain the water from the tank by opening the drain valve.
- Remove the plastic cover of the gas charging valve and measure the gas pressure in the tank. Since the gas charging valve is the same as the car tire valve, the pressure measurement can be performed with a calibrated tire pressure gauge.
- If the pressure in the tank is higher than the pressure to be set, with a tool such as screwdriver depress the centre valve core stem and slowly vent off the gas charge. While doing this, check the pressure in the tank continuously (comparing with the “set pre-charge pressure” written on the name plate) to avoid over-discharging the gas.
- If the measured pressure is 10% or more below the set pre-charge pressure (using a suitable compressor or manual air pump, depending on the size of the tank) raise the pressure to the required value, with dry and oil-free air at ambient temperature. While doing this, check the pressure in the tank continuously to avoid over-charging the gas.



**Warning!**

**Exceeding the maximum allowable pressure when charging the tank with gas may cause the tank to explode, causing serious damage and personal injury / death.**

- Tightly close the plastic cover of the gas charging valve.
- Slowly open the lockshield valve on the line and allow the system water to fill the tank. After the air in the line has been vented, close the drain valve.
- Lock the lockshield valve so that it remains in the open position.

**Particularly in heating systems, if the shut-off valve in the line is left in the closed position, the tank will be dysfunctional and system water will be discharged from the safety valve in each expansion period. This results in significant loss of water and energy.**

**During maintenance;**

The safety valve must be checked. This can be done by raising the water pressure in the tank up to the safety valve opening pressure by a testing pump. Safety valves that are found to be defective or not functioning properly must be replaced with a new one.



**CAUTION:**

**During inspection, there must be no personnel in front of the valve drain line. The water can be very hot.**

Devices and accessories such as valves, check valves, thermometers etc. on the expansion tank and at the connected installation, should be checked to be in good working condition. Defective ones must be repaired or replaced. The filters of the strainers must be cleaned.

## 9. PROBLEM SOLVING

Please find below a summary of possible problems as well as possible causes and solutions regarding your TANPERA expansion tank.

### Closed heating/cooling systems and domestic hot water systems

Problem	Possible cause	Possible solution
Continuous water discharge from the safety valve in the system	Insufficient expansion tank capacity	Replace it with a tank of appropriate capacity
	Pre-charge pressure not suitable	Set the pre-charge pressure to the appropriate value (see Chapter 8)
	Due to a hole in the bladder or leak at the connection point to the tank, water filled the air chamber. As the air mixed with the water in time, it decreased and could not fully compensate the expansion.	Control by depressing the center valve core stem with a tool such as screwdriver. If water comes, stop the system completely and call TANPERA service.
	Gas leaked-out from the tank	Check the gas charging valve with soap bubbles or a similar method. If there is an air leak, the valve is faulty. Call the TANPERA service.
		Carefully check the outside of the tank with soap bubbles or a similar method. If there is a hole in the tank, stop the system immediately, lower the pressure and call TANPERA service.
Safety valve opening pressure incorrectly determined or valve faulty	Replace valve	

### Pressure boosters:

Problem	Possible cause	Possible solution
The booster pump switches on frequently	Insufficient expansion tank capacity	Replace it with a tank of appropriate capacity
	Pre-charge pressure not suitable	Set the pre-charge pressure to the appropriate value (see Chapter 8)
	Due to a hole in the bladder or leak at the connection point to the tank, water filled the air chamber. As the air mixed with the water in time, it decreased and could not fully compensate the expansion.	Control by depressing the center valve core stem with a tool such as screwdriver. If water comes, stop the system completely and call TANPERA service.
	Gas leaked-out from the tank	Check the gas charging valve with soap bubbles or a similar method. If there is an air leak, the valve is faulty. Call the TANPERA service.
		Carefully check the outside of the tank with soap bubbles or a similar method. If there is a hole in the tank, stop the system immediately, lower the pressure and call TANPERA service.

## 10. AFTER SALES SERVICE

In order to avoid the cost of repair and product replacement, we recommend that assembly and maintenance work be carried out by appropriately trained personnel.

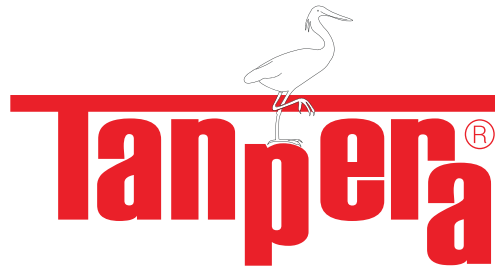
You can contact TANPERA After Sales Services Department ([www.tanpera.com](http://www.tanpera.com)) for the cleaning and maintenance of your products, supply of spare parts (bladder etc.).











**All products that TANPERA has sold are under the guarantee of TANPERA A.Ş. for a period of 24 months, within the “Terms of Warranty” stated herein, from the invoice date.**

1. The warranty covers material, workmanship and manufacturing defects of the products.
2. The decision of whether a defect in a product within the warranty period, is covered by the warranty is provided by the After-Sales Services Department of our company after the necessary technical examination is performed.
3. For any kind of operation within the scope of the warranty, no charge is claimed for spare parts, workmanship, transportation, travel or any other reason.
4. All kinds of authorization and responsibility regarding the method to be applied to solve the defect and the parts to be replaced, within the scope of warranty belong to our After-Sales Services Department.
5. Elimination of the defect can be carried out at the location of the product, at our company’s technical service or at the authorized service. After-Sales Services Department is authorized to make such decision.
6. During the warranty period, the customer has the right to request replacement of the product if the same fault repeats or the repair period exceeds 30 calendar days.
7. Within the warranty period, if it is determined that the product failure is due to user error or misuse, the repair is out of warranty. In that case the spare part price and other service fees shall be charged from the customer.

### **The warranty does not cover;**

- a. Mechanical damages resulting from transportation, storage etc.
- b. The products that has been tampered with by the warranty beneficiary or any other person that hasn’t been authorised by TANPERA.
- c. Products that commissioning is required but are not commissioned by our After-Sales Services Department or by a service organization authorized by us.
- d. Defects resulting from the usage of improper or non genuine spare parts.
- e. Products used in places other than its purpose.
- f. Damages resulting from chemical agents and other unsuitable environmental conditions.
- g. Damages caused by floods, fires, freezing or other external factors.
- h. Products that has been subjected to extreme pressure or temperature conditions outside the limits specified on the nameplate.
- i. Due to incorrect fluid usage inconsistent with the operation manual, damages resulting from physical and chemical properties of the fluid.
- j. Damaged products due to fluid impurity (solid particles such as rust, welding burrs, organic matters etc.) or hardness (calcification).
- k. Damages resulting from water-hammer.
- l. The tanks with a completely eroded protective anode.
- m. Products not protected against pressure shocks by a pressure safety valve as specified in the operation manual.
- n. Products without proper mains and earth connection as specified in the operation manual.



-  **PLATE HEAT EXCHANGERS**
-  **STORAGE WATER HEATERS WITH INDIRECT PIPE COIL**
-  **ELECTRIC STORAGE WATER HEATERS**
-  **DOMESTIC HOT WATER STORAGE TANKS**
-  **PACKAGE TYPE DOMESTIC HOT WATER SYSTEMS**
-  **BUFFER TANKS**
-  **EXPANSION TANKS**
-  **PUMP-CONTROLLED PRESSURISATION SYSTEMS**
-  **DEAERATORS – DIRT SEPERATORS**
-  **HYDROLIC SEPERATORS**



The great white heron can stand for a long time in the cold water as it can perform an effective heat exchange between the blood coming from the heart at 40°C and the blood returning from the feet at 1°C.

## **Tanpera A.Ş.**

Şeyhli Mah. Ankara Cad. No: 380/C  
34906 Pendik- İstanbul / TURKEY  
+90 216 482 11 88

info@tanpera.com - www.tanpera.com

## **Tanpera GmbH**

Ludwig-Lange-Straße 9  
67547 Worms / GERMANY  
+49 176 21359745

info@tanpera.de- www.tanpera.de