ECOTHERM®
HEAT TRANSFER TECHNOLOGY

www.ecotherm.com

Operating and Maintenance Instructions

Storage Water Heaters

1. Introduction

Congratulations!

With the purchase of your storage water heater from ECOTHERM you have opted for a device incorporating the ultimate in hygiene, economy, reliability and functionality. We are convinced that your users will enjoy the benefits of your storage water heater for a long time.
This manual contains vital information on starting-up and service of your ECOTHERM storage water heater.

Please read this information carefully before starting up and familiarise yourself with the operating processes required.
Compliance with all instructions is the basis of smooth and trouble-free operation of the ECOTHERM storage water heater and safeguards your rights in the event of warranty claims.

1.1 Preparing for installation

1.1.1 Transport, handling and unpacking

The storage water heater may only be transported in depressurised condition. Suitable stops should be used to ensure that no deformation or other damage to the outer surfaces or sealing surfaces occurs during transport. The storage tank must not be allowed to strike supports, flanges, etc. The tank may only be set down and rested upon suitable supports (wooden frame, palettes), which are supplied with the heater. Point loading of the tank wall can lead to impermissible deformations. Transport and storage at temperatures below the frost limit (0°C) are not permitted (frost hazard due to any residual water in the tank). All openings, such as filler necks, flanges, etc., should be sealed using suitable means, which may only be removed by competent personnel (caution: do not damage sealing surfaces!) When removing the components from the packaging it is necessary to proceed with great care. If storage tanks are removed from a container, care should be taken that the breathers that protrude from the top of the tank are not damaged or bent when passing the opening.

1.1.2 Non-return valves for cold water supply and circulation connections

Non-return valves must be provided for the secondary domestic cold water supply and circulation connections, in order to avoid possible convectional or expansive back flow of heated water.

1.1.3 Filter recommendations

To avoid damage to pumps and fouling of heat exchangers by intake of foreign bodies, ECOTHERM recommends that strainers be placed in front of supply connections as follows:
Primary circuit heating water supply: Strainer mesh size 150 - 200 µm.
Secondary circuit cold water supply: Strainer mesh size 50 - 60 µm

1.1.4 Primary circuit heating water pressure from boiler

The heating water supply to the heat exchanger has minimum pressure requirement of 1.5 bar, and a maximum of 10 bar. Failure to observe this requirement may potentially expose the primary circuit to negative pressure aeration. ECOTHERM recommends that a closed expansion vessel with pressurised fill-up be fitted to the primary circuit.

1.1.5 Secondary circuit expansion vessel

An expansion vessel connected to the domestic hot water supply line is required to allow for the increase of water volume during heating. Failure to observe this requirement may result in regular small losses of heated domestic water through the ECOTHERM product‘s own pressure safety valve during heating.

1.1.6 Tank legs

Tank legs MUST NOT under any circumstances be screwed or fixed to the floor, otherwise expansion strain will cause cracks, which may lead to leakage. The tank must be placed on the floor, supported by its legs, which must be able to move slightly as the tank expands or contracts. (The screw holes in the base of the legs are for transportation purposes only.)

1.1.7 Copper piping and water bourne chloride ions

The following applies to installations with copper piping and water borne chloride ions (> 100 mg/litre):

1.1.7a Isolating connectors

All connections must be electrically isolated from the copper piping using the special isolating flange kits and isolating screw connectors provided.

1.1.7b Non-sacrificial electric anode

Where supplied the non-sacrificial electric anode must be connected to the mains power supply and be operational at all times, in order to inhibit galvanic transport of material away from stainless steel surfaces.

1.1.7c Simple repair of stainless steel tanks

Please note that in the unlikely event of pitting occurring, affected stainless steel areas can be quickly and cheaply repaired to 100% serviceability on site by your local ECOTHERM Support Centre using specialised techniques developed by ECOTHERM. Stainless steel therefore offers the best possible choice for better hygiene, durability and longer life.

2. Safety Instructions and General Information

2.3 Safety guidelines

Installation and connection should only be carried out by approved contractors in accordance with applicable regulations and technical specifications.

Approved safety devices shall be installed In the cold water supply.

The operating pressure stated on the rating plate must not be exceeded. With higher line pressure, a pressure reducer should be fitted, whose function can be controlled by a downstream test valve.

The safety valve shall be fitted in the cold water pipe and there should be no mean of isolating this valve from the vessel. Fitting of dirt traps or other restrictions in the supply line is not permitted. The safety valve shall be installed to react at the permissible operating pressure at the latest.

The cross section of safety valve piping (max. 2 elbows, max. length 2 m) shall be at least that of the safety valve. The outlet of the safety valve should flow into an tundish to enable observation, and the drainage piping should be arranged to ensure that any blow-off of steam or hot water cannot cause danger to persons present.

The drainage piping after the tundish must be of at least twice the cross section of the valve inlet. Safety valve and and drainage pipes shall be designed frost-proof and may not be routed to atmosphere. In the vicinity of the safety valve a warning sign shall be provided bearing the following inscription:

For safety reasons, it is normal for small quantities of water to escape from the safety valve during initial heating. Do not block the safety valve.

Electrical connection must only be carried by qualified specialist personnel of an accredited electrical contractor. For electrical connection, the ÖVE and TAEV regulations with the appropriate design specifications shall be complied with.
For cleaning and service of the system the electric power supply must be disconnected.

Prior to initial start-up the entire water heater must be carefully flushed and checked for proper installation. Initial start-up may only be performed by an ECOTHERM service engineer.

Nominal volumes Litres	Dimension of valve (minimum) (it applies the size of the input connection)	Heating performance kW (maximum)
up to 200	R or Rp 1/2	75
>200 up to 1000	R or Rp 3/4	150

2.2 Description
Technical data and connection drawing see at our product brochure.

2.3 Delivery
The storage water heaters are pre-assambled in the factory for simple on-site installation.

2.4 Storage insulation

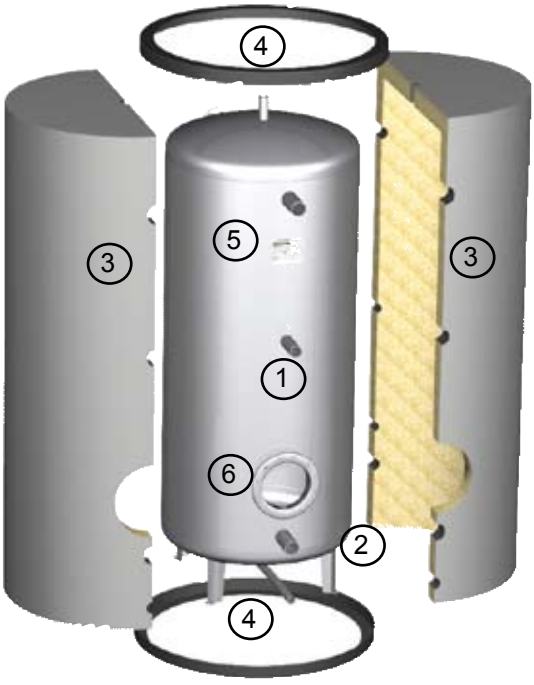
A optimizing insulation of the storage tank and the piping should be rational at the new hot water system. The insulation is made of CFS free polyurethane foam, removable with „ÖKO“-polystyrole casing .
More about the thickness you can find in our brochure, flyers and current price list

2.4.1 Recycling guarantee Heat insulation kit (hard shell insulation)

Hard shell insulation is taken back by the manufacturer after the end of its service life. It is guaranteed that new products will be manufactured from returned insulation according to a patented recycling procedure. This gives our customers a guarantee of full reuse.

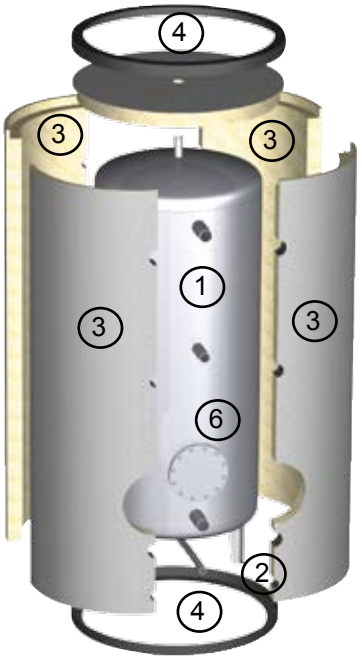
2.4.2 Insulation mounting

- Unpack the polyurethane hard shells and check for damage.
- Push soft foam seals over the sleeves or fit on the storage tank.
- Fit shells to the heater and loosely close the flat clamping ring in the middle of the insulation.
- Only for quarter-shell insulation: rest the (two) halves of the cover on the top edge of the insulation.
- Fit the top angled clamping ring and tighten slightly.
- Two clamping rings: now slide the centrally mounted clamping ring to the base.
- Three clamping rings: the second clamping ring remains in the middle, fit the third at the bottom.
- Finally, tension the clamping rings alternately.
  Warning!
  Excessive tension damages the plastic parts.
- Fit stick-on and covering rosettes



Half shell insulation

1 Storage tank
2 Storage legs
3 PU hard shell insulation with grey aluminium or polystyrol casing
4 Clamping rings, removeable
5 Rating plate
6 Flange connections



Quarter shell insulation

3. Commissioning

3.1 Commissioning

Commissioning may only take place when the heater has been properly installed in a system and the appropriate limitation devices provided and set up, the set-up conditions have been fulfilled and the installation has been checked for proper fitting, set-up conditions and safe operation. When starting up, the heater should be continuously observed and checked for any leaks. In normal operation the storage tank may only be operated if equipment required for safety reasons is continuously effective and is not disabled or its function according to the specifications modified during operation. The heater was designed for static operation.

3.2 Flushing the system

Prior to initial commissioning the entire system should be carefully flushed. Foreign bodies in the system impair the working order or safety of the device. Approved safety devices should be fitted in the cold water supply pipe.

3.3 Filling the storage tank

- Set the opening pressure of the safety valve (observe manufacturer's figures). The safety valve must open at the permissible operating pressure of the storage tank at the latest.
- Set the pressure reduction valve to approx. 0.8 times the opening pressu re of the safety valve (observe manufacturer's figures).
- On the storage tank, open the shut-off valves to the hot water outlet or circulation pipe.
- Close drain valve, open hot water tap, open cold water shut-off valve and slowly fill storage tank.
- Close hot water tap when it is clear that only water is being discharged.
- Open safety valve slightly until it is clear that only water is being discharged.
- Check water pipes for leaks.
- Check all connections and the flange for leaks.

4. Cleaning and servicing

4.1 Cleaning and servicing of tank vessel

ECOTHERM storage water heater will increase its life and reliability. Depending on water condition, regular checks of the inner tank vessel are recommended. (min. 1x/year)

4.1.1 Important checks!

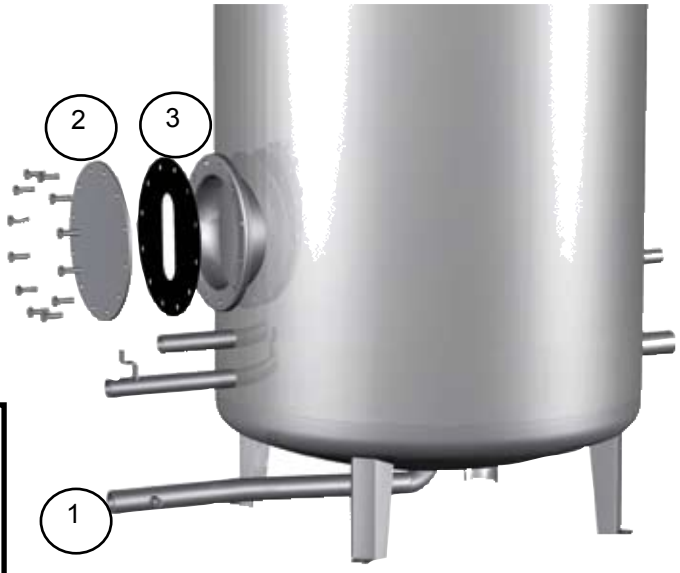
Control the tightness of the flange and the storagetank periodical. ECOTHERM cannot accept any liability for damage caused by water. After every maintenance of the flange, a new seal must be installed.
Before starting-up the pressure vessels it is absolutly necessary to re-tighten the bolts! Bolt torque setting Nm see at rating plate.
Do not cross thread the bolts.Prior to fitting, check screws for damage to threads.

4.2 Closing and opening the storage tank

Storage tanks must be sealed such that all seals provided are used in accordance with specifications. Sealing surfaces must be clean and undamaged. Screwed sealing plugs may only be carefully and uniformly tightened as far as necessary for sealing. The quoted tightening torques should be adhered to. The screws may not be released on pressurised storage tanks. Seals and inspection openings on the storage tank may not be opened until the pressure has been equalised with the atmosphere. The pressure equalisation with the atmosphere should take place after the closing of the pressurised supply pipe by loosening or aerating, whilst observing the pressure gauge. After this, the screwed sealing plugs are loosened such that they can still retain the sealing cover. Then this should be opened slightly and loosened until it no longer adheres to its seat.

4.2.1 For servicing

- Disconnect the appliance from the power supply.
- Drain the tank via the drain valve (Item 1).
- Remove the flange cover (Item 2).
- Lime scale deposits and contamination can be flushed out via the drain valve.
- Re-fit the flange cover after cleaning
  (check condition of gasket (Item 3) and replace, if required).
- After charging and venting the system check all connections for tightness.
- A damp cloth is sufficient for the cleaning of external parts. Abrasive cleaning agents and solvents should be avoided.



Before starting-up the pressure vessels it is absolutly necessary to re-tighten the bolts!

torque ...xx Nm → look at rating plate

Before opening the flange make sure you have a new gasket ready!

4.3 Servicing

All damaged sealing elements, e.g. worn, cracked and bent screws, broken or otherwise damaged nuts, bent brackets or clamps, damaged seals may no longer be used and should be replaced by others of the same type.

Maintenance tasks that can jeopardise the safety of the storage tank, and measures that change the material properties, e.g. by welding, cold and hot deformation, may only be performed in accordance with the national regulations of the country where the storage tank is installed.

5. Warranty, liability and choice of law

5.1 General

These installation and operating instructions are part of the ECOTHERM storage water heater and shall be handed to user and read carefully to ensure that the safety aspects are observed at all times.

In the event of sale and re-sale of the ECOTHERM storage water heater to third parties the installation and operating instructions shall be supplied to the purchaser.

We would therefore ask you to keep these instructions safely near the appliance.

ECOTHERM cannot accept any liability arising from improper use, installation or non-compliance with installation and operating instructions.

2.2 Guarantee

2.2.2 Warranty

ECOTHERM stainless steel products are supplied with a manufacturer's warranty against leakage subject to the General Terms and Condition of Trade. Warranty claims require compliance with the items listed in chapter 1.1 on page 4, as well as the following:

Goods should be checked for completeness on delivery and for external or hidden defects on delivery. In the event of any doubt ECOTHERM should be notified immediately.

The warranty period is:
5 years on stainless steel goods manufactured by us.
1 year on everything else (e.g. buffer tanks, additional goods purchased, accessories)
The warranty covers the free replacement of parts, where it can be proved that the defect is due to material, production or construction faults. The warranty does **NOT** cover:

- Dismantling and re-assembly costs
- Consequential damages or profit loss which may arise from a defect. Warranty claims have no delaying effect on the payment dates and other demands.

The warranty is no longer valid:

- if the warranty conditions are not met
- if damages are caused by misuse or operating errors.
- If there is evidence of abuse and improper operation
- If there are violations of the official or legal regulations

The ECOTHERM storage water heater is exclusively designed for use in closed-circuit installations.

Any other use shall be deemed as not conforming with the intended purpose and shall be excluded from any warranty claims. Prior to installation and start-up of the ECOTHERM storage water heater the technical specification should be checked to ensure safe and proper use.

In the event of the ECOTHERM storage water heater being damaged or functioning unsatisfactorily, please refrain from attempting repairs yourself and instead notify your service agent. Repairs may only be carried out by an ECOTHERM service engineer using only original ECOTHERM spare parts. Non-compliance with these stipulations may affect function and operational safety of the ECOTHERM storage water heater and will invalidate any warranty claims.

Installation should be carried out in accordance with all applicable regulations and guidelines an also in accordance with manufacturer's specifications by an authorised and qualified installer.
Faulty and improper installation may cause damage to persons, animals and materials for which ECOTHERM cannot accept any liability whatsoever.

For hygienically faultless and safe operation we recommend regular servicing. Contact your nearest ECOTHERM Support Centre for further information. (See Internet **www.ecotherm.com** for current address list)

The details and data published in this technical document reflect the current state of developments. ECOTHERM reserves at the right to modifications serving technical progress at any time, without any obligation whatsoever.

2.2.2 Additional warranty conditions for the stainless steel storage tank

The warranty period of 5 years for the stainless steel storage tank is valid under the following additional conditions:

1. Connections mounted only from state licensed installation company.
2. The assembly of a fine filter in the cold water inlet
3. Only stainless steel dummy plugs and immersion sleeves are used
4. Water of drinking water quality and with a chlorine content of less than 70 mg Cl/L should be used. If the chlorine content is higher there must be sufficient externally powered anodes in continuous operation.
5. Connecting piping of copper or steel are to be separated electrically (electronic separation joint or and electronic separation sleeves with flange connections)
6. The tank legs are left free standing and not screwed to the floor

2.2.3. Liability

As regards direct or indirect damages which arise due to inadequate delivery and performance, we will only be liable in as far as a defect can be proved to have been caused. We assume no liability for consequential damages or loss of profit.

2.2.4 Validity clause

If individual clauses were to invalidate this condition, this does not affect the validity of the remaining conditions.

2.2.5. Choice of law

Austrian law is valid. Place of performance and jurisdiction is Linz, Austria.

6. Technical Data

6.1 Operating conditions:

Medium / Fluid	drinking water	
acceptable min./max. temperature (TS): °C	see rating plate	
acceptable min./max. pressure (PS): bar	see rating plate	
Periphery temperature min./max.: °C	10/50	
Type of load:	static	
Tightness test realised	Date:	inspected from:
Final check realised	Date:	inspected from:

Distribution & Service:

ECOTHERM
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