Solarico®

Thermal Tank Qube X

Unpressurized hot water storage tank and drain back tank



Installation and Operation Manual

- ☐ SQ-WDHSU (3 heat exchangers)
- ☐ SQ-WDHS (2 heat exchangers)
- ☐ SQ-WD (1 heat exchanger)

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Important

Dear customer,
We strongly believe that the products bought from us will contribute the comfort at your homes and increase it's energy efficiency.

Read and understand the Installation and Operating Guide carefully before attempting installation, start-up, operation, or service. Installation and service must be performed only by an experienced, skilled installer or service agency.

This booklet contains important information about correct installing and operating of this storage tank.
It is integral part of this product, store it close to the device, and keep it available for the reference for it's service life.

Please contact the manufacturer's customer service department or the local representative of the manufacturer with any questions or other issues.

Safety Related Symbols

Safety-related information and instructions have been provided in this guide
and on the Qube X water heater to warn any person(s) of potential hazards.



This is safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Danger
Indicates an imminent hazardous situation which , if not avoided, could result in injury or death.



Warning
Indicates a potential hazardous situation which, if not avoided, could result in injury or death.



Caution
Indicates an imminent hazardous situation which, if not avoided, may result in minor or moderate injury.



Note
Important information

All safety messages will refer to a potential hazard. Follow the instructions in this manual exactly to avoid the risk of injury.

GENERAL INFORMATION

Models and Usage

Qube X water heaters are available as:

1. SQ-WDHSU - Hygienic Hot Water + Solar Drain Back + Heat Pump + space heating
2. SQ-WDHSU - Hygienic Hot Water + Solar Pressurized + Heat Pump
3. SQ-WDHS - Hygienic Hot Water + Solar Drain Back + Heat Pump
4. SQ-WDHS - Hygienic Hot Water + Solar Pressurized
5. SQ-WD - Hygienic Hot Water + Solar Drain Back

* Hydraulic variants 1 and 2 apply to 400 liter tanks
  Hydraulic variants 3, 4 and 5 apply to 220 and 400 liter tanks

Each model must be installed and used the way this booklet describe, and in accordance with the conditions detailed on the rating plate.



NOTE: The equipment shall be installed in accordance with those installation regulations required in the area where the installation is to be made. These regulations shall be carefully followed in all cases. Authorities having jurisdiction shall be consulted before installations are made. All wiring on water heaters shall be in accordance with the National Electrical Code and/or local regulations.



WARNING: Use this water heater only in hydronic heating systems. The installer must comply with all plumbing codes. Failure to comply may result in personal injury, property damage, or death.

Quality of the water

Lime scale effects
Chemical imbalance of the water supply may cause decreased heating efficiency to the water heater and associated equipment. Solarico recommends having water quality professionally analyzed to determine whether it is necessary to install a water softener. It is important that the water chemistry be checked before installing the storage tank, as water quality will affect the reliability of the system. In addition, operating temperatures above 57 C will further accelerate the build-up of lime scale and may shorten the service life of the water heater. According to a rule of thumb a lime scale layer with a thickness of 1 mm will result in a loss in efficiency of 10%. In extreme cases lime scale layers can damage the heat exchangers.

Corrosion effects
pH values of water above 11 may cause damage to rubber seals, and very low pH values below 6, may cause damage to stainless steel heat exchangers. Depending on the materials used in the heating system, Solarico recommends that pH value should lie between 8,2 and 10.

Disclaimer

Solarico is not liable for damage resulting from any but the device's intended use.

Solarico is not liable in case of:

- Installing or operating the device or its components contrary to the instructions contained in this booklet.
- Unprofessional installing or operating the device or its components.
- Installing or operating the device or its components the way that is not described in this booklet, and the way which is not specifically approved by manufacturer in writing.
- Modifying, converting or removing the device or its parts when it is not approved by manufacturer in writing.

GENERAL INFORMATION

Safety instructions



WARNING: When using electrical appliances, basic safety precautions to reduce the risk of fire, electric shock, or injury to persons should be followed, including:

- This water heater must be grounded. Connect only to properly grounded outlet.
- Install or locate this water heateronly in accordance with the provided installation instructions
- Use this water heater only for its intended use as described in this manual.
- As with any appliance, close supervision is necessary when used by children.
- Do not operate this water heater if it has damaged connections or plug, if it is not working properly, or if it has been damaged or dropped.
- This water heater should be serviced only by qualified personnel. Contact nearest authorized service facility for examination, repair, or adjustment.



NOTE: All persons carrying out work on or with the device must have read and understood the assembly and operating instructions before starting work. The same applies where the relevant person has previous experience working on or with the same type or a similar type of device, or has received training from the manufacturer.



DANGER: Water temperature setting:
Safety and energy conservation are factors to be considered when selecting the water temperature setting of water heater's thermostat. Water temperatures above 51°C can cause severe burns or death from scalding. Be sure to read and follow the warnings outlined on the label pictured below.

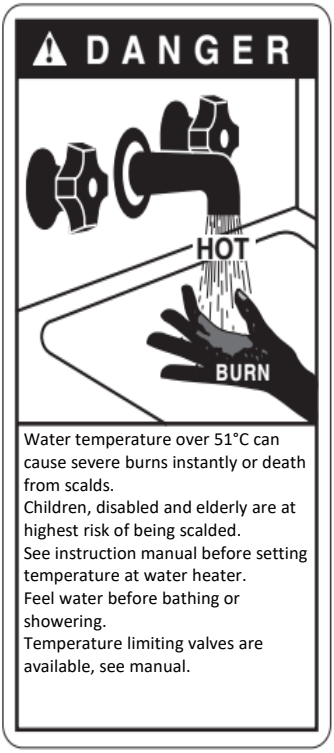
The temperature of the water in the tank can be regulated by the digital controller, or/and electric thermostat that can be located under the top cover, hot and cold water mixing vales etc. To comply with safety regulations we recommend the buyer to set the temperature of domestic hot water at temperatures equal or lower then 51°C.

NOTE: Mixing valves are available for reducing point of use water temperature by mixing hot and cold water in branch water lines. Contact a licensed plumber or the local plumbing authority for further information.

DANGER: Hotter water increases the potential for Hot Water SCALDS.

DANGER: Households with small children, disabled, or elderly persons may require a 49°C or lower thermostat setting to prevent contact with "HOT" water.

DANGER: This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.



Disposal

When decommissioning the device on site, ensure compliance with local legislation, guidelines and standards for recycling, reuse, and disposal.

GENERAL INFORMATION

Maintenance

The functionality of pressure safety valves, that Solarico recommends to be installed , must be periodically tested.
The water may drip from the discharge pipe of the pressure-relief device and that this pipe must be left open to the atmosphere.
The pressure-relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.
There is no need UniQube storage tanks to be maintained of corrosion, due to its corrosion resistant materials.
Routine Preventive Maintenance
Properly maintained, your water heater will provide years of dependable trouble-free service.
Routine preventive maintenance program should be established and followed by the user. If electric heater is used, It is recommended that a periodic inspection of the operating controls, heating element and wiring should be made by service personnel qualified in electric appliance repair.
1. At least once a year, manualy turn “on” the temperature pressure relief valve, located on the “Heating Out” line, to make certain the valve operates freely and allow few liters to flush through discharge line. Make certain the discharged water is directed to an open drain.



DANGER: Before manually operating the relief valve, make certain no one will be exposed to the danger of coming in contact with the hot water released by this valve. The water may be hot enough to create a SCALD hazard. The water released should be directed to a suitable drain to prevent injury or damage.



NOTE: If the temperature and pressure relief valve on the water heater discharges periodically, this may be due to thermal expansion in a “Closed” water system. Contact the water supplier or your plumbing contractor on how to correct this. DO NOT plug the relief valve outlet.

2. There is a possibility water heater’s tank can act as a settling basin for solids suspended in the water of heating circuits. It is, therefore, not uncommon for hard water deposits to accumulate in the bottom of the tank. It is suggested that a few liters of water be drained from the water heater’s tank every month to clean the tank of these deposits. Depending on how much deposits are there during first few months of cleaning, you can change the frequency of cleaning.

3. Rapid closing of faucets or solenoid valves in automatic water using appliances can cause a pounding “water hammer” sound. “Water hammer” can be described as a banging noise heard in a water pipe following an abrupt alteration of the flow with resulting pressure surges. Strategically located risers in the water pipe system can be used to minimize the problem. Also water hammer arresting devices are usually available from your plumber or local plumbing supply store.

If you use electric heater back up:
4. Most electrical appliances make some sound when in operation, even when new. If the hissing or singing sound level increases excessively, the electric heating element may require cleaning. Contact your installer or plumbing contractor to inspect.

5. The area near the water heater must be kept free of flammable liquids such as gasoline or paint thinners, adhesives or other combustible materials.

INSTALLATION AND ASSEMBLY

Instructions to installer

During installation and operation, the country specific requirements and regulations must be observed:

- Regulations and norms concerning the fitting of the installation with safety devices.
- Safety during installation - personal protective equipment.



WARNING: The preperation, installation and commissioning must be performed by an authorized professional installer / service.



CAUTION: Local construction regulations on installation of water tank must be observed; weight of the boiler must comply with the stability of the floor of the room where it will be installed.

Requirements to tank installation room

Ensure sufficient space during the installation, available between the device and walls or other objects to install connection lines. This will be necessary only for the connection side of the tank. The three other sides can be placed against a wall. Locate the water heater in a clean dry area as near as practical to the area of greatest heated water demand. Place the water heater in such a manner that the electric heater and thermostat and element access panels can be removed to permit inspection and servicing such as removal of elements or checking controls. Do not install the water heater in outdoor, unprotected areas or near any other appliances where high temperatures are present, such as wood burning stoves, boilers, or furnaces. High temperatures can warp or otherwise damage the nonmetallic construction of this water heater. Make certain the floor underneath the water heater is strong enough to sufficiently support the weight of the water heater once it is filled with water.



CAUTION: The room must be thermal insulated in order to provide efficiency of the appliance and prevent the water from freezing.



NOTE: Recommended height of the ceiling of the installation room is 1200mm greater than the height of the tank. Recommended distance between the tank and the walls of the installation room is 200mm.

Requirements to tank installation



NOTE: The length of connecting pipes between the tank and consumer must be as short as possible.



NOTE: Install the tank as close as possible to the heat generator to keep heat losses as low as possible. Ensure minimum pipe distances to consumers.

INSTALLATION AND ASSEMBLY

Shipping and packaging

We recommend delivering your storage tank directly to the installation site on the pallet and in the original packaging.

During transport and installation, depending on the weight, appropriate safety equipment must be used in accordance with Directive 2006/42/EC.

When transporting items weighing more than 30 kg, the use of pallet jack, fork truck or other hoisting devices is a must.



NOTE:
The tank is delivered with fully installed insulation.
Ensure proper and eco-friendly disposal of all packaging and transport material.



DANGER: The tank can accidentally move during transport.



DANGER: Increased danger of tipping while lifting the storage tank off the wooden pallet and during transport on a pallet truck or handcart! Injury and material damage hazard. Ensure appropriate safety measures to prevent tipping.

INSTALLATION AND ASSEMBLY

Assembly



NOTE: Compliance with local accident prevention guidelines,legal requirements, directives and guidelines is mandatory.



WARNING: The preperation, installation and commissioning must be performed by an authorized professional installer / service.



NOTE: It is our recommendation an expansion vessel to be installed on the domestic cold water supply line, between the tank connector “A” and pressure relief valve, so it will absorb pressure fluctuations, water shocks in the cold water supply system, and to prevent unnecessary water loss.
Expansion vessels are mandatory to be installed for heating circuit and solar thermal circuit.



WARNING:
Do not exceed the working pressure of 10 bar for stainless steel heat exchanger coils (domestic hot water and solar line).
Installation of a pressure relief valves and venting valves is mandatory for each hydraulic circuit:
- Domestic Hot Water circuit between connector “A” and connector “B”
- Solar thermal circuit (pressurized) between connectors “F” and “G”.

We recommend pressure reducer to be installed on each filling line.
A discharge pipe connected to the tank is to be installed in a continuously downward direction and in a frost-free environment.
Since the system is not under pressure, the liquid level will decreases all the time. In order to avoid bad working performance, it is mandatory to fill in the same all the time when is needed.



NOTE: Seal unused connection points with a matching plug.

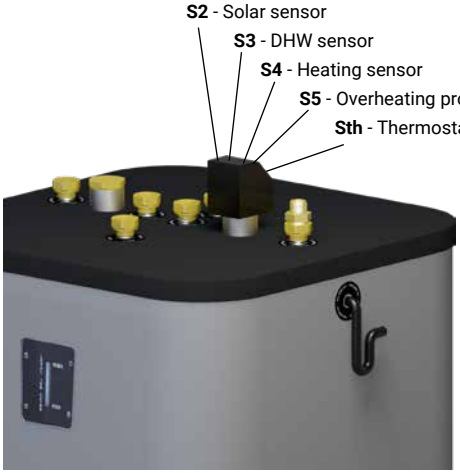


CAUTION: The tank must be integrated into the system in accordance with the connection instructions provided.

INSTALLATION AND ASSEMBLY

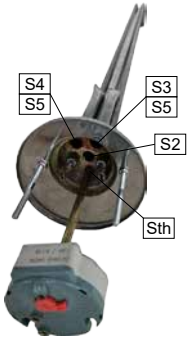
Sensors assembly and wiring

Sensors for automation of the heating system are not part of Solarico storage tanks. Depending on the type, Solarico storage tanks are provided by maximum 3 sensor sleeves. All sensors can be installed from the top side of the tank, under plastic cap of the heater.



Insert the sensors in the appropriate and marked sensor sleeves on the top of the tank, under the upper plastic cover of the heater

Out-of-the-box the thermostat is not connected to the heater! Push-to-connect is required for normal operation

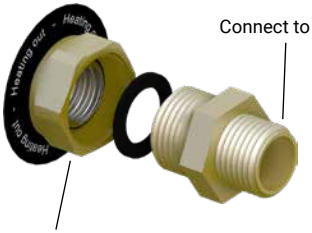




Not connected



Connected



Connecting to pipe installation

Connecting rubber seals are part of this storage tank. Use only **THICK-WALL (min. 7 mm) MALE REDUCER NIPPLES 5/4”-1”** to connect to the tank pipe installation.

The following table shows the sensor positions.

SQ 220/400	Position	Length
Solar sensor	from above	450 mm
DHW sensor	from above	250 mm
Heating sensor	from above	250 mm
Overheating sensor	from above	250 mm
Electric thermostat	from above	450 mm

Liquid Level Control

The Qube X tank has special level control window, for better visibility of the liquid level.

Filling of the tank

Qube X should be filled from the bottom side, connector J. The filling is finished when the liquid appears in the top side, connector K - overflow. Cracking noise is normal during the first time filling.

If the liquid level is below MIN on the Level Control window, fill the tank to MAX or until liquid appears in the K-overflow connector.

Since the tank is not pressurized, it is normal for the liquid to evaporate, causing its level to drop below MIN. Therefore, it is necessary to refill the tank to the MAX level.

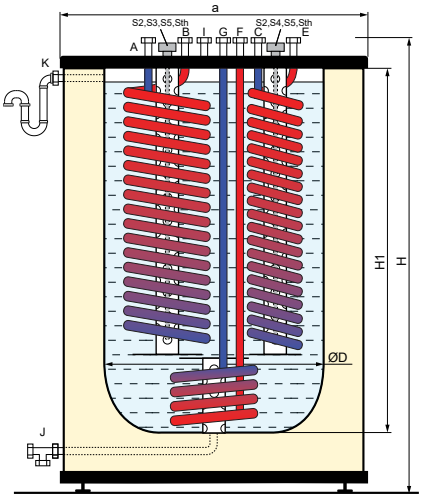
Emptying of the storage tank

Room where is installed Qube X tank must have water draining system.
The discharge of the tank should be done through the down side connector J - draining.

Insulating

In order to prevent unwanted heat loss, all outer connectors must be insulated.

DRAWINGS AND DIMENSIONS



A - DHW in
B - DHW out
C - Heating in
E - Heating out
F - Solar in
G - Solar out
I - Solar Drain Back in
J - Solar Drain Back out
K - Overflow pipe

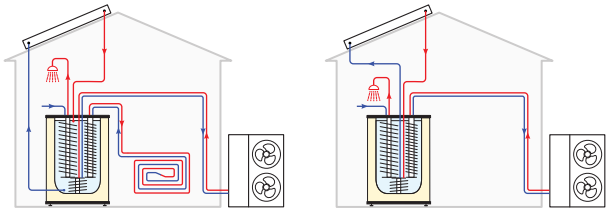
S2 - Solar sensor
S3 - DHW sensor
S4 - Heating sensor
S5 - Overheating protection sensor
Sth - Electrical thermostat

Thermal Tank Qube X		220	400
D (diameter)	(mm)	620	890
H1 (height)	(mm)	845	845
H (height)	(mm)	1100	1100
a (width)	(mm)	725	960
Nominal volume	(l)	220	400
Weight (with 3 exchangers) - WDHSU	(kg)	80	100
Weight (with DHW exchanger and bottom exchanger - heat source) - WDHS	(kg)	73	90
Weight (with DHW exchanger) - WD	(kg)	65	82
Connections		5/4"	
Energy class		A	
S2 Solar sensor position	(mm)	450	
S3 DHW sensor position	(mm)	250	
S4 Heating sensor position	(mm)	250	
S5 Overheating protection position	(mm)	250	
Max. working temperature	(°C)	90	
Nominal flow rate (all exchangers)	(l/min)	20	
Max. flow rate (all exchangers)	(l/min)	30	
Max. working pressure (all exchangers)	(bar)	10	
Max. test pressure (all exchangers)	(bar)	15	
DHW heat exchanger			
Volume	(l)	17,55	23,25
Surface area	(m²)	5,35	7,07
Solar heat exchanger			
Volume	(l)	8,68	8,68
Surface area	(m²)	2,67	2,67
Heating exchanger			
Volume	(l)	6,78	9,31
Surface area	(m²)	2,10	2,87

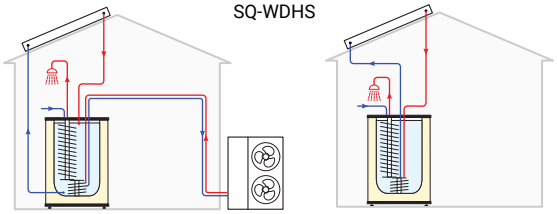
DRAWINGS AND DIMENSIONS

CAUTION: The following schemes are purely illustrative and does not replace technical planning.

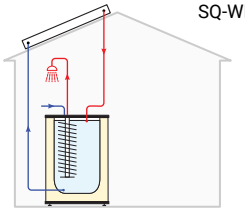
SQ-WDHSU



SQ-WDHS



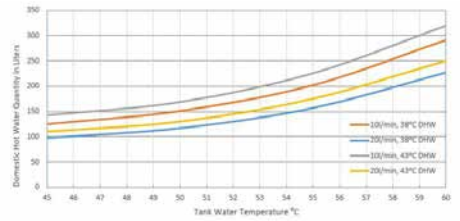
SQ-WD



Production of Domestic Hot Water

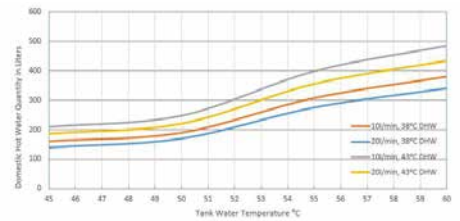
Thermal Tank Qube X SQ-WDHSU 220L
7,07 m² heat exchanger output area

10l/min, 43°C DHW	tb(°C)	45	50	55	60
	(l)	143	169	226	320
20l/min, 43°C DHW	tb(°C)	45	50	55	60
	(l)	110	130	175	250
10l/min, 38°C DHW	tb(°C)	45	50	55	60
	(l)	125	151	202	291
20l/min, 38°C DHW	tb(°C)	45	50	55	60
	(l)	98	117	157	227



Thermal Tank Qube X SQ-WDHSU 400L
7,07 m² heat exchanger output area

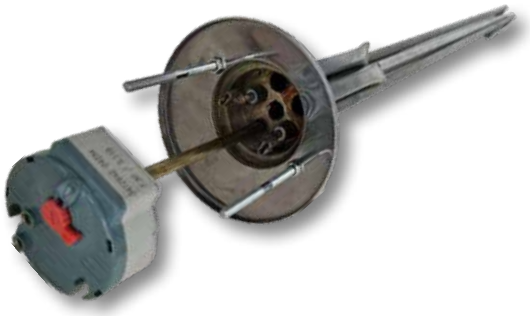
10l/min, 43°C DHW	tb(°C)	45	50	55	60
	(l)	209	247	398	485
20l/min, 43°C DHW	tb(°C)	45	50	55	60
	(l)	187	221	355	433
10l/min, 38°C DHW	tb(°C)	45	50	55	60
	(l)	161	190	308	381
20l/min, 38°C DHW	tb(°C)	45	50	55	60
	(l)	140	170	275	340



ACCESSORIES

Stainless steel electric heating elements with integrated thermostat

Qube X tank is equipped with 3kw top electrical heater. On demand of the customer it is possible to insert plus one.
Outlet connection of electric heating element is 6/4”

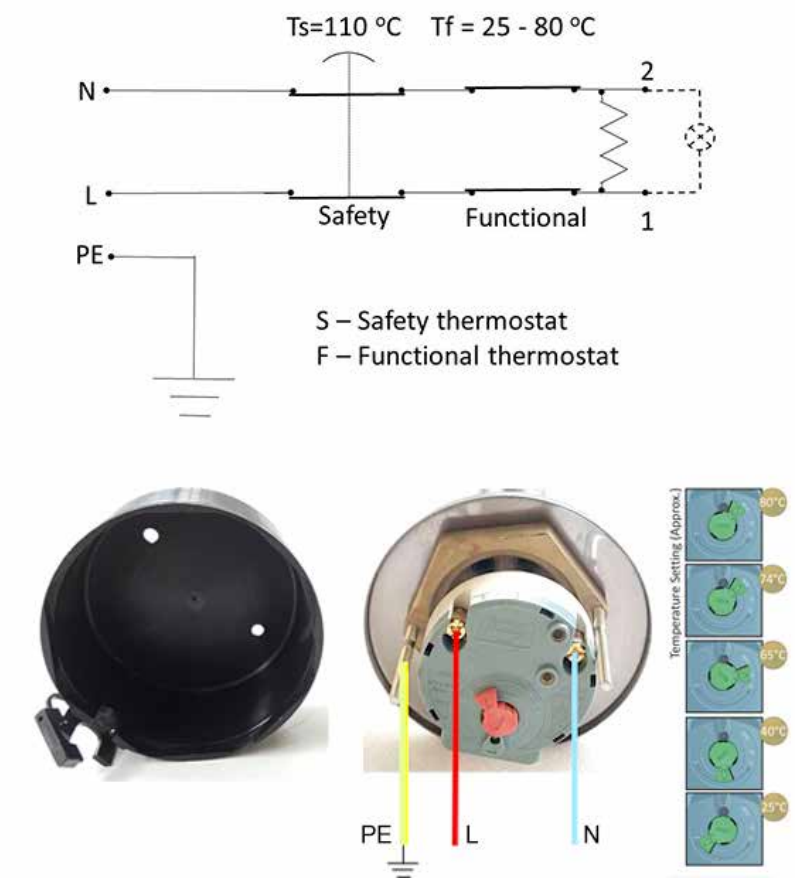


Storage Tank Capacity L	Connection	Length L mm	Cold Zone mm	Power W	AC Voltage V
220 / 400	6/4”	500	200	3000	230

In the table of technical parameters is specified location for installation of electric heating element

DANGER:
The connection of electric heating element to the electric power supply must be done by a qualified electricians.
When connect the heating element to the electric network, make sure that it is properly grounded.

Connection scheme for stainless steel electric heating elements with integrated thermostat



WARNING

All installation operations, including manual adjustments, must be fulfilled by a qualified specialist following all safety conditions.

WARRANTY

Manufacturing defects and materials guarantee

Manufacturer expressly guarantees that the products it manufactures shall be free from defects in materials and workmanship which can prevent from normal operation under proper and normal use, installation and maintenance for the intended functions of the products, for a period set out in the warranty certificate of the respective water heater model you have bought. The warranty period begins from the date indicated in the purchase invoice. If a product or any component there of is determined to be defective in manufacture or materials, Manufacturer will repair or replace the defective component or product

Exclusions and limitations of Warranty Coverage

The customer can claim warranty during warranty period of respective product immediately after any defects have been determined, except for in case of noticeable defects at the moment of purchase, in which case the customer must make the claim at the shop immediately after noticing the defect as it is provided for in the general conditions of sale.

1. Electric heating elements and thermostats
2. Accidents, installation on movable structures, negligence, improper care or nonconformity.
3. Failure to observe the installation, use and maintenance instructions set forth in the installation manual of respective product.
4. Improper installation and use as well as changes, especially if they are not made by authorized after-sale service personnel of Manufacturer.
5. Testing and operation pressures greater that values established by Manufacturer and set forth in product manuals, or use of water with characteristic values exceeding: Dissolvable salts – 500 mg/l; Calcium carbonate – 200 mg/l; Free carbon dioxide – 50 mg/l; ph content – minimum 6 and maximum 11) Freeze, flood, natural disasters or third party actions as well as any interventions into normal functioning conditions of water heaters and the control of Manufacturer.
6. Service trips to your home to teach you how to install, use, or maintain this water heater or to bring the water heater installation into compliance with local building codes and regulations.
7. Performance problems caused by improper sizing of the water heater or electric service voltage, wiring, or fusing.
8. Damages, malfunctions, or failures caused by abuse, accident, fire, flood, freeze, lightning, and the like.
9. Damages, malfunctions, or failures caused by operating the unit at water temperatures exceeding the maximum setting of the operating, or high limit, control.
10. Tank failures caused by operating the water heater when it is not supplied with water, free to circulate at all times.
11. Damages, malfunctions or failures caused by subjecting the tank to pressures greater than those shown on the rating label.
12. Damages, malfunctions or failures resulting from the use of any attachment, including any energy saving device, not authorized by Manufacturer.
13. Units that have had their rating labels removed. A water heater should not be operated if the rating label is removed.

- The warranty certificate is considered void for water heaters whose serial identification number has been modified, removed or blurred, or can not be expressly attested.
- Damages in the appearance of products shall not be considered as defects except for those ones which cause losses during operation or change technical characteristics of water heaters set forth in brochures.
- Manufacturer preserves the right, in case of replacement, to deliver another model of water heater in order to fulfill approved warranty claims when the original model is not being manufactured.

Labor, shipping, and processing costs

This Limited Warranty does not cover any labor expenses for service, repairs, reinstallation, permits, or removal and disposal of the failed water heater, or defective component part(s). All such expenses are your responsibility.
Euroterm d.o.o. is not liable to pay any transportation costs for an "in-warranty" replacement water heater, or "in-warranty" replacement component part(s).
Euroterm d.o.o. does not authorize, recommend, or receive any benefit from any claims processing or similar fees charged by others to process warranty claims for any Euroterm d.o.o. water heater or component part(s). Euroterm d.o.o. will not reimburse any party for these, or any other, fees not specifically covered in this Limited Warranty document.

Claiming warranty

Every customer who has purchased a water heater from Manufacturer and who has good reasons to lay a warranty claim, shall proceed as follows:

- Immediately notify in writing: The installer, or the company that has sold the water heater to him, or the distributor firm, or the commercial representative of Manufacturer in the region.
- For this purpose the claimant shall fill out a claim form; the latter shall be accompanied by the document proving the purchase of the water heater (invoice) with the date of purchase in it.
- After receiving the claim form, Manufacturer considers it and makes decision whether the claim has grounds, and whether the defect is within the scope of the warranty set forth in this certificate for limited warranty; after which informs the customer as to its decision and the steps he shall do.
- The return of a product cannot be done without written authorization issued by the Quality Department. The return procedure shall be according to RMA (Return Material Authorization).
- If on customer's request, and when there is reason for urgency, the customer demands immediate replacement of the product he has claimed warranty for, before making the decision as to the claim, said request shall be accompanied by a Purchase requisition from the Commercial Department. After decision for satisfaction of the claim has been made, the Purchase requisition mentioned above will be annulled by issuing a receipt for returned goods; with this receipt the customer can purchase another product with the same price in case the claim has proved grounded.
- Manufacturer reserves the right to make in situ reports from the claims they have received for the purpose of checking every aspect that might be useful for better consideration of warranty claims; for this reason the customer shall not make any changes in installation conditions which are reasons for the claim without prior written consent of the Technical Department.

Euroterm d.o.o., Lece Koteski 50, Industrial area Biljana, 7500 Prilep, R. North Macedonia, phone +389 48 419 415; fax +389 48 422 981 , e-mail: info@solarico.eu, web: www.solarico.eu

Limitation of liability

- Manufacturer is not liable before the customer, neither directly nor indirectly, for any non-fulfillment or delay at applying the warranty obligations which might originate from external pressure of other circumstances outside Manufacturer.
- The liability of Manufacturer under this Warranty Certificate is limited to the abovementioned obligations and up to the sum in accordance with the purchase receipt of the product to be claimed; excluded is any liability for indirect damages such as loss of data at information applications, loss of production, thermal variations at the service, etc. which do not violate the applicable regulations of any country concerning product liability.
- Above mentioned warranty limitations will be applied in any cases, and when they do not violate the regulations in any country concerning product liability. If this circumstance annuls some of preceding clauses, annulment will refer only to this clause, while the others will remain valid. In conclusion, excluded is application of any Regulation pointed out in this Warranty which violates the Law 23/July 10, 2003 and Directive 1999/44/EU concerning water heaters and their use on the territory of the EU.
- Any other warranty right that is not mentioned in this Warranty Certificate is excluded

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GUARANTEE

Type	
Serial number	
Guarantee	Tank: 30 years Heat Exchangers: 10 years
Manufacturing date	
Signature	

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