



INSTALLATION AND USER MANUAL

ECOFLEX TD

EF04TD







1. INTRODUCTION

Thank you for buying a product manufactured by CLIMER TECHNOLOGY. This product has been manufactured according to the European Quality Standards, incorporates prime grade materials and its correct working has been tested before it leaves our facilities.

Through this Installation and User Manual, you will be guide towards the correct and safety installation of the product. It is necessary to carefully read this manual before making any handling to avoid problems arising from the misuse of the product.

The company CLIMER TECHNOLOGY reserves the right to modify the information included in this document at any time without prior notice.

2. GENERAL INDICATIONS

2.1. Safety notes

The incorrect or inappropriate use of this product could lead to hazardous situations, causing damage or injuries to the user, third parties or even to the product itself or material goods.

- The installer has the responsibility to install the minimum safety devices (hydraulic and electrical) set out in this Manual. In case of failure, the lack of any device may cause burns or other injuries.
- The installer has the responsibility to inform the user about the function and placement of the safety devices installed into the device and the installation.
- The water outlet temperature could reach 62 degrees. Do not touch the pipes while the system is working to avoid any risk of burns.

2.2. Qualification of the installer

Since the installation of the ECOFLEX TD involves handling coolant as well as carry out welding work, it is needed the technical staff have the official certification that accredits them as authorized to handle coolants.

The installer must explain the user the application of the product and the use and management of the unit, and he should provide the user all the documentation supplied with the equipment.



2.3. Package contents

The ECOFLEX system comprises the following components:

- EF04TD unit
- Thermodynamic panels
- Anchoring elements
- User Manual

2.4. Indications about transport and unpacking the unit

The unit is supplied packed into a wooden pallet properly secured to prevent damage during transport.

The material that CLIMER TECHNOLOGY uses to the packing are recyclables, so dispose it in an appropriate container.

Use a forklift or hand pallet truck to transport the unit to the installation site, always introducing the forks into the bottom of the pallet being careful not to damage the unit.

In case you identify any damage at the time of the reception of the unit, it is mandatory to register it in the reception note of the transport company, and then, submit the complaint.

For this reason, it is recommended to make a thorough visual inspection of the goods before signing the reception note.



3. TECHNICAL INFORMATION

3.1. Operating Principle

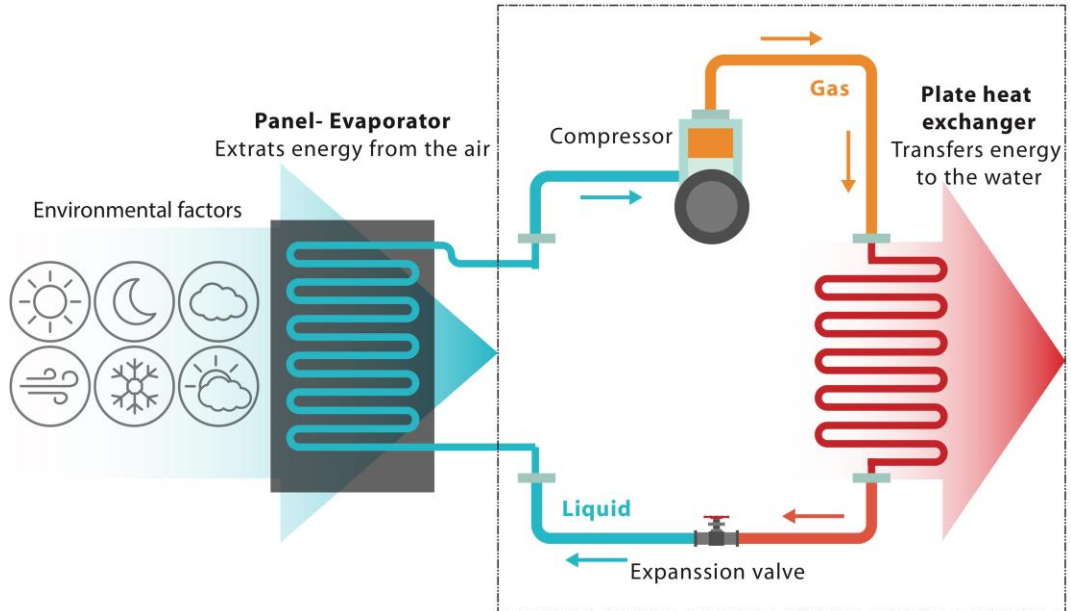


Figure 1. Operating principle

3.2. Dimension drawings

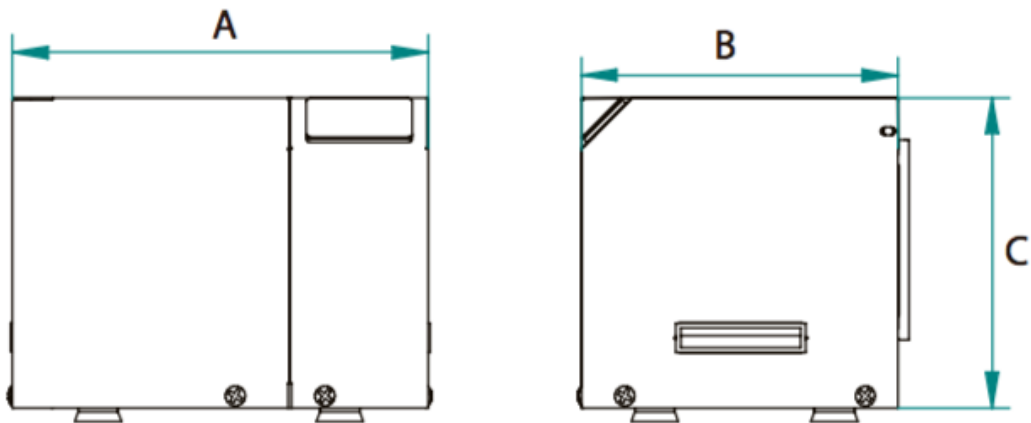


Figure 2. Dimensions

A: 560 mm

B: 505 mm

C: 370 mm

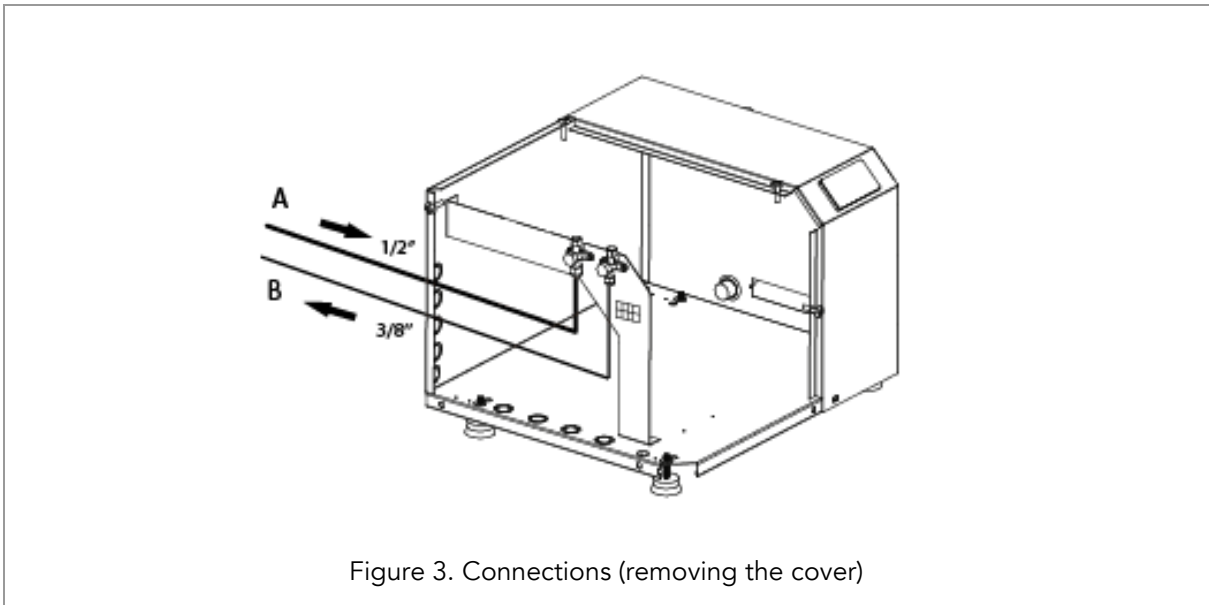


Figure 3. Connections (removing the cover)

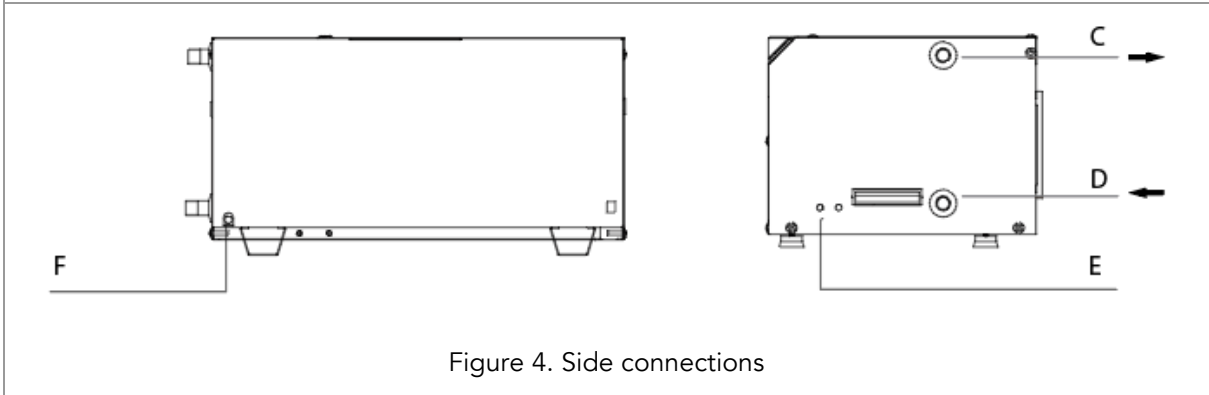


Figure 4. Side connections

A: Refrigerant inlet (1/2")

B: Refrigerant outlet (3/8")

C: Hot water outlet (1")

D: Cold water inlet (1")

E: Temperature probe / Pump connection

F: Power supply



3.3. Technical data

EF04TD	
Heat pump data	
Energy Efficiency Class	A
Load profile	XL
Heating capacity range*, W	2860 – 5120
Input power range*, W	900 – 1080
Maximum temp. HP, °C	60
Coolant	R134A
Maximum operating pressure, bar	6
Water inlet/outlet, inch	1
Electric data	
Power supply, V/ph/Hz	230/1/50
Maximum power absorbed, W	1200
Thermodynamic panel	
Number of panels	2
Dimensions, mm	1700 x 800
Maximum operating pressure, bar	10
Refrigerant inlet/ outlet, inch	3/8 - 1/2

4. INSTALLATION STEPS

Before starting the installation, check the availability of all the necessary components and tools:

- Copper tee for gas line: 2 inlets 3/8 - 1 outlet 1/2
- Copper tee for Liquid line: 1 inlet 3/8 - 2 outlets 1/4
- High -and low- pressure manometers
- Vacuum pump
- Scales
- Nitrogen bottle
- Refrigerant quality copper pipe
- Pipe-cutter
- Tube bender
- Pipe expander
- Welder
- Copper Rods (40 % Silver)
- Insulating hose
- Drill



- Screwdriver
- Hydraulic installation components
- Electric installation components

Once it has been checked that it is available all the necessary components and tools, the installer should follow the next steps:

1. Placing and anchoring panels
2. Joining and welding the refrigerant pipes
3. Placing the ECOFLEX TD
4. Joining and welding liquid and suction line between ECOFLEX TD and panels
5. Nitrogen pressure test (maximum 10 bar)
6. Vacuum
7. Filling refrigerant installation
8. Hydraulic installation
9. Electric installation
10. Commissioning
11. Adjustment of refrigerant load

5. THERMODYNAMIC SOLAR PANEL INSTALLATION

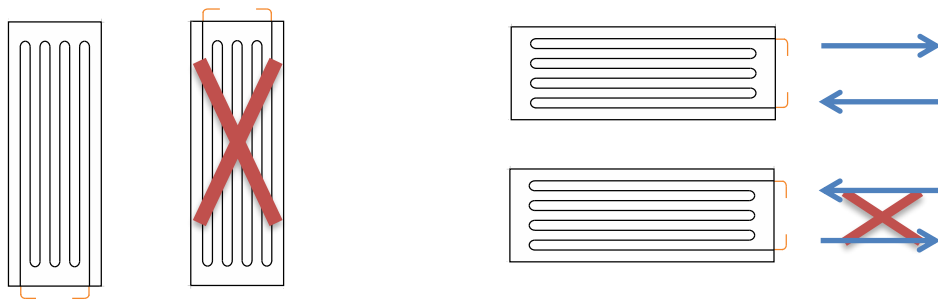
Site selection

The choice of the installation site of the thermodynamic panel is a key factor in the final performance of the unit. For this reason, we recommend following the indications to achieve the best performance:

- South orientation is indeed the best to take the maximum advantage of solar radiation. Panel may also have other orientations, but northerly orientation is the worst to receive solar radiation.
- Inclination: The minimum inclination of the panel is 15° to ensure the correct evaporation of the coolant. It is recommended to install the panel with an inclination between 45° and 90°.



- Orientation: It is possible to install the panel both in vertical and horizontal position



When the panel is installed in vertical position, the inlet and outlet connection shall be always at the bottom. (It is not allowed to install the reverse)

If the panel is installed at horizontal position, refrigerant inlet pipe should be connected into the bottom connection.

- Distances to ECOFLEX TD:

The maximum allowed distance from the panel to the ECOFLEX is 15 meters.

In the picture below is shown the dimensions of the panel:

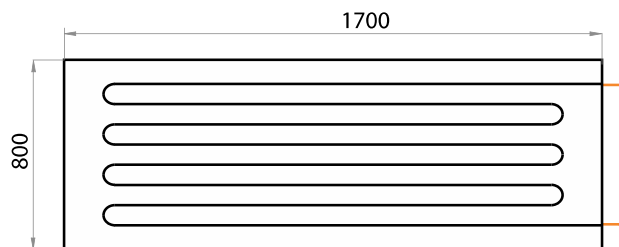


Figure 5. Thermodynamic panel dimensions

Anchoring panel

Beside the panel, it is supplied a bag with anchoring elements that contains the following pieces:

- 6 x Aluminium support (L shape)
- 6 x Screws M5
- 12 x Nuts M5
- 18 x Washer 5



- 18 x Sheet Metal Screws
- 18 x Blocks M6

Anchor the panels using the lateral and front holes to the suitable surface.

6. PLACING ECOFLEX TD

The place where the system will be installed should allow an easy access to make maintenance work or inspection.

Beside these factors, it is important to consider the following indications regards the installation site:

- The system has been designed and manufactured for it indoors utilization.
- In case the system has to be placed outdoors, it must be protected against the adverse weather conditions (direct solar radiation, rain, snow...)
- Try to place ECOFLEX as near as possible of the panels' installation and near to the buffer tank.

The equipment allows the installation on floor or on wall.

- Wall mounted: Ensure that the surface can support the total weight of the device. The installer must fix the bracket to the wall and the insert the tabs into the corresponding slot of the back of the ECOFLEX.

NOTE: It is recommended to install Silent blocks to avoid the transmission of vibration to the wall.

- Floor mounted: Screw 4 leg into the holes of the bottom.

NOTE: It is recommended to install Silent blocks to avoid the transmission of vibration to the floor.

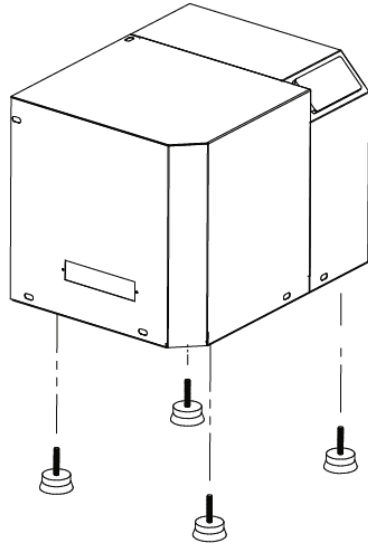


Figure 6. Floor standing

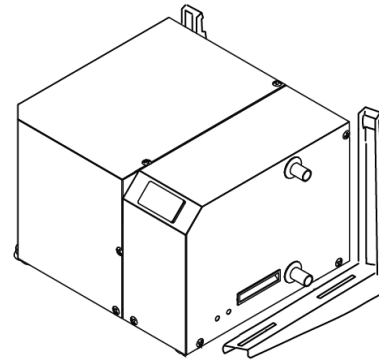


Figure 7. Wall mounted

If the equipment is to be installed in the wall, be aware that a minimum distance between the water outlet of the tank and the outlet of ECOFLEX must be observed to ensure a good functioning of the pump and the equipment.

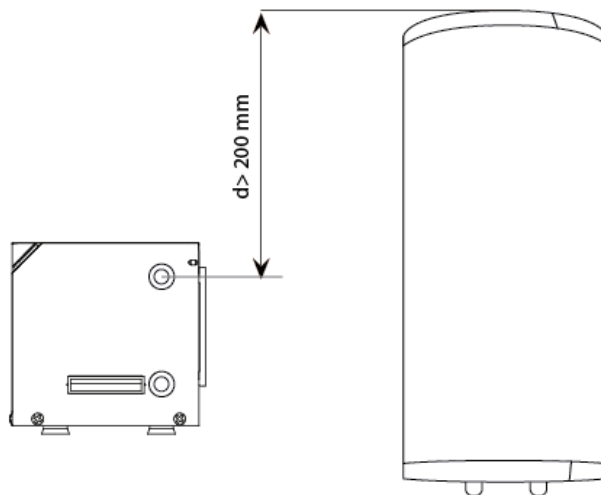


Figure 8. Minimum distance from ECOFLEX TD to the water outlet of the buffer tank.



7. CONNECTION BETWEEN ECOFLEX TD AND PANELS

a. Pipeline installation

First, measure the distance between Ecoflex and panels and cut the appropriate copper pipe length. The diameter for each line is:

- Liquid line: 3/8 inch
- Gas line: 1/2 inch

b. Distributor/collector installation

Install a copper tee to distribute and collect the refrigerant to/from the panels.

Its function is to ensure the homogeneous refrigerant flow in the whole panel installation.

The installer must weld a T connection of the following dimension:

- Gas line: 2 inlets 3/8 - 1 outlet 1/2
- Liquid line: 1 inlet 3/8 - 2 outlets 1/4

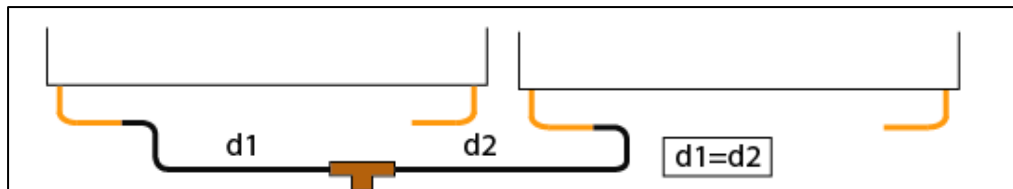


Figure 9. Panel connections

IMPORTANT: To ensure the same flow of refrigerant in every panel and consequently take advantage of the evaporation surface entirely; you should install the same tube length from the distributor to each panel. If a pipe is too long for the length require, it must be rolled up.

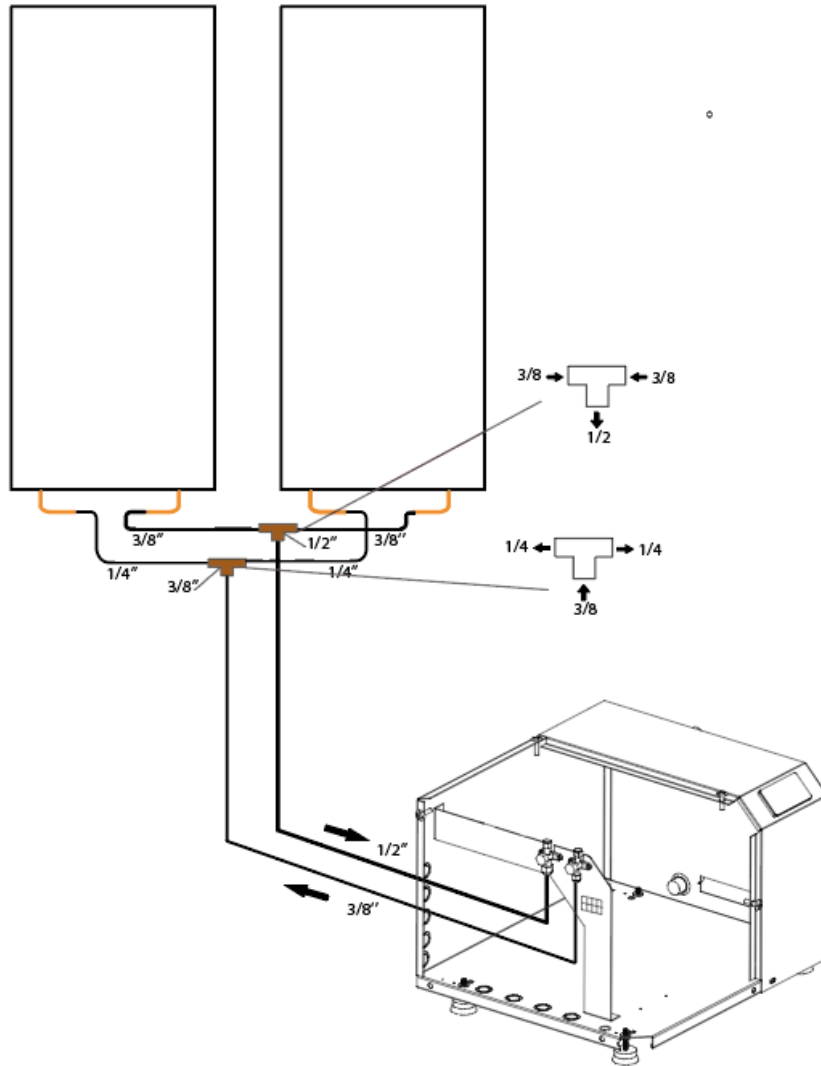


Figure 10. Ecoflex TD connections

IMPORTANT: It is recommended to weld pipelines by oxyacetylene welding. Welding is a critical step in the installation and to do it well ensures that the system will run properly along its useful life. Only expert staff should make this step by using proper tools and high-quality materials.

c. Join refrigerant pipes to the panels and Ecoflex TD

Panels are supplied with two nuts for the inlet and outlet connection. The inlet to each panel is 1/4 inch diameter. The installer must insert the nut into the copper pipe, flare the pipe



and then use the nut to fit it. Repeat the procedure with the outlet connection using 3/8 inch copper pipe.

The Ecoflex TD has two service valves with threaded connections:

- Inlet: 1/2 inch
- Outlet: 3/8 inch

The installer has to insert the nut into the copper pipe, flare the pipe and then use the nut to fit it.

d. Nitrogen test and cleaning procedure

To check the tightness, introduce nitrogen by using the pressure gauge already installed into load ports.

CAUTION: Never exceed a nitrogen load greater than 10 bars.

Use leaking detector fluid at every welding and even in panel's connections to verify the absence of leaks.

e. Vacuum

Connect the vacuum pipe to the pressure gauge to carry out a vacuum of the whole installation.

f. Coolant filling

Open the load ports to fill the circuit with the refrigerant loaded into the system.



8. HYDRAULIC CONNECTION

The hydraulic connection depends on the existing buffer tank, if some type of connection for the recirculation or coil is available.

The possible connections are detailed as follows:

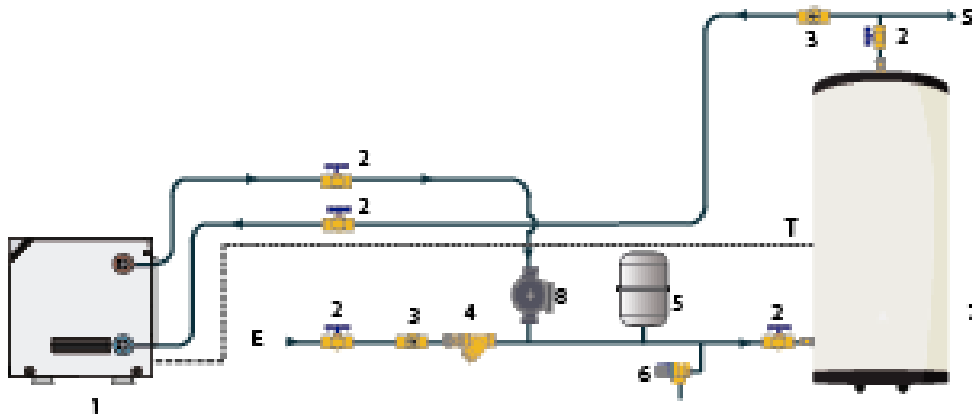


Figure 11. ECOFLEX TD connection on storage tank with two outlets

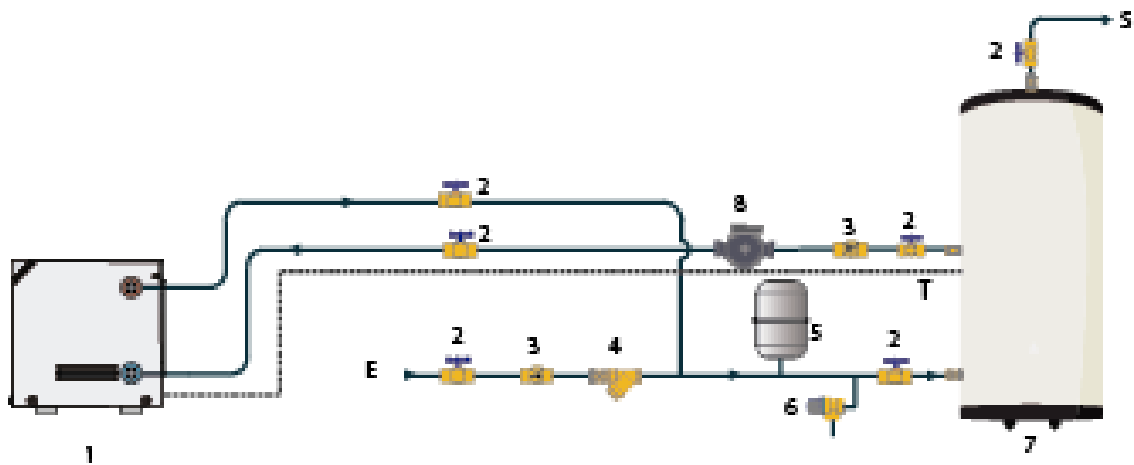


Figure 12. ECOFLEX TD connection on storage tank with a recirculation outlet

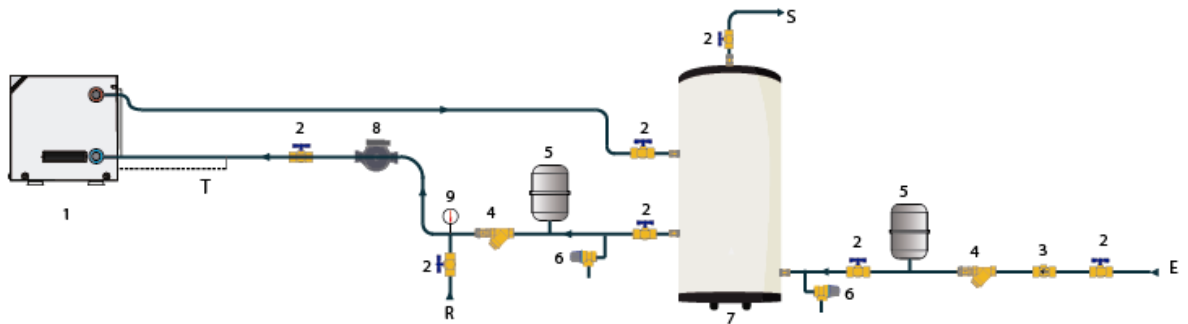


Figure 13. ECOFLEX TD connection, buffer tank with inner coil.



The installer must install the following components of the hydraulic circuit:

- ECOFLEX TD (1)
- Gate valve (2)
- Check Valve (3)
- Inclined filter (4)
- Expansion vessel (5)
- Safety valve (6)
- Storage tank (7)
- Pump (8)
- Pressure gauge (9)
- Red water inlet (E)
- DHW output (S)
- Inlet water filled coil (R)
- Probe connection (T)

Once the hydraulic connections are made, purge the circuit to remove the air from the installation.

In addition, it is necessary to install electrolytic sleeves in the water connections to prevent galvanic corrosion in the pipes.

IMPORTANT:

- The water pipes must be at least 22 mm in diameter to avoid excessive losses in the circuit
- If the unit is to be installed on the wall, its height must not exceed half the storage tank.

a. Pump connection

For the choice of the pump, it is necessary to consider the pressure drop of the installed pipe as well as the accessories (elbows, filters, valves...). The following table shows the flow rate to be circulated by the equipment and the pressure drop of the installed heat exchanger:

Minimum flow, L/h	Pressure drop, kPa
500	8



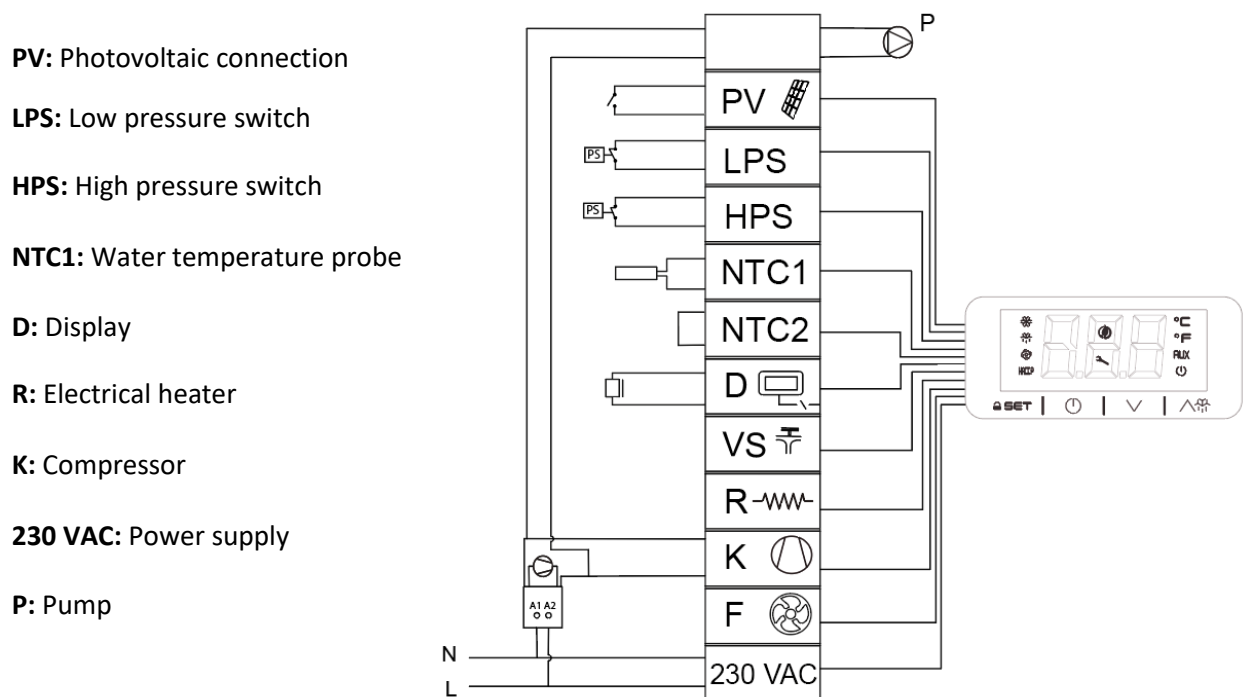
b. Temperature probe connection

The equipment incorporates connected temperature probe. The installer must pass through the indicated opening (Figure 4, E) and connect it to the buffer tank. The position of the probe varies according to the type of buffer tank.

Follow the instructions in of the diagrams shown in Figures 11, 12 and 13.

9. ELECTRICAL CONNECTION

The power supply of the system is 230 V/1/50 Hz.



9.1. Pump

The installer must connect the electrical connection of the pump to the terminal block inside the ECOFLEX unit, as shown in the diagram above.

IMPORTANT: It is only permitted to connect a pump with a power supply of 230 V/1ph/ 50 Hz and 3 A maximum current.



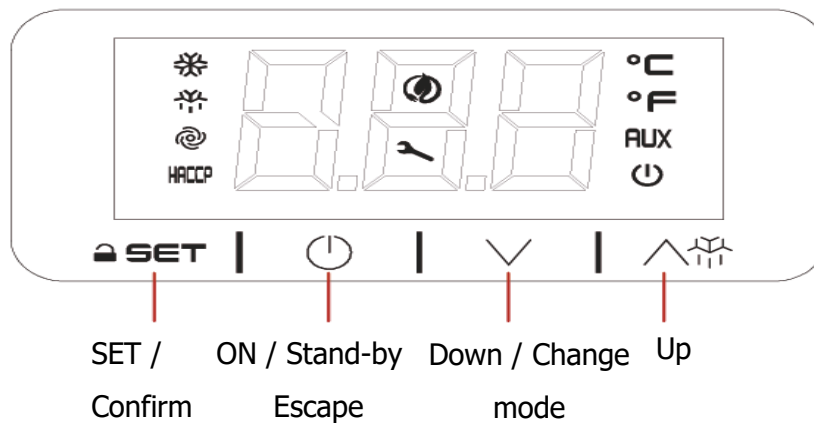
9.2. Electrical heater

It is possible to control the operation of an electrical heater installed inside the tank. To do this, the installer must connect the power supply to the controller through the terminals R.

IMPORTANT: It is only allowed to connect an electrical heater of 230 V/1ph/ 50 Hz and 1500 W maximum power.

10. COMMISSIONING. CONTROLLER.

10.1. User interface description

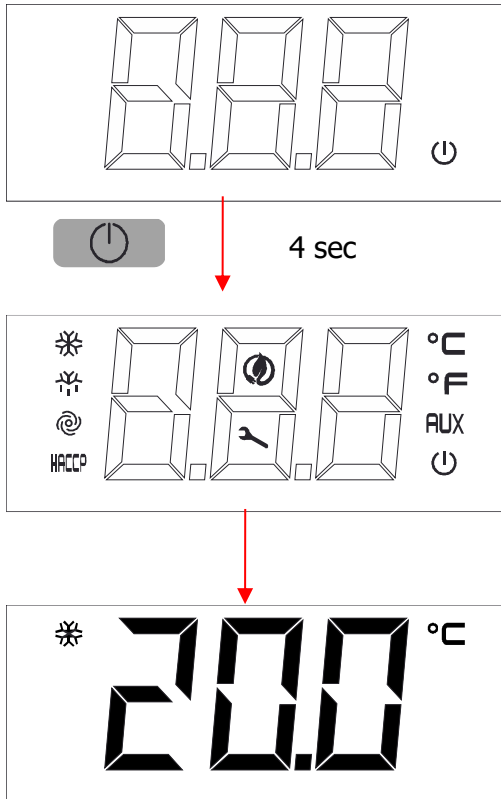


Symbol	Meaning when it lights
	Compressor switched on
	Defrost active
	Fan switched on
	Alarm active
	Compressor working hours exceeded
	Unit in °C
	Unit in °F
	Electric heater switched on
	Stand by




10.2. INSTALLATION- Switching on

After full installation of the water heater (power and water pipes connected) and after the water heater tank is full of water, power can be turn ON.



1. After filling the tank of water, connect the mains plug to the mains supply.

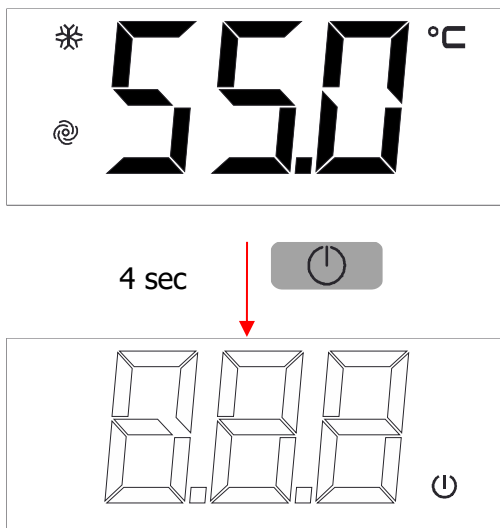
The screen will show the  symbol.

2. Hold the  key for 4 seconds.

The display will show the icons.

3. The screen will show the water temperature.

10.3. Switching OFF

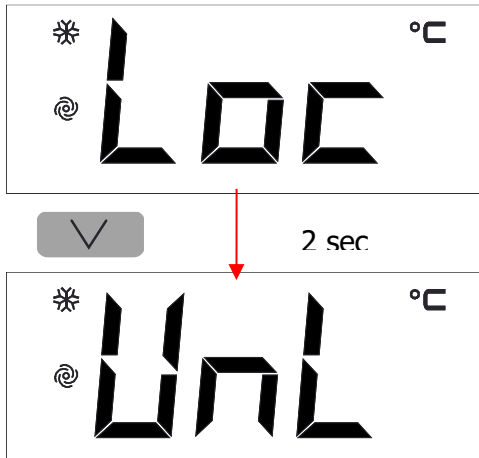


To switch off the system, hold the

 key for 4 seconds.




10.4. Unlocking the keypad

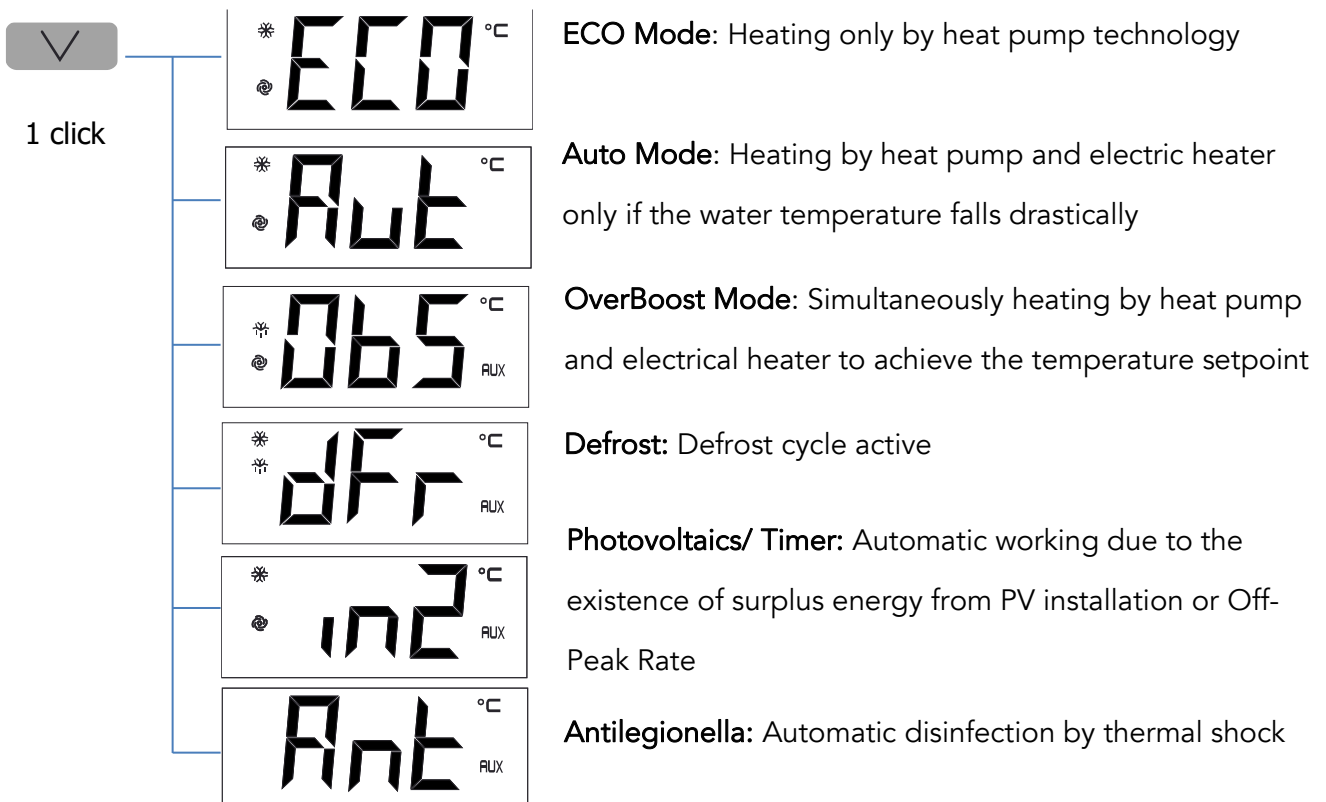


When 30 have elapsed without the keys being pressed, the display will show the " LOC" label and the keypad will lock automatically.

Touch any key until the screen shows **UnL**, to unlock the keypad.

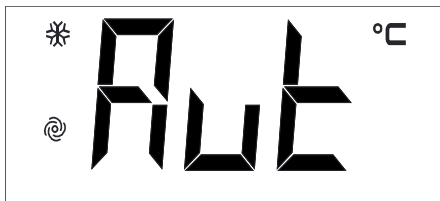
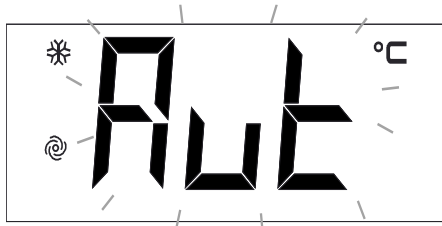
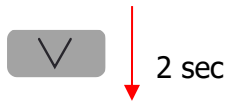
10.5. Displaying the operating mode


At first initial power ON, the product goes, by default, in Eco mode. By touching one time the  key, the controller will show the mode in operation in this moment.







10.6. Changing operating mode



To change the operating mode, touch the  key for 2 seconds.

The screen will show blinking the selectable operating modes. Use the  and  keys to select the operating mode.



Touch  to confirm or  to cancel.

The screen will show again the water temperature.

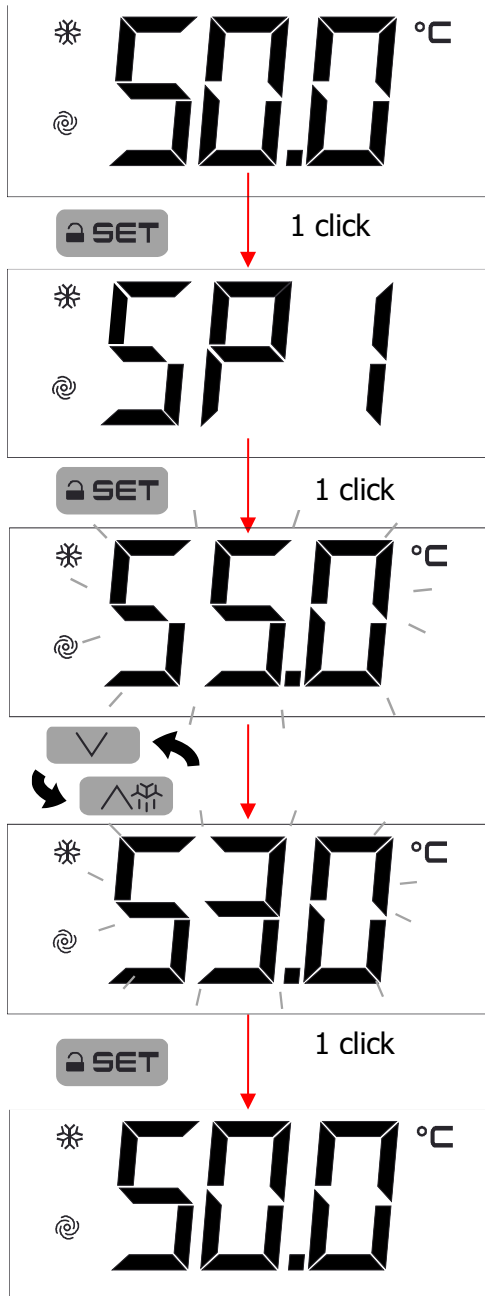




10.7. ECO Mode

ECO mode: Maximum savings. The system heats water only by heat pump technology. This is the factory default mode.



Setting the ECO temperature setpoint



The water temperature set point in ECO mode can be changed with the **SP1** parameter.



Touch  key and select SP1. Touch  to confirm.

The display will show the programmed temperature.

Touch  or  to select the desired temperature.

Touch  to confirm or  to cancel.

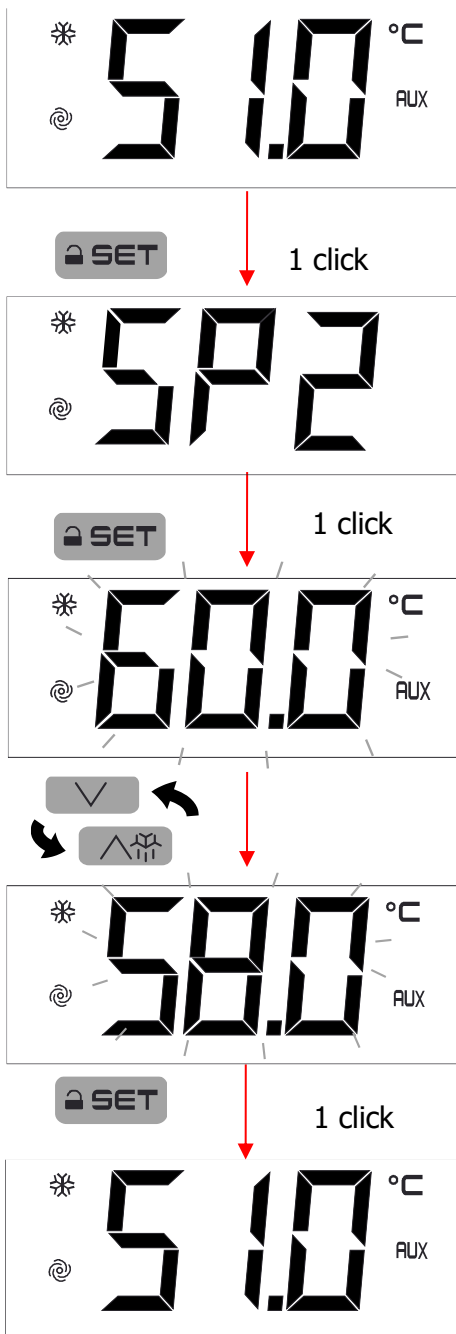


10.8. AUTO Mode

It maintains a steady temperature by the heat pump and only use the electrical heater if the temperature falls drastically.

Setting the AUTO temperature setpoint

The water temperature set point in AUTO mode can be changed with the **SP2** parameter.



Touch **SET** key and select SP2. Touch **SET** to confirm.

The display will show the programmed temperature.

Touch **∇** or **∧** to select the desired temperature.

Touch **SET** to confirm or **⏻** to cancel.

This mode only works properly if the installer connects the electrical heater to be controlled by the Ecoflex TD.



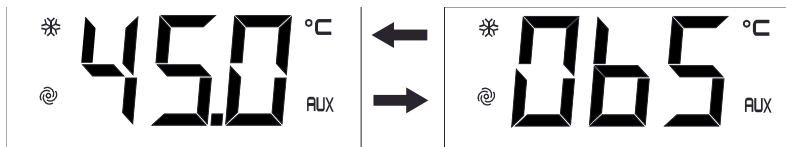
10.9. OVERBOOST Mode (ONLY IN COMBINATION WITH ELECTRICAL HEATER)

Select this mode to achieve a fast heating by using simultaneously heat pump and electric heater.

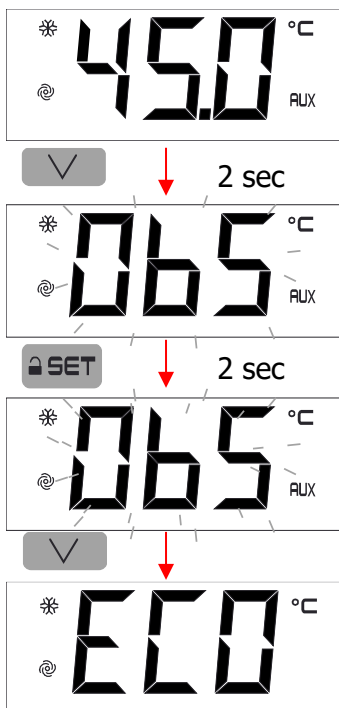
This mode Works as a rapid heating. Once the setpoint temperature is reached, the system returns to the initial mode.


- If Overboost mode is switched on when the system Works from **ECO mode**: The system heats the water up to **SP1**, and then returns to ECO again
- If Overboost mode is switched on when the system Works from **Auto mode**: The system heats the water up to **SP2**, and then returns to Auto again


When Overboost mode is active, the display automatically changes showing the water temperature and **Obs**.




Cancelling the Overboost Mode



Touch  for 2 seconds, **Obs** will blink on the screen

Touch  for 2 seconds again, **Obs** will blink faster

Touch  and the mode will be changed for the initial mode.



Parameter SP3 allows to set the minimum temperature that Overboost can be activated.

To change it value, follow the procedure:



1 click



1 click



1 click



Touch and select with and SP3. Touch to confirm.

The display will show the programmed temperature.

Touch or to select the desired temperature.

Touch to confirm or to cancel.

This mode only works properly if the installer connects the electrical heater to be controlled by the Ecoflex TD.



11. WARRANTY CONDITIONS

Component	Warranty period
Electrical, electronic and mechanical removable components	2 years
Heat exchanger	1 year
Evaporator panel	5 years

WARRANTY CONDITIONS

The warranty exclusively covers production faults of the product, excluding any liability for any material damage or injury that results directly or indirectly from the use of this product.

The warranty takes effect from the moment that the system is installed, perfectly justified via the commissioning file correctly completed and sent to the factory within 2 months, or in absence of this justification, the date that shall be taken into consideration is the invoice date.

The installer or distributor of the product is the solely responsible for compliance with the installation rules given by the manufacturer.

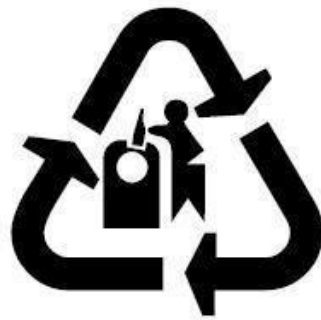
Failures or incidences due to the following reasons are excluded from the warranty:

- Handling or repair the product by unauthorised personnel.
- Damage caused by impact or fall during handling the product after it leaves the factory.
- Location of the product at any place subject to high temperature, humidity, inclemency, frost, aggressive environment...
- Fault caused by an erroneous installation, which makes the product work out of its design conditions.
- Faults caused by not having installed the supplied security group or incorrect installation thereof.
- Overvoltage power supply (grid, beam...)
- Faulty electrical connection, insufficient wire section, non-compliance with electrical schemes...
- Use water within any of the following criteria:
 - o Calcium carbonate (CaCO₃) content > 200 mg/L
 - o Soluble salts content higher than 500 mg/L
 - o Alkalinity greater than 150 mg/L (ppm)
 - o Ph of water lower than 6 or higher than 9, measured at 20 °C.
 - o Chloride content > 500 mg/L
- Fault due to galvanic corrosion result from direct connection of copper pipes without electrolytic sleeve
- Installation of the product in a manner not in accordance with the operating instructions
- Damages result from problems that could not be detectable due to the location of the system (hardly accessible place) and that could have been avoided by a prompt repair of the product.
- Switch on the heating system without filling the tank (dry heating).
- Any modification of the product without prior agreement with the manufacturer or use spare parts non-authorized or non-supplied by the manufacturer.

Based on these considerations, the warranty comprises in replacing the faulty component to the Installer or Distributor. Transport cost, labour or any compensation are excluded from the warranty.

The fault in single components never comprises the replacing of the product. The installer or distributor is responsible of the changing or reparation of the defective part.

The warranty of the replaced spare part has the same vigour as the product, shall not entail hence the warranty period to be extended or a new warranty period to commence.



CLIMER TECHNOLOGY S.L.L.- V1REV4

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