

---

## **TYPE DELTA SOLAR SYSTEM INSTALLATION GUIDE**

### *SINGLE AND DOUBLE SOLAR PANEL*

.....

- > GENERAL INSTALLATION GUIDELINES
- > PACKAGE CONTENTS & INSTRUCTIONS
- > INSTALLATION IMAGES FOR SINGLE & DOUBLE PANEL

# GENERAL INSTALLATION GUIDELINES

---

## ATTENTION!

The installation shall be done according to the respective local regulations that concern hydraulic and electrical installations.

The package removal shall be done at the installation site, so as to protect the items against scratches or other damages. Under no circumstances shall the solar panel/s stand on the connection tubes. Before the installation please make sure that you have removed the protective plastic cups from the tank and the panel/s. The liquid injection procedure shall not take place over solar radiation, so as to prevent the solar panel overheating. During the whole installation process (until the system is fulfilled) the solar panel/s shall remain covered. Always the tank shall be filled first (domestic water) and then the solar panel circuit (water with antifreeze liquid).

## INSTALLATION POINT

Before installing the solar system please make sure you have chosen the right spot and surface that can withstand the system's weight. This spot shall never be shadowed by trees, buildings or other obstacles during the year, so that the solar panels will maintain their full exposure to solar radiation. The installation shall take place only over totally flat surfaces with substantial carrying capacity. Prior to install the system please make sure that the flat or tiled roof disposes sufficient carrying capacity in Statics terms and according to the maximum expected load at the installation site. If the installation site is in a region with extreme wind or snow load the system shall be examined by a certified person (e.g. special engineer). In special cases there might be necessary to add reinforcements or other more resistant supports.

## INSTALLATION SPACE REQUIREMENTS

Every side of the system shall be away about 1,5m from any other object so as to:

1. Maintain easy access to the solar panel/s for maintenance reasons.
2. Protect the solar panel/s and the support against strong winds over the corners and/or edges of the roof.
3. Be able to get rid of the snow.

## ORIENTATION – OPTIMAL INCLINATION – SHADING

A crucial factor for the system's best performance is the correct choice of the orientation and the inclination in combination with the place (city) and the time during which we aim for max gain. The solar system shall be oriented this way that the selective surface is towards the South when we are talking about the North hemisphere (and respectively towards the North when we are in the South hemisphere), in any case the solar panel/s shall always be facing the equator. Any divergence will affect the system's performance. If you can't obtain the recommended orientation then the system's performance shall be amended with additional selective surface, after a specific condition evaluation study is held. The solar radiation's angle of incidence is changing during the year and depending also on the installation site so for this reason the solar panel's inclination angle shall be as much as the latitude in the specific site. This is the correct inclination for the max energy reception in annual base.

## GENERAL PRECAUTIONS

1. Please keep the installation site clean and free of any other irrelevant items during the installation process.
2. Never allow irrelevant persons approach the installation site or the tools.
3. Use only the specific parts/accessories destined for each specific system. The use of other parts or inappropriate tools may cause injury or other damage.

## PERSONNEL CONDITIONS

1. The solar system's installation shall only be effected by certified installer (technician).
2. Always wear protective glasses, suitable working clothes, protective shoes and protective helmet.
3. In dangerous sites, inclined roofs and/or points of great height, there should be taken special protective precautions and special equipment.

# BOLT TYPES INCLUDED IN THE PACKAGE

---



Tile protective rubber



M8 x 16mm



M8 x 25mm hexagon



M8 x 12mm hexagon



M10 nut



Grommet Ø10



M8 Nut

# INSTRUCTIONS FOR INSTALLATION & MAINTENANCE OF SOLAR SYSTEMS

---

INSTALLATION & MAINTENANCE MANUAL for the SOLAR SYSTEM, for better performance, safe operation, longer life-time and economy.

## A. INTRODUCTION

---

The solar tank of our company, has been designed according to the high efficiency, the mechanical strength, the easy installation and the longer life-time. Each part of the tank, has been constructed with the best materials and in accordance to the international standards, in order to ensure the durability of your investment. The tank's pioneer design obtains a high degree of efficiency, in all weather conditions. It is very important, the solar tank, to be combined with the correct collectors and with a base, that has stability and mechanical strength. In this way, the solar tank and the collectors have the best support.

### Safety Instructions

1. All hydraulic connections must have the most suitable sealant.
2. Only registered electricians must connect the heating element.
3. Before supplying electrical power to the heating element, first, fill the solar tank with water and purge from a spring of hot water.
4. The solar tank must not operate with water only to the mantle (*main tank must not be empty*).
5. A pressure relief device of 10 bar must be installed at the cold water inlet of the net, unless it is incorporated in the appliance.
6. A discharge pipe connected to the pressure-relief device is to be installed in a continuously downward direction and in a frost-free environment.
7. Water may drip from the discharge pipe of pressure-relief device. This pipe must be left open to the atmosphere.
8. The pressure-relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.
9. A mixing valve must always be positioned at the outlet of the hot water of the net, in order to avoid any risk of burn, because of the high temperature of the water. At the closed circuit, a safety valve of 1.5 bar must always be connected.
10. A return valve, must be positioned at the inlet of the hot water of the net.
11. **CAUTION:** The filling/discharge of the tank must not be done, under solar radiation. Otherwise, the collectors must be covered with special covers, in order to be protected against the sun.
12. The antifreeze fluid, should be added in the closed circuit, with a percentage according to the following table. It is important to be diluted in the water first, and then added in the circuit.

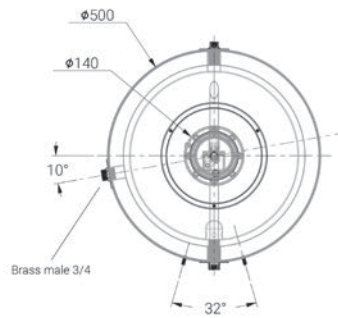
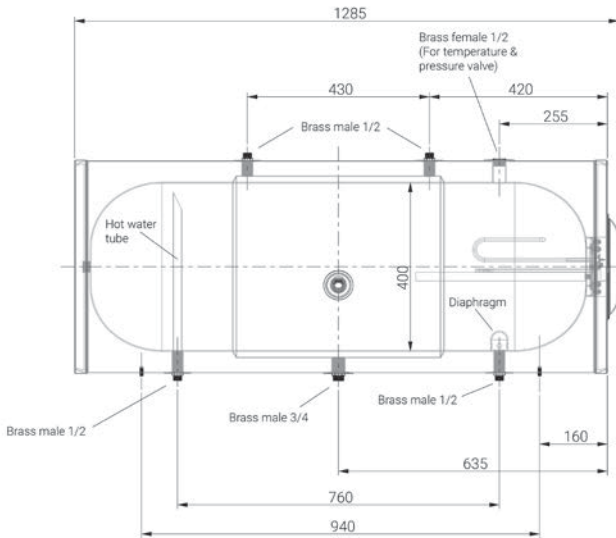
*For any question, please, do not hesitate to contact us.*

RATIO BETWEEN ANTIFREEZE FLUID AND WATER FOR SEVERAL LOW TEMPERATURES

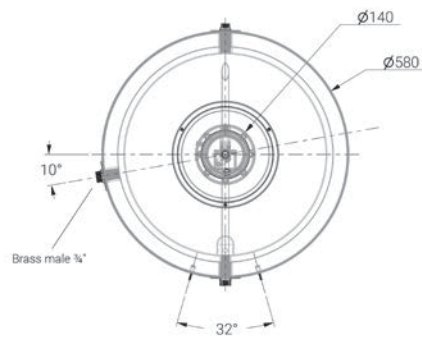
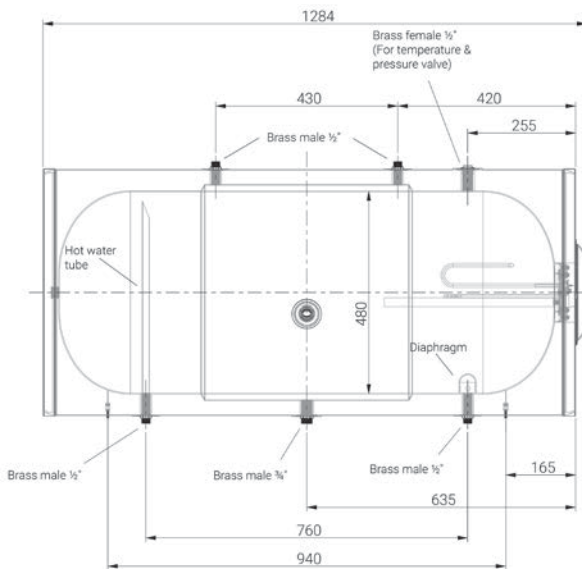
Antifreeze in weight %	Protection up to (°C)
20	-3
40	-6
50	-10
60	-13
80	-20
90	-25
100	-32

# 1. HYDRAULIC CONNECTIONS

## 1.2 CONNECTIONS



150 Lt



200 Lt

## 2. FILLING / DISCHARGE OF SOLAR SYSTEM

**For the filling / discharge of the solar system, follow the instructions below:**

**Filling:** The main tank must, ALWAYS, be filled first,

and then the closed circuit.

**Discharge:** First, empty the closed circuit and then the main tank.

### 3. ELECTRICAL HEATING ELEMENT

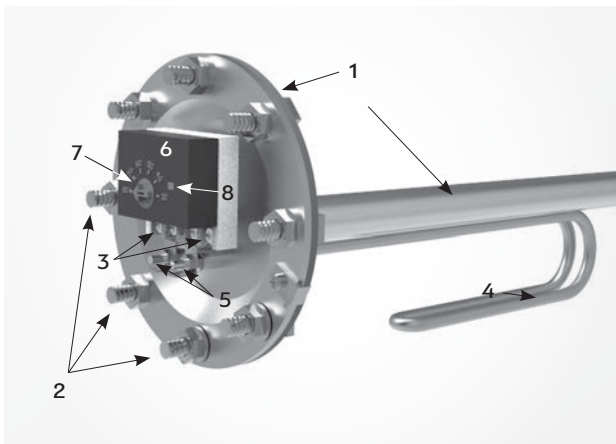
#### 3.1 GENERAL

The solar tank has an electrical heating element, only after customer's request. The electrical heating element can be applied, only if it is allowed from the country's laws and from the environment of the installation place. The heating element is installed at the tank's flange, together with the safety thermostat. The last one is set from the factory at 60°C.

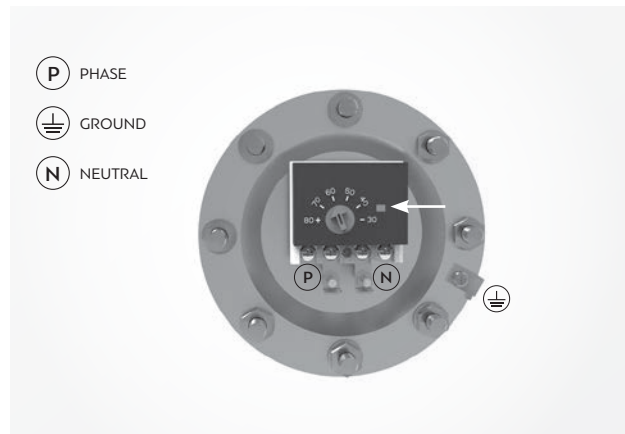
At the same flange (with or without heating element) the magnesium anode, is also placed.

1. The devices are in accordance with standards EN 60335-1 and EN60335-2-21.
2. All electrical connections must be made from registered staff.
3. Even if the heating element is not connected to the power supply, the ground cable must always be connected to the ground or to the base.
4. Do not ever adjust the temperature of the thermostat over 75°C.
5. Do not ever switch on the electrical heating element with the tank empty; the damage will be large. In this case, the guarantee of the company is not valid.
6. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

#### 3.2 PARTS OF ELECTRICAL HEATING ELEMENT – THERMOSTAT



- [1] Flange of the heating unit and magnesium bar
- [2] Flange screws holes
- [3] Earthing terminal
- [4] Thermostat connection to the heating unit (factory setting)
- [5] Terminals
- [6] Thermostat
- [7] Temperature regulator
- [8] Overheating safety



#### CONNECTION OF THE ELECTRICAL HEATING ELEMENT WITH THE THERMOSTAT

Switch off the main power supply. Take off the cover, and check if the nuts of the terminals (that connect the heating element with the thermostat) are well tight. Install the supply cord and connect according to the electrical connection's diagram.

#### 3.3 MAGNESIUM ANODE REPLACEMENT

Switch off the main power supply and empty the water from the tank. Take off the cover of the heating element and pull out carefully the thermostat. Take off the flange and remove (unscrew) the magnesium anode. Place the new anode and by following the opposite process, restore the tank in operation.

### 4. LIGHTNING PROTECTION

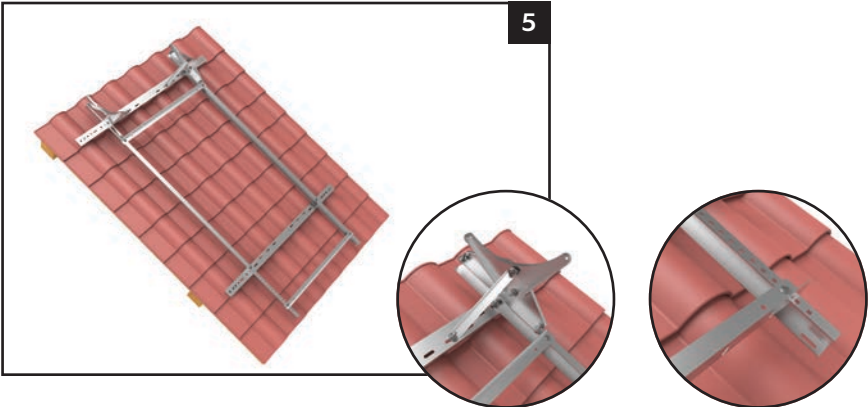
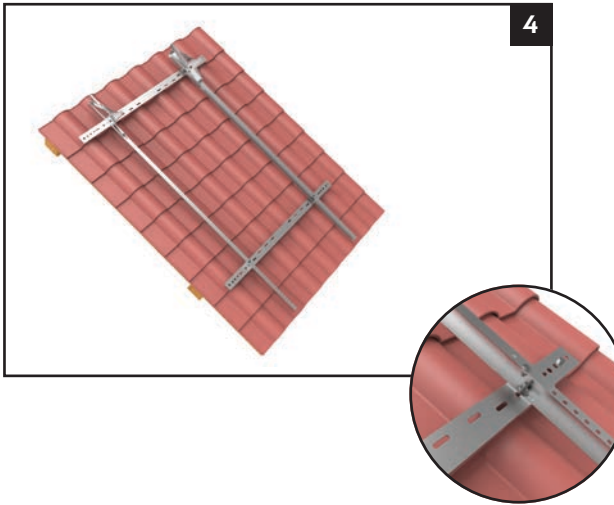
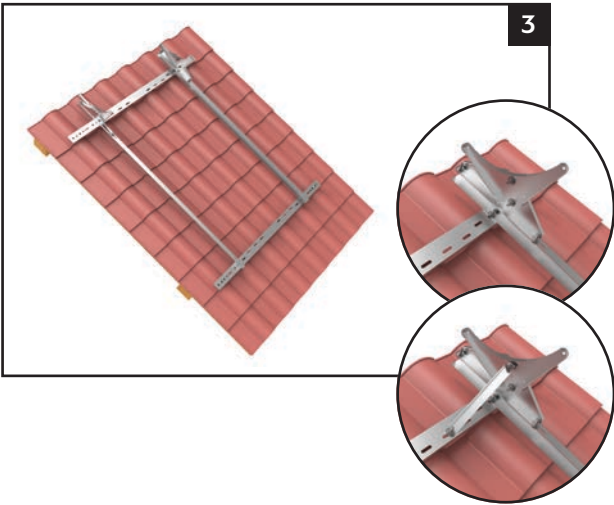
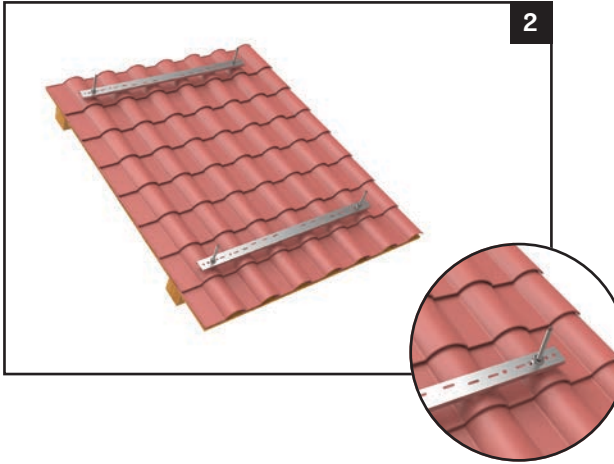
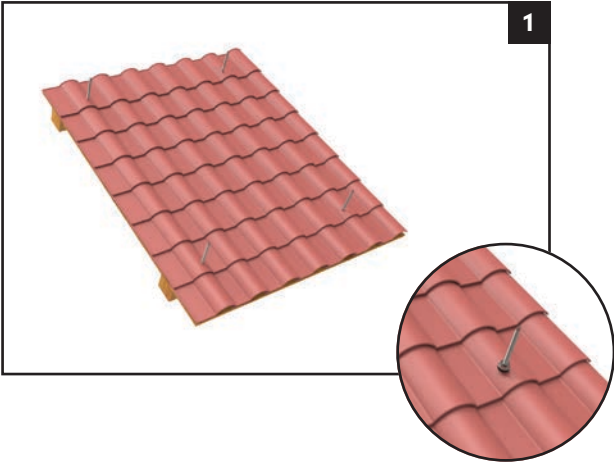
The thermal consequences of lightning currents are considered negligible (Annex E, paragraph E 5.10, standard EN 12976-2). Mechanical loads to the components of the system, because of the lightning loads, are considered to be negligible and they do not affect to their resistance and stability (Annex E, paragraph E 5.11, standard EN 12976-2). Thermal solar system is manufactured sufficiently and is capable of being connected to the present lightning protection to the roof of a building, in order to be protected against any kind of damage, because of the lightning. Additionally, to be mentioned that solar system is thermosiphon and its heating element is supplied from the central electrical power supply of the building. Furthermore, it is foreseen to have always the possibility to connect the heating element of the tank with the central grounding of the building.

## 5. COLLECTORS DATA

Technical Data	Units (SI)	TECHNICAL SPECIFICATIONS OF COLLECTORS H81			
		H81 – 12	H81 – 15	H81 – 20	H81 - 25
Type		H81 – 12	H81 – 15	H81 – 20	H81 - 25
External dimensions (Height x Length x Thickness)	mm	1250x960x80	1455x960x80	1960x960x80	1960x1210x80
Overall Area	m <sup>2</sup>	1.20	1.40	1.88	2.38
Aperture Area	m <sup>2</sup>	1.15	1.35	1.83	2.33
Absorber Area	m <sup>2</sup>	1.15	1.35	1.83	2.33
Weight (Dry & Packed)	Kg	22	26	33	41
Absorber Capacity	L	1.1	1.3	1.6	1.9
Housing / Thickness	mm	Prepainted metal sheet / 0.5			
Glass Cover		Tempered			
Thermal Insulation / Thickness / Density	mm/Kg/m <sup>3</sup>	Rockwool / 30 / 50 This rockwool is specially designed for solar collectors, is chemically inert, its attributes are maintained constant in time and do not allow the growth of parasites.			
Back Support / Thickness	mm	See Housing			
Absorber		Copper Tubes, Harp Shape - Selective Aluminium Surface in sheets (FF) - Laser Welded			
• Absorbtion	%	95			
• Emission	%	5			
• Header Cu Ø / Thickness	mm	22 / 0,7			
• Riser Cu Ø / Thickness	mm	8 / 0,40			
• Number of Risers	Pcs	8	8	8	11
• Connections Cu Ø 22		4 or 2			
• Max. Working Pressure	Bar	10			
Heat Transfer Medium		Mixture of Water & Antifreeze (Monopropylene Glycol)			
Position		Vertical			

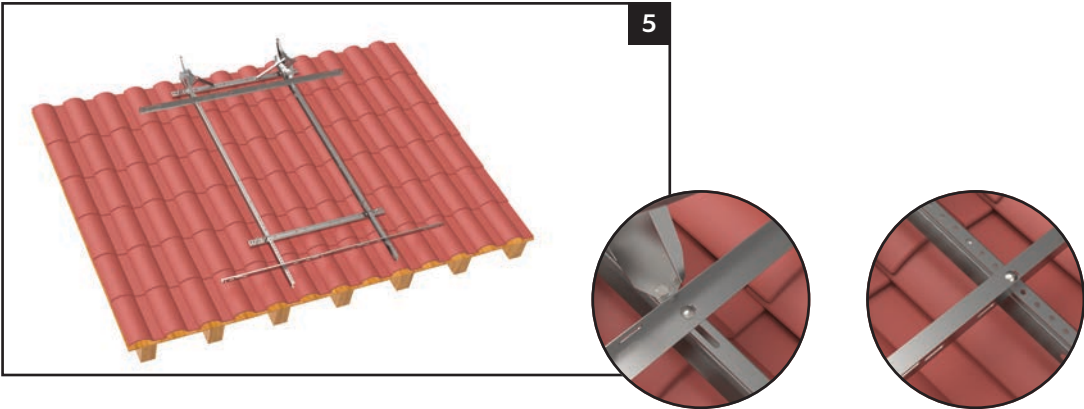
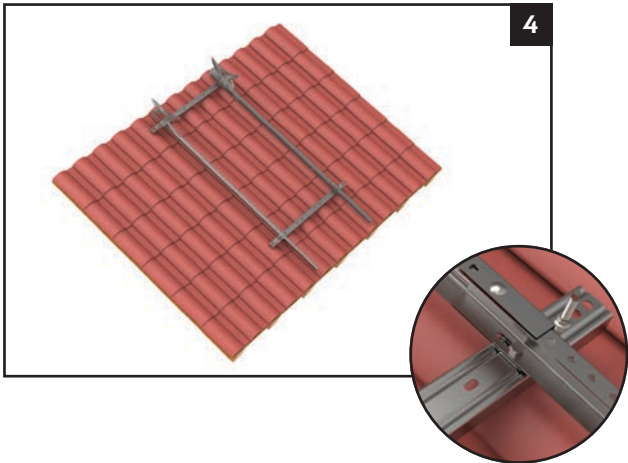
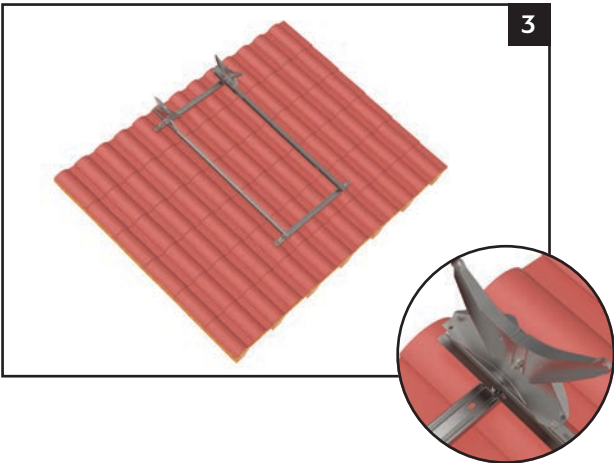
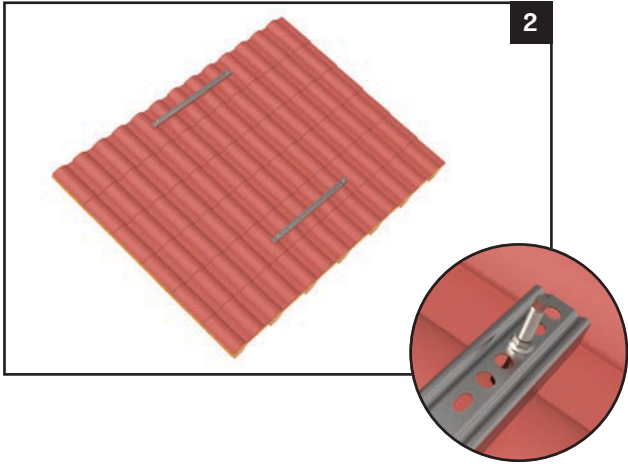
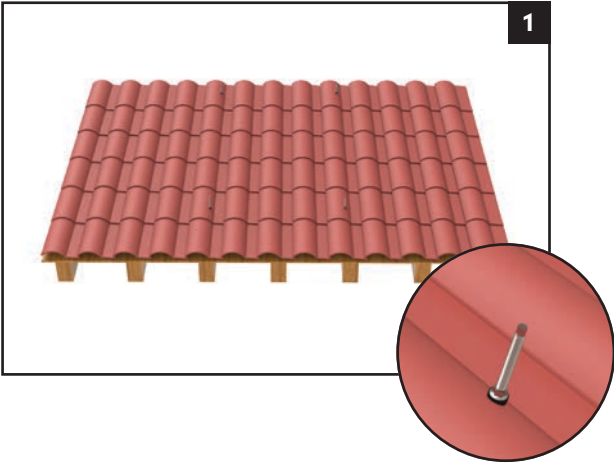
# ASSEMBLY INSTRUCTIONS (SINGLE PANEL)

---



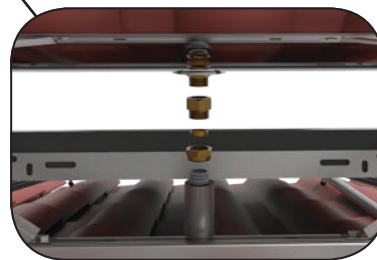
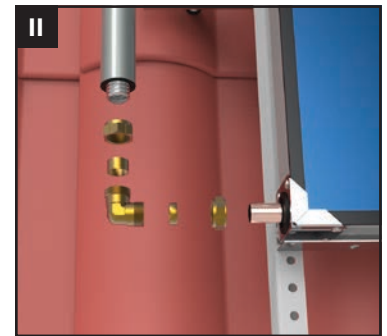
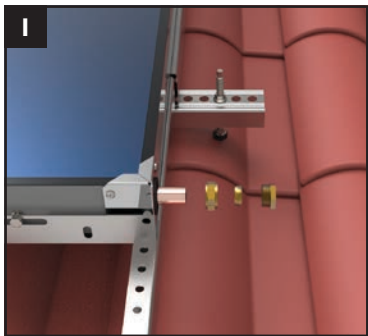
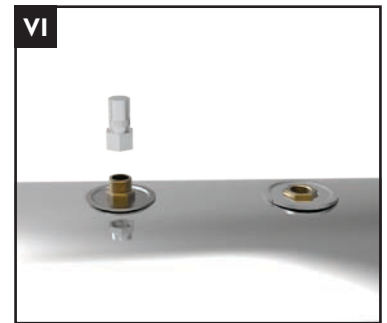
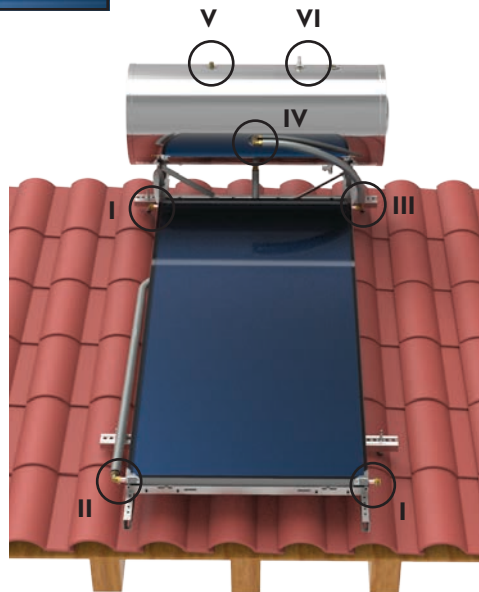
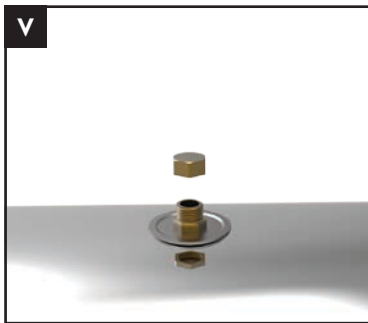
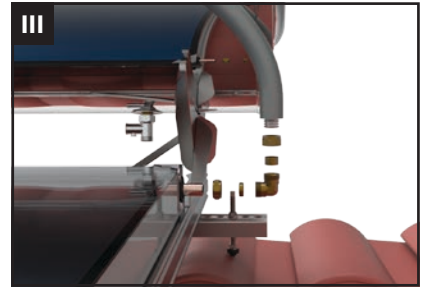
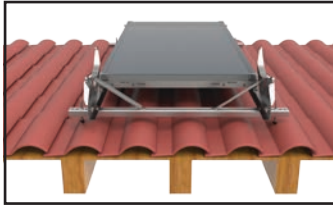
# ASSEMBLY INSTRUCTIONS (DOUBLE PANEL)

---





# INSTALLATION IMAGES / TYPE DELTA 150L SINGLE PANEL



# INSTALLATION IMAGES / TYPE DELTA 200L DOUBLE PANEL

