

# INSTALLATION MANUAL COMPACT



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## 1. Package contents

The package of the Compact Systems contains the solar systems and the connection kit (temperature and pressure relief valves, pressure reducing valve, aluminum footholds and their screws, essential hydraulic connection parts, electric resistance, thermostat, anode magnesium.)

## 2. Description

Compact System with tanks 100lt and 150lt, is produced by A.S.T. Solar Industry. It is a compact solar system, this means that the tank and the collector form a single unit.

## 3. Protection

The system does not require the addition or replacement of the antifreeze protection fluid because the closed circuit contains ethylic alcohol sealed in air vacuum which also operates as heat transfer fluid. The fluid protects the closed circuit from low temperature up ( $-60^{\circ}\text{C}$ ). For the antifreeze protection of the tank in long periods with absence of sunlight and temperature below zero ( $0^{\circ}\text{C}$ ), frequent operation of the electric resistance is required in order to avoid freezing of the water.

For over temperature treatment, temperature and pressure relief valve is installed on the water input which protects the system from pressure over 10 bars. Also, the quantity of the ethylic alcohol protects the system from over temperature.

In addition, the shape of the system and the quantity of the ethylic alcohol protect the system from reverse flow.

The collector has ventilation holes to avoid concentrates in the surface of the glass in climates with high humidity.

## 4. Installation

The system is designed for installation in horizontal or inclined surface.

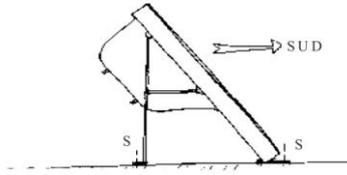
Before installation of the solar system determine the best location.  
It is necessary to ensure:

- Space placement is not obscured
- Minimum distance pipe
- Accessibility for inspection
- Minimum exposure to strong winds

### Placement Orientation and inclination

The system has to be installed with south orientation. The minimum distance from any walls or physical obstacles should be 1,5m.





In case of repeated morning fog it is wise to choose a south-west orientation.

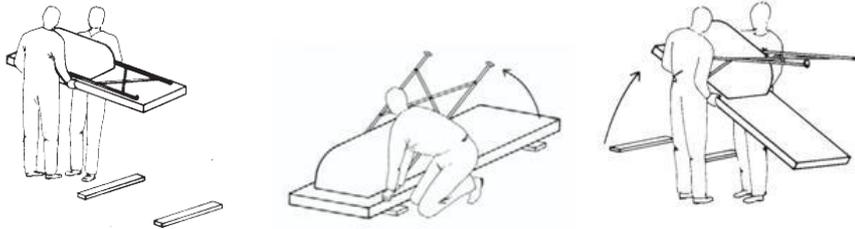
The slope of the standard system is 45 degrees.

Variation of about 15 degrees does not determine significant differences in the efficiency of the system. If installation is made on a roof system you cannot install a slope less than 20-30 degrees.

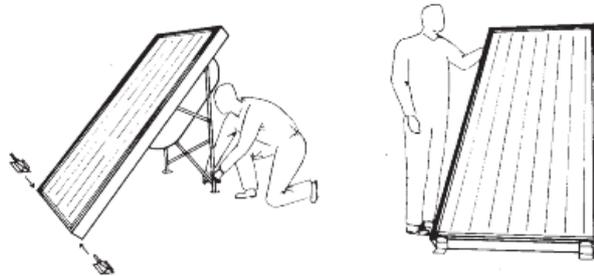
### Installation

The system has such weight that allows the manipulation of two or three people

1. Turn the system with the window down once you've placed underneath two woods to protect the mosque.



2. Lift the base and screw up the stacked (tees).



3. Lift the system upright
4. Insert the front braces (aluminum) and tighten all screws.
5. Orient the system and screw on the roof.
6. Insulate the holes on the roof to avoid humidity.

## 5. Hydraulic connection

The connection of the hydraulic system is simple. The cold water enters the tank from the lower tube (male thread 1 / 2 "), this position is distinguished by a blue ring of rubber. The output of the hot water (male thread 1 / 2 ") is the upper tube, this position is distinguished by a red ring of rubber. To connect the pipes on the system, use copper parts (female thread 1/2"). On the cold water input connect the relief valve to avoid the contamination of the tap water from the hot water in the tank.

The provided valve is 10 bars, in case of replacement use valve of the same technical features.

**Attention:**

Always ensure ideal temperature depending on the use of the hot water. In case of connection with devices such as washing machines ensure that they can work with temperatures up to 105 °C. Otherwise ask your plumber to install a mix valve on the hot water output.

The system can be connected to multiple devices in series or in parallel.

In the end of the installation, ensure that the hydraulic connections are correct and there is no chance of leak.

## 6. Electrical connections

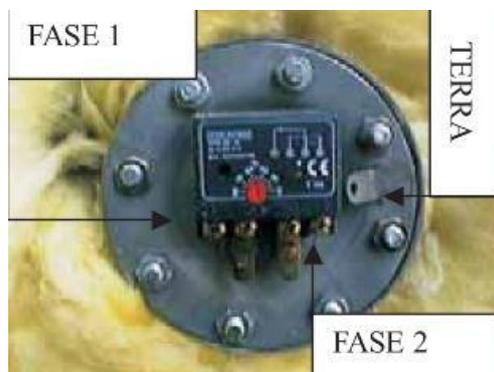
The system contains electrical resistance test according to the standards EN 60335-1 and EN 60335-2-21.

The wire of the connection to the power supply has to be insulated tripolar 4mm.  
Connection:

- Remove the metal cover in the lower part of the boiler.
- Connect the neutral on the thermostat on the contact 4.
- Connect the phase on the thermostat on the contact 1.
- Adjust the thermostat in the lower (50-55 °C).

The electric resistance is connected to the central grounding of the building for protection from short circuit and thunderbolts. In case that the resistance is not connected the installer should connect the grounding wire for protection.

All the electric parts of the system are certified with CE.

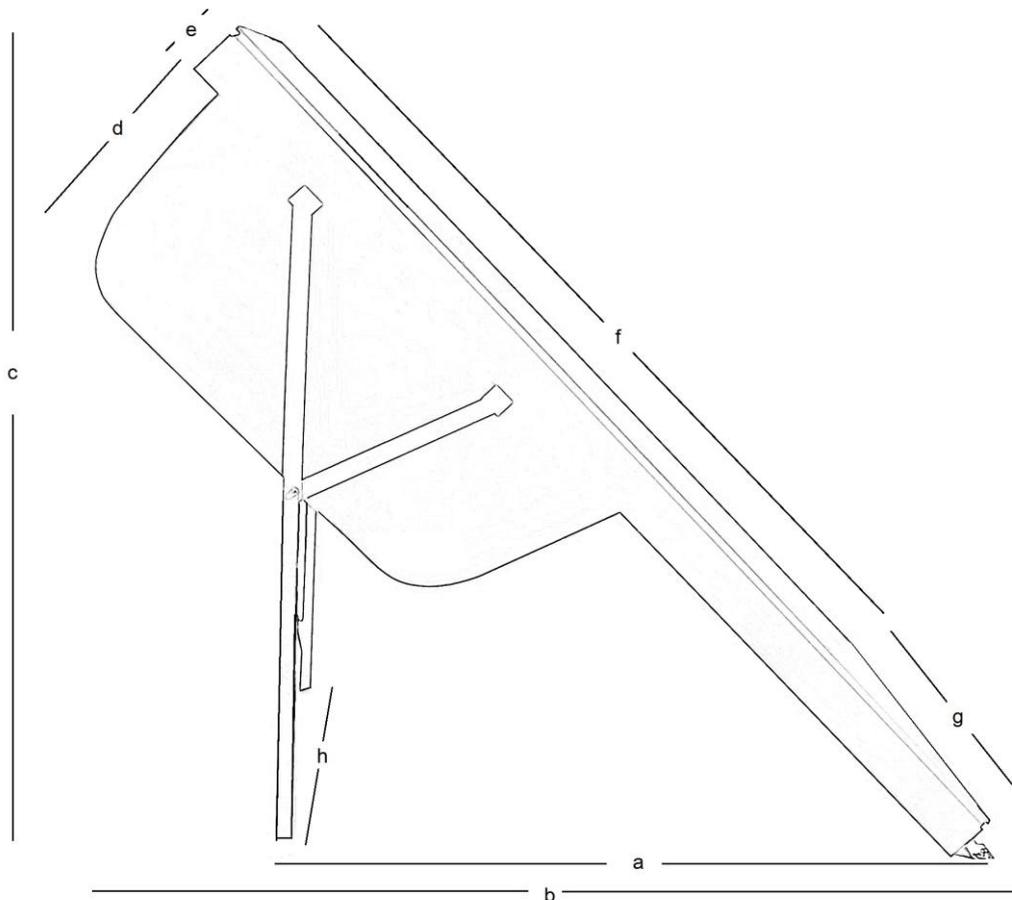


## 7. Maintenance

During the service, the magnesium anode has to be replaced, which protects the tank from calcars.

Also, it is essential to check the pressure temperature relief valve. This valve must be replaced with new in every scheduled service of the system by a specialized technician even if it is in good condition to ensure the protection of the tank.

## 8. Dimensions



Type	a	b	c	d	e	f	g	h
Compact 100	1000	1350	1200	460	110	1490	1030	870
Compact 120	1350	1700	1150	460	110	1980	980	870
Compact 160	1450	1950	1150	540	110	1980	1180	870

## 9. Technical features

Type	Compact 100	Compact 120	Compact 160
Total collector area	1,53 m <sup>2</sup>	1,96 m <sup>2</sup>	2,34 m <sup>2</sup>
Window area	1,29 m <sup>2</sup>	1,80 m <sup>2</sup>	2,15 m <sup>2</sup>
Absorber Area	1,29 m <sup>2</sup>	1,80 m <sup>2</sup>	2,15 m <sup>2</sup>
Heat transfer fluid	Ethylic Alcohol	Ethylic Alcohol	Ethylic Alcohol
Max pressure	10 bar	10 bar	10 bar
Frost resistance	-60 °C	-60 °C	-60 °C
Max fluid pressure	- 1 bar	- 1 bar	- 1 bar
Boiler Volume	100lt	120 lt	160lt
Resistance	2 kw	2 kw	2 kw
Calcareous treatment	Magnesium anode	Magnesium anode	Magnesium anode
Absorber material	aluminum	aluminum	aluminum
Glass material	security	security	security
Boiler material	Galvanized steel / Inox 316L	Galvanized steel / Inox 316L	Galvanized steel / Inox 316L
Boiler material thickness	3mm / 2,5mm	3mm / 2,5mm	3mm / 2,5mm
Weight	70kg / 65kg	80kg / 75kg	90kg / 85kg