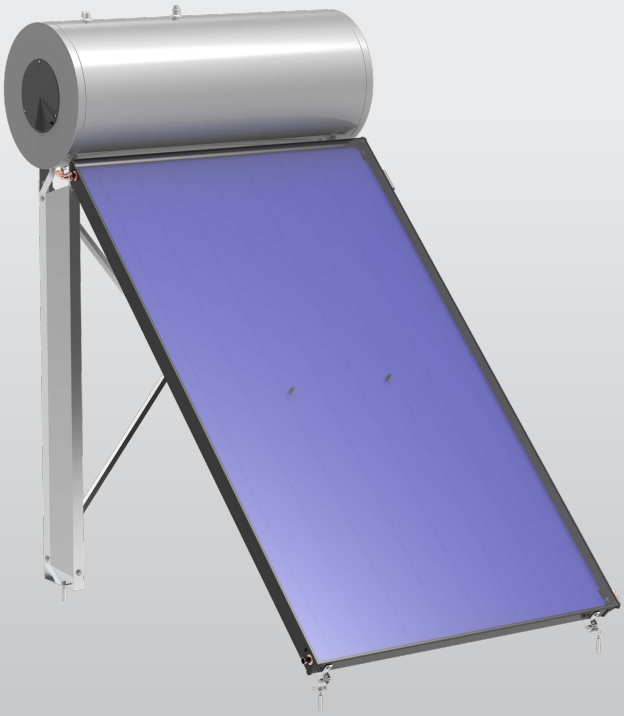
27022074 - EN - rev. 00 12\2023

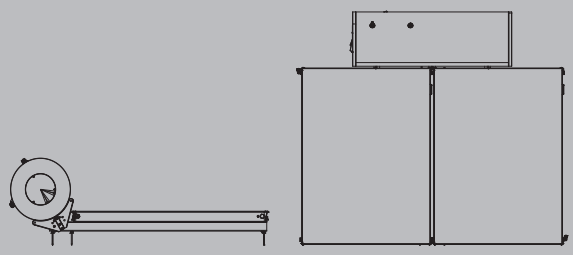
Solar thermal and cylinders



System CSNA-A

Natural circulation solar system

Domestic hot water production
Solar Keymark certification



A Carrier Company

RIELLO
Energy For Life

System CSNA-A

PRODUCT DESCRIPTION

Natural circulation system solutions dedicated to the production of domestic hot water for household users, even in climate areas that are not particularly favorable.

They are made up of pre-assembled elements and do not require a pump or electronic controls, thus ensuring simple and quick installation.

The system includes:

- high efficiency, well insulated solar collector with highly selective aluminum absorber;
- enamelled cylinder with polyurethane insulation and magnesium anode;
- fixing systems for installation parallel to the roof or inclined at 45° on flat surfaces;
- supplementary single-phase electric resistance (also usable as antifreeze) already present in the cylinder;
- antifreeze liquid;
- Solar Keymark certified solar system;
- 5-year warranty on the system.

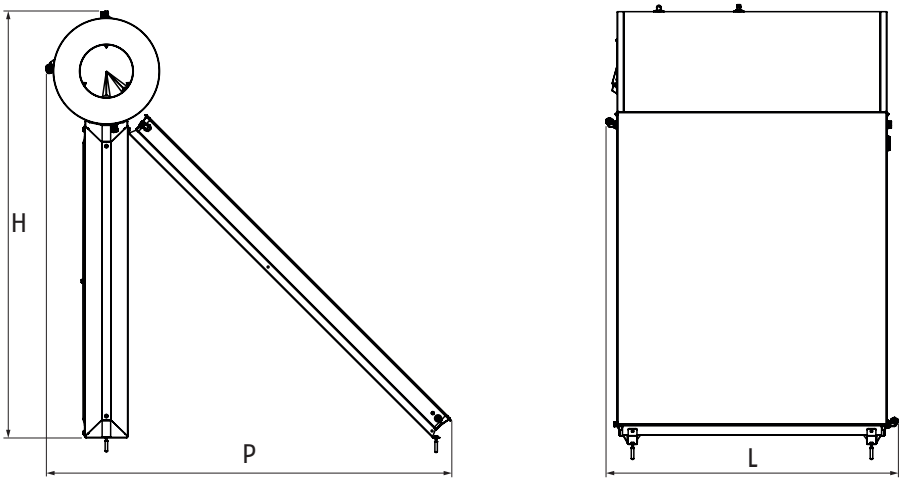
TECHNICAL DATA

Description	UM	160/2,5	200/2,5	200/4	300/4	300/5
Qnonsol M (*)	kWh	410	410	279	270	218
Qnonsol L (*)	kWh	1231	1187	863	802	679
Qnonsol XL (*)	kWh	2579	2500	1930	1790	1536
Qnonsol XXL (*)	kWh	3716	3629	2937	2729	2376
CYLINDER						
Storage tank volume	l	151	190	190	276	276
Empty cylinder weight	kg	58	73	73	96	96
Full cylinder weight	kg	209	263	263	372	372
Length	mm	1230	1526	1526	2150	2150
Diameter	Ø mm	500	500	500	500	500
Electric heater	kW	1,5	1,5	1,5	1,5	1,5
Magnesium anode	Ø x mm	22 x 500	26 x 450	26 x 450	26 x 450	26 x 450
Max pressure DHW circuit	bar	10	10	10	10	10
Max pressure solar circuit	bar	2,5	2,5	2,5	2,5	2,5
COLLECTORS						
Type		2,5	2,5	2	2	2,5
Dimensions	mm	1235 x 2020 x 85	1235 x 2020 x 85	1235 x 1625 x 85	1235 x 1625 x 85	1235 x 2020 x 85
Number of collectors		1	1	2	2	2
Gross area per collector	m²	2,5	2,5	2	2	2,5
Opening area for the collector	m²	2,39	2,39	1,91	1,91	2,39
Area of the absorber for the collector	m²	2,37	2,37	1,9	1,9	2,37
Weight per empty collector	kg	35,4	35,4	29,15	29,15	35,4
Maximum working temperature	°C	180	180	180	180	180
Thermal liquid for absorber	l	1,55	1,55	1,38	1,38	1,55

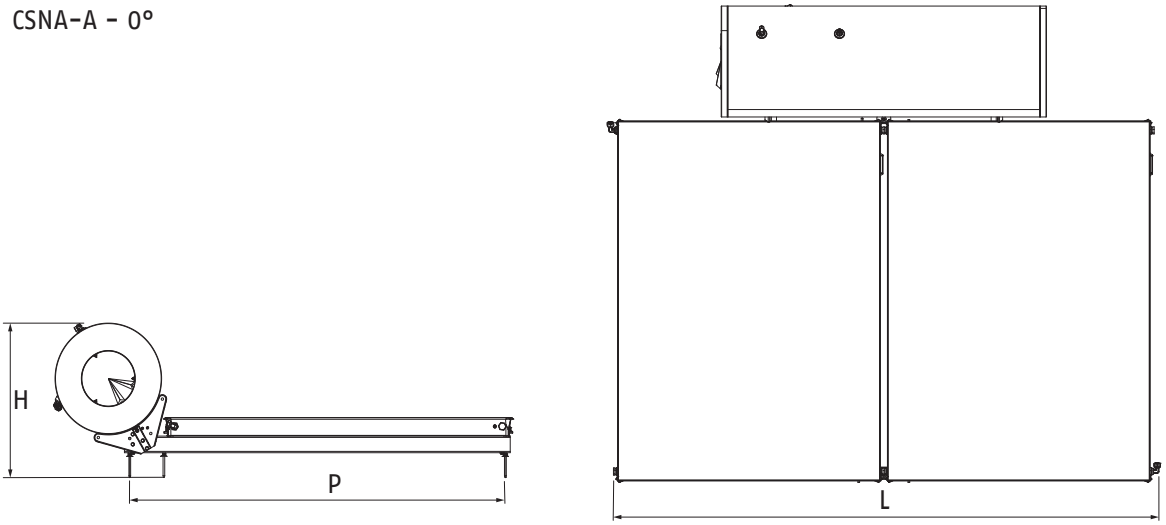
(*) Value calculated in terms of primary energy for electricity and/or in terms of calorific value for fuel, in average climatic conditions, in load profiles M,L,XL, XXL, with permanent backup and boiler.

OVERALL DIMENSIONS

CSNA-A - 45°



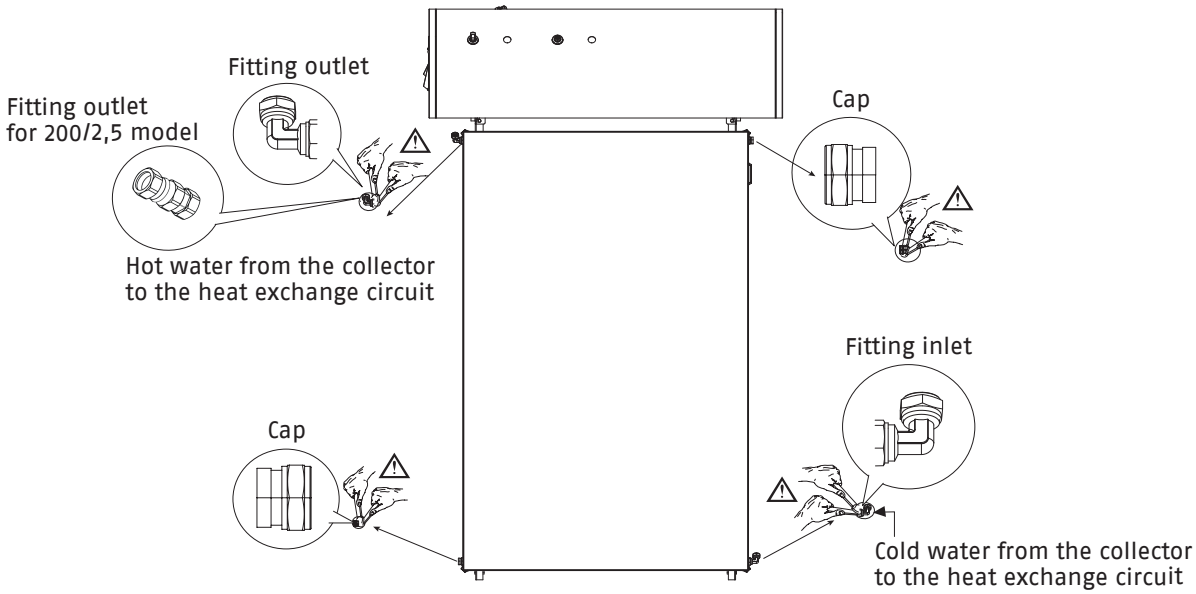
CSNA-A - 0°

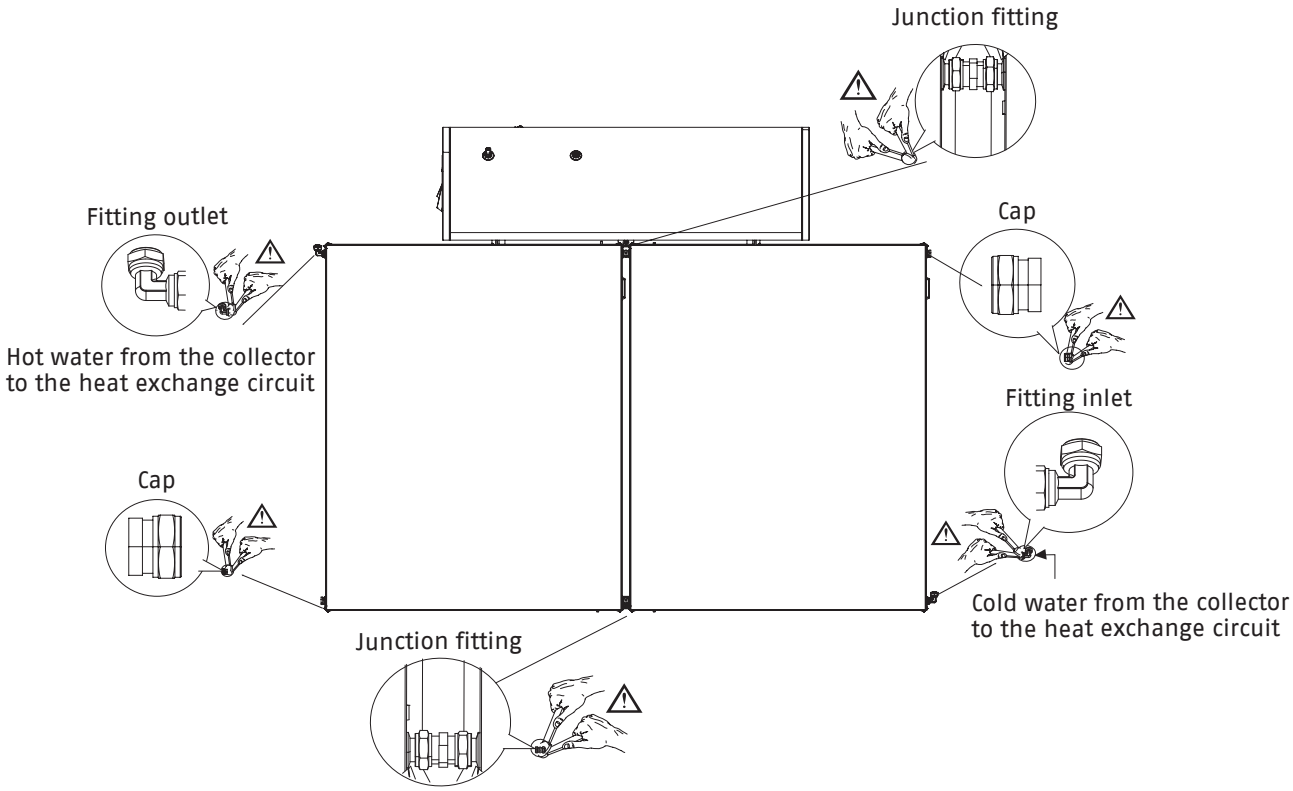


Description	U.M.	160/2,5		200/2,5		200/4		300/4		300/5	
Inclination		45°	0°	45°	0°	45°	0°	45°	0°	45°	0°
Height (H)	mm	2006	825	2006	825	1727	825	1727	825	2006	825
Width (L)	mm	1314	1314	1526	1526	2586	2586	2586	2586	2586	2586
Depth (P)	mm	1903	2657	1903	2657	1626	2197	1626	2197	1903	2657
Weight of the empty system (**)	kg	93,4		108,4		131,3		154,3		166,8	
Full system weight (**)	kg	245,9		299,9		324,1		433,1		445,9	

(**) Storage tank + collector/s. The brackets are not included.

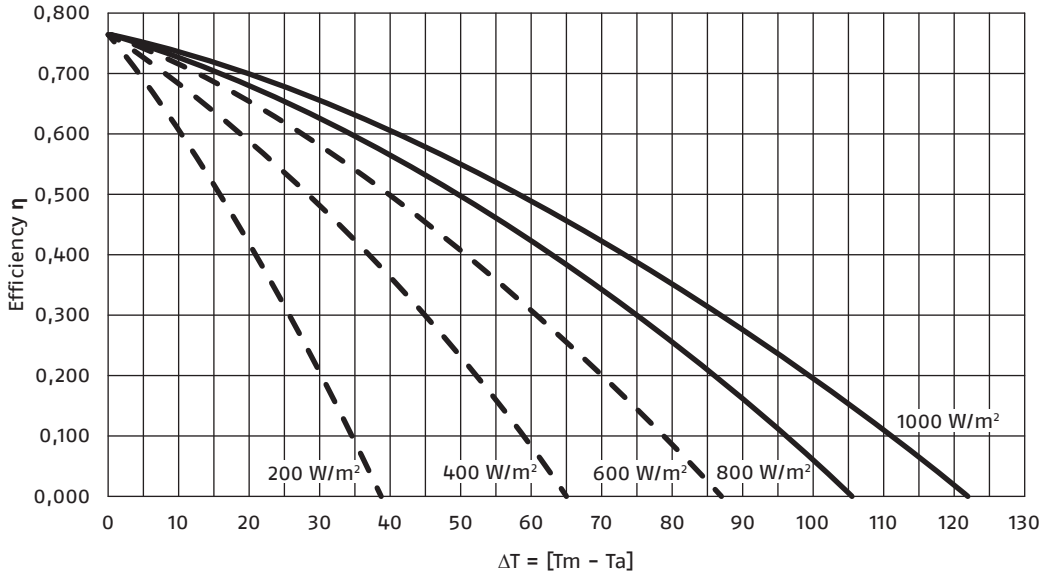
STRUCTURE


Fitting outlet
Fitting outlet
for 200/2,5 model
Cap
Hot water from the collector
to the heat exchange circuit
Fitting inlet
Cap
Cold water from the collector
to the heat exchange circuit

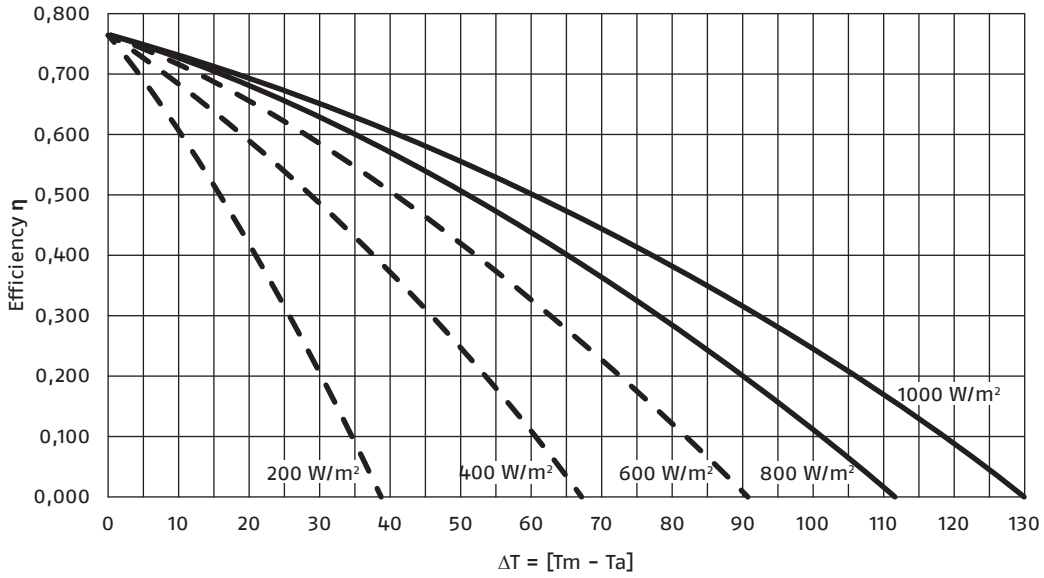

Junction fitting
Fitting outlet
Cap
Hot water from the collector
to the heat exchange circuit
Fitting inlet
Cap
Cold water from the collector
to the heat exchange circuit
Junction fitting

EFFICIENCY CURVE

Efficiency curve – solar collector 2,0 m²



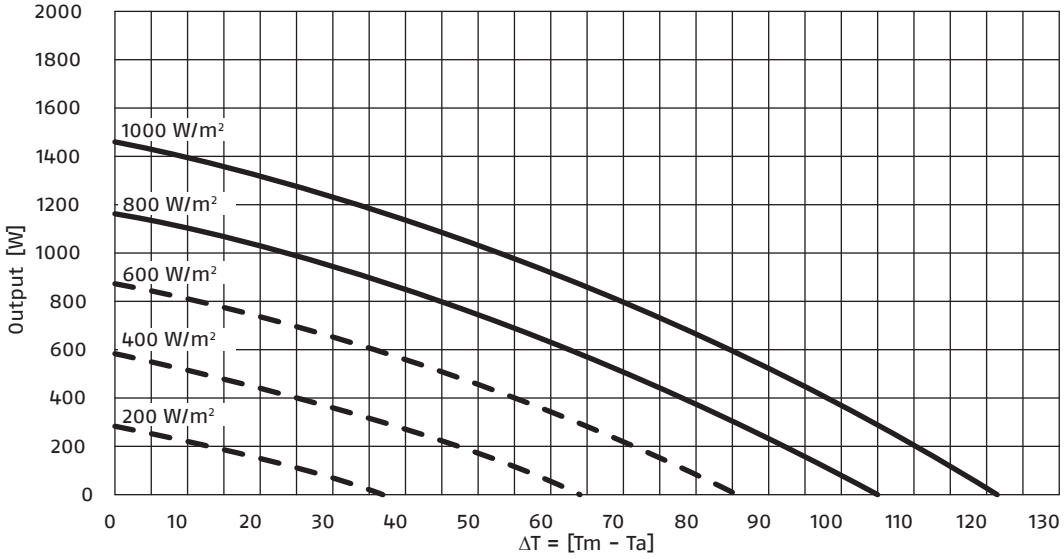
Efficiency curve – solar collector 2,5 m²



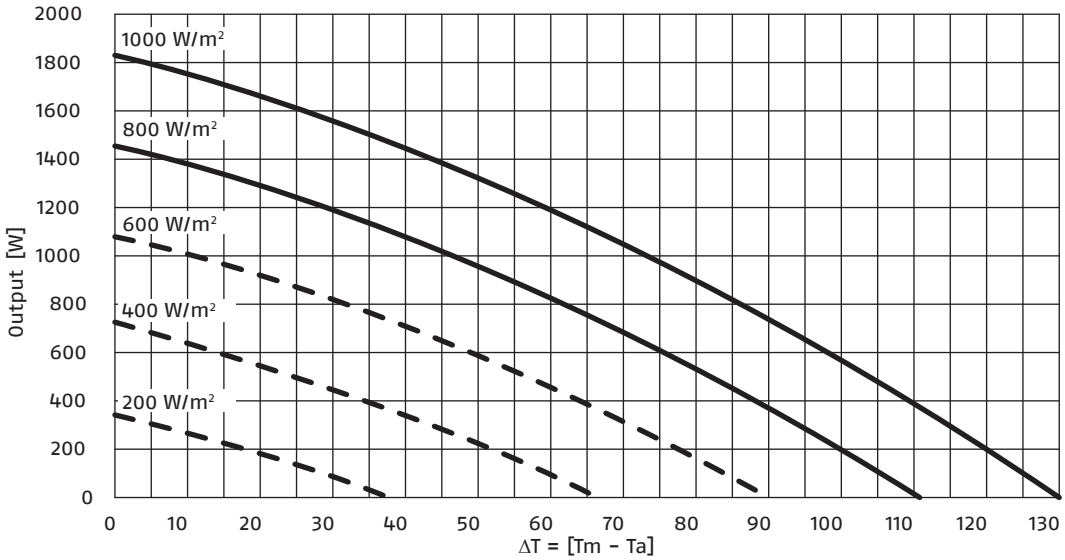
Tm = Everage temperature of solar collector
Ta = Outdoor temperature

OUTPUT POWER CURVE

Returned power curve – solar collector 2,0m²



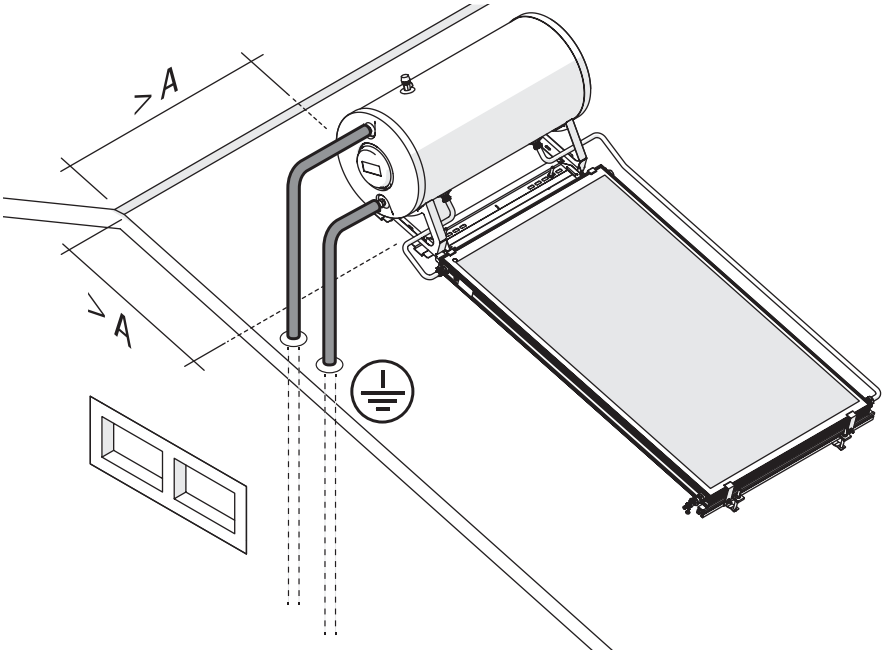
Returned power curve – solar collector 2,5m²



Tm = Everage temperature of solar collector
Ta = Outdoor temperature

INSTALLATION OF THE SOLAR SYSTEM

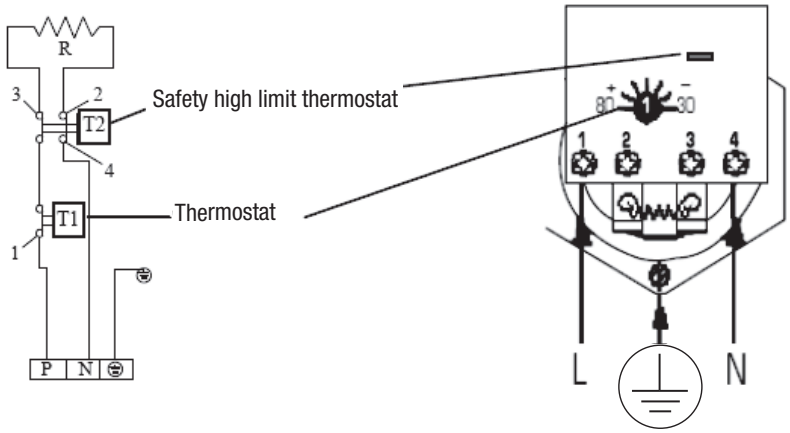
Preparing for installation:
- Select the best possible orientation for the solar collectors (ideally facing south).
- Avoid positions that are shaded by plants, trees, buildings or hills, etc. during the day..
- Maintain the minimum distance (A) between the system and the edge of the roof.
- Remove all gravel and detritus from the surface on which the system is to be installed.
- The mounting kit must not be used to install other superstructures. It is designed only for use with our solar water heating systems.
- The installation of a solar water heating system modifies the existing structure of the roof. Verify the suitability of all roof elements and if necessary adapt them to avoid leaks or damage by wind and/or snow loads.



Description	U.M.	160/2,5	200/2,5	200/4	300/4	300/5
A	m	1	1	1,5	1,5	1

ELECTRICAL CONNECTIONS

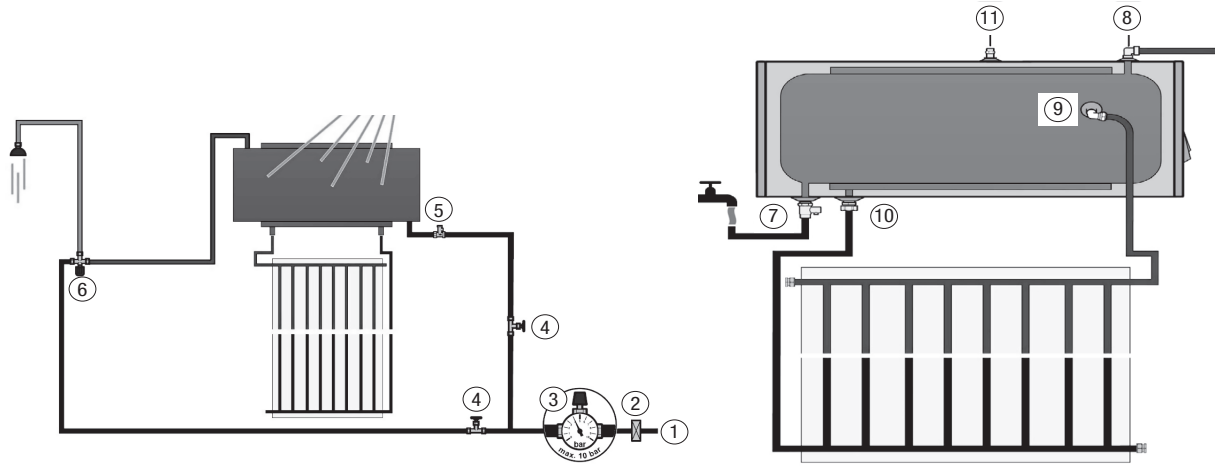
All storage tanks are supplied with a thermostat pre set at 80°C. Before starting, set the thermostat to the desired temperature.



HYDRAULIC CONNECTIONS

The water supply circuit must permit the storage cylinder to be filled and emptied in safety. Shut-off valves must therefore be easily accessible to the user and the operation of emptying the storage cylinder must not create any risk of flooding or other damage.

- All water pipe connections must conform to applicable standards.
- The operating pressure limits specified on the data plate must never be exceeded. It may therefore be necessary to fit a pressure reducer.
- A thermal mixing valve must always be connected to the hot water outlet to control the temperature of hot at the taps.
- The point through which the water pipes enter the building must be rain-proof and damp-proof.



1. Domestic cold water inlet.
2. Water filter.
3. Pressure reducer MAX 10 bar.
4. Shut-off valve.
5. Non-return valve + safety valve 10 bar.
6. Thermostatic DHW mixer.
7. Domestic cold water supply, safety valve safety valve 10bar + non-return valve.
8. Domestic hot water outlet.
9. Solar circuit, hot glycol inlet.
10. Solar circuit, cold glycol outlet.
11. Safety valve 2,5 bar.

FILLING CIRCUIT OF THE SOLAR COLLECTOR

The antifreeze provided with NB-SOL-A contains non-toxic, biodegradable and ecological propylene glycol.
Mix propylene glycol with water (preferably de-mineralized). Determine the required concentration of propylene glycol using the table opposite based on the temperatures for which frost protection is required.

Antifreeze liquid	Temperature	Density (20°C)
55%	-40 °C	1,048 kg/dm³
50%	-32 °C	1,045 kg/dm³
45%	-26 °C	1,042 kg/dm³
40%	-21 °C	1,037 kg/dm³
35%	-17 °C	1,033 kg/dm³
30%	-14 °C	1,029 kg/dm³
25%	-10 °C	1,023 kg/dm³

Note: To top up the circuit, use only the products listed in our catalogue.

PRODUCT DESCRIPTION FOR SPECIFICATION

SOLAR COLLECTOR 2 m²

Features:

- Gross surface area from 2,0 m²;
- Effective absorber surface area of 1,90 m²;
- Absorber consisting of an aluminium absorber plate with selective TINOx Energy Al finish;
- Energy absorption 95%;
- Emissivity 4%;
- Internal hydraulic circuit consisting of 2 horizontal copper DN22 manifolds to which the harp, also made of copper, consisting of 12 parallel DN8 pipes is laser-welded. The ultrasonic welding results in a high yield of the solar collector; the copper harp is slightly bent at the DN22 collectors to maximise the effective exchange surface between absorber and DN8 pipes, containing the heat transfer fluid;
- 4 copper DN 22 mm connections with compression fittings;
- Frame made of high-quality galvanised steel, 0,42 mm thick, pre-painted for maximum resistance to corrosion and aggressive/marine environments;
- Insulation made of 30 mm rock wool, density 40 kg/m³, allowing high performance even at low temperatures;
- Clear tempered prismatic glass with low iron content. It is of the 'mistlite' type, thus presenting a rough appearance to the eye. It is 3,2 mm thick and is fixed to the frame by a polymeric material called Colofast®. Colofast® provides a perfect joint between the glass and the frame, ensuring robustness but at the same time flexibility. In addition, this type of joint makes the panel perfectly weatherproof and gives it a perfect finish;
- Stagnation temperature 180°C;
- Maximum working pressure 10 bar;
- Complies with EN 12975-1 and ISO 9806 standards;
- Solar Keymark certified;
- 5-year warranty.

SOLAR COLLECTOR 2,5 m²

Features:

- Gross surface area of 2,49 m²;
- Effective absorber surface area of 2,37 m²;
- Absorber consisting of an aluminium absorber plate with selective TINOx Energy Al finish;
- Energy absorption 95%;
- Emissivity 4%;
- Internal hydraulic circuit consisting of 2 horizontal copper DN22 manifolds to which the harp, also made of copper, consisting of 12 parallel DN8 pipes is laser-welded. The ultrasonic welding results in a high yield of the solar collector; the copper harp is slightly bent at the DN22 collectors to maximise the effective exchange surface between absorber and DN8 pipes, containing the heat transfer fluid;
- 4 copper DN 22 mm connections with compression fittings;
- Frame made of high-quality galvanised steel, 0,42 mm thick, pre-painted for maximum resistance to corrosion and aggressive/marine environments;
- 30 mm rock wool insulation, density 40 kg/m³, allowing high performance even at low temperatures;
- Clear tempered prismatic glass with low iron content. It is of the 'mistlite' type, thus presenting a rough appearance to the eye. It is 3,2 mm thick and is fixed to the frame by a polymeric material called Colofast®. Colofast® provides a perfect joint between the glass and the frame, ensuring strength but at the same time flexibility. In addition, this type of joint makes the panel perfectly weatherproof and gives it a perfect finish;
- Stagnation temperature 180°C;
- Maximum working pressure 10 bar;
- Complies with EN 12975-1 and ISO 9806 standards;
- Solar Keymark certified;
- 5-year warranty.

CYLINDER

- Capacity 151 - 190 - 276 litres.
- Enamelled steel.
- Length 1230 mm (mod. 160), 1526 mm (mod. 200), 2150 mm (mod.300).
- Diameter 500 mm.
- Electric heater 1,5 kW.
- Magnesium anode.
- Max sanitary circuit pressure 10 bar.
- Max solar circuit pressure 2,5 bar.
- Complies with standard UNI EN 12897.

Notes

Notes

RIELLO

SYSTEM CSNA-A

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The company is constantly striving to perfect its entire production range, so the design and size characteristics, technical data, equipment and accessories may vary.

Carrier