SUNSHINE

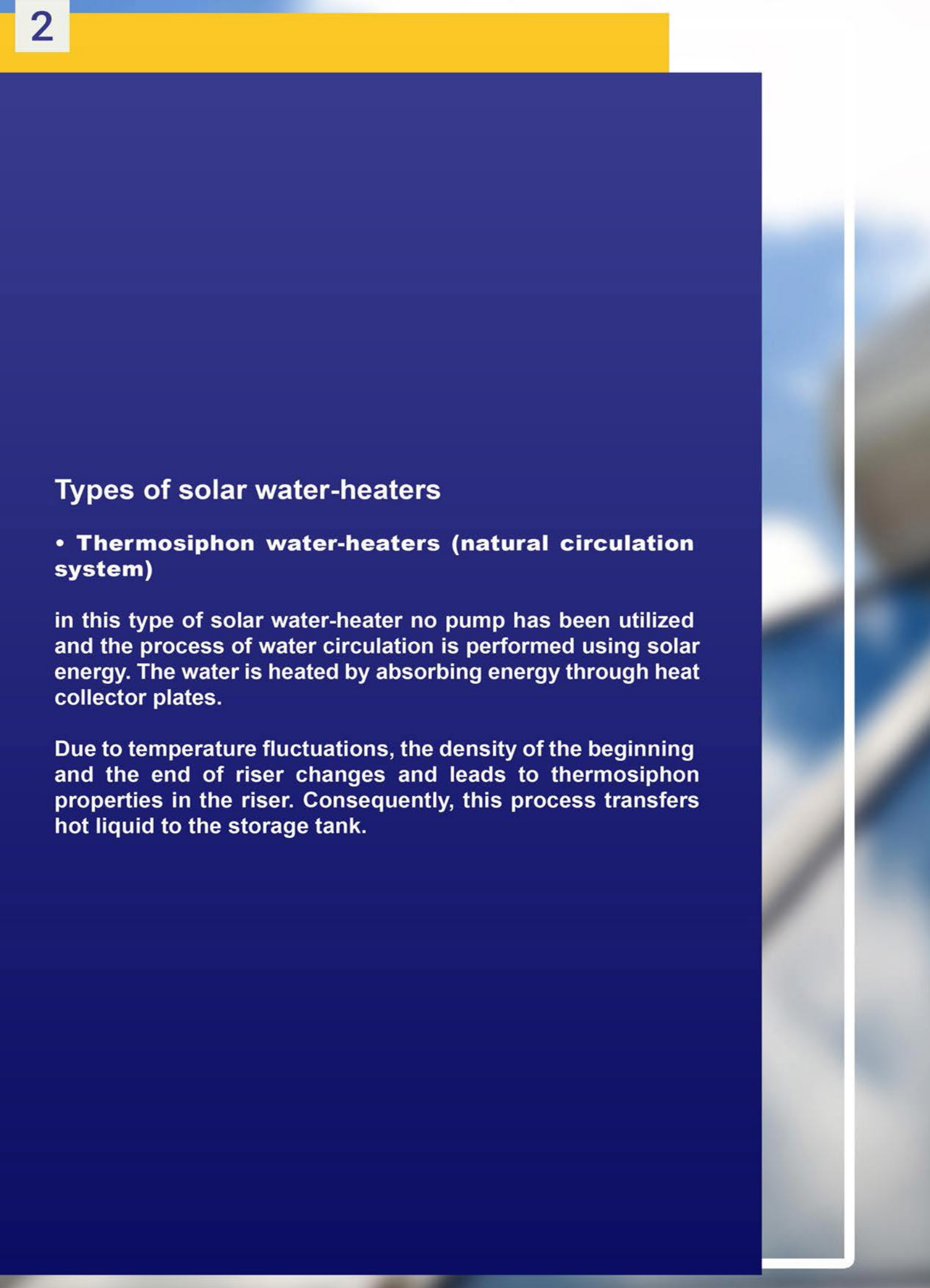
Solar water-heaters

Types of solar water-heaters

- **Thermosiphon water-heaters (natural circulation system)**

in this type of solar water-heater no pump has been utilized and the process of water circulation is performed using solar energy. The water is heated by absorbing energy through heat collector plates.

Due to temperature fluctuations, the density of the beginning and the end of riser changes and leads to thermosiphon properties in the riser. Consequently, this process transfers hot liquid to the storage tank.



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If the system is direct, the heated liquid is the water to be consumed, and if the system is indirect (double-walled storage tank), the heated liquid (solution of water and anti-freeze) will be heated in the outer wall of the storage tank and subsequently will return to the collector.

The principle of thermosiphon is adopted in Sunshine solar water-heaters.

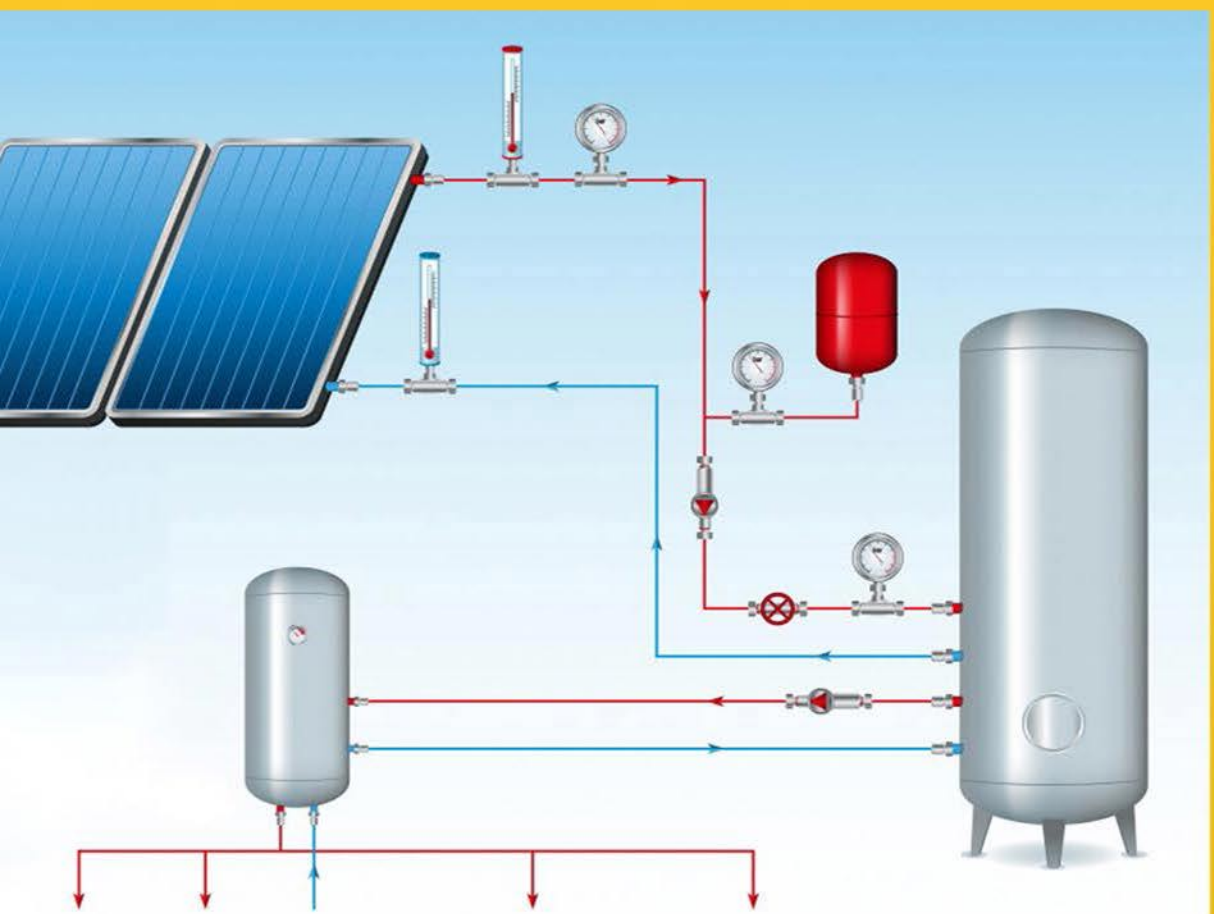
‹he thermosiphon circulation lasts as long as the solar energy is available and it will stop as the sun sets. An emergency power system with an electrical element is installed on Sunshine products, which enables temperature adjustment.

Using this product, 60 % of energy will be provided to heat water, which is a clean and complimentary source of energy that will last forever.

- **Pumped solar water-heaters (open-circuit or forced circulation system)**

This type of water-heater (with a high number of collectors and double-walled storage tanks) uses a pump to perform better circulation of water. These water-heaters are commonly used for factories and industrial areas; however, they can also be utilized at home.

In this type of water heater, the storage tank can be placed anywhere in the building. the pump in such heaters is installed on the entry of the cold-water inlet and the collectors, the cold water will return to the storage tanks after being heated by absorbing collector plates.



Because of an additional pump in the circulation circuit, the process of circulation improves significantly in these types of water heaters.

The storage tank is installed far from the collectors and near the place where the water is being consumed.

This system is also equipped with a temperature controller turning the water on and off automatically. In the solar storage tank, there is a hidden tank for the process of evacuation.

When the circulation of pump is stopped by the controller, the water available in the collectors will return to the evacuation storage tank due to height discrepancies and the collectors will emptied, therefore, there will be no need for antifreeze in winter.

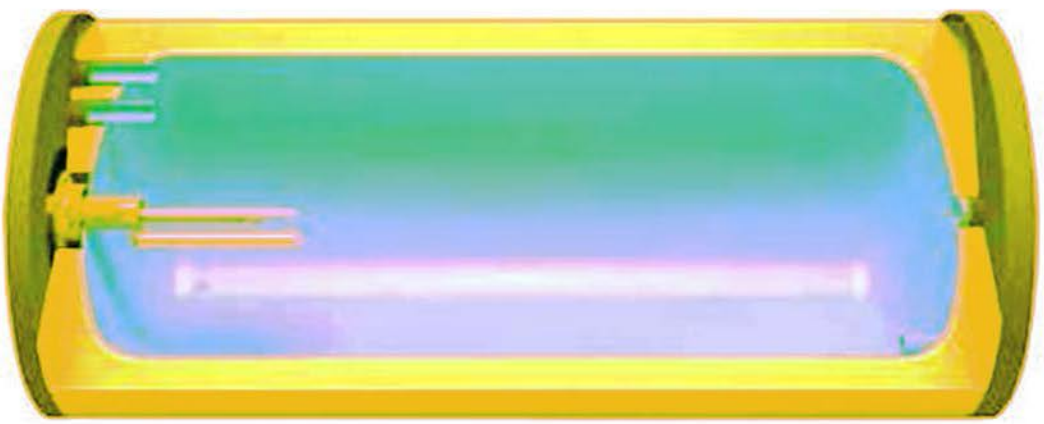
In Sunshine pumped water heaters, the pump and control system as well as the necessary components are installed inside this water heater. This kind of installation is faster, easier, and more beautiful.

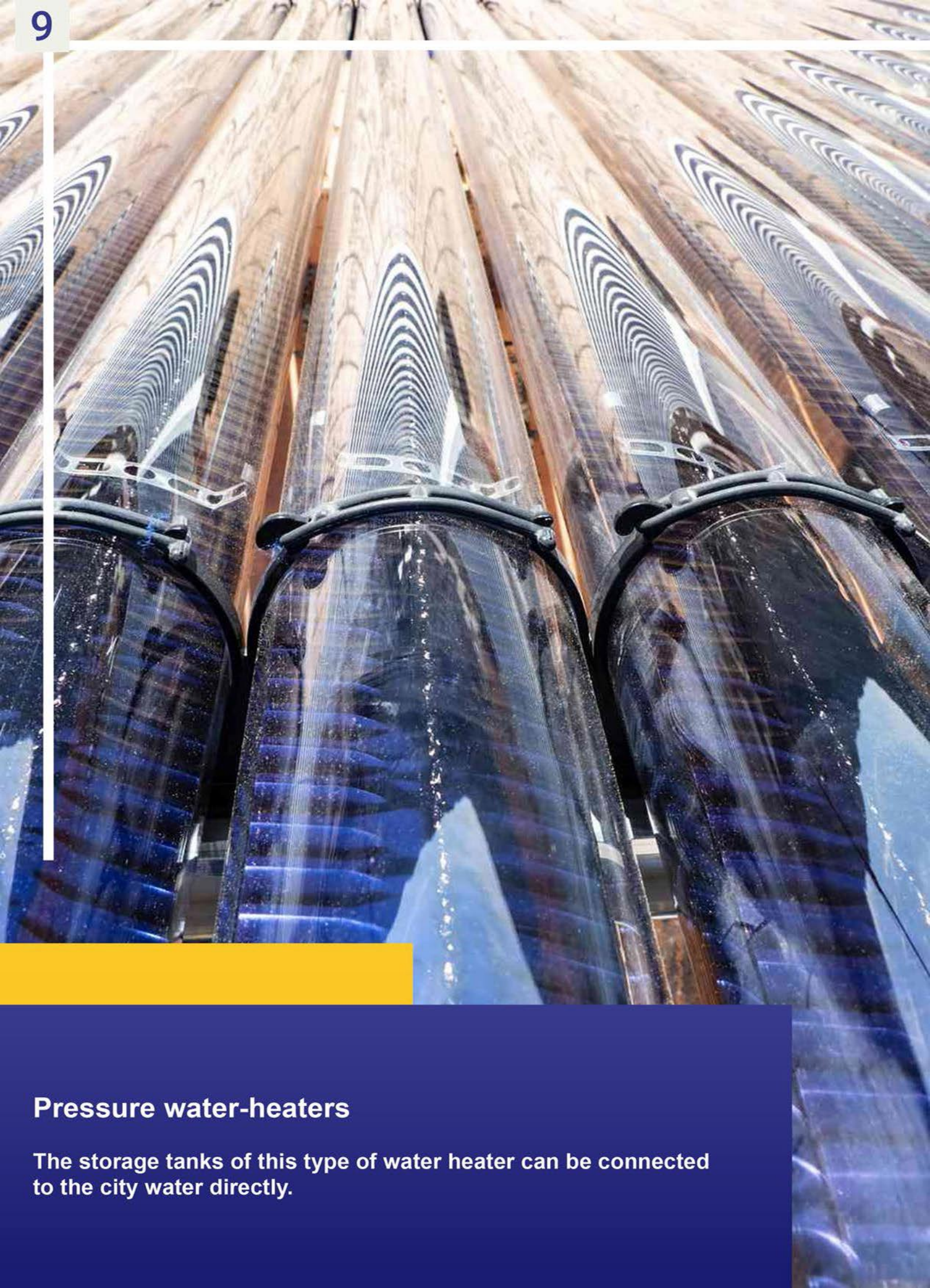
Specifications of solar water-heater storage tanks

- **Non-pressure water-heaters**

The storage tanks of these water-heaters cannot withstand the pressure of city water, so when the consumer turns the hot water tap on, the water pressure is much lower than the cold-water pressure.

Non-pressure water heaters are also known as vacuum tube. This type of water-heater is cheaper due to the use of thinner and single-walled sheets. moreover, because of double-walled pipes made with vacuum pipe technology, there is no need for antifreeze.





Pressure water-heaters

The storage tanks of this type of water heater can be connected to the city water directly.

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