



# SOLAR THERMAL ENERGY (FORCE SYSTEM)

## FREQUENT QUESTIONS

- What is solar thermal energy?
- What is the difference between the forced and thermosyphonic system?
- What components does an installation need?
- Where can an installation be set up?
- How much capacity does my installation's tank have to be?
- Do the plates heat up with clouds or rain?
- What if it's cloudy for several days in a row?
- And what happens at night? Won't I have hot water?
- What power support is normally used?
- And if I can't remove the heater, why put a plate?
- How long does it take to install a forced system?
- What useful life do solar thermal panels have?
- Am I required by law to install solar energy in my home?
- Is there aid or subsidies for the installation of these systems?
- Is it worth doing the installation if we do not have a subsidy?
- How much does a forced system cost?

## WHAT IS SOLAR THERMAL ENERGY?

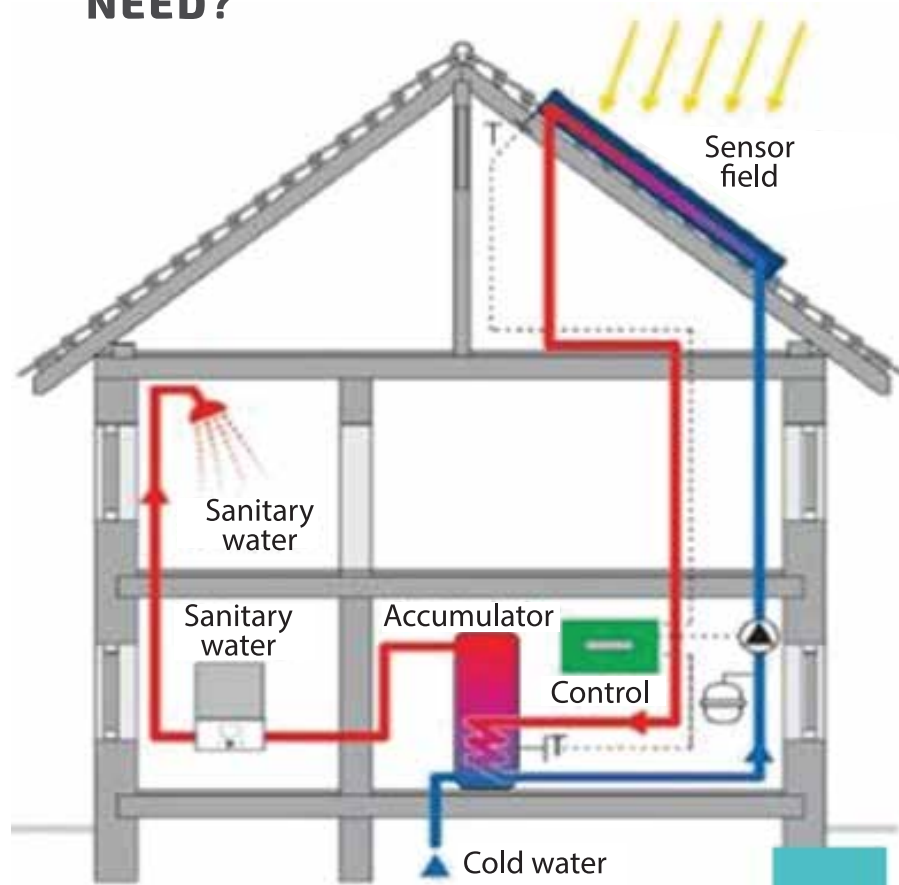
- It is the one that takes advantage of solar radiation to produce hot water or heating.
- The forced system consists of the circulation of a fluid in a closed circuit between the solar panels and the tank, using a recirculation pump.

## **WHAT IS THE DIFFERENCE BETWEEN THE FORCED AND THERMOSYPHONIC SYSTEM?**

- The main advantage is that the forced system is capable of better accumulating heat in the tank (stratification).
  - This means better system performance, mainly when there are several cloudy days, more than 40%

## WHAT COMPONENTS DOES AN INSTALLATION NEED?

- The forced system is made up of the solar panels, the accumulation tank and the hydraulic equipment (pump, pipes, safety accessories, etc.)



## WHERE CAN AN INSTALLATION BE SET UP?

- In any home that has a useful surface area to install the solar panel and a space in the house where the tank can be located.



## HOW MUCH CAPACITY DOES MV INSTALLATION'S TANK HAVE TO HAVE?

- There are different sizes of deposits depending on the number of people per home. An indicative figure may be 50 liters/person/day:
  - 200 liter tank: 1-3 people
  - 300 liter tank: 3-5 people
  - 400 liter tank: 5 or more people
- The dimensions of the tank depend on its capacity. The 200 liter tank has a diameter of 60 cm and a height of 184.

## **Do the plates heat up with clouds or rain?**

- On a cloudy day with an outside temperature of 20o, a solar collector can easily reach 40o, taking advantage of the thermal energy of the air
- With rain the plates are cleaned, with clouds the plates heat less than with the sun, although they always contribute something.



## **WHAT IF IT'S CLOUDY FOR SEVERAL DAYS IN A ROW?**

- Since we cannot guarantee that the sun will rise every day, systems always need an auxiliary (or backup) power source to complete the work of solar energy. In the case of several cloudy days we would have hot water thanks to said backup heater.

## **AND WHAT HAPPENS AT NIGHT? WON'T I HAVE HOT WATER?**

- Yes of course! The water stays hot because the tank is thermally insulated. The system is capable of storing heat during the night.

## **WHAT POWER SUPPORT IS NORMALLY USED?**

- The most used are electricity and gas.
- The heater that is in the home is usually used. On some occasions (depending on the installation) it will be advisable to move it.

## **AND IF I CAN'T REMOVE THE HEATER, WHY PUT A PLATE?**

- Even in the coldest months, the sun will provide a good part of the necessary energy and the rest will be provided by the heater, so consumption will be significantly reduced.
- The sun will provide approximately 85% of the energy you need to heat water each year.

## **HOW LONG DOES IT TAKE TO INSTALL A FORCED SYSTEM?**

- It depends on each installation but the average time is 2 to 4 days.
- It must be taken into account that two pipes must be connected between the plates and the tank, so a place must be studied through which to pass them.

## **WHAT USEFUL LIFE DO SOLAR THERMAL PANELS HAVE?**

- By carrying out periodic maintenance every 2-3 years, the plates have useful lives of up to 30 years. Generally the manufacturers warranty is 5 years.

## **AM I REQUIRED BY LAW TO INSTALL SOLAR ENERGY IN MY HOME?**

- Since 2006, Spanish regulations (Technical Building Code) require the installation of solar panels for hot water in all new buildings and rehabilitation of existing buildings.

## **IS THERE AID OR SUBSIDIES FOR THE INSTALLATION OF THESE SYSTEMS?**

- Every year a call for aid is opened. It is true that the amounts are increasingly smaller and, as it is a mature technology, these aids will tend to disappear .
- In addition, some City Councils offer discounts on taxes for installing solar panels.



## **IS IT WORTH DOING THE INSTALLATION IF WE DO NOT HAVE A SUBSIDY?**

- If! The solar panels are at a considerable price, so they are economically competitive without the need for subsidies.
- With solar energy we can supply approximately
- We should consider an average time of 6 years to recover the inversion.
- It must be taken into account that the price of electricity and gas is increasing, so investment recovery times will be increasingly shorter.