

SOLAR THERMAL HEATERS

Solar thermal heaters utilise the solar energy to heat water, providing a renewable and sustainable source of hot water for buildings compared to regular gas boilers.



HOW SOLAR THERMAL HEATERS WORK

Solar thermal heaters consist of solar collectors, which absorb sunlight and convert it into heat energy. This heat is transferred to a fluid (typically water or a heat transfer fluid) flowing through the collectors. The heated fluid is then circulated to a storage tank, where it can be used for domestic hot water, space heating, or other applications.

BENEFITS OF SOLAR THERMAL HEATERS:

- **Renewable Energy Source:** Solar thermal heaters harness the power of the sun, a renewable and clean energy source, reducing the reliance on fossil fuels.
- **Energy and Cost Savings:** Solar thermal systems can significantly reduce energy consumption and lower utility bills by providing free hot water from solar energy.

- **Environmental Impact:** Solar thermal heaters produce minimal greenhouse gas emissions helping to mitigate climate change from energy use
- **Long Lifespan:** Well-maintained solar thermal systems can last for 20-30 years or more, providing long-term benefits.

EXAMPLE CALCULATION:

Installing solar thermal heaters with a capital cost of £6,000 can result in significant benefits based on electricity cost of £0.15/kWh.

Action 1	Cost Savings (£/year)	kWh Savings	CO2e savings (tCO2e/year)	Capital Cost (£)	Payback Period (years)
Solar thermal heaters	£750	5000	1.05	6,000	8

CONSIDERATIONS FOR INSTALLATIONS:

- **Solar Resource Availability:** The efficiency and performance of solar thermal heaters depend on the availability of sunlight in the installation location. Shading, orientation, and tilt angles should be considered to maximize solar exposure.
- **Space Requirements:** Sufficient roof or ground space is needed for installing solar collectors. Adequate space should be available for optimal positioning and expansion if required.
- **System Sizing:** Correct sizing of the solar thermal system is crucial to meet the hot water demands of the intended application. Factors such as daily hot water usage, temperature requirements, and climate conditions should be considered.
- It is also important to note that solar thermal heaters require regular maintenance. This includes cleaning the solar panels and checking the system for leaks. By properly maintaining your solar thermal system, you can extend its lifespan and ensure that it continues to operate efficiently.
- Overall, solar thermal heaters are a great way to reduce your energy bills and help the environment. However, it is important to use hot water carefully and to properly maintain your solar thermal system to ensure that you have enough hot water to meet your needs.

It is important to consult with a qualified installer to discuss your specific needs and to get an estimate for the cost of installation.