



CareyGlass

Solar



Solar Thermal Heating

Heat Your Water with the Power of the Sun

What is Solar Thermal?

A solar water heating system collects heat from the sun and uses it to help heat your water. It can provide hot water for taps, showers, baths and swimming pools.

Benefits of Solar Thermal Energy

A correctly sized solar thermal system will produce 60-70% of your annual hot water requirements, even on a cloudy day, lowering your usage of oil, gas or electricity and negating the CO₂ these fuels create.

1. Suitable for all homes
2. Simple and reliable technology
3. Dramatic reduction in energy costs for hot water
4. Reduces your dependency on depleting natural resources
5. Increases the value your property
6. SEI registered product
7. Aesthetically pleasing
8. Your choice of collector (Integrated in the roof/roof mounted/ground mounted)
9. Maintenance-free

A CORRECTLY SIZED SOLAR THERMAL SYSTEM WILL PROVIDE 60 - 70 % OF YOUR TOTAL ANNUAL HOT WATER REQUIREMENTS - 100% DURING SUMMER MONTHS.

How Solar Thermal works



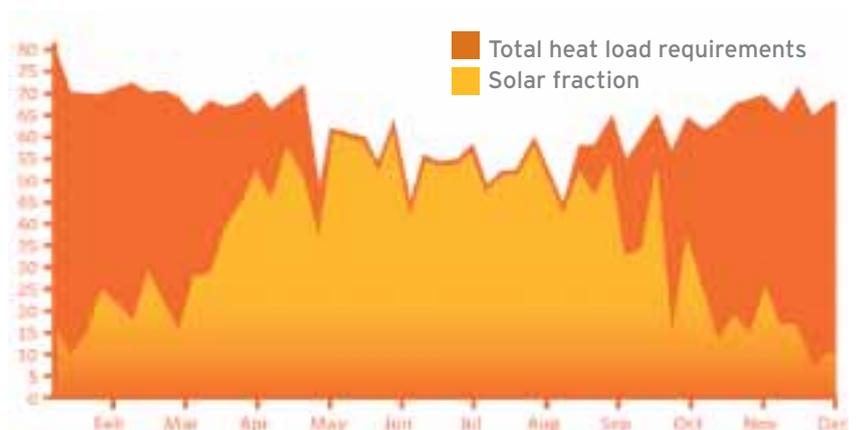
Our high performance solar panels represent the heart of the solar thermal transfer system; they convert incident sunlight/solar energy into heat. Thanks to their clear, high transparency, low-iron glass, our panels achieve a high degree of heat transmission.

The heat is generated through the absorption of the sun's rays by a dark colour coated absorber sheet of the panels. When there is sufficient daylight a pump kicks in and frost protected, non-toxic solar fluid circulates through the system/pipe work.

The heat transfer fluid in the piping system absorbs the heat and is pumped to the hot water tank where the heat is transferred to the surrounding water in the tank by a heat exchanger. Your existing method for heating water acts as a backup for when there is insufficient sunlight.

Solar Energy Consumption as Percentage of Total Consumption

Typical example of the contribution by solar to total hot water requirements, this graph is based on a house with 2 solar panels totalling 4.6m² with a 250 litre tank to serve a family of 4.



Flat Plate Collectors

Our flat plate collectors are known for their efficiency, durability and ease of handling. The laser welded absorber provides high aesthetic result and long life operation. The whole collector is manufactured to ISO 9001 standards which ensures the top quality we offer. The collector has been tested in many laboratories around the world and is certified for its efficiency and durability.



Flat Plate Collectors

Model	CGSFP 2.09
Overall area (m ²)	2,09
Absorber area (m ²)	1,92
Aperture area (m ²)	1,92
Length (mm)	2030
Width (mm)	1030
Height (mm)	87
Overall weight (kg)	48,2
Absorber type	Grid
Absorber's capacity	1,97
Coating	Selective
Thickness (mm)	0,50
Absorption	95% +/- 2%
Emission	5% +/- 2%
Max working pressure (bar)	10
Heat transfer medium	Propylene glycol
Certificate	Solar key mark

Technical Data

Flat Plate Collectors

Model	CGSFP 2.0
Collector Casing	
Material	Aluminium profile
Back plate	AlZn 0,5mm
Absorber	
Manifolds	Coppertube 0,22 x 0,8mm
Risers	Coppertube 0,22 x 0,8mm
Absorber sheet	High Selective Coating Aluminium
Welding process	Laser
Transparent Cover	
Type	Tempered Glass
Standards	prEN 12150, BS6206 class A
Dimensions	1000 x 2000/1200 x 2000
Light Transmittance	>89% +/- 0,5%
Glass Sealing	EPCM Silicon
Insulation	
Type	Rockwool, glasswool with black fleece
Thickness	40mm (back)/20mm (side)
Density	40kg/m ³
Thermal conductivity	0,044 W/mK (100°C)
Technical Specifications:	
Yield Forecast	530kWh/m ² /a
Efficiency (%)	79
a1 (W/m ² K)	3.62
a2 (W/m ² K ²)	0.021
Colour	RAL 7016 (Anthracite Grey)



2 panel in-roof systems on a luxury development in Co Cork by Fleming Construction



3 panel system in Co. Galway



6.9m² and 4.6m² on roof systems - showing the portrait and landscape styles that can be installed.

Installation Methods

There are several methods of installation available when choosing a CareyGlass Solar system. The variety of installation methods ensures that almost any type of building can have a solar thermal system installed:

- **In roof system** (Integrated roof light installation), whereby panels would be mounted once felt and battens are completed, before the roof is slated/tiled, making them more flush with the roof. This system is most commonly used in new builds.
- **On roof system** (Roof mounted installation). This system is mounted on an existing roof, on both new and existing buildings.
- **Facade style system.** If there is no roof space available we can mount a system on your wall.
- **Canopy style.**
- **Flat roof system.** Panels can also be fitted on a steel frame either in the garden or on a flat roof surface using our A frame.
- **On an adjacent building, i.e. garage**

AVAILABLE GRANTS UNDER THE GREENER HOMES SCHEME €250 PER M² (FOR EXISTING HOUSES) UP TO 6M²

ROI Lo call - 1890 252 412
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www.CareyGlassSolar.com

Evacuated Tube Collectors

CareyGlass Solar evacuated tube collectors ensure a long service life by application of high-quality, corrosion proof materials. Furthermore, the panels guarantee high energy yields with their small collector gross areas.

Due to the circular absorber area, each individual tube always has the optimal adjustment towards the sun; this in turn ensures that both direct and diffuse solar radiation is optimally collected by the circular absorber.



Our evacuated tube collectors are so efficient that when mounted on an un-shaded south-facing roof - 18 tubes with 3m² aperture area are sufficient to heat a 300 litre cylinder and provide enough hot water for up to 6 people

Technical Specification

The CareyGlass Solar evacuated tube consists of 3 main components: evacuated tubes, CPC mirrors and collecting box with heat transfer unit

The Evacuated Tubes

The evacuated tubes are composed of two glass tubes which in each case are half spherically closed on one side and fused together on the other side. The gap between the tubes is evacuated. In addition, the internal glass tube has a highly selective layer on its external surface which acts as an absorber. It is an aluminum nitrite sputter layer which is characterised by very low emission and very good absorption.



The CPC mirror

In order to increase the efficiency of the evacuated tube, a highly reflective, weather proof CPC mirror (Compound Parabolic Concentrator) is placed behind the evacuated tubes. The special mirror geometry ensures that even at unfavourable irradiation angles direct and diffuse sunlight falls onto the absorber. This substantially improves the energy yield of a solar collector.

Collecting box and heat transfer unit

The insulated collecting and distribution pipes are located inside the collecting box. The fluid is pumped around the circuit absorbing heat in the solar panel and transferring it to the water in the hot water cylinder.

AVAILABLE GRANTS UNDER THE 'GREENER HOMES SCHEME' €300 PER M² (FOR EXISTING HOUSES) UP TO 6M²

Technical Specifications

Number of evacuated tubes	18
Yield forecast (aperture area 3 m ²)	651 kWh/m ² a
Grid dimensions (length, height, depth)	2.08 x 1.64 x 0.1m
Gross surface area	3.41m ²
Aperture area	3.0m ²
Collector contents	2.4l
Weight	54kg
Max. working overpressure	10 bar
Max. stagnation temperature	295°C
Connection diameter, clamping ring	15mm
Sensor sleeve	6mm
Collector material	Al/ Cu / glass / silicone / PBT / EPDM / TE
Glass tube material	Borosilicate glass 3.3
Selective absorber coating material	Aluminium nitrite
Glass tube (∅ ext. /∅ int. / wall thickness /tube length)	47/37/1.6/1500
Colour (aluminium frame profile, anodised)	Aluminium grey
Colour (plastic parts)	Black
Tests and approvals	EN 12975, RAL UZ 73, Solar Keymark, ISO 9001