ecohouse

sustainable home energy solutions

The ecohouse evacuated solar collector

all weather....all year round

Technology

The Solar Tube

The Reflector

The Solar Collector

How It Works

Special Features

Reasons To Choose

Call free now and speak with one of our surveyors

0800 9176234

Technology

Designed and manufactured in Germany, the Ritter CPC INOX evacuated solar collectors provide high energy yield and long life expectancy.

Produced from high quality materials and precision components, the solar collectors are corrosion resistant easy to install and maintain. Hailstone impact tests, in accordance to EN12975-2 and thermal shock tests by ITW ranks this collector amongst the finest solar system in the market place.

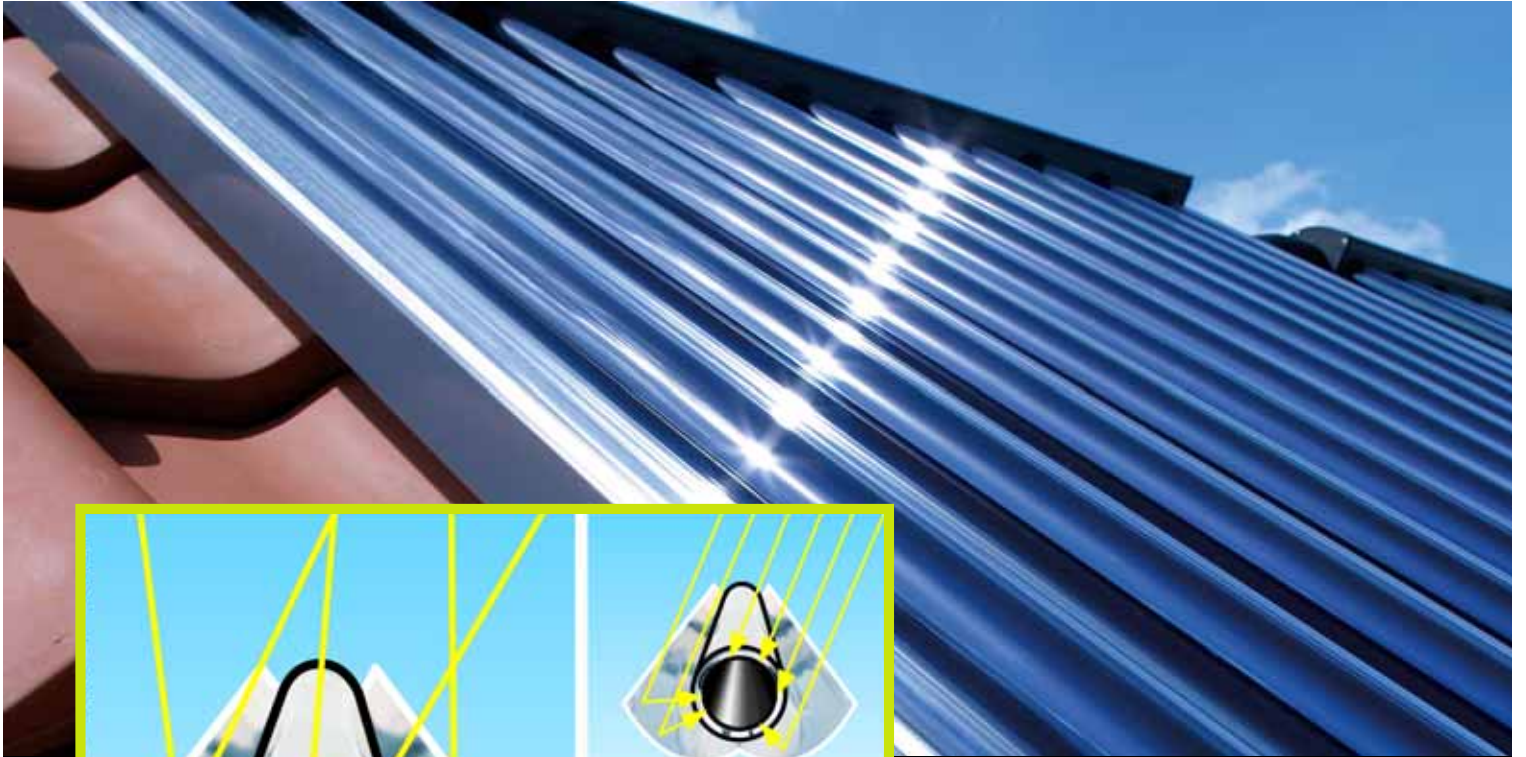
The Ritter CPC INOX evacuated solar collectors are the most advanced technology solar collector available today.

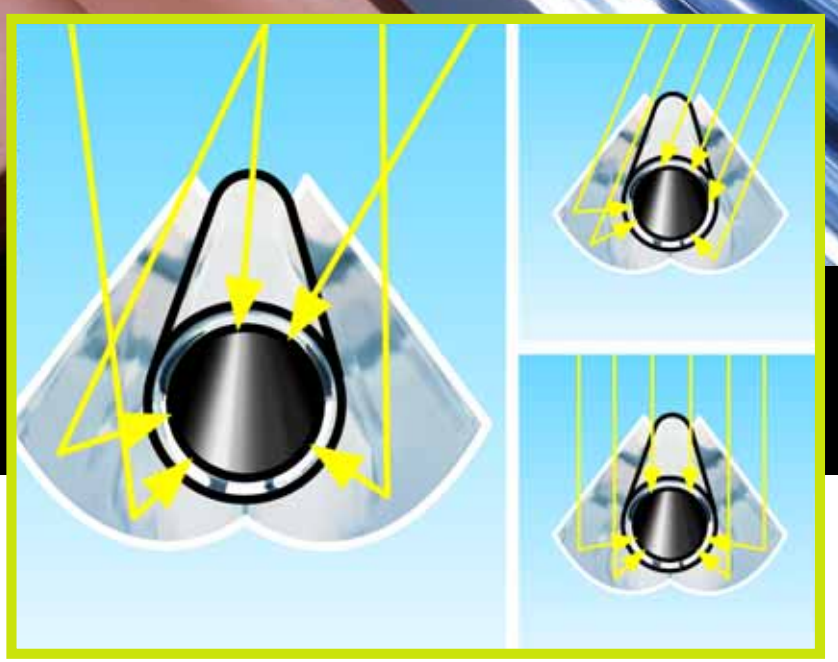
Designed specifically to perform efficiently in climates similar to the UK, the vacuum insulation and the CPC reflector produces a remarkable “all weather, all year round” performance.

The solar tube

Manufactured from borosilicate glass 3.3 the solar tube is a product with improved geometry and performance. The evacuated tunnel consists of two concentric glass tubes which are sealed in a semicircular shape on one side and are joined to one another on the other side. The space between the tubes is evacuated and then hermetically sealed.

The internal glass tube is coated with an environmentally friendly, highly ‘sensitive’ layer on the outside, thus turning it into an absorber. The coating is protected against adverse weathering influences within the evacuated space. The aluminium spatter coating used is characterised by extremely low emission and excellent absorption.





The Reflector

To increase the performance efficiency of evacuated tube collectors, a highly reflective, weather-proof CPC reflector (Compound Parabolic Concentrator) is fitted behind the evacuated tubes. The special, improved geometry of the reflector ensures that direct and diffused solar radiation falls on the absorber even when the angle of incidence is not ideal. This considerably improves the energy yield of the solar collector.

The Solar Collector

A series of evacuated solar tubes fit into an insulated manifold chamber. The manifold heat exchanger and the heat transfer tubing inside the solar tubes are stainless steel for maximum durability and performance.

The flow and return pipes to the collector can be fitted on the left or right of the manifold. Sensor pockets are provided on the manifold for simple and effective controller operation. The reflector is produced from a metal sheet with protective coating using accurate roll forming technology.

Degradation over the life of the solar collector is minimal. Replacement of the reflector is easy because the special fastening technique allows the reflector to be replaced without using tools.

How It Works Solar Heating

Ecohouse offers only the very best in solar technology and quaility build products and we are pleased to offer the Ritter CPC 6 INOX evacuated solar collector with its high build quality, relibility and performance.

The Ritter CPC 6 INOX evacuated tube collector consists of 3 main components, which come pre-assembled:

1 Evacuated tubes
2 CPC mirrors
3 Manifold with heat transfer unit

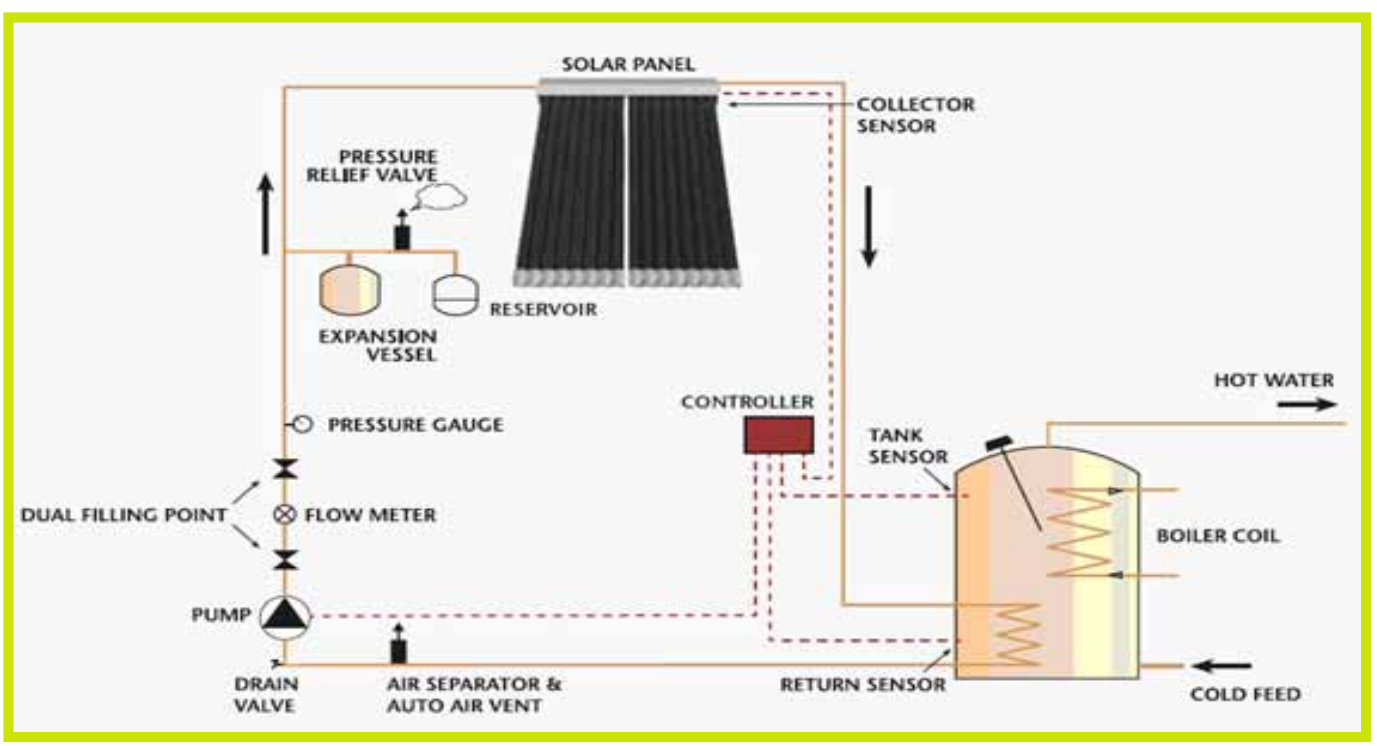
The Evacuated Tube

Each Ritter vacuum tube is composed of two Borosilicate 3.3 glass tubes, one slightly smaller than the other, fused together at the top to make a single tube. The air in the void between the two tubes is then pumped out, creating a vacuum thermal insulation layer.

To convert the daylight into useful solar heat, the internal glass tube is coated with an environmentally friendly, highly "selective" light absorber (Aluminium Nitrite). The absorber converts both direct and diffused light from a large spectrum of wavelengths into heat. The heat produced by the absorber is protected from the atmosphere by the vacuum layer, thereby eliminating thermal-loss. This significantly increases the performance of the solar collector.

The CPC Mirror

In order to increase the output of the evacuated tubes, a highly reflecting, weather-proof CPC mirror (Compound Parabolic Concentrator) is placed behind the evacuated tubes. The special mirror geometry ensures that direct and diffuse light, travelling from all orientations, falls onto the absorber. This substantially improves the energy yield of a solar collector in unfavourable conditions, such as Easterly early morning and Westerly late afternoon light. It is also beneficial when it is not possible to install the panels in the ideal south-facing orientation.



Manifold and "U" Tube

Within each glass tube there is a stainless steel "U" tube collection pipe, with a circular metal heat absorber plate. All the "U" tubes are connected to a well insulated manifold, which is designed to allow a direct flow of the heat transfer fluid through the system. The heat transfer fluid collects the heat from the absorber inside the glass tube and transports it to the cylinder. The manifold has a special design which ensures all the tubes exhibit the same hydraulic resistance. The heat transfer fluid collects the heat from the absorber in the glass tube and carries it down to a twin coil cylinder where it heats the bottom part of the cylinder, being the coolest part. The second, upper coil within the cylinder, is connected to the boiler.

How is it controlled?

The whole system is controlled by a differential temperature control unit. The controller has three temperature sensors: Collector, Cylinder and Return. When the temperature of the collector is 8°C hotter than the bottom of the hot water cylinder, the control unit will turn on the pump starting the solar thermal transfer process. The controller ensures the pump is only running when positive solar gain is available.The control unit also has various safety features, as well as useful solar gain information

The ecohouse solar water heating system

good for the environment....even better for your pocket

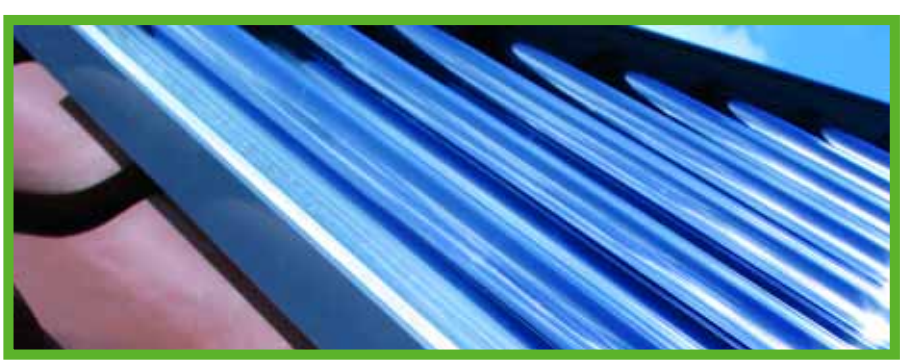
10 Year Warranty

Special Features

- High vacuum solar collector
- Robust glass in borosilicate 3.3
- 360° highly selective absorber
- Highly selective absorber
- Highly reflective CPC collector
- Stainless steel manifold heat exchanger
- Modular high-tec design

Reasons To Choose

- High performance in all types of weather
- Easy to install, long life
- Negligible maintenance
- Direct flow heat conduction unit
- CPC reflector for increased yield
- Designed and manufactured in Germany
- 10 year warranty



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