

evacuated solar collector

all weather
all year round





technology

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

Produced from quality materials and components, the solar collectors are corrosion resistant and 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 Rayotec 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 semi-circular 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.



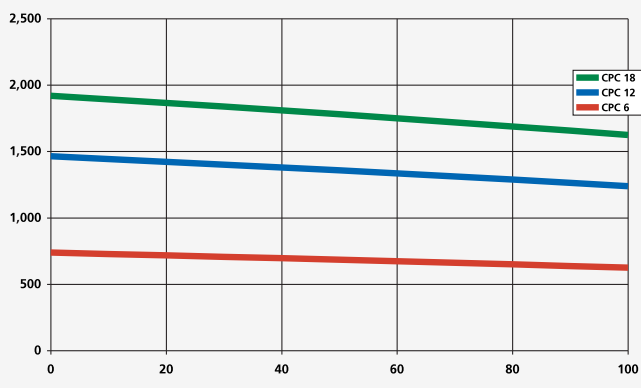
the solar collector

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.

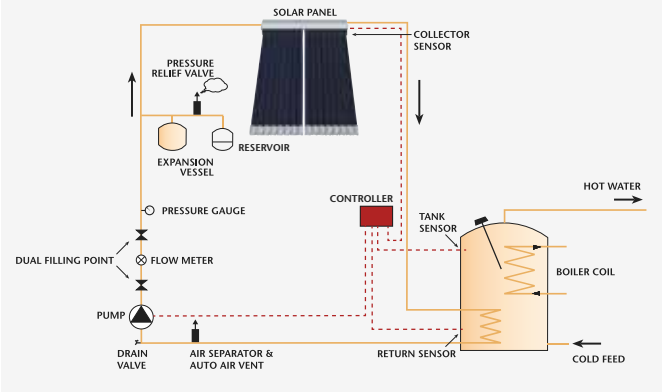
The flow and return pipes to the collector can be fitted on the left or right of the manifold. Sensor pockets are provided on the manifold for simple and effective controller operation. The reflector is produced from a metal sheet with protective coating using accurate roll forming technology. Degradation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

Series	CPC 6 INOX	CPC 12 INOX	CPC 18 INOX
Number of evacuated tubes	6	12	18
η_0 (Aperture), DIN 4757-4 or EN 12975 - %	64.2	64.2	64.2
c_1 with wind, in relation to aperture - W/(m ² K)	0.89	0.89	.089
c_2 with wind, in relation to aperture - W/(m ² K ²)	0.001	0.001	0.001
Yield forecast (location Würzburg, Germany, ref. area 3m ²) - kWh/m ² a	651	651	651
Yield forecast (location Würzburg, Germany, ref. area 5m ²) - kWh/m ² a	589	589	589
Grid dimensions (length x height x depth) - m	0.70 x 1.64 x 0.1	1.39 x 1.64 x 0.1	2.08 x 1.64 x 0.1
Gross surface area - m ²	1.15	2.28	3.41
Aperture area - m ²	1.0	2.0	3.0
Collector contents - l	0.9	1.8	2.6
Weight - kg	19	35	52
Max. working temperature - bar	10	10	10
Max. stagnation temperature - °C	295	295	295
Connection diameter, clamping ring - mm	15	15	15
Sensor Sleeve - mm	6	6	6
Collector material	Al/Cu/glass/silicon/PBT/EPDM/TE		
Glass tube material	borosilicate glass3 .3		
Selective absorber coating material	aluminium nitrite		
Glass tube (∅ ext./∅ int./wall thickness/tube len.) - mm	47/37/1.6/1500		
Colour (aluminium frame profile, anodised)	RAL 7015		
Colour (plastic parts)	black		
Thermal shock test - ITW-test number	02COL282		
Hailstone test to DIN EN 12975-2 - TÜV-test number	435/142448		
Other tests and approvals	EN 12975, RAL UZ 73, Solar Keymark · ISO 9001		
DIN CERTO - Register number	011-7S134R		

efficiency characteristics curve



typical installation



special features

- high vacuum solar collector
- robust glass in borosilicate 3.3
- 360° highly selective absorber
- highly reflective CPC reflector
- stainless steel manifold heat exchanger
- modular 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

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