Solardirekt24 GmbH

Evaluation Report

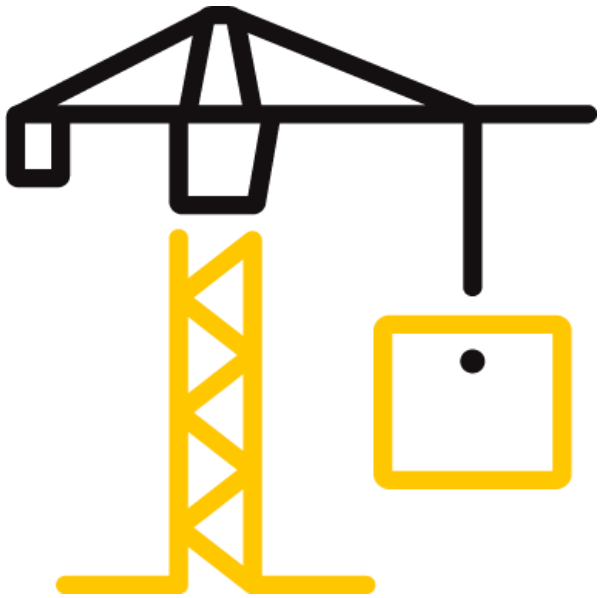
SCOPE OF WORKs
Type Examination Testing – Solar evacuated tubular collector – EUROTHERM SOLAR CPC series

REPORT NUMBER
231031204GZU-003

ISSUE DATE
2024-08-07

[REVISED DATE]
None

TOTAL PAGES
10



DOCUMENT CONTROL NUMBER
TTRF_EN 12975+ISO 9806_g (2024-05-10)

Evaluation Report

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Report Number: **231031204GZU-003** **Report Date:** **2024-08-07**

Manufacturer Name:	**Solardirekt24 GmbH**
Manufacturer Address:	**Spiesheimer Weg 22, 55286 Wörrstadt, Deutschland**

Sample information	
Production site Name:	Zhejiang Shentai Solar Energy Co., Ltd
Production site Address:	199 Lianhong Road, Yuanhua Industry Zone, Haining City, Zhejiang Province, CHINA
Sample ID:	NA
Date of receipt of test item:	NA
Situation of receipt samples:	NA
Date (s) of performance of tests:	NA

Testing Information	
Standard:	EN 12975:2022, ISO 9806:2017
Other Test Specification:	NA
Testing Laboratory Name:	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Testing Laboratory Address:	Room 4103 & 4203, No. 63, Punan Road, Huangpu District, Guangzhou, Guangdong Province, China.
Possible Test Case Verdits	
Test Case does not apply to the Test object:	N/A (Not Application)
Test object does meet the requirement:	P (Pass)
Test object does not meet the requirement:	F (Fail)

Conclusion:

The models were evaluated and found to **COMPLY WITH** all applicable requirements of **EN 12975:2022 and ISO 9806:2017**.

This report is re-issued for Solardirekt24 GmbH base on 231031204GZU-001, the model EUROTHERM SOLAR CPC series are same as SHC series with different model number and brand name only, all test data in this report are come from original report 231031204GZU-001 date 2024-7-10.

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Content Table

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1 Product Describtion

1.1 General

This report is re-issued for Solardirekt24 GmbH base on 231031204GZU-001, the model EUROTHERM SOLAR CPC 10R, EUROTHERM SOLAR CPC 12R, EUROTHERM SOLAR CPC 14R, EUROTHERM SOLAR CPC 15R, EUROTHERM SOLAR CPC 16R, EUROTHERM SOLAR CPC 18R, EUROTHERM SOLAR CPC 20R, EUROTHERM SOLAR CPC 21R, EUROTHERM SOLAR CPC 22R, EUROTHERM SOLAR CPC 24R, EUROTHERM SOLAR CPC 25R, EUROTHERM SOLAR CPC 28R are same as SHC10, SHC12, SHC14, SHC15, SHC16, SHC18, SHC20, SHC21, SHC22, SHC24, SHC25, SHC28 with different model number and brand name only.

1.2 General Information for sample identification

Name of manufacturer:	Solardirekt24 GmbH	
Brand Name:	solardirekt24.de	
Collector Type (Flat-plate, ETC, PVT, Tracked, Evacuated, etc.):	ETC	
Serial No:	Not specified	
Collector no. (Intertek sample no.)	NA	
Drawing document No:	Not specified	
Year of Production:	2023	
Test flow rate:	0.02	kg/(sm^2)
Standard stagnation temperature at 1000 W/m^2 and 30°C ambient temperature:	280	°C
Collector mounting possibilities (On-roof, In-roof, Façade, On Stand, etc.):	On-roof	

1.3 Dimensions and general information:

Model Name:	EUROTHERM …10R	EUROTHERM …28R
Gross length[mm]:	1980	1980
Gross width[mm]:	1130	3050
Gross height[mm]:	133	133
Gross area[m^2]:	**2.24**	**6.04**
Aperture area[m^2]:	**1.82**	**5.24**
Absorber area[m^2]:	**2.54**	**6.09**
Weight empty[kg]:	34(MS)	96(MS)
Fluid content[L]:	0.93(MS)	2.63(MS)

1.4 Enclosure

Enclosure side material:	Aluminium alloy (MS)	
Enclosure back material:	Aluminium alloy (MS)	
Frame fastening methods (pop rivets, screws ,etc.):	Screws	
Air filtration:	☐ Yes	☑ No

If yes, please indicate the filter grade according to EN 779.

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1 Product Describtion

1.5 Absorber

Material:	Glass (MS)	Glass (MS)
Number of absorber elements(fins, tubes, etc.):	10	28
Absorber Length [mm]:	1715	1715
Absorber width, Ø [mm]:	47	47
Absorber thickness [mm]:	-(MS)	-(MS)
Solar absorptance α:	≧95% (MS)	≧95% (MS)
Hemispherical emittance ε:	≤5% (MS)	≤5% (MS)
Absorber Coating (type, brand name):	SS-CU-ALN/AIN selective coating (MS)	
Bond between riser and fin/plate (e.g. mechanical, solder, weld-ultrasonic, laser welding, etc.):	Mechanical (MS)	Mechanical (MS)

1.6 Hydraulic System

Flow pattern as tested:	Refer to fig. A2.2	
Number of risers:	10	28
Riser material:	Copper	Copper
Riser length [mm]:	64	64
Riser outer/inner diameter [mm]:	Φ 15.3 / Φ14.1	Φ 15.3 / Φ14.1
Distance between risers [mm]:	110	110
Manifold material:	Copper	Copper
Manifold length [mm]:	1205	3185
Manifold outer/inner diameter [mm]:	Φ35/ Φ33.6	Φ35/ Φ33.6
Collector hydraulic connector type	Pipe	Pipe
Connector Size, Ø [mm]:	22	22

1.7 Glazing transparent cover:

Material:	Glass (MS)	Glass (MS)
Glass type (tempered, toughened, safety glass, etc.)	Borosilicate glass	Borosilicate glass
Thickness [mm]:	1.6 (MS)	1.6 (MS)
Inner diameter (for tube collectors), Φ[mm]:	54	54
Outer diameter (for tube collectors), Φ[mm]:	58	58
Solar Transmittance:	≧95% (MS)	≧95% (MS)
Glazing surface characteristics(clear, textured, coated, etc.):	Clear	Clear

1.8 Heat pipe:

Material:	Copper	Copper
External diameter of pipe [mm]:	Φ8	Φ8
External diameter of condenser [mm]:	Φ14	Φ14
Liquid type:	Water	Water
Liquid mass [g]:	5 (MS)	5 (MS)

1.9 Reflector:

Type of reflector (CPC, Flat, etc.):	CPC	CPC
Material:	Aluminium	Aluminium
Length / width [mm]:	1700 / (105x9)	1700 / (105x27)
Reflectance (hemispherical):	- % (MS)	- % (MS)
Reflectance (diffuse):	- % (MS)	- % (MS)

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1 Product Describtion

1.10 Insulation

Material:	Glass wool	Glass wool
Thickness (Back) [mm]:	50	50
Thickness (Side) [mm]:	50	50
Thermal conductivity [W/m^2K]:	0.04 (MS)	0.04 (MS)

1.11 Limitations:

Maximum operation temperature [℃]:	230 (MS)
Maximum operation pressure [kPa]:	1000 (MS)
Minimum and maximum installation inclination (measured from horizontal):	15°~85° (MS)
Photograph of the collector:	Refer to Annex 1
Comments on collector design:	No
Schematic diagram of collector mounting	Refer to Annex 2
Recommended heat transfer medium:	Water/anti-freeze fluid(MS)
Specifications (additives etc.):	NA
Alternative acceptable heat transfer fluids:	NA
Minimum, recommended, maximum flow rate：	NA
For solar collectors with integrated technical components (ventilator, PV-panel…) all component have to be listed with their technical data:	NA

Note:
MS: means manufacture specification.
NA: means not applicable.

2 Label and Installer instruction manual (EN 12975:2022 Clause 6.2&6.3)

2.1 Labelling

Solar collectors shall carry a visible and durable label with at least the following information:

- Name of manufacturer;	P
- Model;	P
- Serial number;	P
- year of production (can be included in the serial number);	P
- peak power (as defined in 24.3 of EN ISO 9806:2017);	P
- maximum operation pressure;	P
- Weight of empty solar collector;	P
- Volume of heat transfer fluid;	P

2.2 Installer instruction manual

Solar collectors shall be accompanied by an installation instruction and/or by a technical datasheet containing at least the following information:

- dimensions of the solar collector;	P
- weight of the solar collector;	P
- instructions about the transport and handling of the solar collector;	P
- standard stagnation temperature of the solar collector;	P
- description of the mounting procedure;	P
- recommendations about lightning protection;	P
- instructions about the coupling of the solar collectors to one another (if applicable) and the connection of the solar collector field to the heat transfer circuit, including dimensions of pipe connections for solar collector arrays, including also a reminder to follow the national requirements for the thermal insulation of the piping;	P
- instructions about the heat transfer media which shall be used and precautions which shall be taken during filling, operation and service;	P
- pressure drop;	P
- maximum and minimum tilt angle;	P
- maximum operating pressure;	P
- maximum operating temperature;	P
- permissible positive and negative mechanical load;	P
- maintenance requirements, including specific cleaning procedures if required;	P
- indications about the requirements concerning free airflow on the backside of the collector;	P
- indication on the impact resistance;	P
- climate class for testing.	P
If the collector can be integrated in the roof or in the building shell, the following recommendations shall be included in the instruction manual, to be considered when the collector is integrated in the roof or in the building shell.	N/A
- Permanent stagnation over longer periods shall be avoided. The stagnation time between installation and commissioning of the system shall be less than one month.	N/A
- Ventilation behind the collector casing shall be sufficient and in accordance with national regulations and building codes.	N/A
- No additional isolation shall be added to the rear side of the collector.	N/A
- Piping near the collector shall be installed and isolated such that they are not in contact with wood or other inflammable materials.	N/A
- Preventive measures shall be taken to avoid that a leaking connection may lead to ingress of heat transfer fluid into the collector.	N/A

2.3 Test results

Conclusion: The labelling and instruction manual was checked acc. to EN 12975:2022 clause 6.2&6.3.

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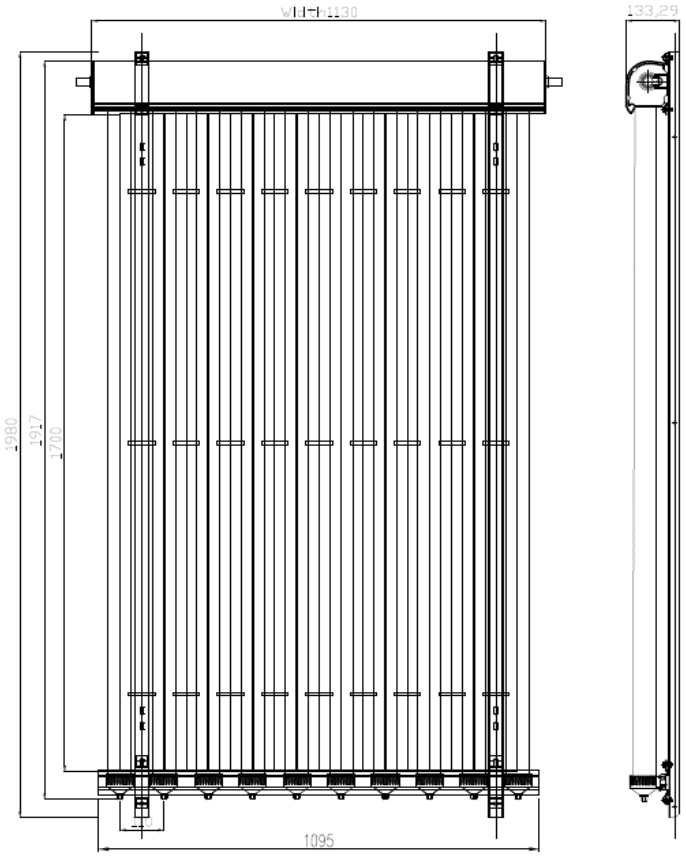
Annex 1 Photos

Model Nr. EUROTHERM SOLAR CPC 10R

Annex 2 Drawings



Width:
SHC-10=1130mm
SHC-12=1350mm
SHC-14=1570mm
SHC-15=1680mm
SHC-16=1790mm
SHC-18=2010mm
SHC-20=2230mm
SHC-21=2340mm
SHC-22=2450mm
SHC-24=2670mm
SHC-25=2780mm
SHC-28=3110mm

Fig. A2.1 General assembly drawing

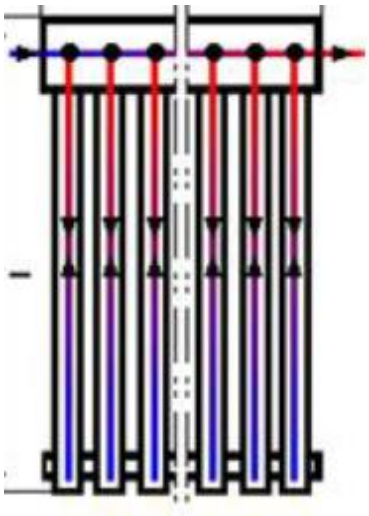


Fig. A2.2 Flow pattern of tested sample

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Revision Summary

Revision No.	Date	Changes	Author	Reviewer
R0		Initial publish		
Note: if the report had revised, this report will be replaced previous report				

Approved by:

Name: Steve Zhu
Title: Reviewer

Prepared by:

Name: Jeskim Liu
Title: Project Engineer

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The End of Report