

Holder/Issued to/Manufacturer**Carl Capito Heiztechnik GmbH**

Mühlenbergstr. 12, D 57290 Neunkirchen, Germany

Product name and descriptionVacuum tube solar thermal collector for water heating.
For technical information see Appendix (2 pages).

Model: CC-HPV-S12

Performance specification

The product is found to comply with the requirements in EN 12975-1:2006+A1:2010 Solar collectors, Part 1: General requirements and the Specific CEN Keymark Scheme Rules for Solar Thermal Products and are based on test results according to EN 12975-2:2006 Solar collectors Part 2: Test methods.

Marking

Products conforming to this certificate shall be marked in accordance with the requirements in the Specific CEN Keymark Scheme Rules for Solar Thermal Products. The marking shall, together with the Keymark logo, show the identification code of the empowered certification body (RISE Research Institutes of Sweden AB, No. 012), also see CEN-CENELEC Internal Regulations Part 4 Certification, Annex A.

ValidityThis certificate is valid until 2024-01-20 provided that the conditions in the Solar Keymark Rules are fulfilled and the standard or rules are not modified significantly. The validity of the certificate can be checked in the database, see Solar Keymark website <http://www.solarkeymark.org>.**Miscellaneous**

The manufacturer's factory production control procedures are under surveillance by the responsibility of RISE. This certificate was first issued 2015-09-02. RISE certification rules SPCR 402 for Keymark – Solar Thermal Products applies.

Johan Åkesson

Magnus Sturesson

Certificate No. SC0638-15 | issue 2 | 2019-02-12

RISE Research Institutes of Sweden AB | Certification
Box 857, SE-501 15 Borås, Sweden
Phone: +46 10-516 50 00
certifiering@ri.se | www.ri.se

2017-08-08



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Annex to Solar Keymark Certificate Supplementary Information	Licence Number	SC0638-15
	Issued	2019-02-12

Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
Collector name	Standard Locations ϑ_m	Athens			Davos			Stockholm			Würzburg		
		25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
CC-HPV-S12		2 425	2 088	1 752	2 041	1 725	1 427	1 471	1 208	971	1 587	1 304	1 045
Annual output per m ² gross area		936	806	676	788	666	551	568	466	375	613	504	404
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1714 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
Mean annual ambient air temperature		18,5°C			3,2°C			7,5°C			9,0°C		
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°		

The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 6.0 (October 2018). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

Additional Information			
Collector heat transfer medium	Water-Glycole		
The collector is deemed to be suitable for roof integration	No		
The collector was tested successfully under the following conditions:			
Climate class (A+, A, B or C)	C		--
G (W/m ²) >	800	ϑ_a (°C) >	10
		H_x (MJ/m ²) >	420
Maximum tested positive load	2860		Pa
Maximum tested negative load			Pa
Hail resistance using steel ball (maximum drop height)	0,8		m

Additional collector attribute(s)			
<input type="checkbox"/>	Using external power source(s) for normal operation	<input type="checkbox"/>	Active or passive measure(s) for self-protection
<input type="checkbox"/>	Co-generating thermal and electrical power	<input type="checkbox"/>	Wind and/or infrared sensitive collector(s) (WISC)
<input type="checkbox"/>	Façade collector(s)		

Energy Labelling Information		
	Reference Area, A_{sol} (m ²)	Hydraulic Designation Code
CC-HPV-S12	2,59	1-H-12S-C:19.3,1755-D

Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}
Collector efficiency (η_{col})	48%
	Zero-loss efficiency (η_0)
	0,54
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	First-order coefficient (a_1)
	1,21
	W/(m ² K)
	Second-order coefficient (a_2)
	0,004
	W/(m ² K ²)
	Incidence angle modifier IAM (50°)
	1,01
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Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m ² , expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2017.	Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.