

KEYMARK CERTIFICATE

SK08055421915

TUV CYPRUS LTD Certifies that the organization

GSE INTEGRATION

Address: 155-159 Rue Du Docteur Bauer
93400 Saint Ouen
France

Supplies: PVT Air Heating Solar Collectors

In compliance with: EN 12975-1:2006+A1:2010 & EN ISO 9806:2017

Certified Product: Solar Hybrid Collector

Trade Mark: GSE LONGiSOLAR

Test Results: Annex to certificate

Certification scheme: In order to grant this certificate, TUV CYPRUS has visited the manufacturing site and verified the implementation of the quality management system. TUV CYPRUS performs these tasks periodically while the certificate has not been cancelled, in accordance with the Product Certification Regulations and the Rules for Authorization to use Conformity Mark for Solar Collectors.



SOLAR KEYMARK
CERTIFICATION BODY
CEN 033

Accredited by



Certificate No. 885

TUV CYPRUS (TUV NORD) LTD
Certification Body



Nicosia , **27/07/2019**
Initial Certification : **27/07/2019**
Valid until : **26/03/2022**





Annex to Solar Keymark Certificate Supplementary Information	Licence Number	SK0805421915
	Issued	2019-07-26

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806 Test Results													
Collector name	Standard Locations	Athens			Davos			Stockholm			Würzburg		
	ϑ_m	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
GSE LONGISOLAR		744	375	183	582	352	203	405	229	127	457	265	155
Annual output per m ² gross area		454	229	111	355	215	124	247	140	78	279	161	94
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. 5.01 (July 2015). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

Additional Information		
Collector heat transfer medium		Air
Hybrid Thermal and Photo Voltaic collector		Yes
The collector is deemed to be suitable for roof integration		Yes
The collector was tested successfully according to EN ISO 9806 under the following conditions:		
Climate class (A, B or C)		A --
Positive Mechanical Load		2500 Pa
Negative Mechanical Load		- Pa
Hail resistance using steel ball (maximum drop height)		1,4 m

Energy Labelling Information			
	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
GSE LONGISOLAR	1,64	Collector efficiency (η_{col})	41 %
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.			
Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}			
		Zero-loss efficiency (η_0)	0,503 --
		First-order coefficient (a_1)	2,30 W/(m ² K)
		Second-order coefficient (a_2)	0,000 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0,94 --
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.			

