

AENOR

Keymark Certificate Solar thermal energy



078/000309

AENOR certifies that the organization

TERMICOL ENERGIA SOLAR, S.L.

registered office	PI LA ISLA - CL RIO VIEJO, 39 41703 DOS HERMANAS (Sevilla - España)
supplies	Solar collectors
in compliance with	UNE-EN 12975-1:2006 (EN 12975-1:2006)
Trade Mark Technical information	S21, S21H, S26, S26H Specified in Annexes to the Certificate
Production site	PI LA ISLA - CL RIO VIEJO, 39 41703 DOS HERMANAS (Sevilla - España)
Certification scheme	In order to grant this Certificate, AENOR has tested the product and has verified the quality system implemented for its manufacture. AENOR performs these tasks periodically while the Certificate has not been cancelled, in accordance with Specific Rules RP 078.01.
	This certificate supersedes 078/000309, dated 2019-02-19
First issued on	2019-02-19
Modified on	2019-09-13
Validity date	2024-02-19

Rafael GARCÍA MEIRO
Chief Executive Officer



Annex to Solar Keymark Certificate Supplementary Information	Licence Number	078/000309
	Issued	2019-09-13

Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
Standard Locations		Athens			Davos			Stockholm			Würzburg		
Collector name	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
S21		2.376	1.490	769	1.694	996	458	1.270	708	324	1.386	760	345
S21H		2.376	1.490	769	1.694	996	458	1.270	708	324	1.386	760	345
S26H		2.832	1.775	917	2.019	1.187	545	1.513	844	386	1.651	905	411
S26		2.832	1.775	917	2.019	1.187	545	1.513	844	386	1.651	905	411
Annual output per m ² gross area		1.110	696	360	792	465	214	594	331	151	648	355	161
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)				A
G (W/m ²) >		1000	ϑ_a (°C) >	
			20	H_x (MJ/m ²) >
				600
Maximum tested positive load				2500 Pa
Maximum tested negative load				3000 Pa
Hail resistance using ice balls (diameter)				25 mm
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
S21	2,14	9-V-1234S-A:7,1915-C:16,1108-D
S21H	2,14	18-H-1234S-A:7,915-C:16,1308-D
S26H	2,55	18-H-1234S-A:7,1115-C:16,2108-D
S26	2,55	11-V-1234S-A:7,1915:16,1308-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})	50%
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.	Zero-loss efficiency (η_0)
	0,71
	First-order coefficient (a_1)
	4,37
	Second-order coefficient (a_2)
	0,023
	Incidence angle modifier IAM (50°)
	0,92
	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.