

AENOR

Keymark Certificate Solar thermal energy



078/000382

AENOR certifies that the organization

SYRIUS SOLAR INDUSTRY, S.A.S.

registered office 15 RUE DU PERPIGNAN - ZAC DESCARTES 34880 LAVÉRUNE (Francia)

supplies Solar collectors

in compliance with UNE-EN 12975-1:2006+A1:2011 (EN 12975-1:2006+A1:2010)

Trade Mark C2500D12c
Technical information Specified in Annexes to the Certificate

Production site 15 RUE DU PERPIGNAN - ZAC DESCARTES 34880 LAVÉRUNE (Francia)

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.

First issued on 2021-11-05

Validity date 2026-11-05

Rafael GARCÍA MEIRO
Chief Executive Officer

Original Electronic Certificate

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Product certification body accredited by ENAC, number 1/C-PR271



Annex to Solar Keymark Certificate Supplementary Information	Licence Number	078/000382
	Issued	2021-11-05

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
C2500D12c		2.474	1.568	869	1.779	1.088	565	1.324	767	391	1.440	814	409
Annual output per m ² gross area		978	620	343	703	430	223	523	303	154	569	322	162
Annual efficiency, η_a		55%	35%	19%	43%	26%	14%	45%	26%	13%	46%	26%	13%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1630 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. 6.1 (September 2019). A detailed description of the calculations is available at <http://www.estif.org/solarkeymarknew/>

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	3000		Pa		
Maximum tested negative load	2500		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"/> Façade collector(s)

Energy Labelling Information		Additional Informative Technical Data	
	Reference Area, A _{sol} (m ²)	Hydraulic Designation Code	Aperture Area, A _a (m ²)
C2500D12c	2,53	8-V-1234S-A:11.2,1866-C:20,6,1310-D	2,34

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)	0,67
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.		First-order coefficient (a ₁)	3,99
		Second-order coefficient (a ₂)	0,014
		Incidence angle modifier IAM (50°)	0,84
		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.	