

Annex to Solar Keymark Certificate

Licence holder **SYRIUS SOLAR INDUSTRY**
 Brand (optional) **H2500 D8C**
 Street, Number **15, rue de Perpignan**
 Postcode, City **34880 Lavérune**

Collector Type

Licence Number **23.06.017**
 Date issued **2023-06-29**
 Issued by **EUROVENT CERTITA**
 Country **France**
 Web <http://www.syrius-solar.fr>
 E-mail **contact@syrius-solar.fr**
 Tel **+33 467 820 018**

Flat plate collector

Power output per collector

Gb = 850 W/m², Gd = 150 W/m² & u = 1.3 m/s

Collector name	Gross area (A _G) m ²	Gross length mm	Gross width mm	Gross height mm	$\vartheta_m - \vartheta_a$					
					0 K W	10 K W	30 K W	50 K W	70 K W	92 K W
H2500 D8C	2,53	1 244	2 034	98	1 797	1 709	1 486	1 197	844	381

Power output per m ² gross area					710	676	587	473	334	150
Performance parameters test method	Steady state - outdoor									
Performance parameters (related to A _G)	η ₀ , b	a ₁	a ₂	a ₃	a ₄	a ₅	a ₆	a ₇	a ₈	K _d
Units	-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-
Test results	0,721	3,14	0,032	0,000	0,00	6 900	0,000	0,00	0,0E+00	0,90
Incidence angle modifier test method	Steady state - outdoor									
Incidence angle modifier	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal	K _{θT, coll}	1,00	0,99	0,98	0,97	0,94	0,89	0,78	0,46	0,00
Longitudinal	K _{θL, coll}	1,00	0,99	0,98	0,97	0,94	0,89	0,78	0,46	0,00
Heat transfer medium for testing	Water-Glycole									
Flow rate for testing (per gross area, A _G)	dm/dt							0,020	kg/(sm ²)	
Maximum temperature difference during thermal performance test	(ϑ _m -ϑ _a) _{max}							62	K	
Standard stagnation temperature (G = 1000 W/m ² ; ϑ _a = 30 °C)	ϑ _{stg}							170	°C	
Maximum operating temperature	ϑ _{max_op}							200	°C	
Maximum operating pressure	p _{max,op}							100	kPa	
Testing laboratory	CESP				http://www.cesplab.univ-perp.fr					
Test report(s)	PVFRES03004-1-5				Dated					
					28/05/2023					

Comments of testing laboratory

Datasheet version: 6.1, 2019-09-26

Annex to Solar Keymark Certificate							Licence Number		23.05.004				
Supplementary Information							Issued		2023-05-16				

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
H2500 D8C		2 850	1 955	1 093	2 141	1 349	664	1 588	962	471	1 728	1 040	503
Annual output per m ² gross area		1 127	773	432	846	533	262	627	380	186	683	411	199
Annual efficiency, η_a		64%	44%	24%	52%	33%	16%	54%	33%	16%	55%	33%	16%
Fixed or tracking collector													
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				3000	Pa
Hail resistance using steel ball (maximum drop height)				1	m
Additional collector attribute(s)					
☐ Using external power source(s) for normal operation ☐ Active or passive measure(s) for self-protection					
☐ Co-generating thermal and electrical power ☐ 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)
H2500 D8C	2,53	20-V-12345-A:7.2,21300-	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})	53%	Zero-loss efficiency (η_0)	0,71
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)	3,14
		Second-order coefficient (a_2)	0,032
		Incidence angle modifier IAM (50°)	0,93
		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.	

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