

# AENOR

## Keymark Certificate Solar thermal energy



**078/000375**

AENOR certifies that the organization

**PRISMEK S.r.l.**

registered office VIALE ISONZO, 2 91025 MARSALA (Provincia Di Trapani - Italia)

supplies Solar collectors

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

Trade Mark F1-25, F1-25 OR  
Technical information Specified in Annexes to the Certificate

Production site 6066111-517470

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 078/000375, dated 2021-01-14

First issued on 2021-01-14  
Modified on 2021-01-26  
Validity date 2026-01-14


Rafael GARCÍA MEIRO  
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.  
Génova, 6. 28004 Madrid. España  
Tel. 91 432 60 00.- www.aenor.com

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



Annex to Solar Keymark Certificate					Licence Number		078/000375							
					Date issued		2021-01-26							
					Issued by		AENOR							
Licence holder		PRISMEK S.r.l.			Country		ITALY							
Brand (optional)		--			Web		--							
Street, Number		Viale Isonzo, nº 2			E-mail		info@prismek.com							
Postcode, City		91025 Marsala (TP)			Tel		+39 0923 951113							
Collector Type					Flat plate collector									
Collector name					Power output per collector									
					G <sub>b</sub> = 850 W/m <sup>2</sup> , G <sub>d</sub> = 150 W/m <sup>2</sup> & u = 1.3 m/s $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	83 K				
					m <sup>2</sup>	mm	mm	mm	mm	mm	mm			
F1-25					2,52	2.067	1.218	85	1.932	1.846	1.649	1.420	1.159	972
F1-25 OR					2,52	1.218	2.067	85	1.932	1.846	1.649	1.420	1.159	972
Power output per m <sup>2</sup> gross area					767	732	654	564	460	386				
Performance parameters test method		Steady state - indoor												
Performance parameters (related to A <sub>G</sub> )		$\eta_0, b$	a1	a2	a3	a4	a5	a6	a7	a8	Kd			
Units		-	W/(m <sup>2</sup> K)	W/(m <sup>2</sup> K <sup>2</sup> )	J/(m <sup>3</sup> K)	-	J/(m <sup>2</sup> K)	s/m	W/(m <sup>2</sup> K <sup>4</sup> )	W/(m <sup>2</sup> K <sup>4</sup> )	-			
Test results		0,776	3,26	0,016	0,000	0,00	4.786	0,000	0,00	0,0E+00	0,92			
Incidence angle modifier test method		Steady state - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K <sub>ET, coll</sub>	1,00	0,99	0,99	0,98	0,95	0,92	0,84	0,61	0,00			
Longitudinal		K <sub>EL, coll</sub>	1,00	0,99	0,99	0,98	0,95	0,92	0,84	0,61	0,00			
Heat transfer medium for testing					Water									
Flow rate for testing (per gross area, A <sub>G</sub> )					dm/dt	0,034	kg/(sm <sup>2</sup> )							
Maximum temperature difference during thermal performance test					( $\vartheta_m - \vartheta_a$ ) <sub>max</sub>	53	K							
Standard stagnation temperature (G = 1000 W/m <sup>2</sup> ; $\vartheta_a = 30$ °C)					$\vartheta_{stg}$	213,6	°C							
Maximum operating temperature					$\vartheta_{max, op}$	200	°C							
Maximum operating pressure					p <sub>max, op</sub>	1000	kPa							
Testing laboratory		Fundación CENER, LEST			http://www.cener.com									
Test report(s)		30.3718.0-001 / 30.3718.0-002 30.3718.0 30.3837.2 / 30.3837.3			Dated		20/05/2020  10/12/2020							
Comments of testing laboratory					Datasheet version: 6.1, 2019-09-26									
<p>The collector models F1-25 and F1-25 OR are the same as the models TOP 2500 and TOP 2500 H tested according to ISO 9806:2017.</p>														
<p>AENOR INTERNACIONAL, S.A.U. - Génova, 6. - 28004 - Madrid, España - Tel. 91 432 60 00 - www.aenor.com</p> <p>Product certification body accredited by ENAC, number 1/C-PR271</p>														



Annex to Solar Keymark Certificate Supplementary Information	Licence Number	078/000375
	Issued	2021-01-26

Annual collector output in kWh/collector at mean fluid temperature $\vartheta_m$													
Standard Locations		Athens			Davos			Stockholm			Würzburg		
Collector name	$\vartheta_m$	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
F1-25		3.128	2.285	1.516	2.408	1.690	1.067	1.771	1.181	719	1.924	1.280	766
F1-25 OR		3.128	2.285	1.516	2.408	1.690	1.067	1.771	1.181	719	1.924	1.280	766
Annual output per m <sup>2</sup> gross area		1.241	907	602	956	671	424	703	469	285	764	508	304
Annual efficiency, $\eta_a$		70%	51%	34%	59%	41%	26%	60%	40%	24%	61%	41%	24%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m <sup>2</sup>			1630 kWh/m <sup>2</sup>			1166 kWh/m <sup>2</sup>			1244 kWh/m <sup>2</sup>		
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 $\vartheta_m$ (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 <a href="http://www.estif.org/solarkeymarknew/">http://www.estif.org/solarkeymarknew/</a>													

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 <sup>2</sup> ) >	1000	$\vartheta_a$ (°C) >	20
		$H_x$ (MJ/m <sup>2</sup> ) >	600
Maximum tested positive load	2400		Pa
Maximum tested negative load	2400		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 <sup>2</sup> )	Hydraulic Designation Code	Aperture Area, $A_a$ (m <sup>2</sup> )
F1-25	2,52	1-V-1234S-A:7,1895-C:16.8,1273-D	2,38
F1-25 OR	2,52	1-H-1234S-A:7,1070-C:16.8,2108-D	2,38

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 ( $\eta_{col}$ )	61%	Zero-loss efficiency ( $\eta_0$ )	0,77
Remark: Collector efficiency ( $\eta_{col}$ ) 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 <sup>2</sup> , expressed in % and rounded to the nearest integer. Deviating from the regulation $\eta_{col}$ 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 ( $a_1$ )	3,26
		Second-order coefficient ( $a_2$ )	0,016
		Incidence angle modifier IAM (50°)	0,95
		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.	