



Keymark Certificate



078/000246

AENOR certifies that the organization

SUNEX, S.A.

registered office UL. PIASKOWA, 7 47-400 RACIBÓRZ (Silesia - Polonia)

supplies **Solar collectors**

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

Trade Mark AMP 2.0, AMP 2.19, AMP 2.38, AMP 2.51, AMP 2.85
Technical information Specified in Annexes to the Certificate

Production site UL. PIASKOWA, 4A 47-400 RACIBÓRZ (Silesia - Polonia)

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 078/000246, dated 2020-09-11

First issued on 2015-09-11
Modified on 2024-08-06
Validity 2025-09-11

Rafael GARCÍA MEIRO
CEO



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





Annex to Solar Keymark Certificate Supplementary Information	Licence Number	078/000246
	Issued	2024-08-06

Gross Thermal Yield 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
AMP 2.0		2.182	1.444	903	1.588	1.047	649	1.176	723	428	1.281	775	451
AMP 2.19		2.377	1.574	984	1.730	1.140	707	1.281	787	466	1.396	844	491
AMP 2.38		2.584	1.710	1.069	1.881	1.239	768	1.392	856	507	1.517	917	534
AMP 2.51		2.723	1.803	1.127	1.982	1.306	809	1.468	902	534	1.599	967	562
AMP 2.85		3.094	2.048	1.280	2.252	1.484	920	1.667	1.024	607	1.817	1.098	639
Gross Thermal Yield per m ² gross area		1.086	719	449	790	521	323	585	359	213	637	385	224
Annual efficiency, η_a		62%	41%	25%	48%	32%	20%	50%	31%	18%	51%	31%	18%
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. 6.2 (13.01.2022). 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)				B	--
G (W/m ²) >	900	θ _a (°C) >	15	H _x (MJ/m ²) >	540
Maximum tested positive load				2460	Pa
Maximum tested negative load				2460	Pa
Hail resistance using steel ball (maximum drop height)				2	m
Additional collector attribute(s)					
Using external power source(s) for normal operation		No	Active or passive measure(s) for self-protection		No
Co-generating thermal and electrical power		No	Façade collector(s)		No

Energy Labelling Information		Additional Informative Technical Data	
	Reference Area, A _{sol} (m ²)	Hydraulic Designation Code	Aperture Area, A _a (m ²)
AMP 2.0	2,01	10-VH-1234S-A:7,1790-C:20,1120-D	1,84
AMP 2.19	2,19	10-VH-1234S-A:7,1995-C:20,1120-D	2,00
AMP 2.38	2,38	10-VH-1234S-A:7,2135-C:20,1120-D	2,18
AMP 2.51	2,51	10-VH-1234S-A:7,2135-C:20,1180-D	2,31
AMP 2.85	2,85	12-VH-1234S-A:7,2135-C:20,1330-D	2,63

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)	0,70
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)	4,33
		Second-order coefficient (a_2)	0,002
		Incidence angle modifier IAM (50°)	0,91
		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.	