

AENOR

Keymark Certificate Solar thermal energy



078/000344

AENOR certifies that the organization

BDR THERMEA GROUP B.V

registered office	MARCHANTSTRAAT, 55 7300 AA APELDOORN (Holanda - Países Bajos)
supplies	Solar collectors
in compliance with	UNE-EN 12975-1:2006+A1:2011 (EN 12975-1:2006+A1:2010)
Trade Mark Technical information	BAXI MEDITERRANEO SLIM PV Specified in Annexes to the Certificate
Production site	CL MANGANÉS, 2 POLIG. INDUSTRIAL CAN ALBAREDA 08755 CASTELLBISBAL (Barcelona - 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 078/000344, dated 2019-11-05
First issued on	2019-11-05
Modified on	2019-11-08
Validity date	2024-11-05

Rafael GARCÍA MEIRO
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.
Génova, 6. 28004 Madrid. España
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Product certification body accredited by ENAC, number 01/C-PR271



Annex to Solar Keymark Certificate					Licence Number		078/000344							
					Date issued		2019-11-08							
					Issued by		AENOR							
Licence holder		BDR THERMEA GROUP B.V.			Country		NETHERLANDS							
Brand (optional)		BAXI			Web		http://www.bdrthermea.com							
Street, Number		MARCHANSTRAAT 55			E-mail		oleguer.fuertes@baxi.es							
Postcode, City		7300 AA, APPELDOORN			Tel		+34 902 89 80 00							
Collector Type					Flat plate collector									
Collector name					Gross area (A _G)	Gross length	Gross width	Gross height	Power output per collector					
									G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$					
					m ²	mm	mm	mm	0 K	10 K	30 K	50 K	70 K	85 K
BAXI MEDITERRANEO SLIM PV					1,62	1.694	990	46	1.206	1.143	1.003	845	670	526
Power output per m ² gross area									744	705	619	522	413	324
Performance parameters test method					Steady state - indoor									
Performance parameters (related to A _G)					η_0, b	a1	a2	a3	a4	a5	a6	a7	a8	Kd
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					0,750	3,75	0,014	0,000	0,00	5,975	0,000	0,00	0,0E+00	0,95
Incidence angle modifier test method					Steady state - outdoor									
Incidence angle modifier					Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal					$K_{\theta T, coll}$	1,00	0,99	0,99	0,97	0,95	0,90	0,82	0,55	0,00
Longitudinal					$K_{\theta L, coll}$	1,00	0,99	0,99	0,97	0,95	0,90	0,82	0,55	0,00
Heat transfer medium for testing					Water									
Flow rate for testing (per gross area, A _G)					dm/dt		0,020	kg/(sm ²)						
Maximum temperature difference during thermal performance test					$(\vartheta_m - \vartheta_a)_{max}$		55	K						
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30\text{ }^\circ\text{C}$)					ϑ_{stg}		200	°C						
Maximum operating temperature					$\vartheta_{max, op}$		200	°C						
Maximum operating pressure					$p_{max, op}$		1000	kPa						
Testing laboratory					Fundación CENER, LEST			http://www.cener.com						
Test report(s)					30.3502.0-001 30.3502.0-002 R			Dated		29/03/2019 07/11/2019				
Comments of testing laboratory					<p style="text-align: right;">Datasheet version: 6.1, 2019-09-26</p>									
AENOR INTERNACIONAL, S.A.U. - Génova, 6. - 28004 - Madrid, España - Tel. 91 432 60 00 - www.aenor.com														
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Annex to Solar Keymark Certificate	Licence Number	078/000344
Supplementary Information	Issued	2019-11-08

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
BAXI MEDITERRANEO SLIM PV		1.952	1.362	857	1.461	980	584	1.082	686	395	1.180	744	421
Annual output per m ² gross area		1.205	841	529	902	605	361	668	423	244	729	459	260
Annual efficiency, η_a		68%	48%	30%	55%	37%	22%	57%	36%	21%	59%	37%	21%
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	2400		Pa
Maximum tested negative load	2400		Pa
Hail resistance using steel ball (maximum drop height)	1,4		m

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)
BAXI MEDITERRANEO SLIM PV	1,62	1-V-12V-A:11,16098	1,53

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})	57%	Zero-loss efficiency (η_0)	0,74
		First-order coefficient (a_1)	3,75
		Second-order coefficient (a_2)	0,014
		Incidence angle modifier IAM (50°)	0,94
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.		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.	