

AENOR

Keymark Certificate Solar thermal energy



078/000315

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 (EN 12975-1:2006)
Trade Mark Technical information	BAXI SOL250-0 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.
First issued on Validity date	2019-03-14 2024-03-14

Rafael GARCÍA MEIRO
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL SA.U.
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Product certification body accredited by ENAC, number 01/C-PR002.078



Annex to Solar Keymark Certificate						Licence Number		078/000315					
						Date issued		2019-03-14					
						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 height	Gross area (A_G)	Gross length	Gross width	Aperture area (A_a)	Power output per collector $G_b = 850 \text{ W/m}^2$, $G_d = 150 \text{ W/m}^2$ & $u = 1.3 \text{ m/s}$ $\vartheta_m - \vartheta_a$							
						0 K	10 K	30 K	50 K	70 K	100 K		
	mm	m ²	mm	mm	m ²	W	W	W	W	W	W		
BAXI SOL250-O	70	2,52	1.151	2.191	2,40	1.901	1.816	1.599	1.319	978	348		
Power output per m ² gross area						754	721	634	524	388	138		
Performance parameters test method		Quasi dynamic											
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		0,766	3,07	0,031	0,000	0,00	3.190	0,000	0,00	0,0E+00	0,90		
Incidence angle modifier test method		Quasi dynamic - outdoor											
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°		
Transversal		$K_{\theta T, coll}$	1,00	0,99	0,98	0,97	0,94	0,90	0,80	0,40	0,00		
Longitudinal		$K_{\theta L, coll}$	1,00	0,99	0,98	0,97	0,94	0,90	0,80	0,40	0,00		
Heat transfer medium for testing						Water							
Flow rate for testing (per gross area, A_G)						dm/dt	0,019	kg/(sm ²)					
Maximum temperature difference during thermal performance test						$(\vartheta_m - \vartheta_a)_{max}$	70	K					
Standard stagnation temperature ($G = 1000 \text{ W/m}^2$; $\vartheta_a = 30 \text{ °C}$)						ϑ_{stg}	190	°C					
Maximum operating temperature						$\vartheta_{max, op}$	n.n.	°C					
Maximum operating pressure						$p_{max, op}$	1000	kPa					
Testing laboratory		TÜV Rheinland Energy GmbH				www.tuv.com/solarpower							
Test report(s)		21244866.001 21239603.002rev3				Dated		28 January 2019 15 March 2018					
Comments of testing laboratory						Datasheet version: 6.0, 2018-10-30							
<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 01/C-PR002.078</p>													



Annex to Solar Keymark Certificate Supplementary Information	Licence Number	078/000315
	Issued	2019-03-14

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 SOL250-O		3.027	2.142	1.269	2.310	1.515	808	1.705	1.074	565	1.854	1.163	602
Annual output per m ² gross area		1.201	850	503	917	601	320	677	426	224	736	462	239
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1714 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. 6.0 (October 2018). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

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	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"/> Wind and/or infrared sensitive collector(s) (WISC)
<input type="checkbox"/> Façade collector(s)	

Energy Labelling Information		
	Reference Area, A_{sol} (m ²)	Hydraulic Designation Code
BAXI SOL250-O	2,52	1-H-1234S-7.2.21400-16.6.2239

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})	58%	Zero-loss efficiency (η_0)	0,75 --
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)	3,07 W/(m ² K)
		Second-order coefficient (a_2)	0,031 W/(m ² K ²)
		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.	