

# AENOR

## Keymark Certificate Solar thermal energy



078/000258

AENOR certifies that the organization

### **BDR THERMEA GROUP B.V**

registered office MERCHANTSTRAAT, 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 BAXI MEDITERRANEO SLIM 250  
Technical information Specified in Annexes to the Certificate

Production site CL MANGANÉS, 2 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 2016-02-16

Last issued on 2021-02-16

Validity date 2026-02-16

Rafael GARCÍA MEIRO  
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.  
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Product certification body accredited by ENAC, number 1/C-PR271



<b>Annex to Solar Keymark Certificate</b>				<b>Licence Number</b>		<b>078/000258</b>								
				<b>Date issued</b>		<b>2021-02-16</b>								
				<b>Issued by</b>		<b>AENOR</b>								
<b>Licence holder</b>		<b>BDR THERMEA GROUP B.V.</b>			<b>Country</b>		<b>NETHERLANDS</b>							
<b>Brand (optional)</b>		<b>--</b>			<b>Web</b>		<b>www.bdrthermeagroup.com</b>							
<b>Street, Number</b>		<b>MARCHANSTRAAT 55</b>			<b>E-mail</b>		<b>oleguer.fuertes@BDRThermea.com</b>							
<b>Postcode, City</b>		<b>7300 AA - APPELDOORN</b>			<b>Tel</b>		<b>+34 902898989</b>							
<b>Collector Type</b>				<b>Flat plate collector</b>										
<b>Collector name</b>					<b>Power output per collector</b>									
					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 θ <sub>m</sub> - θ <sub>a</sub>									
					0 K	10 K	30 K	50 K	70 K	84 K				
					m <sup>2</sup>	mm	mm	mm	mm	mm	mm			
<b>BAXI MEDITERRANEO SLIM 250</b>					2,52	2.191	1.151	46	1.776	1.679	1.465	1.224	958	755
<b>Power output per m<sup>2</sup> gross area</b>					705	666	581	486	380	300				
<b>Performance parameters test method</b>		<b>Steady state - indoor</b>												
<b>Performance parameters (related to A<sub>G</sub>)</b>		η <sub>0, b</sub>	a1	a2	a3	a4	a5	a6	a7	a8	Kd			
<b>Units</b>		-	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> )	-			
<b>Test results</b>		0,709	3,73	0,013	0,000	0,00	3.619	0,000	0,00	0,0E+00	0,96			
<b>Incidence angle modifier test method</b>		<b>Steady state - outdoor</b>												
<b>Incidence angle modifier</b>		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
<b>Transversal</b>		K <sub>θT, coll</sub>	1,00	0,99	0,99	0,97	0,95	0,91	0,83	0,57	0,00			
<b>Longitudinal</b>		K <sub>θL, coll</sub>	1,00	0,99	0,99	0,97	0,95	0,91	0,83	0,57	0,00			
<b>Heat transfer medium for testing</b>				<b>Water</b>										
<b>Flow rate for testing (per gross area, A<sub>G</sub>)</b>				dm/dt		0,020		kg/(sm <sup>2</sup> )						
<b>Maximum temperature difference during thermal performance test</b>				(θ <sub>m</sub> - θ <sub>a</sub> ) <sub>max</sub>		54		K						
<b>Standard stagnation temperature (G = 1000 W/m<sup>2</sup>; θ<sub>a</sub> = 30 °C)</b>				θ <sub>stg</sub>		212,3		°C						
<b>Maximum operating temperature</b>				θ <sub>max, op</sub>		180		°C						
<b>Maximum operating pressure</b>				p <sub>max, op</sub>		1000		kPa						
<b>Testing laboratory</b>		<b>Fundación CENER, LEST</b>					<a href="http://www.cener.com">http://www.cener.com</a>							
<b>Test report(s)</b>		30.2755.0-2-1 30.2755.0-3-1 R					<b>Dated</b>		28/12/2015 04/02/2016					
<b>Comments of testing laboratory</b>				<b>Datasheet version: 6.1, 2019-09-26</b>										
<b>AENOR INTERNACIONAL, S.A.U.</b> - 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 Supplementary Information	Licence Number	078/000258
	Issued	2021-02-16

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
BAXI MEDITERRANEO SLIM 250		2.880	1.981	1.222	2.137	1.411	822	1.586	988	557	1.733	1.073	595
Annual output per m <sup>2</sup> gross area		1.143	786	485	848	560	326	629	392	221	688	426	236
Annual efficiency, $\eta_a$		65%	45%	27%	52%	34%	20%	54%	34%	19%	55%	34%	19%
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 <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 <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> )
BAXI MEDITERRANEO SLIM 250	2,52	1-V-1234S-A:7.3,2044-C:14.6,1226-D	2,40

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 ( $\eta_{col}$ )	53%	Zero-loss efficiency ( $\eta_0$ )	0,70
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 ( $a_1$ )	3,73
		Second-order coefficient ( $a_2$ )	0,013
		Incidence angle modifier IAM (50°)	0,94
		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.	