

# AENOR

## Keymark Certificate Solar thermal energy



078/000180

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 (EN 12975-1:2006)

Trade Mark GIACOMINI GSUN 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 2013-04-10

Last issued on 2018-04-10

Validity date 2023-04-10

Rafael GARCÍA MEIRO  
Chief Executive Officer

Original Electronic Certificate

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Product certification body accredited by ENAC, number 01/C-PR002.078





Annex to Solar Keymark Certificate Supplementary Information	Licence Number	078/000180
	Issued	2018-04-10

**Annual collector output in kWh/collector at mean fluid temperature  $\vartheta_m$ , based on EN ISO 9806:2013 test results**

Standard Locations Collector name	$\vartheta_m$	Athens			Davos			Stockholm			Würzburg		
		25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
GIACOMINI GSUN 250		2.986	2.149	1.394	2.292	1.587	983	1.682	1.108	665	1.823	1.192	703
Annual output per m <sup>2</sup> gross area		1.190	856	555	913	632	392	670	442	265	726	475	280
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m <sup>2</sup>			1714 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. 5.01 (March 2016). A detailed description of the calculations is available at [www.solarkeymark.org/scenocalc](http://www.solarkeymark.org/scenocalc)

**Additional Information**

Collector heat transfer medium	Water-Glycole
Hybrid Thermal and Photo Voltaic collector	No
The collector is deemed to be suitable for roof integration	Yes
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:	
Climate class (A, B or C)	A --
Maximum tested positive load	5400 Pa
Maximum tested negative load	3000 Pa
Hail resistance using ice balls (diameter)	35 mm

**Energy Labelling Information**

	Reference Area, A <sub>sol</sub> (m <sup>2</sup> )	Data required for CDR (EU) No 811/2013 - Reference Area A <sub>sol</sub>	
GIACOMINI GSUN 250	2,51	Collector efficiency ( $\eta_{col}$ )	61 %
		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 <sub>sol</sub> ) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2013.	
		Data required for CDR (EU) No 812/2013 - Reference Area A <sub>sol</sub>	
		Zero-loss efficiency ( $\eta_0$ )	0,767 --
		First-order coefficient (a <sub>1</sub> )	3,29 W/(m <sup>2</sup> K)
		Second-order coefficient (a <sub>2</sub> )	0,017 W/(m <sup>2</sup> K <sup>2</sup> )
		Incidence angle modifier IAM (50°)	0,91 --
		Remark: The data given in this section are related to collector reference area (A <sub>sol</sub> ) 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.	