

# AENOR

## Keymark Certificate Solar thermal energy



078/000135

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 REMEHA SOL 250 P  
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 78.01.

First issued on 2012-07-24

Last issued 2017-07-24

Validity date 2022-07-24

Rafael GARCÍA  
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Original Electrónico

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



<b>Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate</b>	<b>Certificate No.</b>	<b>078/000135</b>
	Date of issue	24-07-2017

<b>Company</b>	BDR THERMEA GROUP B.V.	<b>Country</b>	NETHERLANDS
<b>Brand (optional)</b>		<b>Website</b>	www.bdrthermea.com
<b>Street, number</b>	MARCHANSTRAAT 55	<b>E-mail</b>	oleguer.fuertes@baxi.es
<b>Postal Code</b>	7300 AA	<b>Tel.</b>	34 902 89 80 00
<b>City</b>	APPELDOORN	<b>Fax</b>	34 902 89 80 12

<b>Collector Type</b> (flat plate / evacuate tubular / un-glazed)	Flat plate collector
<b>Integration in the roof possible?</b>	Yes

Collector name	Aperture area (A <sub>a</sub> ) [m <sup>2</sup> ]	Gross length [mm]	Gross width [mm]	Gross height [mm]	Gross area (A <sub>g</sub> ) [m <sup>2</sup> ]	Power output per collector unit G = 1000 W/m <sup>2</sup> T <sub>m</sub> -T <sub>a</sub> :				
						0 K	10 K	30 K	50 K	70 K
						[W]	[W]	[W]	[W]	[W]
REMEHA SOL 250 P	2,37	2.187	1.147	87	2,51	1.926	1.839	1.640	1.407	1.139

<b>Collector efficiency parameters related to aperture area (A<sub>a</sub>)</b> Type of fluid and flow rate see note 1	h <sub>0a</sub>	0,81	-
	a <sub>1a</sub>	3,48	W/(m <sup>2</sup> K)
	a <sub>2a</sub>	0,02	W/(m <sup>2</sup> K <sup>2</sup> )

<b>Stagnation temperature</b> - Weather conditions see note 2	t <sub>stg</sub>	197	°C
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<b>Effective thermal capacity</b>	C <sub>eff</sub> = C/A <sub>a</sub>	6,75	kJ/(m <sup>2</sup> K)
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<b>Max. operation pressure</b> - see note 3	p <sub>max</sub>	1000	kPa
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Incidence angle modifiers K <sub>θ</sub> (θ)	G <sub>DIF</sub> /G <sub>TOT</sub>		θ <sub>T</sub> / θ <sub>L</sub>	50°	10°	20°	30°	40°	60°	70°
	min	max	K <sub>θ</sub> (θ <sub>T</sub> )	0,91	1,00	0,99	0,97	0,95	0,83	0,67
	G <sub>DIF</sub> /G <sub>TOT</sub> : min&max - while measuring		K <sub>θ</sub> (θ <sub>L</sub> )	0,91	1,00	0,99	0,97	0,95	0,83	0,67
<i>Optional values</i>										

<b>Testing Laboratory</b>	TUV Energie und Umwelt GmbH
<b>Website</b>	www.eco-tuv.de
<b>Test report id. number</b>	21217926_EN_P1_SOL200V; 21217926_EN_P_SOL250V; 21217926_EN_R_SOL250V
<b>Date of test report</b>	all 04-06-2012
<b>Perf. test method</b>	EN 12975-2 6.3 (outdoor)

**Comments of testing laboratory :**

Note 1	<b>Fluid</b>	Water	<b>Flow rate</b>	0,021 kg/s per m <sup>2</sup>	Stamp & signature of test lab
Note 2	<b>Irradiance, G<sub>s</sub>=1000 W/m<sup>2</sup></b>		<b>Ambient temperature, T<sub>a</sub>=30 °C</b>		
Note 3	<b>Given by manufacturer</b>				



Annual collector output based on EN 12975 Test Results,  
annex to Solar KEYMARK Certificate

Certificate No.

078/000135

Issued

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### Annual collector output kWh

Collector name	Location and collector temperature (T <sub>m</sub> )														
	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			
REMEHA SOL 250 P	2.987	2.150	1.396	2.452	1.689	1.035	1.680	1.109	664	1.822	1.192	703			

Collector mounting: Fixed or tracking

Fixed; slope = latitude - 15° (rounded to nearest 5°)

### Overview of locations

Location	Latitude °	G <sub>tot</sub> kWh/m <sup>2</sup>	T <sub>a</sub> °C	Collector orientation or tracking mode
Athens	38	1.765	18,5	South, 25°
Davos	47	1.714	3,2	South, 30°
Stockholm	59	1.166	7,5	South, 45°
Würzburg	50	1.244	9,0	South, 35°

G <sub>tot</sub>	Annual total irradiation on collector plane	kWh/m <sup>2</sup>
T <sub>a</sub>	Mean annual ambient air temperature	°C
T <sub>m</sub>	Constant collector operating temperature (mean of in- and outlet temperatures)	°C

Calculation of the annual collector performance is done by the official Solar Keymark spreadsheet tool. Hour by hour the collector output is calculated according to the efficiency parameters from the Keymark test using constant collector operating temperature (T<sub>m</sub>). Detailed description with all equations used is available from the Solar Keymark web site (direct link: <http://www.estif.org/solarkeymark/annexb1.php>)

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Datasheet version:

VERSION 3.5, 2012.01.13

Calculation program version:

3.07, October 2011 (SP)