

# AENOR

## Keymark Certificate Solar thermal energy



078/000257

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 CHAPPEE SOL 200 SLIM LINE  
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.

This certificate supersedes 078/000257, dated 2016-02-16

First issued on 2016-02-16  
Modified on 2017-11-23  
Validity date 2021-02-16


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-PR002.078



<b>Summary of EN 12975 Test Results,</b>						<b>Licence Number</b>		<b>078/000257</b>							
<b>annex to Solar KEYMARK Certificate</b>						<b>Issued</b>		<b>2017-11-23</b>							
<b>Company holding the</b>		<b>BDR THERMEA GROUP B.V.</b>				<b>Country</b>		<b>NETHERLANDS</b>							
<b>Brand (optional)</b>		<b>--</b>				<b>Website</b>		<b>www.bdrthermea.com</b>							
<b>Street, street number</b>		<b>MARCHANSTRAAT 55</b>				<b>E-mail</b>		<b>oleguer.fuertes@baxi.es</b>							
<b>Postal Code / City, province</b>		<b>7300 AA</b>		<b>APPELDOORN</b>		<b>Tel/Fax</b>		<b>+34 902898989</b>							
<b>Collector Type (flat plate glazed/un-glazed; evacuate tubular)</b>						<b>Flat plate collector - glazed</b>									
Thermal / photo voltaic hybrid collector? (PVT collector)						No									
Integration in the roof possible ? (manufacturers declaration)						No									
						<b>Power output per collector module</b>									
						<b>G = 1000 W/m<sup>2</sup></b>									
						<b>T<sub>m</sub>-T<sub>a</sub></b>									
						<b>0 K</b>	<b>10 K</b>	<b>30 K</b>	<b>50 K</b>	<b>70 K</b>					
<b>Collector name</b>						<b>W</b>	<b>W</b>	<b>W</b>	<b>W</b>	<b>W</b>					
<b>CHAPPEE SOL 200 SLIM LINE</b>						<b>1,92</b>	<b>1.757</b>	<b>1.151</b>	<b>46</b>	<b>2,02</b>	<b>1.405</b>	<b>1.328</b>	<b>1.154</b>	<b>953</b>	<b>727</b>
<b>Performance test method</b>						<b>Glazed liquid heating collector - steady state - indoor</b>									
<b>Performance parameters related to aperture</b>						$\eta_0$	a1	a2							
<b>Units</b>						-	W/(m <sup>2</sup> K)	W/(m <sup>2</sup> K <sup>2</sup> )							
<b>Test results - Flow rate and fluid see note 1</b>						<b>0,732</b>	<b>3,860</b>	<b>0,017</b>							
<b>Bi-directional incidence angle modifiers?</b>						<b>No</b> <i>K<math>\theta</math> values are obligatory for 50°.</i>									
<b>Incidence angle modifiers K<math>\theta</math>(<math>\theta</math>)</b>						<b>Angle</b>	10°	20°	30°	40°	50°	60°	70°	80°	90°
						<b>K<math>\theta</math>(<math>\theta</math>)</b>					0,95			0,00	
<b>Incidence angle modifier not bi-directional - leave fields blank</b>															
<b>Stagnation temperature - Weather conditions see note 2</b>						<b>T<sub>stg</sub></b>		<b>212,3</b>		<b>°C</b>					
<b>Effective thermal capacity</b>						<b>ceff = C/Ag</b>		<b>3,79</b>		<b>kJ/(m<sup>2</sup>K)</b>					
<b>Max. intende operation temperature - see note 3</b>						<b>T<sub>max,op</sub></b>		<b>180</b>		<b>°C</b>					
<b>Max. operation pressure - see note 3</b>						<b>p<sub>max,op</sub></b>		<b>1000</b>		<b>kPa</b>					
<b>Pressure drop table - for a collector family, the values shall be for the module with highest <math>\Delta P</math> per m<sup>2</sup> aperture area</b>															
<b>Flow rate</b>		kg/(s m <sup>2</sup> )	0,000	0,010	0,023	0,035	0,047	0,060							
<b>Pressure drop, <math>\Delta P</math></b>		Pa	0	56	161	283	432	636							
<b>Optional weather data</b>		<b>Location</b>						<b>Link</b>							
<b>Testing Laboratory</b>						<b>Fundación CENER-CIEMAT, LEST</b>									
<b>Website</b>						<b>www.cener.com</b>									
<b>Test report id. number</b>						<b>30.2755.0-1-1 R</b>				<b>Date of test report</b>		<b>04/02/2016</b>			
						<b>30.2755.0-2-1 / 30.2755.0</b>						<b>28/12/2015</b>			
During the test GDIF/GTOT was always between						<b>0,08</b>	and	<b>0,09</b>							
<b>Comments of testing laboratory:</b>															
<b>--</b>															
<b>Note 1</b>	<b>Flow rate</b>	<b>0,020</b>	kg/(s m <sup>2</sup> )	<b>Fluid</b>	<b>Water</b>										
<b>Note 2</b>	<b>Irradiance, G = 1000 W/m<sup>2</sup>; Ambient temperature , Ta=30 °C</b>														
<b>Note 3</b>	<b>Given by manufacturer</b>														
															
						Datasheet version: 4.06, 2014-01-15									
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