

AENOR

Keymark Certificate Solar thermal energy



078/000276

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 REMEHA DH200 SL
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 2016-04-25

Last issued on 2021-04-25

Validity date 2026-04-25


Rafael GARCÍA MEIRO
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.
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					Licence Number		078/000276							
					Date issued		2021-04-25							
					Issued by		AENOR							
Licence holder		BDR THERMEA GROUP B.V.			Country		NETHERLANDS							
Brand (optional)		--			Web		www.bdrthermeagroup.com							
Street, Number		MARCHANTSTRAAT 55			E-mail		oleguer.fuertes@BDRThermea.com							
Postcode, City		7300 AA APELDOORN			Tel		+34 902898989							
Collector Type					Flat plate collector									
Collector name					Power output per collector									
					Gb = 850 W/m ² , Gd = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	84 K				
					m ²	mm	mm	mm	mm	mm	mm			
REMEHA DH200 SL					2,02	1.757	1.151	46	1.399	1.322	1.149	949	724	551
Power output per m ² gross area					693	655	569	470	358	273				
Performance parameters test method		Steady state - indoor												
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		0,697	3,66	0,016	0,000	0,00	3.788	0,000	0,00	0,0E+00	0,96			
Incidence angle modifier test method		Steady state - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K _{θT, coll}	1,00	0,99	0,99	0,97	0,95	0,91	0,83	0,57	0,00			
Longitudinal		K _{θL, coll}	1,00	0,99	0,99	0,97	0,95	0,91	0,83	0,57	0,00			
Heat transfer medium for testing		Water												
Flow rate for testing (per gross area, A _G)		dm/dt	0,020	kg/(sm ²)										
Maximum temperature difference during thermal performance test		($\vartheta_m - \vartheta_a$) _{max}	54	K										
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30$ °C)		ϑ_{stg}	212,3	°C										
Maximum operating temperature		$\vartheta_{max, op}$	180	°C										
Maximum operating pressure		p _{max, op}	1000	kPa										
Testing laboratory		Fundación CENER, LEST					http://www.cener.com							
Test report(s)		30.2755.0-1-1 R 30.2755.0-2-1 30.2755.0					Dated		04/02/2016 28/12/2015					
Comments of testing laboratory		Datasheet version: 6.1, 2019-09-26												
														
AENOR INTERNACIONAL, S.A.U. - 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	078/000276
	Issued	2021-04-25

Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
Collector name	Standard Locations ϑ_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
REMEHA DH200 SL		2.268	1.547	928	1.678	1.088	607	1.247	766	415	1.363	831	444
Annual output per m ² gross area		1.123	766	459	831	539	301	617	379	206	675	412	220
Annual efficiency, η_a		64%	43%	26%	51%	33%	18%	53%	33%	18%	54%	33%	18%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1630 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. 6.1 (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 ²) >	1000	ϑ_a (°C) >	20	H _x (MJ/m ²) >	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 ²)	Hydraulic Designation Code	Aperture Area, A _a (m ²)
REMEHA DH200 SL	2,02	1-V-1234S-A:7.3,1610-C:14.6,1226-D	1,92

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})	52%	Zero-loss efficiency (η_0)	0,69
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)	3,66
		Second-order coefficient (a ₂)	0,016
		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.	