



Keymark Certificate



078/000215

AENOR certifies that the organization

BDR THERMEA GROUP B.V.

registered office MARCHANTSTRAAT, 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 DE DIETRICH DH 200
Technical information Specified in Annexes to the Certificate

Production site CL MANGANÈS, 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 2014-03-20
Last issued on 2024-03-20
Validity 2029-03-20

Rafael GARCÍA MEIRO
CEO





Annex to Solar Keymark Certificate		Licence Number		078/000215										
		Date issued		2024-03-20										
		Issued by		AENOR										
Licence holder		BDR THERMEA GROUP B.V.		Country		NETHERLANDS								
Brand (optional)		--		Web		http://www.bdrthermea.com								
Street, Number		MARCHANTSTRAAT, 55		E-mail		oscar.mongro@BDRThermea.com								
Postcode, City		7300 AA APELDOORN		Tel		+34 936828040								
Collector Type				Flat plate collector										
Collector name					Power output per collector G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	100 K				
					m ²	mm	mm	mm	W	W	W	W	W	W
DE DIETRICH DH 200					2,01	1.753	1.147	87	1.464	1.383	1.212	1.028	832	516
Power output per m ² gross area					728	688	603	511	414	257				
Performance parameters test method		Quasi dynamic												
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		0,734	3,97	0,008	0,000	0,00	6.780	0,000	0,00	0,0E+00	0,95			
Incidence angle modifier test method		Quasi dynamic - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K _{GT, coll}	1,00	0,99	0,98	0,95	0,92	0,85	0,71	0,36	0,00			
Longitudinal		K _{GL, coll}	1,00	0,99	0,98	0,95	0,92	0,85	0,71	0,36	0,00			
Heat transfer medium for testing		Water												
Flow rate for testing (per gross area, A _G)		dm/dt		0,021	kg/(sm ²)									
Maximum temperature difference during thermal performance test		$(\vartheta_m - \vartheta_a)_{max}$		70	K									
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30$ °C)		ϑ_{stg}		210	°C									
Maximum operating temperature		$\vartheta_{max, op}$		197	°C									
Maximum operating pressure		$p_{max, op}$		1000	kPa									
Testing laboratory		TÜV Rheinland Solar GmbH			http://www.tuv.com/solar									
Test report(s)		DE23A4FT 001 DE23HSZ8 001			Dated		21/11/2023 21/11/2023							
Comments of testing laboratory		Ver. 6.2 (13.01.2022) none												
<p>AENOR CONFÍA S.A.U. - Génova, 6. - 28004 - Madrid, España - Tel. 91 432 60 00- www.aenor.com</p> <p>Product certification body accredited by ENAC, number 1/C-PR271</p>														



Annex to Solar Keymark Certificate Supplementary Information	Licence Number	078/000215
	Issued	2024-03-20

Gross Thermal Yield in kWh/collector at mean fluid temperature ϑ_m													
Collector name	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
DE DIETRICH DH 200		2.333	1.606	1.024	1.730	1.162	717	1.280	810	480	1.399	876	511
Gross Thermal Yield per m ² gross area													
Annual efficiency, η_a													
Fixed or tracking collector													
Annual irradiation on collector plane													
Mean annual ambient air temperature													
Collector orientation or tracking mode													

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. 6.2 (13.01.2022). 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) >	1100	ϑ_a (°C) >	40	H_x (MJ/m ²) >	700
Maximum tested positive load	3500		Pa		
Maximum tested negative load	2400		Pa		
Hail resistance using ice balls (diameter)	35		mm		

Additional collector attribute(s)			
Using external power source(s) for normal operation	No	Active or passive measure(s) for self-protection	No
Co-generating thermal and electrical power	No	Façade collector(s)	Yes

Energy Labelling Information		Additional Informative Technical Data	
	Reference Area, A_{sol} (m ²)	Hydraulic Designation Code	Aperture Area, A_a (m ²)
DE DIETRICH DH 200	2,01	10-H-12345-A:7.3,1588-C:20.6,1227	1,89

Data required for CDR (EU) No 811/2013 - Reference Area	Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}
Collector efficiency (η_{col})	56%
Zero-loss efficiency (η_0)	0,73
First-order coefficient (a_1)	3,97
Second-order coefficient (a_2)	0,008
Incidence angle modifier IAM (50°)	0,91

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.