



Keymark Certificate



078/000397

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 D 200 SL

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.

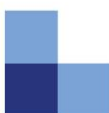
This certificate supersedes 078/000397, dated 2022-06-21

First issued on 2022-06-21


Modified on 2022-07-01

Validity date 2027-06-21

Rafael GARCÍA MEIRO
Chief Executive Officer





Annex to Solar Keymark Certificate					Licence Number		078/000397							
					Date issued		2022-07-01							
					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		oleguer.fuertes@BDRThermea.com							
Postcode, City		7300 AA APELDOORN			Tel		+34 902 89 89 89							
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	83 K				
					m ²	mm	mm	mm	mm	mm	mm			
DE DIETRICH D 200 SL					2,02	1.757	1.151	46	1.480	1.405	1.235	1.037	812	651
Power output per m ² gross area					729	692	608	511	400	321				
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		0,739	3,51	0,017	0,000	0,00	10.620	0,000	0,00	0,0E+00	0,91			
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	0,98	0,97	0,94	0,90	0,80	0,50	0,00			
Longitudinal		K _{θL, coll}	1,00	0,99	0,98	0,97	0,94	0,90	0,80	0,50	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}	53	K										
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30$ °C)		ϑ_{stg}	189,4	°C										
Maximum operating temperature		$\vartheta_{max, op}$	200	°C										
Maximum operating pressure		p _{max, op}	1000	kPa										
Testing laboratory		Fundación CENER, LEST					http://www.cener.com							
Test report(s)		30.4062.0-001 30.4062.0-002 30.4062.0					Dated		28/06/2022 16/06/2022					
Comments of testing laboratory		Ver. 6.2 (13.01.2022)												
The only difference between CHAPPEE SOL 200 LH and DE DIETRICH D 200 SL collectors is the name. The collector model CHAPPEE SOL 200 LH are tested according to ISO 9806:2017.		 CENER												
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	078/000397
	Issued	2022-07-01

Gross Thermal Yield 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
DE DIETRICH D 200 SL		2.360	1.650	1.024	1.775	1.186	692	1.313	832	471	1.429	900	501
Gross Thermal Yield per m ² gross area		1.163	813	504	875	584	341	647	410	232	704	443	247
Annual efficiency, η_a		66%	46%	29%	54%	36%	21%	55%	35%	20%	57%	36%	20%
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. 6.2 (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) >	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)			
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)	No

Energy Labelling Information		Additional Informative Technical Data	
	Reference Area, A_{sol} (m ²)	Hydraulic Designation Code	Aperture Area, A_a (m ²)
DE DIETRICH D 200 SL	2,03	1-V-10V-A:11,17441	1,97

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})	56%	Zero-loss efficiency (η_0)	0,73
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)	3,51
		Second-order coefficient (a_2)	0,017
		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.	