

Keymark Certificate

Solar thermal energy



078/000264

AENOR, Spanish Association for Standardization and Certification, 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 (EN 12975-1:2006)
Trade Mark	DE DIETRICH DH200 SL
Technical information	Specified in Annexs 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	2016-02-16
Validity date	2021-02-16


AENOR Asociación Española de Normalización y Certificación
Avelino BRITO
Chief Executive Officer

AENOR

Asociación Española de Normalización y Certificación

Génova, 6. 28004 Madrid. España
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Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate						Licence Number		078/000264							
						Issued		2016-02-16							
Company holding the		BDR THERMEA GROUP B.V.				Country		NETHERLANDS							
Brand (optional)		--				Website		www.bdrthermea.com							
Street, street number		MARCHANSTRAAT 55				E-mail		oleguer.fuertes@baxi.es							
Postal Code / City, province		7300 AA		APPELDOORN		Tel/Fax		34 936 82 80 40 / 34 32							
Collector Type (flat plate glazed/un-glazed; evacuate tubular)						Flat plate collector - glazed									
Thermal / photo voltaic hybrid collector? (PVT collector)						No									
Integration in the roof possible ? (manufacturers declaration)						No									
						Power output per collector module									
						G = 1000 W/m ²									
Collector name						Tm-Ta									
						0 K	10 K	30 K	50 K	70 K					
						W	W	W	W	W					
DE DIETRICH DH200 SL						1,92	1,757	1,151	46	2,02	1.405	1.328	1.154	953	727
Performance test method						Glazed liquid heating collector - steady state - indoor									
Performance parameters related to aperture						η ₀	a ₁	a ₂							
Units						-	W/(m ² K)	W/(m ² K ²)							
Test results - Flow rate and fluid see note 1						0,732	3,860	0,017							
Bi-directional incidence angle modifiers?						No <i>Kθ values are obligatory for 50°.</i>									
Incidence angle modifiers Kθ(θ)						Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
						Kθ(θ)					0,95			0,00	
Incidence angle modifier not bi-directional - leave fields blank															
Stagnation temperature - Weather conditions see note 2						T _{stg}		212,3 °C							
Effective thermal capacity						c _{eff} = C/Ag		3,79 kJ/(m ² K)							
Max. intended operation temperature - see note 3						T _{max,op}		180 °C							
Max. operation pressure - see note 3						p _{max,op}		1000 kPa							
Pressure drop table - for a collector family, the values shall be for the module with highest ΔP per m ² aperture area															
Flow rate		kg/(s m ²)	0,000	0,010	0,023	0,035	0,047	0,060							
Pressure drop, ΔP		Pa	0	56	161	283	432	636							
Optional weather data		Location			Link										
Testing Laboratory		Fundación CENER-CIEMAT, LEST													
Website		www.cener.com													
Test report id. number		30.2755.0-1-1 R 30.2755.0-2-1 / 30.2755.0					Date of test report		04/02/2016 28/12/2015						
During the test GDIF/GTOT was always between						0,08	and	0,09							
Comments of testing laboratory:															
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Note 1		Flow rate	0,020	kg/(s m ²)	Fluid	Water									
Note 2		Irradiance, G = 1000 W/m ² ; Ambient temperature, T _a =30 °C													
Note 3		Given by manufacturer													
												CENER ADItch			
Datasheet version: 4.06, 2014-01-15															
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Product certification body accredited by ENAC, number 01/C-PR002.078															



Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	078/00264
	Issued	16/02/2016

Annual collector output kWh/module												
Collector name	Location and collector temperature (Tm)											
	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 DH200 SL	2.253	1.532	916	1.667	1.082	604	1.239	760	412	1.350	822	439

Collector mounting: Fixed or tracking Fixed; slope = latitude - 15° (rounded to nearest 5°)

Overview of locations				
Location	Latitude °	Gtot kWh/m ²	Ta °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°

Gtot	Annual total irradiation on collector plane	kWh/m ²
Ta	Mean annual ambient air temperature	°C
Tm	Constant collector operating temperature (mean of in- and outlet temperatures)	°C

The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool ScenoCalc. The collector output is calculated hour by hour according to the efficiency parameters from the Keymark test using constant collector operating temperature (Tm). A detailed description of the calculations is available at <http://www.sp.se/en/index/services/solar/ScenoCalc/Sidor/default.aspx>.

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	ScenoCalc version: Ver. 4.06 (Jan, 2014)