



Keymark Certificate



078/000422

AENOR certifies that the organization

DISTERM-DISTRIBUIÇÃO DE EQUIPAMENTOS DE CLIMATIZAÇÃO, S.A.

registered office ESTRADA DA MOITA NEGRA, Nº 453 BOLEIROS 2495-326 FÁTIMA (Santarém - Portugal)

supplies **Solar collectors**

in compliance with UNE-EN 12975-1:2006+A1:2011 (EN 12975-1:2006+A1:2010)

Trade Mark THK P20 V, THK P25 V
Technical information Specified in Annexes to the Certificate

Production site PARQUE TECNOLÓGICO DE ANDALUCÍA, AVENIDA JUAN LÓPEZ DE PEÑALVER, 3 29590 CAMPANILLAS (Málaga - 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 2024-10-10
Validity 2029-10-10

Rafael GARCÍA MEIRO
CEO





Annex to Solar Keymark Certificate					Licence Number		078/000422								
					Date issued		2024-10-10								
					Issued by		AENOR								
Licence holder		DISTERM-DISTRIBUIÇÃO DE EQUIPAMENTOS DE CLIMATIZAÇÃO, S.A.			Country	PORTUGAL									
Brand (optional)		--			Web	http://www.distem.pt									
Street, Number		Estrada da Moita Negra, nº 453			E-mail	geral@thinktech.pt									
Postcode, City		Boleiros – 2495-326 Fátima (Santarém)			Tel	+351 249 530 550									
Collector Type					Flat plate collector										
Collector name					Power output per collector $G_b = 850 \text{ W/m}^2$, $G_d = 150 \text{ W/m}^2$ & $u = 1.3 \text{ m/s}$ $\vartheta_m - \vartheta_a$										
					0 K	10 K	30 K	50 K	70 K	80 K					
					m ²	mm	mm	mm	W	W	W	W	W	W	
THK P20 V					1,97	2.058	958	85	1.484	1.419	1.269	1.092	888	776	
THK P25 V					2,49	2.056	1.210	85	1.876	1.794	1.604	1.380	1.123	981	
Power output per m ² gross area					753	720	644	554	451	394					
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					0,753	3,13	0,017	0,000	0,00	4.082	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					$K_{\theta T, coll}$	1,00	0,99	0,99	0,97	0,95	0,91	0,83	0,57	0,00	
Longitudinal					$K_{\theta L, coll}$	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		0,031	kg/(sm ²)							
Maximum temperature difference during thermal performance test					$(\vartheta_m - \vartheta_a)_{max}$		50	K							
Standard stagnation temperature ($G = 1000 \text{ W/m}^2$; $\vartheta_a = 30 \text{ °C}$)					ϑ_{stg}		216,9	°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)					30.3175.0-1-1 / 30.3175.0-2-1 / 30.3175.0-3-1 30.3175.0 30.4472.0			Dated		21/09/2017 29/09/2017 26/09/2024					
Comments of testing laboratory					Ver. 6.2 (13.01.2022)										
The collector models THK P20 V and THK P25 V are the same as the models PSH 2000 and PSH 2500 tested according to ISO 9806:2013.															
AENOR CONFÍA 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	078/000422
	Issued	2024-10-10

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
THK P20 V		2.424	1.781	1.181	1.871	1.313	822	1.377	920	557	1.499	1.000	596
THK P25 V		3.064	2.252	1.493	2.364	1.659	1.039	1.741	1.162	704	1.895	1.264	753
Gross Thermal Yield per m ² gross area		1.230	904	599	950	666	417	699	467	283	761	508	302
Annual efficiency, η_a		70%	51%	34%	58%	41%	26%	60%	40%	24%	61%	41%	24%
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)
THK P20 V	1,97	1-V-1234S-A:7.2,1911-C:16.4,1023-D	1,87
THK P25 V	2,49	1-V-1234S-A:7.2,1911-C:16.4,1272-D	2,37

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})	60%	Zero-loss efficiency (η_0)	0,75
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)	3,13
		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.	