

KEYMARK CERTIFICATE

SK08055371501

TUV CYPRUS LTD Certifies that the organization

THERMOSIFONES KAFSON LTD

Address: Arch. Makariou III 125,
8310 Koloni, (Paphos), CYPRUS

Supplies: Solar thermal collectors

In compliance with: EN 12975-1:2006+A1:2010 & EN 12975-2:2006

Certified Product: Solar Collector

Trade Mark: KCSA/D 1.5 SKM, KCSA/D 2.0 SKM

Test Results: Annex to certificate

Certification scheme: The initial Certificate with number 081BN/0 of Solar Keymark Certification Body CEN025 was issued on 27/09/2011. In order to grant this certificate, TUV CYPRUS has visited the manufacturing site and verified the implementation of the quality management system. TUV CYPRUS performs these tasks periodically while the certificate has not been cancelled, in accordance with the Product Certification Regulations and the Rules for Authorization to use Conformity Mark for Solar Collectors.



SOLAR KEYMARK
CERTIFICATION BODY
CEN 033

Accredited by



Certificate No. 885



TUV CYPRUS (TUV NORD) LTD
Certification Body

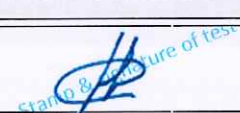

Nicosia , 19/04/2021
Initial Certification : 27/09/2011
Valid until : 15/03/2026





CEN 033

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Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate		Licence Number		SK08055371501						
		Issued		2021-04-19						
Company holding the	THERMOSIFONES KAFSON LTD			Country	CYPRUS					
Brand (optional)				Website	www.kafson.com					
Street, street number	Archiepiskopou Makariou III 125, KOLONI			E-mail	info@kafson.com					
Postal Code / City, province	8310 PAPHOS			Tel/Fax	357 70008182					
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						
Collector name	Aperture area (Aa) m ²	Gross length mm	Gross width mm	Gross height mm	Gross area (AG) m ²	Power output per collector module G = 1000 W/m ²				
						Tm-Ta				
						0 K	10 K	30 K	50 K	70 K
						W	W	W	W	W
KCSA/D 2.0 SKM	1.83	2,000.00	1,000.00	85	2.00	1,363	1,289	1,084	807	456
KCSA/D 1.5 SKM	1.35	1,500.00	1,000.00	85	1.50	1,006	951	800	595	337
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		0.745	3.580	0.050						
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				Tstg	132.9 °C					
Effective thermal capacity				ceff = C/Ag	16.3 kJ/(m ² K)					
Max. intended operation temperature - see note 3				Tmax,op	133 °C					
Max. operation pressure - see note 3				pmax,op	600 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	0.051	0.081	0.102	0.117	0.127			
Pressure drop, ΔP	Pa	0	40	70	90	110	130			
Optional weather data	Location			Link						
Testing Laboratory		ISTITUTO GIORDANO								
Website		www.giordano.it								
Test report id. number		283543, 283544				Date of test report		2011/06/16		
During the test GDIF/GTOT was always between		-	and		-					
Comments of testing laboratory:										
Note 1	Flow rate	0.037 kg/(s m ²)	Fluid	Water						
Note 2	Irradiance, G = 1000 W/m ² ; Ambient temperature, Ta=30 °C									
Note 3	Given by manufacturer									
 Datasheet version: 4.06, 2014-01-15										
TÜV CYPRUS LTD				e-mail: info@tuvcyprus.com.cy						
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Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	SK08055371501
	Issued	2021-04-19

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
KCSA/D 2.0 SKM	2,178	1,401	656	1,588	895	331	1,193	654	251	1,301	707	272
KCSA/D 1.5 SKM	1,607	1,034	484	1,171	661	244	880	483	185	960	522	200

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>.