KEYMARK CERTIFICATE

SK08055371501

TUV CYPRUS LTD Certifies that the organization

THERMOSIFONES KAFSON LTD

SOLAR KEYMARK
CERTIFICATION BODY
CEN 033

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.

Accredited by
ESYD
Certificate No. 885

TUV CYPRUS (TUV NORD) LTD
Certification Body

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

TUV NORD
TUV CYPRUS
SOLAR KEYMARK

CEN 033

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 hybid collector? (PVT collector)	No
Integration in the roof possible ? (manufacturers declaration)	No

	Aperture area (Aa)	Gross length	Gross width	Gross height	Gross area (AG)	Power output per collector module G = 1000 W/m² Tm-Ta 0 K	10 K	30 K	50 K	70 K
Collector name	m²	mm	mm	mm	m²	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	η0	a1	a2							
Units	-	W/(m²K)	W/(m²K²)							
Test results - Flow rate and fluid see note 1	0.745	3.580	0.050							

Bi-directional incidence angle modifiers?	No	*Kϑ values are obligatory for 50°.*									
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/(m²K)
Max. intende 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 m² aperture area

Flow rate	kg/(s m²)	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 m²)	Fluid	Water
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C				
Note 3	Given by manufacturer				

Start up & signature of test

Datasheet version: 4.06, 2014-01-15

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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

	Location and collector temperature (Tm)											
	Athens			Davos			Stockholm			Würzburg		
Collector name	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/m²	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/m²
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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Datasheet version: 4.06, 2014-01-15
ScenoCalc version: Ver. 4.06 (Jan, 2014)