TÜVRheinland®
DIN CERTCO
Genau. Richtig.

Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2614 F
	Issued	2015-12-02

Company holding the licence	Ariston Thermo S.p.A.	Country	Italy
Brand (optional)	Ariston	Website	www.aristonthermo.com
Street, street number	Via A. Merloni 45	E-mail	public.relations@aristonthermo.com
Postal Code / City, province	60044 Fabriano	Tel/Fax	39 02763209 -1 / -40

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

Collector name	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
	m²	mm	mm	mm	m²	W	W	W	W	W
Kairos CF 2.0-1	1.83	2 004	1 004	78	**2.01**	1 356	1 282	1 119	938	737

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		0.740	3.920	0.013						
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)	1.00	0.99	0.97	0.94	0.90	0.81	0.64	0.32	0.00
Incidence angle modifier not bi-directional - leave fields blank										

Stagnation temperature - Weather conditions see note 2	Tstg	190	°C
Effective thermal capacity	ceff = C/Ag	3.92	kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	190	°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)	0.005	0.010	0.015	0.020	0.025	0.030	0.035	0.040	0.045	0.050
Pressure drop, ΔP	Pa	53	130	231	355	503	674	869	1087	1329	1594

Optional weather data	Location		Link	
Testing Laboratory	TÜV Rheinland Energie und Umwelt GmbH			
Website	www.tuc.com/st			
Test report id. number	21229451.002		Date of test report	2015.12.01

During the test GDIF/GTOT was always between 0.08 and 0.71

Comments of testing laboratory:

Note 1	Flow rate	0.025	kg/(s m²)	Fluid	Water
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C				
Note 3	Given by manufacturer				

Datasheet version: 4.05, 2013-11-07

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Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2614 F
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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
Kairos CF 2.0-1	2 070	1 402	855	1 535	1 008	589	1 134	704	399	1 232	754	420

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: 4.05, 2013-11-07
ScenoCalc version: Ver. 4.05 (Nov, 2013)