Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	**Certificate No.**	**SKM 9926/3**
	Date of issue	2/8/2012

Company	HELIOAKMI S.A.	**Country**		Greece
Brand (optional)		**Website**		www.helioakmi.com
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City	Aspropyrgos, Attiki	**Fax**	+030	210 5595723

Collector Type (flat plate / evacuate tubular / un-glazed)	Flat plate collector
Integration in the roof possible ?	Yes

Collector name	Aperture area (Aa) [m²]	Gross length [mm]	Gross width [mm]	Gross height [mm]	Gross area (A_G) [m²]	Power output per collector unit G = 1000 W/m², Tm-Ta : 0 K [W]	10 K [W]	30 K [W]	50 K [W]	70 K [W]
MEGASUN ST–ALSEL 2000	1.80	2,050	1,010	90	2.07	1,332	1,241	1,045	830	597
MEGASUN ST–ALSEL 2500	2.33	2,050	1,280	90	2.62	1,724	1,606	1,352	1,074	772

Collector efficiency parameters related to aperture area (Aa) Note 1	η_{0a}	0.74	-
	a_{1a}	4.94	W/(m²K)
	a_{2a}	0.0128	W/(m²K²)
Stagnation temperature - Note 2	t_{stg}	135.40	°C
Effective thermal capacity	$c_{eff} = C/A_a$	11.9	kJ/(m²K)
Max. operation pressure - Note 3	p_{max}	700	kPa

Incidence angle modifiers $K_\theta(\theta)$	G_{DIF}/G_{TOT} min	G_{DIF}/G_{TOT} max	θ_T / θ_L	50°	*10°*	*20°*	*30°*	*40°*	*60°*	*70°*
	0.11	0.22	$K_\theta(\theta_T)$	0.89	*1.00*	*1.00*	*0.98*		*0.79*	
			$K_\theta(\theta_L)$	0.89	*1.00*	*1.00*	*0.98*		*0.79*	
G_{DIF}/G_{TOT}: min&max - while measuring					***Optional values***					

Testing Laboratory	Demokritos
Website	www.solar.demokritos.gr
Test report id. number	1213DE1L, 1214DE1S, 4118DQ1
Date of test report	30/7/2012
Perf. test method	EN 12975-2 6.1.4 (outdoor/außen/extérieu

Comments of testing laboratory :

Example data sheet

Note 1	**Test conditions**	**Fluid**	Water	**Flow rate**	0.20	kg/s per m²
Note 2	**Irradiance, Gs=1000 W/m²** **Ambient temperature , Ta=30 °C**					
Note 3	**Given by manufacturer**					

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VERSION 3.4, 30-11-2011

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Certificate No.	SKM 9926/3
	Issued	41123

Annual collector output kWh / Jährliche Kollektor Leistung kWh / Energie annuelle produite par le capteur

	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	25°C	50°C	75°C
MEGASUN ST–ALSEL 2000	2,288	1,494	871	1,790	1,134	643	1,189	692	345	1,318	765	396			
MEGASUN ST–ALSEL 2500	2,962	1,934	1,128	2,317	1,468	833	1,539	895	446	1,706	990	513			

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

Calculation of the annual collector performance is done by the official Solar Keymark spreadsheet tool. Hour by hour the collector output is calculated according to the efficiency parameters from the Keymark test using constant collector operating temperature (Tm). Detailed description with all equations used is available from the Solar Keymark web site (direct link: http://www.estif.org/solarkeymark/annexb1.php)

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Datasheet version:
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Calculation program version:
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