Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2699 F
	Issued	2016-10-11

Company holding the	Cirelius		Country	Portugal	
Brand (optional)			Website	www.cirelius.pt	
Street, street number	Rua Inocencio Osorio L. Gondim, 103		E-mail	info@cirelius.pt	
Postal Code / City, province	4430-930	Avintes	Tel/Fax	+351	227 843-817 / -819

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

	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
Solius Gasokol vertikal	2,01	2.100	1.070	105	2,25	1.538	1.470	1.322	1.158	978
Solius Gasokol horizontal	2,01	1.070	2.100	105	2,25	1.538	1.470	1.322	1.158	978

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	0,765	3,277	0,010							

Bi-directional incidence angle	No	*Kϑ values are obligatory for 50°.*									
Incidence angle modifiers Kθ(θ)	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°	
	Kθ(θ)					0,93				0,00	
Incidence angle modifier not bi-directional - leave fields blank											

Stagnation temperature - Weather conditions see note 2	Tstg	196 °C
Effective thermal capacity	ceff = C/Ag	15,69 kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	224 °C
Max. operation pressure - see note 3	pmax,op	1000 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)										
Pressure drop, ΔP	Pa										

Optional weather data	Location		Link
Testing Laboratory	AIT Austrian Institute of Technology GmbH		
Website	www.ait.ac.at		
Test report id. number	2.04.01243.1.0-LT(1) 2.04.01243.1.0-QT(1)	Date of test report	15.09.2016 15.09.2016

During the test GDIF/GTOT was always between	0,1	and	0,2

Comments of testing laboratory:

Note 1	Flow rate	0,020	kg/(s m²)	Fluid	Water
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C				
Note 3	Given by manufacturer				

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Datasheet version: 4.06, 2014-01-15

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2699 F
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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	
Solius Gasokol vertikal	2.442	1.800	1.242	1.888	1.359	912	1.383	943	608	1.500	1.018	645	
Solius Gasokol horizontal	2.442	1.800	1.242	1.888	1.359	912	1.383	943	608	1.500	1.018	645	

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.