Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate		Licence Number	011-7S1708 F
		Issued	2015-03-25

Company holding the	Sonnenkraft Solar Systems GmbH		Country	Österreich	
Brand (optional)			Website	www.sonnenkraft.at	
Street, street number	Industriepark		E-mail	office@sonnenkraft.com	
Postal Code / City, province	A - 9300	St. Veit/Glan	Tel/Fax	+43	4212 45010-0 / 4212 45010-477

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
SK400N-AL	1.78	2 032	1 031	94	2.09	1 387	1 315	1 158	985	794

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	0.779	3.914	0.012							

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	0.98	0.96	0.92	0.86	0.74	0.35	0.00
Incidence angle modifier not bi-directional - leave fields blank										

Stagnation temperature - Weather conditions see note 2	Tstg	199 °C
Effective thermal capacity	ceff = C/Ag	8.58 kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	- °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	TZS, ITW University Stuttgart
Website	http://www.itw.uni-stuttgart.de
Test report id. number	11COL1004OEM01, 11COL1002QOEM01
Date of test report	2011.09.08

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

Comments of testing laboratory:

none

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				

Datasheet version: 4.06, 2014-01-15

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S1708 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
SK400N-AL	2 171	1 514	966	1 631	1 106	680	1 202	770	456	1 307	829	483

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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ScenoCalc version: Ver. 4.06 (Jan, 2014)