


Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate						Licence Number		011-7S1714 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 hybrid collector? (PVT collector)						No					
Integration in the roof possible ? (manufacturers declaration)						Yes					
Collector name	Aperture area (Aa) m <sup>2</sup>	Gross length mm	Gross width mm	Gross height mm	Gross area (AG) m <sup>2</sup>	Power output per collector module					
						G = 1000 W/m <sup>2</sup>					
						Tm-Ta					
						0 K	10 K	30 K	50 K	70 K	
						W	W	W	W	W	
IDMK50-AL*	4.64	2 452	2 058	105	5.05	3 550	3 361	2 954	2 505	2 016	
IDMK75-AL	6.95	3 678	2 060	105	7.58	5 317	5 035	4 424	3 753	3 020	
IDMK100-AL*	9.28	4 902	2 058	105	10.09	7 099	6 722	5 907	5 011	4 032	
Performance test method						Glazed liquid heating collector - steady state - indoor					
Performance parameters related to aperture						η0	a1	a2			
Units						-	W/(m <sup>2</sup> K)	W/(m <sup>2</sup> K <sup>2</sup> )			
Test results - Flow rate and fluid see note 1						0.765	3.951	0.011			
Bi-directional incidence angle modifiers? No						<i>Kθ values are obligatory for 50°.</i>					
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	0.73	0.34	0.00
Incidence angle modifier not bi-directional - leave fields blank											
Stagnation temperature - Weather conditions see note 2						Tstg	191				°C
Effective thermal capacity						ceff = C/Ag	13.23				kJ/(m <sup>2</sup> K)
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 m <sup>2</sup> aperture area											
Flow rate	kg/(s m <sup>2</sup> )	-	-	-	-	-	-	-	-	-	
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		09COL785/10EM07,			Date of test report			2011.10.04			
		09COL784Q/10EM07									
During the test GDIF/GTOT was always between						0	and	1			
Comments of testing laboratory:											
* dimensions according to manufacturer											
Note 1	Flow rate	0.020	kg/(s m <sup>2</sup> )	Fluid	Water						
Note 2	Irradiance, G = 1000 W/m <sup>2</sup> ; Ambient temperature, Ta=30 °C										
Note 3	Given by manufacturer										
											
						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	011-7S1714 F
	Issued	25.03.2015

Annual collector output kWh/module													
Collector name	Location and collector temperature (T <sub>m</sub> )												
	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	
IDMK50-AL*	5 548	3 839	2 435	4 150	2 798	1 713	3 060	1 947	1 148	3 329	2 095	1 215	
IDMK75-AL	8 309	5 751	3 647	6 216	4 191	2 566	4 584	2 917	1 720	4 986	3 138	1 820	
IDMK100-AL*	11 095	7 678	4 870	8 300	5 595	3 427	6 121	3 895	2 296	6 658	4 189	2 430	

Collector mounting: Fixed or tracking Fixed; slope = latitude - 15° (rounded to nearest 5°)

Overview of locations				
Location	Latitude °	G <sub>tot</sub> kWh/m <sup>2</sup>	T <sub>a</sub> °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°

G <sub>tot</sub>	Annual total irradiation on collector plane	kWh/m <sup>2</sup>
T <sub>a</sub>	Mean annual ambient air temperature	°C
T <sub>m</sub>	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 (T<sub>m</sub>). 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)