



Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Certificate No.	011-7S1912 F
	Date of issue	02-10-2012

Company	STI - Solar Technologie International GmbH	Country	Germany
Brand (optional)	STI	Website	www.sti-solar.de
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City	Meerane	Fax	+49 0

Collector Type (flat plate / evacuate tubular / un-glazed)	Flat plate collector
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Integration in the roof possible ?	Yes
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Collector name	Aperture area (A _a) [m ²]	Gross length [mm]	Gross width [mm]	Gross height [mm]	Gross area (A _G) [m ²]	Power output per collector unit G = 1000 W/m ² T _m -T _a :				
						0 K	10 K	30 K	50 K	70 K
						[W]	[W]	[W]	[W]	[W]
FKA 200 V Cu/Cu	1.838	1 777	1 200	115	2.13	1 461	1 397	1 250	1 081	887
FKA 240 V Cu/Cu	2.185	2 100	1 200	115	2.52	1 737	1 661	1 487	1 285	1 055
FKA 270 V Cu/Cu	2.514	2 400	1 200	115	2.88	1 999	1 911	1 710	1 478	1 213
FKA 200 H Cu/Cu	1.832	1 200	1 777	115	2.13	1 456	1 392	1 246	1 077	884
FKA 240 H Cu/Cu	2.185	1 200	2 100	115	2.52	1 737	1 661	1 487	1 285	1 055
FKA 270 H Cu/Cu	2.514	1 200	2 400	115	2.88	1 999	1 911	1 710	1 478	1 213

Collector efficiency parameters related to <u>aperture area (A_a)</u> Type of fluid and flow rate see note 1	η _{0a}	0.795	-
	a _{1a}	3.342	W/(m ² K)
	a _{2a}	0.016	W/(m ² K ²)

Stagnation temperature - Weather conditions see note 2	t _{stg}	214	°C
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Effective thermal capacity	C _{eff} = C/A _a	7.02	kJ/(m ² K)
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Max. operation pressure - see note 3	p _{max}	600	kPa
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Incidence angle modifiers K _θ (θ)	G _{DIF} /G _{TOT}		θ _T / θ _L	50°	10°	20°	30°	40°	60°	70°
	min	max	K _θ (θ _T)	0.90	1.00	0.99	0.97	0.95	0.82	0.64
	G _{DIF} /G _{TOT} : min&max - while measuring		K _θ (θ _L)	0.90	1.00	0.99	0.97	0.95	0.82	0.64
<i>Optional values</i>										

Testing Laboratory	TÜV Energie und Umwelt GmbH
Website	www.eco-tuv.de
Test report id. number	21218276_R2_CuCu; 21218276_P_CuCu; 21218276_P0
Date of test report	18 September 2012; (all)
Perf. test method	EN 12975-2 6.3 (outdoor)

Comments of testing laboratory :	
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Note 1	Fluid	Water	Flow rate	0.023 kg/s per m ²	
Note 2	Irradiance, G _s =1000 W/m ² Ambient temperature, T _a =30 °C				
Note 3	Given by manufacturer				



Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Certificate No.	011-7S1912 F
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Annual collector output kWh													
Collector name	Location and collector temperature (T_m)												
	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	
FKA 200 V Cu/Cu	2 249	1 631	1 077	1 853	1 292	812	1 268	847	519	1 374	910	549	
FKA 240 V Cu/Cu	2 674	1 939	1 281	2 203	1 536	965	1 508	1 007	617	1 634	1 082	653	
FKA 270 V Cu/Cu	3 077	2 231	1 473	2 534	1 767	1 110	1 735	1 159	710	1 880	1 244	751	
FKA 200 H Cu/Cu	2 242	1 626	1 074	1 847	1 288	809	1 264	844	517	1 370	907	547	
FKA 240 H Cu/Cu	2 674	1 939	1 281	2 203	1 536	965	1 508	1 007	617	1 634	1 082	653	
FKA 270 H Cu/Cu	3 077	2 231	1 473	2 534	1 767	1 110	1 735	1 159	710	1 880	1 244	751	

Collector mounting: Fixed or tracking	Fixed; slope = latitude - 15° (rounded to nearest 5°)
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Overview of locations				
Location	Latitude °	G _{tot} kWh/m ²	T _a °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 _{tot}	Annual total irradiation on collector plane	kWh/m ²
T _a	Mean annual ambient air temperature	°C
T _m	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 (T_m). 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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	VERSION 3.5, 2012.01.13
	Calculation program version: 3.07, October 2011 (SP)