



Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Certificate No.	011-752371 F
	Date of issue	26.05.2014

Company	Solarbayer GmbH	Country	Deutschland
Brand (optional)		Website	www.solarbayer.de
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Collector Type (flat plate / evacuate tubular / un-glazed)	Flat plate collector
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Integration in the roof possible ?	No
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Collector name	Aperture area (Aa) [m ²]	Gross length [mm]	Gross width [mm]	Gross height [mm]	Gross area (Ag) [m ²]	Power output per collector unit G = 1000 W/m ² Tm-Ta :				
						0 K [W]	10 K [W]	30 K [W]	50 K [W]	70 K [W]
Silversun 2.02 *	1.83	2 006	1 007	85	2.02	1 398	1 324	1 168	1 000	820

Collector efficiency parameters related to <u>aperture area (Aa)</u> Type of fluid and flow rate see note 1	η_{0a}	0.764	-
	a_{1a}	3.953	W/(m ² K)
	a_{2a}	0.008	W/(m ² K ²)

Stagnation temperature - Weather conditions see note 2	t_{stg}	199	°C
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Effective thermal capacity	$c_{eff} = C/Aa$	12.88	kJ/(m ² K)
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Max. operation pressure - see note 3	p_{max}	1600	kPa
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Incidence angle modifiers $K_{\theta}(\theta)$	G_{DIF}/G_{TOT}		θ_T / θ_L	50°	10°	20°	30°	40°	60°	70°
	min	max	$K_{\theta}(\theta_T)$	0.92	1.00	0.99	0.98	0.96	0.86	0.73
	-	-	$K_{\theta}(\theta_L)$	0.92	1.00	0.99	0.98	0.96	0.86	0.73
G_{DIF}/G_{TOT} : min&max - while measuring				<i>Optional values</i>						

Testing Laboratory	TZS, ITW University of Stuttgart
Website	www.tzs.uni-stuttgart.de
Test report id. number	10COL933/2OEM12, 10COL934Q/2OEM12
Date of test report	26.05.2014
Perf. test method	EN 12975-2 6.1.4 (outdoor)

Comments of testing laboratory :
* dimensions according to manufacturer

Note 1	Fluid	Water	Flow rate	0.020 kg/s per m ²
Note 2	Irradiance, G_s=1000 W/m²			
Note 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.

011-7S2371 F

Issued

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Annual collector output kWh
Location and collector temperature (T_m)

Collector name	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			
	Silversun 2.02 *	2 190	1 528	993	1 762	1 195	749	1 210	780	474	1 316	839			

Collector mounting: Fixed or tracking

Fixed; slope = latitude - 15° (rounded to nearest 5°)

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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Datasheet version:

VERSION 3.6, 2012.01.13

Calculation program version:

3.07, October 2011 (SP)