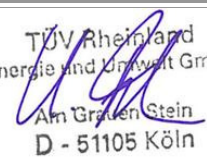


Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate		Certificate No.	011-7S 2081 F							
		Date of issue	10-06-2013							
Company	Bosch Thermotechnik GmbH		Country	Germany						
Brand (optional)	Buderus		Website	www.buderus.com						
Street, number			E-mail	Solarthermie@de.bosch.com						
Postal Code	35576	Tel.	+49	(0)2557 9399-0						
City	Wetzlar	Fax	+49	(0)2557 9399-56						
Collector Type (flat plate / evacuate tubular / un-glazed)	Flat plate collector									
Integration <u>in</u> the roof possible ?	Yes									
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 [W]	10 K [W]	30 K [W]	50 K [W]	70 K [W]
SKT 1.0-s	2.426	2 170	1 175	87	2.550	1 926	1 829	1 617	1 379	1 116
Collector efficiency parameters related to <u>aperture area (A_a)</u>	Type of fluid and flow rate see note 1		η _{0a}	0.794 -						
			α _{1a}	3.863 W/(m ² K)						
			α _{2a}	0.013 W/(m ² K ²)						
Stagnation temperature - Weather conditions see note 2			t _{stg}	192 °C						
Effective thermal capacity			C _{eff} = C/A _a	5.43 kJ/(m ² K)						
Max. operation pressure - see note 3			p _{max}	1000 kPa						
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)	0.94	1.00	0.99	0.98	0.97	0.90	0.80
	0	0	K _θ (θ _L)	0.94	1.00	0.99	0.98	0.97	0.90	0.80
G _{DIF} /G _{TOT} : min&max - while measuring					Optional values					
Testing Laboratory	TÜV Energie und Umwelt GmbH									
Website	www.eco-tuv.de									
Test report id. number	21221193_EN_Bosch									
Date of test report	03-06-2013									
Perf. test method	EN 12975-2 6.1.5 (indoor)									
Comments of testing laboratory :										
Note 1	Fluid	Water	Flow rate	0.020 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									


 TÜV Rheinland
 Energie und Umwelt GmbH
 Am Grafen Stein
 D - 51105 Köln



Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Certificate No.	011-7S 2081 F
	Issued	10-06-2013

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	
SKT 1.0-s	3 071	2 170	1 401	2 491	1 692	1 036	1 712	1 106	660	1 860	1 195	701	

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>)

<p>DIN CERTCO • Alboinstraße 56 • 12103 Berlin</p> <p>Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de</p>	<p>Datasheet version: VERSION 3.5, 2012.01.13 Calculation program version: 3.07, October 2011 (SP)</p>
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