TÜVRheinland®
DIN CERTCO
Genau. Richtig.

Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S 597 F
	Issued	2015-06-01

Company holding the	Reinhard Solartechnik GmbH	Country	Germany
Brand (optional)		Website	
Street, street number	Brückenstraße 2	E-mail	solar@reinhard-solartechnik.de
Postal Code / City, province	28857 Syke	Tel/Fax	49 (0) 4242 80106 / 80079

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
RST SOL 4	2.09	1 888	1 168	100	**2.21**	1 570	1 516	1 366	1 160	899
RST SOL 6	2.20	1 620	1 500	100	**2.43**	1 648	1 591	1 434	1 218	944

Performance test method	Glazed liquid heating collector - steady state - outdoor								
Performance parameters related to aperture	η0	a1	a2						
Units	-	W/(m²K)	W/(m²K²)						
Test results - Flow rate and fluid see note 1	0.751	2.274	0.033						

Bi-directional incidence angle	Yes	*Kϑ values are obligatory for 50°.*								
Incidence angle modifiers Kθ(θT) transversal direction	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
	Kθ(θT)					0.85				0.00
Incidence angle modifiers Kθ(θL) longitudinal direction	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
	Kθ(θL)					0.85				0.00

Stagnation temperature - Weather conditions see note 2	Tstg	167	°C
Effective thermal capacity	ceff = C/Ag	5.476	kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	200	°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	IZES gGmbH, TZSB an der HTW		
Website	www.izes.de/tzsb/		
Test report id. number	KT08_13, KT08_14	Date of test report	2009.08.03

During the test GDIF/GTOT was always between	0.09	and	0.21

Comments of testing laboratory:

1) Collector RST Sol 6 : the power output per collector unit (0 K - 70 K) is calculated based on the performance parameters of collector RST SOL 4 . 2) the efficiency parameters are based on the collector RST SOL 4 and its test report KT08_13

Note 1	Flow rate	0.019	kg/(s m²)	Fluid	Water
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C				
Note 3	Given by manufacturer				

tzsb Testzentrum Saarbrücken Alberstrasse Str 17 Gebäude D2 66115 Saarbrücken

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	011-7S 597 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
RST SOL 4	2 188	1 590	961	1 715	1 154	635	1 254	817	450	1 352	874	469
RST SOL 6	2 297	1 669	1 009	1 801	1 211	667	1 317	858	473	1 419	917	493

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)