TÜVRheinland®
DIN CERTCO

Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2650 R
	Issued	2016-04-27

Company holding the	Solar2all	Country	The Netherlands	
Brand (optional)	Solar2all	Website	www.Solar2all.com	
Street, street number	Geuweg 31	E-mail	Rutger.Smits@Solar2all.com	
Postal Code / City, province	6134AH Sittard	Tel/Fax	31	611014600

Collector Type (flat plate glazed/un-glazed; evacuate tubular)	Evacuated tubular collector
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 Gb = 850 W/m²; Gd = 150 W/m² Tm-Ta 0 K	10 K	30 K	50 K	70 K
	m²	mm	mm	mm	m²	W	W	W	W	W
HP58/1800x10HE	0.92	2 000	870	150	**1.74**	681	657	608	559	511
HP58/1800x15HE	1.38	2 000	1 260	150	**2.52**	1 021	985	912	839	766
HP58/1800x20HE	1.84	2 000	1 650	150	**3.30**	1 362	1 313	1 216	1 119	1 021
HP58/1800x25HE	2.31	2 000	2 040	150	**4.08**	1 710	1 649	1 527	1 404	1 282
HP58/1800x30HE	2.77	2 000	2 430	150	**4.86**	2 050	1 977	1 831	1 684	1 538

Performance test method	Liquid heating collector - quasi-dynamic - outdoor								
Performance parameters related to aperture	η0b	c1	c2	c3	c4	c6	Kθd		
Units	-	W/(m²K)	W/(m²K²)	J/(m³K)	-	s/m	-		
Test results - Flow rate and fluid see note 1	0.733	2.643	-	-	-	-	1.065		

Bi-directional incidence angle modifiers?	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)	1.02	1.08	1.19	1.37	1.52	1.58	1.50	1.20	0.00
Incidence angle modifiers Kθ(θL) longitudinal direction	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
	Kθ(θL)	1.00	1.00	0.99	0.98	0.96	0.94	0.88	0.00	0.00

Stagnation temperature - Weather conditions see note 2	Tstg	227	°C
Effective thermal capacity	ceff = C/Ag	63.57	kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	120	°C
Max. operation pressure - see note 3	pmax,op	600	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)	0.003	0.007	0.010	0.013	0.017	0.020	0.023	0.027	0.030	0.033
Pressure drop, ΔP	Pa	39	109	176	254	376	482	599	774	918	1075

Optional weather data	Location		Link	
Testing Laboratory	TUV Rheinland (Shanghai) Co., Ltd.			
Website	www.tuv.com			
Test report id. number	154161839_EN_P_Solar2all_10_Report_Han; 154161839_EN_Solar2all_30_Report_Han	Date of test report	2016/04/27	

During the test GDIF/GTOT was always between	0.065	and	0.892

Comments of testing laboratory:

No comment.

Note 1	Flow rate	0.028	kg/(s m²)	Fluid	Water
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C				
Note 3	Given by manufacturer				

Datasheet version: 4.06, 2014-01-15

TÜVRheinland®
DIN CERTCO

Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2650 R
	Issued	4/27/2016

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
HP58/1800x10HE	1 334	1 102	904	1 080	885	723	797	631	498	857	677	533
HP58/1800x15HE	2 000	1 653	1 355	1 619	1 328	1 085	1 195	946	747	1 285	1 015	799
HP58/1800x20HE	2 667	2 204	1 807	2 159	1 770	1 447	1 594	1 262	996	1 714	1 354	1 066
HP58/1800x25HE	3 348	2 767	2 269	2 711	2 223	1 817	2 001	1 584	1 250	2 152	1 700	1 338
HP58/1800x30HE	4 015	3 317	2 721	3 250	2 665	2 178	2 399	1 899	1 499	2 580	2 038	1 604

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.

DIN CERTCO • Alboinstraße 56 • 12103 Berlin
Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de •
www.dincertco.de

Datasheet version: 4.06, 2014-01-15
ScenoCalc version: Ver. 4.06 (Jan, 2014)