TÜVRheinland®
DIN CERTCO

Summary of EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2280 R
	Issued	2013-11-26

Company holding the	Himin Solar Co., ltd.	Country	P.R. China	
Brand (optional)	Himin	Website	www.himin.com	
Street, street number	Solar valley road	E-mail	business@himin.com	
Postal Code / City, province	253000 Dezhou, Shandong Province	Tel/Fax	+86 534 5089101/2312962	

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
HRJ7-10/1.8	0.94	1 945	779	143	**1.52**	708	695	662	621	571
HRJ7-15/1.8	1.41	1 945	1 140	143	**2.22**	1 062	1 042	993	931	857
HRJ7-20/1.8	1.88	1 945	1 500	143	**2.92**	1 416	1 389	1 324	1 242	1 143
HRJ7-25/1.8	2.35	1 945	1 860	143	**3.62**	1 770	1 737	1 655	1 552	1 429
HRJ7-30/1.8	2.82	1 945	2 220	143	**4.32**	2 124	2 084	1 986	1 862	1 714

Performance test method	Liquid heating collector - quasi-dynamic - outdoor								
Performance parameters related to aperture area	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	0.730	1.306	0.011	0.000	0.000	0.000	1.212		

Bi-directional incidence angle modifiers?	Yes	*Kϑ values are obligatory for 50°.*								
Incidence angle modifiers Kθ(θL) longitudinal direction	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
	Kθ(θL)	1.00	01.00	0.99	0.98	0.97	0.94	0.88	0.00	0.00
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	1.36	1.46	1.47	1.44	1.20	0.00

Stagnation temperature - Weather conditions see note 2	Tstg	206.3	°C
Effective thermal capacity	ceff = C/Ag	90.155	kJ/(m²K)
Max. intende operation temperature - see note 3	Tmax,op	99	°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)	-	-	-	-	-	-	-	-	-	-
Pressure drop, ΔP	Pa	-	-	-	-	-	-	-	-	-	-

Optional weather data	Location		Link	
Testing Laboratory	TUV Rheinland (Shanghai) Co., Ltd.			
Website	www.tuv.com			
Test report id. number	154022202_EN_HRJ7-30	Date of test report	2013/11/18	
During the test GDIF/GTOT was always between	0.106	and	0.746	

Comments of testing laboratory:

Example comment.

Note 1	Flow rate	0.020	kg/(s m²)	Fluid	Water
Note 2	Irradiance, G = 1000 W/m²; Ambient temperature , Ta=30 °C				
Note 3	Given by manufacturer				

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Datasheet version: 4.04, 2013-04-22

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Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence Number	011-7S2280 R
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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
HRJ7-10/1.8	1 337	1 181	997	1 159	994	817	808	673	536	890	747	598
HRJ7-15/1.8	2 005	1 772	1 495	1 739	1 491	1 226	1 211	1 010	803	1 335	1 121	896
HRJ7-20/1.8	2 674	2 362	1 994	2 319	1 988	1 634	1 615	1 346	1 071	1 780	1 495	1 195
HRJ7-25/1.8	3 342	2 953	2 492	2 899	2 485	2 043	2 019	1 683	1 339	2 225	1 868	1 494
HRJ7-30/1.8	4 011	3 543	2 990	3 478	2 982	2 452	2 423	2 019	1 607	2 670	2 242	1 793

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. 4.04 (Jun, 2013)