Solar Keymark Certificate

SC1485-13

Holder/Issued to/Manufacturer

Jiaxing JinYi Solar Energy Technology Co., Ltd.

Caozhuang Industrial Park, Yuxin Town, Jiaxing City, Zhejiang Province 314022, China

Product name and description

Vacuum tube solar thermal collectors for water heating.
For technical information see Appendix (2 pages).

Models:	JUC-5818-8	JUC-5818-10	JUC-5818-12
	JUC-5818-15	JUC-5818-18	JUC-5818-20

Performance specification

The product is found to comply with the requirements in EN 12975-1:2006+A1:2010 Solar collectors, Part 1: General requirements and the Specific CEN Keymark Scheme Rules for Solar Thermal Products, and are based on test results according to EN 12975-2:2006 Solar collectors Part 2:Test methods.

Marking

Products conforming to this certificate shall be marked in accordance with the requirements in the Specific CEN Keymark Scheme Rules for Solar Thermal Products. The marking shall, together with the Keymark logo, show the identification code of the empowered certification body (RISE Research Institutes of Sweden AB, No. 012), also see CEN-CENELEC Internal Regulations Part 4 Certification, Annex A.

Validity

This certificate is valid until 2023-12-20 provided that the conditions in the Solar Keymark Rules are fulfilled and the standard or rules are not modified significantly. The validity of the certificate can be checked in the database, see Solar Keymark website http://www.solarkeymark.org.

Miscellaneous

The manufacturer's factory production control procedures are under surveillance by the responsibility of RISE. This certificate was first issued 2013-12-20. RISE certification rules SPCR 402 for Keymark – Solar Thermal Products applies.

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2017-08-08

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Annex to Solar Keymark Certificate

Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results					
				Licence Number	**SC1485-13**
				Date issued	**2019-01-10**
				Issued by	**RISE**
Licence holder	Jiaxing JinYi Solar Energy Technology Co., Ltd.		**Country**	China	
Brand (optional)	LinkedSun		**Web**	www.jinyi-solar.com	
Street, Number	Caozhuang Industrial Park, Yuxin Town		**E-mail**	info@jinyi-solar.com	
Postcode, City	314022	Jiaxing City, Zhejiang Province	**Tel**	+86	573 82848871

Collector Type	Evacuated tubular collector

	Gross area (A_G)	Gross length	Gross width	Gross height	Power output per collector Gb = 850 W/m²; Gd = 150 W/m² ϑm - ϑa					
					0 K	10 K	30 K	50 K	70 K	50 K
Collector name	m²	mm	mm	mm	W	W	W	W	W	W
JUC-5818-8	1,30	1932	675	110	593	582	554	517	471	517
JUC-5818-10	1,59	1 932	825	110	725	712	677	631	576	631
JUC-5818-12	1,88	1 932	975	110	857	841	800	746	681	746
JUC-5818-15	2,32	1 932	1 200	110	1055	1035	984	918	838	918
JUC-5818-18	2,75	1 932	1 425	110	1253	1229	1169	1091	995	1091
JUC-5818-20	3,04	1 932	1 575	110	1385	1358	1292	1205	1100	1205
Power output per m² gross area					455	446	424	396	361	396

Performance parameters test method	Steady state - outdoor								
Performance parameters (related to AG)	η0,hem	a1	a2						
Units	-	W/(m²K)	W/(m²K²)						
Test results	0,455	0,778	0,008						

Incidence angle modifier test method		Steady state - outdoor								
Bi-directional incidence angle	Yes									
Incidence angle modifier	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal	$K_{\theta T,coll}$		1,02		1,24		1,39			
Longitudinal	$K_{\theta L,coll}$					0,88				

Heat transfer medium for testing	Water		
Flow rate for testing (per gross area, A_G)	dm/dt	0,012	kg/(sm²)
Maximum temperature difference for thermal performance calculations	$(\vartheta_m-\vartheta_a)_{max}$	50	K
Standard stagnation temperature (G = 1000 W/m²; ϑ_a = 30 °C)	ϑ_{stg}	170	°C
Effective thermal capacity, incl. fluid (per gross area, A_G)	C/m²	6,674	kJ/(Km²)
Maximum operating temperature	$\vartheta_{max\ op}$	125	°C
Maximum operating pressure	$p_{max,op}$	1200	kPa

Testing	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch	http://www.intertek.com	
Test report(s)	130730065GZU-001	**Dated**	2013-09-12

Comments of testing laboratory

Datasheet version: 5.01, 2016-03-01

The "negative pressure test of the collector" according to EN12975-2:2006,5.9.2 was not performed.

Tests were performed based on EN 12975-2:2006.

intertek

William zheng

Annex to Solar Keymark Certificate

Annex to Solar Keymark Certificate	Licence Number	SC1485-13
Supplementary Information	Issued	2019-01-10

Annual collector output in kWh/collector at mean fluid temperature ϑ_m, based on ISO 9806:2013 test results

Standard Locations	Athens			Davos			Stockholm			Würzburg		
Collector name / ϑ_m	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
JUC-5818-8	1055	923	764	896	756	606	651	538	422	699	580	453
JUC-5818-10	1290	1128	934	1095	923	741	795	658	516	855	708	554
JUC-5818-12	1524	1333	1103	1294	1091	876	940	777	610	1010	837	655
JUC-5818-15	1876	1640	1358	1593	1343	1078	1157	957	750	1243	1030	806
JUC-5818-18	2228	1948	1613	1891	1595	1280	1374	1136	891	1476	1224	957
JUC-5818-20	2462	2153	1782	2090	1763	1415	1519	1256	985	1631	1352	1057
Annual output per m² gross area	809	707	586	687	579	465	499	413	324	536	444	347
Fixed or tracking collector	Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane	1765 kWh/m²			1714 kWh/m²			1166 kWh/m²			1244 kWh/m²		
Mean annual ambient air temperature	18,5°C			3,2°C			7,5°C			9,0°C		
Collector orientation or tracking mode	South, 25°			South, 30°			South, 45°			South, 35°		

The collector is operated at constant temperature ϑm (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 5.01 (March 2016). A detailed description of the calculations is available at www.solarkeymark.org/scenocalc

Additional Information

Collector heat transfer medium	Water	
Hybrid Thermal and Photo Voltaic collector	No	
The collector is deemed to be suitable for roof integration	No	
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:		
Climate class (A, B or C)	C	--
Maximum tested positive load	3200	Pa
Maximum tested negative load	--	Pa
Hail resistance using steel ball (maximum drop height)	1,0	m

Energy Labelling Information

	Reference Area, A_{sol} (m^2)
JUC-5818-8	1,30
JUC-5818-10	1,59
JUC-5818-12	1,88
JUC-5818-15	2,32
JUC-5818-18	2,75
JUC-5818-20	3,04

Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}		
Collector efficiency (η_{col})	41	%

Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m², expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2013.

Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}		
Zero-loss efficiency (η_0)	0,455	--
First-order coefficient (a_1)	0,778	W/(m²K)
Second-order coefficient (a_2)	0,008	W/(m²K²)
Incidence angle modifier IAM (50°)	1,12	--

Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.