Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results

Licence Number	**011-7S2857 F**
Date issued	**2018-05-14**
Issued by	**DIN CERTCO**

Licence holder	**Jiaxing JinYi Solar Energy Technology Co.,Ltd.**	**Country**	China
Brand (optional)	JinYi	**Web**	www.jinyi-solar.com
Street, Number	Caozhuang Industrial Park, Yuxin Town	**E-mail**	info@jinyi-solar.com
Postcode, City	314022, Jiaxing City	**Tel**	+86 (0)573 82848871

Collector Type	Flat plate collector, glazed

Collector name	Gross area (A_G)	Gross length	Gross width	Gross height	Power output per collector Gb = 850 W/m²; Gd = 150 W/m²; u = 3 m/s ϑm - ϑa: 0 K	10 K	30 K	50 K	70 K	71 K
	m²	mm	mm	mm	W	W	W	W	W	W
JFC-2/2	2.00	2 000	1 000	80	1 377	1 304	1 142	961	762	751
JFC-2/2.5	2.50	2 000	1 250	80	1 720	1 628	1 426	1 201	951	938
Power output per m² gross area					688	651	570	480	380	375

Performance parameters test method		Quasi dynamic							
Performance parameters (related to AG)		η0,b	c1	c2	c3	c4	c6	Kd		
Units		-	W/(m²K)	W/(m²K²)	J/(m³K)	-	s/m	-		
Test results		0.700	3.552	0.012	0.000	0.000	0.000	0.884		
Incidence angle modifier test method		Quasi dynamic - outdoor							
Bi-directional incidence angle modifiers	No								
Incidence angle modifier	Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal	$K_{\theta T,coll}$	1.00	0.99	0.97	0.95	0.91	0.83	0.68	-	0.00
Longitudinal	$K_{\theta L,coll}$	1.00	0.99	0.97	0.95	0.91	0.83	0.68	-	0.00

Heat transfer medium for testing	Water		
Flow rate for testing (per gross area, A_G)	dm/dt	0.020	kg/(sm²)
Maximum temperature difference for thermal performance calculations	$(\vartheta_m-\vartheta_a)_{max}$	71	K
Standard stagnation temperature (G = 1000 W/m²; ϑ_a = 30 °C)	ϑ_{stg}	196.5	°C
Effective thermal capacity, incl. fluid (per gross area, A_G)	C/m^2	3.4	kJ/(Km²)
Maximum operating temperature	$\vartheta_{max\ op}$	99	°C
Maximum operating pressure	$p_{max,op}$	800	kPa

Testing laboratory	TÜV Rheinland (Shanghai) Co., Ltd.	www.tuv.com	
Test report(s)	50133880-001a 50133882-001	**Dated**	5/14/2018 5/9/2018

Comments of testing laboratory — Datasheet version: 5.01, 2016-03-01

No comment

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

Annex to Solar Keymark Certificate	Licence Number	011-7S2857 F
Supplementary Information	Issued	2018-05-14

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
JFC-2/2	2 141	1 470	912	1 596	1 060	629	1 179	741	426	1 284	797	450
JFC-2/2.5	2 674	1 836	1 139	1 993	1 324	786	1 473	925	532	1 603	996	562
Annual output per m² gross area	1 070	734	456	797	530	314	589	370	213	641	398	225
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-Glycole	
Hybrid Thermal and Photo Voltaic collector	No	
The collector is deemed to be suitable for roof integration	Yes	
The collector was tested successfully according to EN ISO 9806:2013 under the following conditions:		
Climate class (A, B or C)	B	--
Maximum tested positive load	2400	Pa
Maximum tested negative load	1000	Pa
Hail resistance using steel ball (maximum drop height)	1.2	m

Energy Labelling Information

	Reference Area, A_{sol} (m^2)
JFC-2/2	2.00
JFC-2/2.5	2.50

Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}

Collector efficiency (η_{col})	53	%

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)	0.688	--
First-order coefficient (a_1)	3.55	W/(m²K)
Second-order coefficient (a_2)	0.012	W/(m²K²)
Incidence angle modifier IAM (50°)	0.91	--

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.

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