



CERTIFICATE

Solar Keymark Certificate No. SP SC0740-16

Holder/Issued to/Manufacturer

Company: Zhejiang Jiadele Solar Energy Co., Ltd.
Address: No.12 Fenghuang Rd, Dingqiao Town, Haining, Jiaxing, Zhejiang, China

Product name and description

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

Models:	JDL-PG2.0-80 JDL-PG2.5-80
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Certificate

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 ISO 9806:2013 Solar thermal collectors – 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 (SP Technical Research Institute of Sweden, No. 012), also see CEN-CENELEC Internal Regulations Part 4 Certification, Annex A.

Validity

This certificate is valid until 2021-09-21 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 SP. This is the first version of this certificate.


Borås, Sweden 2016-09-21

SP Technical Research Institute of Sweden Certification

Lennart Månsson
Certification Manager

Lennart Aronsson
Certification Officer



Annex to Solar Keymark Certificate - Summary of EN ISO 9806:2013 Test Results					Licence Number		SP SC0740-16							
					Date issued		2016-09-21							
					Issued by		SP							
Licence holder	Zhejiang Jiadele Solar Energy Co., Ltd				Country	China								
Brand (optional)	Jiadele				Web	www.sh-jiadele.com								
Street, Number	No.12 Fenghuang Rd, Dingqiao Town				E-mail	webmaster@sh-jiadele.com								
Postcode, City	314400,Haining,Zhejiang				Tel	+86 573-87797660								
Collector Type					Flat plate collector, glazed									
Collector name	Gross area (A _G) m ²	Gross length mm	Gross width mm	Gross height mm	Power output per collector G _b = 850 W/m ² ; G _d = 150 W/m ² θ _m - θ _a									
					0 K W	10 K W	30 K W	50 K W	70 K W	54 K W				
JDL-PG2.0-80	2,00	2 000	1 000	80	1 318	1 250	1 067	820	509	770				
JDL-PG2.5-80	2,50	2 000	1 250	80	1 648	1 563	1 334	1 026	637	962				
Power output per m ² gross area					659	625	534	410	255	385				
Performance parameters test method					Steady state - outdoor									
Performance parameters (related to AG)					η _{0,hem}	a ₁	a ₂							
Units					-	W/(m ² K)	W/(m ² K ²)							
Test results					0,659	2,976	0,040							
Incidence angle modifier test method					Steady state - outdoor									
Bi-directional incidence angle modifiers					No									
Incidence angle modifier					Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal					K _{θT, coll}					0,92				0,00
Longitudinal					K _{θL, coll}					0,92				0,00
Heat transfer medium for testing					Water-Glycole									
Flow rate for testing (per gross area, A _G)					dm/dt	0,020	kg/(sm ²)							
Maximum temperature difference for thermal performance calculations					(θ _m -θ _a) _{max}	53,55	K							
Standard stagnation temperature (G = 1000 W/m ² ; θ _a = 30 °C)					θ _{stg}	170	°C							
Effective thermal capacity, incl. fluid (per gross area, A _G)					C/m ²	5,5	kJ/(Km ²)							
Maximum operating temperature					θ _{max, op}	120	°C							
Maximum operating pressure					p _{max, op}	600	kPa							
Testing laboratory	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch				http://www.intertek.com									
Test report(s)	160311011GZU-001				Dated	2016-08-22								
Comments of testing laboratory					Datasheet version: 5.01, 2016-03-01									
														
Certification Body: SP Technical Research Institute of Sweden Box 857, 501 15 Borås, Sweden www.sp.se info@sp.se tel +4610 516 5000														

Annex to Solar Keymark Certificate Supplementary Information	Licence Number	SP SC0740-16
	Issued	2016-09-21

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on ISO 9806:2013 test results													
Collector name	Standard Locations ϑ_m	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
JDL-PG2.0-80		2 054	1 352	674	1 519	893	368	1 132	646	273	1 232	695	292
JDL-PG2.5-80		2 568	1 690	842	1 899	1 117	460	1 415	808	341	1 540	869	364
Annual output per m ² gross area		1 027	676	337	760	447	184	566	323	136	616	348	146
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1714 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
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 ϑ_m (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	No	
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	2400	Pa
Hail resistance using steel ball (maximum drop height)	2	m

Energy Labelling Information			
	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
JDL-PG2.0-80	2,00	Collector efficiency (η_{col})	48 %
JDL-PG2.5-80	2,50	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/m ² , 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)	0,659 --
		First-order coefficient (a_1)	2,98 W/(m ² K)
		Second-order coefficient (a_2)	0,040 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	0,92 --
		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.	

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