



CERTIFICATE

Solar Keymark Certificate No. SP SC0379-11

Holder/Issued to/Manufacturer

Company: Zhejiang Jiajiare New Energy Co., Ltd.

Address: No.68 Yuanxi Road, Yuanhua Industrial Area 314416 Haining City, Zhejiang Province, China

Product name and description

Vacuum tube thermal collectors for water heating.

For technical information see Appendix (2 pages).

Models:	JJR-HSC58-15, JJR-HSC58-18, JJR-HSC58-20, JJR-HSC58-24, JJR-HSC58-30
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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 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 (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 2021-05-31 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 certificate was first issued 2011-05-31. This is issue 2.

Borås, Sweden 2016-06-22

SP Technical Research Institute of Sweden Certification

Lennart Månsson
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Empowered Certification Body No. 012: SP Certification, Sweden


For more information of Solar Keymark visit: www.solarkeymar.org

This certificate may not be reproduced other than in full, except with the prior written approval by SP. SP Certification rules SPCR402 applies.



Annex to Solar Keymark Certificate



Annex to Solar Keymark Certificate - Summary of EN 12975 Test Results						Licence Number		SP SC0379-11				
						Date issued		2016-06-22				
						Issued by		SP				
Licence holder		Zhejiang Jiajiare New Energy Co., Ltd.				Country		China				
Brand (optional)		JIAJIARE				Web		www.jiajiare.com				
Street, Number		No. 68 Yuanxi Road, Yuanhua Industrial Area				E-mail		edith@jiajiare.com				
Postcode, City		314415		Haining City, Zhejiang Province		Tel		+86 573-87863578/573-87866028				
Collector Type						Evacuated tubular collector						
						Power output per collector G _b = 850 W/m ² ; G _d = 150 W/m ² θ _m - θ _a						
											0 K	10 K
Collector name		Gross area (A _G) m ²	Gross length mm	Gross width mm	Gross height mm	W	W	W	W	W	W	
JJR-HSC58-15		2.31	1 960	1 180	133	921	892	825	746	656	758	
JJR-HSC58-18		2.76	1 960	1 410	133	1 101	1 066	986	892	784	906	
JJR-HSC58-20		3.06	1 960	1 560	133	1 218	1 179	1 091	987	868	1 002	
JJR-HSC58-24		3.65	1 960	1 860	133	1 452	1 406	1 300	1 177	1 034	1 195	
JJR-HSC58-30		4.53	1 960	2 310	133	1 803	1 746	1 615	1 461	1 285	1 484	
Power output per m² gross area						398	386	357	323	284	328	
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			0.398	1.195	0.006							
Incidence angle modifier test method			Steady state - outdoor									
Bi-directional incidence angle modifiers			Yes									
Incidence angle modifier			Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal			K _{θT, coll}	1.03	1.05	1.09	1.13	1.22	1.30	0.87	0.43	0.00
Longitudinal			K _{θL, coll}	0.99	0.97	0.96	0.94	0.93	0.70	0.47	0.23	0.00
Heat transfer medium for testing						Water						
Flow rate for testing (per gross area, A_G)						dm/dt	0.013		kg/(sm ²)			
Maximum temperature difference for thermal performance calculations						(θ _m -θ _a) _{max}	47.28		K			
Standard stagnation temperature (G = 1000 W/m²; θ_a = 30 °C)						θ _{stg}	194.5		°C			
Effective thermal capacity, incl. fluid (per gross area, A_G)						C/m ²	15.86		kJ/(K m ²)			
Maximum operating temperature						θ _{max op}	98		°C			
Maximum operating pressure						p _{max,op}	1000		kPa			
Testing laboratory			Intertek Testing Services Shenzhen Ltd. Guangzhou Branch				http://www.intertek.com					
Test report(s)			GZ10040362-1				Dated		2011-05-16			
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.												
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	Licence Number	SP SC0379-11
Supplementary Information	Issued	2016-06-22

Annual collector output in kWh/collector at mean fluid temperature ϑ_m , based on EN 12975 test results

Collector name	Athens			Davos			Stockholm			Würzburg			
	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
JJR-HSC58-15		1 608	1 305	1 001	1 308	1 030	767	954	725	525	1 029	783	560
JJR-HSC58-18		1 921	1 559	1 196	1 563	1 230	917	1 139	867	628	1 230	936	669
JJR-HSC58-20		2 126	1 725	1 323	1 729	1 361	1 015	1 261	959	694	1 361	1 036	740
JJR-HSC58-24		2 534	2 056	1 578	2 061	1 623	1 210	1 503	1 144	828	1 622	1 235	882
JJR-HSC58-30		3 148	2 554	1 959	2 560	2 016	1 502	1 867	1 420	1 028	2 015	1 534	1 096
Annual output per m ² gross area		695	564	433	565	445	332	412	314	227	445	339	242
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)	--
Maximum tested positive load	2600 Pa
Maximum tested negative load	-- Pa
Hail resistance using steel ball (maximum drop height)	-- m

Energy Labelling Information

	Reference Area, A_{sol} (m ²)	Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}	
JJR-HSC58-15	2.31	Collector efficiency (η_{col})	34 %
JJR-HSC58-18	2.76	<i>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.</i>	
JJR-HSC58-20	3.06		
JJR-HSC58-24	3.65		
JJR-HSC58-30	4.53		
		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
		Zero-loss efficiency (η_0)	0.398 --
		First-order coefficient (a_1)	1.20 W/(m ² K)
		Second-order coefficient (a_2)	0.006 W/(m ² K ²)
		Incidence angle modifier IAM (50°)	1.07 --
<i>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.</i>			

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