

Holder/Issued to/Manufacturer**Guangdong Sunte Solar Co., Ltd.**

No.2, Yanjiang East Road, Zhonglizhou, Dafen Community, Wanjiang District Dongguan City
Guangdong Province China

Product name and description

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

Models: STE-2.0C-BS-L2 STE-2.5C-BS-L2

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 ISO 9806:2017 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 (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 2025-01-09 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. RISE certification rules SPCR 402 for Keymark – Solar Thermal Products applies.

Johan Åkesson

Certificate No. SC0351-19 | issue 2 | 2020-01-20


RISE Research Institutes of Sweden AB | Certification
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2017-08-08



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Annex to Solar Keymark Certificate					Licence Number		SC0351-19							
					Date issued		2020-01-20							
					Issued by		RISE							
Licence holder		GUANGDONG SUNTE SOLAR CO., LTD			Country		CN							
Brand (optional)		SUNTE SOLAR			Web		www.suntesolar.com							
Street, Number		NO.2, Yanjiang East Road, Zhonglizhou, Dafen Community, Wanjiang District			E-mail		info@suntesolar.com							
Postcode, City		523000, Dongguan, Guangdong			Tel		+86 769-88877730							
Collector Type					Flat plate collector									
Collector name					Power output per collector G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$									
					Gross area (A _G) m ²	Gross length mm	Gross width mm	Gross height mm	0 K W	10 K W	30 K W	50 K W	70 K W	97 K W
STE-2.0C-BS-L2					2,00	1 960	1 020	80	1 517	1 437	1 260	1 058	833	496
STE-2.5C-BS-L2					2,55	1 960	1 300	80	1 934	1 832	1 606	1 349	1 062	633
Power output per m² gross area					758	718	630	529	417	248				
Performance parameters test method		Quasi dynamic												
Performance parameters (related to A_G)		η ₀ , b	a ₁	a ₂	a ₃	a ₄	a ₅	a ₆	a ₇	a ₈	K _d			
Units		-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-			
Test results		0,775	3,83	0,015	0,000	0,00	7 930	0,000	0,00	0,000	0,86			
Incidence angle modifier test method		Quasi dynamic - outdoor												
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°			
Transversal		K _{θT, coll}	1,00	0,99	0,98	0,95	0,89	0,81	0,65	0,40	0,00			
Longitudinal		K _{θL, coll}	1,00	0,99	0,98	0,95	0,89	0,81	0,65	0,40	0,00			
Heat transfer medium for testing					Water									
Flow rate for testing (per gross area, A_G)					dm/dt		0,020	kg/(sm ²)						
Maximum temperature difference during thermal performance test					(ϑ _m - ϑ _a) _{max}		66,58	K						
Standard stagnation temperature (G = 1000 W/m²; ϑ_a = 30 °C)					ϑ _{stg}		170	°C						
Maximum operating temperature					ϑ _{max op}		120	°C						
Maximum operating pressure					p _{max, op}		1200	kPa						
Testing laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou			www.intertek.com									
Test report(s)		181016092GZU-001			Dated		2019-12-23							
Comments of testing laboratory					Datasheet version: 6.1, 2019-09-26									
No comments					 <i>Stephen Jin</i>									
RISE Research Institutes of Sweden AB Certification Box 857, SE-501 15 Borås, Sweden, Phone: +46 10-516 50 00, certifying@ri.se www.ri.se														

Annex to Solar Keymark Certificate		Licence Number		SC0351-19									
Supplementary Information		Issued		2020-01-20									
Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
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
STE-2.0C-BS-L2		2 332	1 601	985	1 743	1 155	678	1 285	805	458	1 397	866	484
STE-2.5C-BS-L2		2 973	2 041	1 257	2 222	1 473	865	1 638	1 027	585	1 781	1 104	617
Annual output per m ² gross area		1 166	800	493	871	578	339	642	403	229	698	433	242
Annual efficiency, η_a		66%	45%	28%	53%	35%	21%	55%	35%	20%	56%	35%	19%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1630 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
Mean annual ambient air		18,5°C			3,2°C			7,5°C			9,0°C		
Collector orientation or tracking		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. 6.1 (September 2019). A detailed description of the calculations is available at http://www.estif.org/solarkeymarknew/													
Additional Information													
Collector heat transfer medium										Water			
The collector is deemed to be suitable for roof integration										Yes			
The collector was tested successfully under the following conditions:													
Climate class (A+, A, B or C)										B		--	
G (W/m ²) >		900		ϑ_a (°C) >		15		H _x (MJ/m ²) >		3000		540	
Maximum tested positive load										3000		Pa	
Maximum tested negative load										1000		Pa	
Hail resistance using steel ball (maximum drop height)										2		m	
Additional collector attribute(s)													
<input type="checkbox"/> Using external power source(s) for normal operation				<input type="checkbox"/> Active or passive measure(s) for self-protection									
<input type="checkbox"/> Co-generating thermal and electrical power				<input type="checkbox"/> Façade collector(s)									
Energy Labelling Information						Additional Informative Technical Data							
		Reference Area, A _{sol} (m ²)		Hydraulic Designation Code				Aperture Area, A _a (m ²)					
STE-2.0C-BS-L2		2,00		12-VH-1234S-A:10,1920-C:22,1060-D				1,87					
STE-2.5C-BS-L2		2,55		14-VH-1234S-A:10,1920-C:22,1310-D				2,33					
Data required for CDR (EU) No 811/2013 - Reference Area						Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}							
Collector efficiency (η_{col})		58%				Zero-loss efficiency (η_0)		0,76		--			
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 9806:2017.		First-order coefficient (a ₁)		3,83		W/(m ² K)							
		Second-order coefficient (a ₂)		0,015		W/(m ² K ²)							
		Incidence angle modifier IAM (50°)		0,89		--							
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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