


Annex to Solar Keymark Certificate					Licence Number		011-7S3035 R								
					Date issued		2021-07-11								
					Issued by		DIN CERTCO								
Licence holder		Jiangsu HETE Energy Conservation and Environmental Protection Co., Ltd.			Country		CHINA								
Brand (optional)		HETE			Web		http://www.hete.cc								
Street, Number		C14 No. 9 Kechuang Road, Jiangbei New District.			E-mail		Long@Hetesolar.com jshete@163.com								
Postcode, City		211500/Nanjing City, Jiangsu Province			Tel		+86 25-58399023								
Collector Type					Evacuated tubular collector										
Collector name					Power output per collector Gb = 850 W/m ² , Gd = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$										
					0 K	10 K	30 K	50 K	70 K	92 K					
					m ²	mm	mm	mm	mm	W	W	W	W	W	W
HRZJ-58/1800-75-10					1.58	1962	803	160	715	695	649	592	525	440	
HRZJ-58/1800-75-12					1.86	1962	950	160	844	821	766	699	620	519	
HRZJ-58/1800-75-18					2.75	1962	1400	160	1,247	1,213	1,132	1,033	916	768	
HRZJ-58/1800-75-20					3.04	1962	1550	160	1,379	1,341	1,251	1,142	1,013	849	
HRZJ-58/1800-75-24					3.63	1962	1850	160	1,646	1,602	1,494	1,364	1,210	1,013	
HRZJ-58/1800-75-30					4.52	1962	2303	160	2,050	1,994	1,860	1,698	1,506	1,262	
Power output per m² gross area					454	441	412	376	333	279					
Performance parameters test method		Steady state - outdoor													
Performance parameters (related to A_G)		η_0, b	a1	a2	a3	a4	a5	a6	a7	a8	Kd				
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		0.449	1.159	0.008	0.000	0.000	5,450	0.000	0.000	0.000	1.07				
Incidence angle modifier test method		Steady state - outdoor													
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°				
Transversal		K _{θT, coll}	1.04	1.07	1.19	1.30	1.37	1.43	0.95	0.48	0.00				
Longitudinal		K _{θL, coll}	1.00	1.00	0.99	0.96	0.92	0.84	0.69	0.44	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					$(\vartheta_m - \vartheta_a)_{max}$		62	K							
Standard stagnation temperature (G = 1000 W/m²; $\vartheta_a = 30$ °C)					ϑ_{stg}		230	°C							
Maximum operating temperature					$\vartheta_{max, op}$		98	°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)		171031198GZU-001 R1					Dated		2021/7/9						
Comments of testing laboratory					Datasheet version: 6.1, 2019-09-26										
<p>1. Tests were performed based on ISO 9806:2013.</p> <p>2. Above efficiency parameters come from test type HRZJ-58/1800-75-10.</p>															
<p>DIN CERTCO ● Alboinstraße 56 ● D-12103 Berlin</p> <p>Tel: +49 30 7562-1131 ● Fax: +49 30 7562-1141 ● E-Mail: info@dincertco.de ● www.dincertco.de</p>															

Annex to Solar Keymark Certificate		Licence Number		011-7S3035 R									
Supplementary Information		Issued		2021-07-11									
Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
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
HRZJ-58/1800-75-10		1,357	1,142	911	1,124	915	707	819	648	488	884	702	524
HRZJ-58/1800-75-12		1,601	1,348	1,075	1,327	1,080	835	966	765	576	1,043	828	619
HRZJ-58/1800-75-18		2,368	1,993	1,589	1,962	1,596	1,234	1,429	1,131	851	1,543	1,225	915
HRZJ-58/1800-75-20		2,617	2,204	1,757	2,169	1,765	1,364	1,579	1,251	941	1,705	1,354	1,011
HRZJ-58/1800-75-24		3,125	2,631	2,097	2,590	2,107	1,629	1,886	1,493	1,124	2,036	1,616	1,207
HRZJ-58/1800-75-30		3,892	3,276	2,612	3,225	2,624	2,028	2,348	1,860	1,399	2,536	2,013	1,503
Annual output per m ² gross area		861	725	578	714	580	449	520	411	310	561	445	333
Annual efficiency, η_a		49%	41%	33%	44%	36%	28%	45%	35%	27%	45%	36%	27%
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 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. 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-Glycole		
The collector is deemed to be suitable for roof integration											No		
The collector was tested successfully under the following conditions:													
Climate class (A+, A, B or C)											C		--
G (W/m ²) >		800		ϑ_a (°C) >		10		H _x (MJ/m ²) >		420		420	
Maximum tested positive load											2400		Pa
Maximum tested negative load											2400		Pa
Hail resistance using steel ball (maximum drop height)											0.8		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)					
HRZJ-58/1800-75-10		1.58		1-H-12S-C:24,900-D				0.94					
HRZJ-58/1800-75-12		1.86		1-H-12S-C:24,1050-D				1.13					
HRZJ-58/1800-75-18		2.75		1-H-12S-C:24,1500-D				1.70					
HRZJ-58/1800-75-20		3.04		1-H-12S-C:24,1650-D				1.88					
HRZJ-58/1800-75-24		3.63		1-H-12S-C:24,1950-D				2.26					
HRZJ-58/1800-75-30		4.52		1-H-12S-C:24,2400-D				2.83					
Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}						Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}							
Collector efficiency (η_{col})		39%				Zero-loss efficiency (η_0)		0.45		--			
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)		1.16		W/(m ² K)					
				Second-order coefficient (a ₂)		0.008		W/(m ² K ²)					
				Incidence angle modifier IAM (50°)		1.23		--					
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 • D-12103 Berlin													
Tel: +49 30 7562-1131 • Fax: +49 30 7562-1141 • E-Mail: info@dincertco.de • www.dincertco.de													