


Annex to Solar Keymark Certificate					Licence Number		011-7S3034 R							
					Date issued		2021-07-10							
					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 G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	94 K				
					m ²	mm	mm	mm	W	W	W	W	W	W
HRZJ-58/1800-10					1.65	1,983	830	162	760	738	689	632	566	479
HRZJ-58/1800-15					2.36	1,983	1,190	162	1,090	1,058	988	906	812	687
HRZJ-58/1800-18					2.80	1,983	1,415	162	1,293	1,256	1,172	1,074	964	815
HRZJ-58/1800-20					3.10	1,983	1,565	162	1,431	1,390	1,297	1,190	1,067	902
HRZJ-58/1800-24					3.69	1,983	1,865	162	1,704	1,655	1,544	1,416	1,270	1,074
HRZJ-58/1800-30					4.57	1,983	2,303	162	2,109	2,048	1,911	1,753	1,572	1,330
Power output per m ² gross area					462	449	419	384	344	291				
Performance parameters test method					Steady state - outdoor									
Performance parameters (related to A _G)					$\eta_{0, b}$	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					0.461	1.259	0.006	0.000	0.000	3,470	0.000	0.000	0.000	1.01
Incidence angle modifier test method					Steady state - outdoor									
Incidence angle modifier					Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal					K _{gT, coll}	1.04	1.08	1.15	1.22	1.31	1.39	0.93	0.46	0.00
Longitudinal					K _{gL, coll}	1.00	0.99	0.97	0.93	0.88	0.78	0.58	0.29	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 during thermal performance test					$(\vartheta_m - \vartheta_a)_{max}$		64	K						
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30$ °C)					ϑ_{stg}		230	°C						
Maximum operating temperature					$\vartheta_{max, op}$		95	°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)		131101048GZU-001			Dated		2014/1/15							
Comments of testing laboratory					Datasheet version: 6.1, 2019-09-26									
1. The "negative pressure test of the collector" according to EN 12975-2:2006,5.9.2 was not performed. 2. Tests were performed based on EN 12975-2:2006.3. 3. Above efficiency parameters come from test type HRZJ-58/1800-10.														
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														

Annex to Solar Keymark Certificate		Licence Number											
Supplementary Information		011-7S3034 R											
		Issued											
		2021-07-10											
Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
Collector name	Standard Locations	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
HRZI-58/1800-10		1,396	1,167	936	1,151	937	734	840	664	506	904	716	541
HRZI-58/1800-15		2,001	1,674	1,342	1,650	1,344	1,053	1,204	952	726	1,296	1,026	775
HRZI-58/1800-18		2,374	1,986	1,592	1,958	1,595	1,249	1,429	1,130	862	1,538	1,217	919
HRZI-58/1800-20		2,629	2,199	1,762	2,167	1,765	1,383	1,582	1,251	954	1,703	1,348	1,018
HRZI-58/1800-24		3,129	2,617	2,098	2,580	2,102	1,646	1,883	1,489	1,135	2,027	1,604	1,212
HRZI-58/1800-30		3,873	3,239	2,596	3,193	2,601	2,038	2,330	1,843	1,405	2,509	1,986	1,500
Annual output per m ² gross area		848	709	568	699	570	446	510	404	308	549	435	328
Annual efficiency, η_a		48%	40%	32%	43%	35%	27%	44%	35%	26%	44%	35%	26%
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			
Maximum tested positive load											3400		Pa
Maximum tested negative load											--		Pa
Hail resistance using steel ball (maximum drop height)											1.0		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)					
HRZI-58/1800-10	1.65		1-H-12S-C:24,865-D					0.94					
HRZI-58/1800-15	2.36		1-H-12S-C:24,1240-D					1.40					
HRZI-58/1800-18	2.80		1-H-12S-C:24,1465-D					1.68					
HRZI-58/1800-20	3.10		1-H-12S-C:24,1615-D					1.87					
HRZI-58/1800-24	3.69		1-H-12S-C:24,1915-D					2.25					
HRZI-58/1800-30	4.57		1-H-12S-C:24,2365-D					2.81					
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})		40%				Zero-loss efficiency (η_0)		0.46		--			
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)		1.26		Second-order coefficient (a_2)		0.006		W/(m ² K)			
		Incidence angle modifier IAM (50°)		1.12				--					
		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													