


Annex to Solar Keymark Certificate					Licence Number		011-7S3204 R				
					Date issued		2024-08-28				
					Issued by		DIN CERTCO				
Licence holder		Jiaxing Diyi Solar Technology Co., Ltd			Country		CHINA				
Brand (optional)		DIYI			Web		www.diyi-solar.com				
Street, Number		No.8, Weiye Road, Industrial Park 3, Shuangfeng Village, Yuanhua Town			E-mail		diyi-04@china-solar-collector.com				
Postcode, City		314416, Haining City Zhejiang Province			Tel		86 573 87873003				
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	83 K	
	Gross area (A_G)	Gross length	Gross width	Gross height	W	W	W	W	W	W	
	m ²	mm	mm	mm	W	W	W	W	W	W	
	DIYI-C01-10	1.60	1990	805	139	675	634	543	441	326	246
	DIYI-C01-15	2.35	1990	1180	139	990	930	796	646	479	360
	DIYI-C01-20	3.09	1990	1555	139	1,305	1,225	1,049	851	631	474
	DIYI-C01-25	3.84	1990	1930	139	1,619	1,520	1,302	1,056	783	589
	DIYI-C01-30	4.59	1990	2305	139	1,934	1,816	1,555	1,261	935	703
Power output per m² gross area					422	396	339	275	204	153	
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		0.417	2.48	0.009	0.000	0.00	6653	0.000	0.00	0	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}	1.05	1.10	1.14	1.27	1.39	1.47	0.98	0.49	0.00
Longitudinal		K _{θL, coll}	1.00	1.00	0.99	0.97	0.93	0.85	0.70	0.45	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}	53.09	K				
Standard stagnation temperature (G = 1000 W/m²; $\vartheta_a = 30$ °C)					ϑ_{stg}	220	°C				
Maximum operating temperature					$\vartheta_{max, op}$	120	°C				
Maximum operating pressure					p _{max, op}	1200	kPa				
Testing laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch					http://www.intertek.com				
Test report(s)		230726062GZU-001					Dated		2024/8/28		
Comments of testing laboratory					Draft Ver. 6.2 (22.09.2021)						
<u>Above efficiency parameters come from test model DIYI-C01-10.</u>					 Stamp & sign...						
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Supplementary Information		Issued		2024-08-28									
Gross Thermal Yield 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
DIYI-C01-10		1,254	870	540	929	618	359	696	442	251	758	477	269
DIYI-C01-15		1,838	1,275	792	1,362	906	527	1,020	648	369	1,112	699	394
DIYI-C01-20		2,422	1,680	1,044	1,794	1,195	694	1,345	854	486	1,465	922	520
DIYI-C01-25		3,006	2,085	1,295	2,227	1,483	862	1,669	1,060	603	1,818	1,144	645
DIYI-C01-30		3,590	2,491	1,547	2,660	1,771	1,029	1,993	1,265	720	2,172	1,366	771
Gross Thermal Yield per m ² gross area		783	543	337	580	386	224	435	276	157	473	298	168
Annual efficiency, η_a		44%	31%	19%	36%	24%	14%	37%	24%	13%	38%	24%	14%
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 Draft Ver. 6.2 (22.09.2021). 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)											B		--
G (W/m ²) >		900		ϑ_a (°C) >		15		H_x (MJ/m ²) >		540			
Maximum tested positive load											3000		Pa
Maximum tested negative load											3000		Pa
Hail resistance using steel ball (maximum drop height)											0.6		m
Additional collector attribute(s)													
Using external power source(s) for normal operation				No		Active or passive measure(s) for self-protection				No			
Co-generating thermal and electrical power				No		Façade collector(s)				No			
Energy Labelling Information						Additional Informative Technical Data							
		Reference Area, A_{sol} (m ²)		Hydraulic Designation Code				Aperture Area, A_a (m ²)					
DIYI-C01-10		1.60		1-H-12S-C:20,890-D				0.92					
DIYI-C01-15		2.35		1-H-12S-C:20,1265-D				1.38					
DIYI-C01-20		3.09		1-H-12S-C:20,1640-D				1.84					
DIYI-C01-25		3.84		1-H-12S-C:20,2015-D				2.30					
DIYI-C01-30		4.59		1-H-12S-C:20,2390-D				2.77					
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})		31%		Zero-loss efficiency (η_0)				0.42		--			
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)				2.48		W/(m ² K)			
				Second-order coefficient (a_2)				0.009		W/(m ² K ²)			
				Incidence angle modifier IAM (50°)				1.20		--			
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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