


Annex to Solar Keymark Certificate					Licence Number		011-7S3058 R							
					Date issued		2021-07-23							
					Issued by		DIN CERTCO							
Licence holder		Zhejiang Jiadele Technology Co., Ltd.			Country	CHINA								
Brand (optional)		Jiadele			Web	http://www.sh-jiadele.com								
Street, Number		No.12 Fenghuang Rd, Dingqiao Town			E-mail	webmaster@sh-jiadele.com								
Postcode, City		314413/Haining City, Zhejiang Province			Tel	+86 573-87797662								
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 $\vartheta_m - \vartheta_a$									
					Gross area (A _G)	Gross length	Gross width	Gross height	0 K	10 K	30 K	50 K	70 K	81 K
					m ²	mm	mm	mm	W	W	W	W	W	W
JDL-HP100					1.54	1,920	800	100	707	678	612	537	452	401
JDL-HP150					2.26	1,920	1,175	100	1,037	995	899	788	664	589
JDL-HP180					2.69	1,920	1,400	100	1,234	1,184	1,070	939	790	701
JDL-HP200					2.98	1,920	1,550	100	1,368	1,311	1,185	1,040	875	777
JDL-HP240					3.55	1,920	1,850	100	1,629	1,562	1,412	1,239	1,043	925
JDL-HP250					3.70	1,920	1,925	100	1,698	1,628	1,471	1,291	1,087	965
JDL-HP300					4.42	1,920	2,300	100	2,028	1,945	1,758	1,542	1,298	1,152
Power output per m ² gross area					459	440	398	349	294	261				
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 ² K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-			
Test results		0.458	1.800	0.008	0.000	0.000	4,530	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}	1.03	1.05	1.14	1.23	1.27	1.30	0.87	0.43	0.00			
Longitudinal		K _{GL, coll}	1.00	0.99	0.98	0.95	0.90	0.81	0.66	0.41	0.00			
Heat transfer medium for testing					Water									
Flow rate for testing (per gross area, A _G)					dm/dt	0.02	kg/(sm ²)							
Maximum temperature difference during thermal performance test					($\vartheta_m - \vartheta_a$) _{max}	50.97	K							
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30$ °C)					ϑ_{stg}	197.8	°C							
Maximum operating temperature					$\vartheta_{max, op}$	120	°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)		140609195GZU-001 R2			Dated		2021/7/20							
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 JDL-HP100.</p>														
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Supplementary Information		011-7S3058 R											
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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
JDL-HP100		1,274	985	712	1,006	753	526	739	531	360	801	575	384
JDL-HP150		1,870	1,445	1,044	1,476	1,106	772	1,085	780	529	1,175	844	563
JDL-HP180		2,226	1,720	1,243	1,757	1,316	919	1,291	928	629	1,399	1,004	670
JDL-HP200		2,466	1,906	1,377	1,946	1,458	1,018	1,431	1,028	697	1,550	1,113	743
JDL-HP240		2,938	2,270	1,641	2,319	1,737	1,212	1,704	1,225	830	1,846	1,326	885
JDL-HP250		3,062	2,366	1,710	2,417	1,810	1,263	1,776	1,277	865	1,924	1,382	922
JDL-HP300		3,658	2,827	2,043	2,887	2,162	1,509	2,122	1,525	1,034	2,299	1,650	1,101
Annual output per m ² gross area		827	640	462	653	489	341	480	345	234	520	373	249
Annual efficiency, η_a		47%	36%	26%	40%	30%	21%	41%	30%	20%	42%	30%	20%
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		
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											3970		Pa
Maximum tested negative load											2400		Pa
Hail resistance using steel ball (maximum drop height)											1		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)						
JDL-HP100		1.54		1-H-12S-C:20-875-D			0.94						
JDL-HP150		2.26		1-H-12S-C:20-1250-D			1.40						
JDL-HP180		2.69		1-H-12S-C:20-1475-D			1.68						
JDL-HP200		2.98		1-H-12S-C:20-1625-D			1.87						
JDL-HP240		3.55		1-H-12S-C:20-1925-D			2.24						
JDL-HP250		3.70		1-H-12S-C:20-2000-D			2.33						
JDL-HP300		4.42		1-H-12S-C:20-2375-D			2.78						
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})		37%					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)			1.80		W/(m ² K)				
				Second-order coefficient (a ₂)			0.008		W/(m ² K ²)				
				Incidence angle modifier IAM (50°)			1.15		--				
		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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