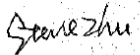




Summary of annex to Solar KEYMARK Certificate	EN12976-2	SOLAR SYSTEM test results	Licence Number	011-7S3029 A						
Annex to Solar KEYMARK Certificate			Issued	2021-08-03						
Company	Zhejiang Jiadele Technology Co., Ltd.		Country	China						
Brand (optional)	Jiadele		Website	www.sh-jiadele.com						
Street	No.12 Fenghuang Rd, Dingqiao Town,		E-mail	webmaster@sh-jiadele.com						
Postal Code	314413	Haining,zhejiang	Tel. / Fax	+86	573-87797662					
System classification										
Application(s)	Hot water									
Solar loop, circulation principle	Thermosyphon									
Direct solar loop / heat exchanger	Direct									
Open, vented or closed solar loop	Closed									
Drain back/down	Always filled (no drain)									
Store location	Outdoor									
Store orientation (of main axis)	Horizontal									
Type of auxiliary heating (internal back-up heat)	None									
If other auxiliary/internal back-up heating, please specify:	None									
Solar+supplementary OR Solar-only / Solar pre-heat	Solar only / Solar preheat									
Collector(s)					Heat store(s)					
Company	Zhejiang Jiadele Technology Co., Ltd.				Company	Zhejiang Jiadele Technology Co., Ltd.				
Keymark lic.no. if available	011-7S3027 F				Keymark lic.no. if available	None				
Collector name	Per module			Store name	Total nominal volume	Gross height	Gross width	Gross depth	Auxiliary heated volume	Electrical aux. heating power
	Gross Area (A _g) m ²	Gross length mm	Gross width mm							
JDL-PG2.0-80	2.00	2000	1000	JDL-150L	150	Φ570	1055	Φ570	0	0
JDL-PG2.5-80	2.50	2000	1250	JDL-200L	200	Φ570	1285	Φ570	0	0
				JDL-250L	250	Φ570	1530	Φ570	0	0
				JDL-300L	300	Φ570	1835	Φ570	0	0
Solar loop controller					Solar loop fluid					
Keymark lic.no. if available	None				Recommended/required	No recommend./requirements				
Company	NA				Company	NA				
Name	NA				Name	NA				
Solar loop pump - power range	- W to - W				Freezing point	- °C				
System family overview										
Collector name	Number of collectors in each configuration for each store									
	Store name									
	JDL-150L	JDL-200L	JDL-250L	JDL-250L	JDL-300L					
JDL-PG2.0-80	1					2			2	
JDL-PG2.5-80		1		1						
Testing Laboratory	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch									
Website	www.intertek.com.cn									
Test report id. number	160311047GZU-001, 160311047GZU-002									
Date of test report	2021-07-20									
Comments of test lab	None									
					 Stamp & signature					



Summary of annex to Solar KEYMARK Certificate	EN12976-2	test results	Certification No.	011-7S3029 A
Annex to Solar KEYMARK Certificate			Issued	2021-08-03
Company	Zhejiang Jiadele Technology Co., Ltd.		Country	China
Brand (optional)	Jiadele		Website	www.sh-jiadele.com
Street	No.12 Fenghuang Rd, Dingqiao Town,		E-mail	webmaster@sh-jiadele.com
Postal Code	314413	Haining, Zhejiang	Tel. / Fax	+86 573-87797662
Parameters for systems extrapolation (Annex D)				
Collector of measured system		Storage tank of measured system		
$A_{ref} [m^2]$	1.81	Volume [l]	150	
h_0	0.728	$A_{hx} [m^2]$	1.22	
$a_1 [W/Km^2]$	3.288	Piping		
$a_2 [W/Km^2]$	0.044			
IAM (50°)	0.920	$U_{loop,p}$	0.06	
Parameters of system tested (ISO 9459-2)				
		I-O Diagram Parameters and Tank heat loss coefficient		
Name of System Configuration Tested	$a_1 [1/m^2]$	$a_2 [MJ/K]$	$a_3 [MJ]$	$U_s [W/K]$
JDL-FPS HP 150	0.81	0.21	0.92	1.43
Draw-off profiles				
	H<16 MJ/m ²	H≥16 MJ/m ²	Mixing Draw-off	
	H<16 MJ/m ²	H≥16 MJ/m ²	Mixing Draw-off	
V/V _{dep}	f(V/V _{dep})	f(V/V _{dep})	g(V/V _{dep})	V/V _{dep}
0.1	10.19	9.20	7.75	1.6
0.2	10.39	9.12	7.75	1.7
0.3	9.66	9.76	7.59	1.8
0.4	9.05	8.93	7.56	1.9
0.5	8.11	9.35	7.52	2.0
0.6	6.08	9.11	7.38	2.1
0.7	4.76	8.13	7.16	2.2
0.8	4.13	7.62	6.77	2.3
0.9	3.25	6.21	6.22	2.4
1.0	2.85	4.08	5.81	2.5
1.1	2.50	2.92	4.65	2.6
1.2	2.10	2.14	3.74	2.7
1.3	1.76	1.58	2.86	2.8
1.4	1.56	1.22	2.17	2.9
1.5	1.43	0.99	1.49	3.0
Testing Laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch		
Website		www.intertek.com.cn		
Test report id. number		160311047GZU-001, 160311047GZU-002		
Date of test report		2021-07-20		
Test method		ISO 9459-2 (CSTG)		
Comments of test lab		 		
Above parameters come from test type JDL-FPS HP 150 and collector JDL-PG2.0-80.				

All values are subject to some uncertainty; e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %

Version 4.5, 2017-10-24

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Summary of annex to Solar KEYMARK Certificate	EN12976-2	test results	Certification No.	011-7S3029 A
Annex to Solar KEYMARK Certificate			Issued	2021-08-03
Company	Zhejiang Jiadele Technology Co., Ltd.		Country	China
Brand (optional)	Jiadele		Website	www.sh-jiadele.com
Street	No.12 Fenghuang Rd, Dingqiao Town,		E-mail	webmaster@sh-jiadele.com
Postal Code	314413	Haining,zhejiang	Tel. / Fax	+86 573-87797662
System family overview				
For each storage and collector size, give number of collectors				
Collector name	JDL-150L	JDL-200L	JDL-250L	JDL-300L
JDL-PG2.0-80	1			2
JDL-PG2.5-80		1	1	
Name of system configuration				
Collector name	JDL-PG2.0-80	No. Collectors	1	Storage name
JDL-150L				
Calculated annual results for "solar-only / preheat system"				
Location	Daily drawoff	110	Daily drawoff	140
	Qd,sh	Qd,hw	QL	Qpar
	Qd,hw	QL	Qpar	fsol
	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	6142	2652	0
Würzburg DE	-	5882	2765	0
Davos CH	-	6656	3970	0
Athens GR	-	4568	3264	0
Perf. indicators for the table above				
Qd,sh	MJ/y	Not relevant for solar domestic hot water system		
Qd	MJ/y	Annual heat demand for domestic hot water		
QL	MJ/y	Annual heat energy delivered by the solar system		
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)		
f _{sol} =Q _L /Q _d	-	Solar fraction		
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH
	G	1,157	1,230	1,684
	T _{a,ave}	7.5	9.0	3.2
	T _{c,ave}	8.5	10.0	5.4
	± ΔT _c	6.4	3.0	0.8
G	kWh/m ²	Annual irradiation South, 45°		
T _{a,ave}	°C	Annual average outdoor air temperature		
T _{c,ave}	°C	Annual average mains cold water temp.		
ΔT _c	K	Seasonal variation of T _c		
T _h	45 °C	Desired hot water temperature (mixing valve temperature).		
Max. operating press. - collector side		600	kPa	Max. operating press. - tank side
		600	kPa	
Testing Laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch		
Website		www.intertek.com.cn		
Test report id. number		160311047GZU-001, 160311047GZU-002		
Date of test report		2021-07-20		
Test method		ISO 9459-2 (CSTG)		
Comments of test lab				
No comments				

All values are subject to some uncertainty; e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %

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Steve Zhu



Summary of annex to Solar KEYMARK Certificate	EN12976-2	test results	Certification No.	011-753029 A										
Annex to Solar KEYMARK Certificate			Issued	2021-08-03										
Company	Zhejiang Jiadele Technology Co., Ltd.		Country	China										
Brand (optional)	Jiadele		Website	www.sh-jiadele.com										
Street	No.12 Fenghuang Rd, Dingqiao Town,		E-mail	webmaster@sh-jiadele.com										
Postal Code	314413	Haining,zhejiang	Tel. / Fax	+86 573-87797662										
System family overview														
For each storage and collector size, give number of collectors														
Collector name	JDL-150L	JDL-200L	JDL-250L	JDL-300L										
JDL-PG2.0-80	1		2	2										
JDL-PG2.5-80		1	1											
Name of system configuration														
JDL-PG2.5-80			JDL-FPS/HP 200											
Collector name	JDL-PG2.5-80	No. Collectors	1	Storage name										
JDL-200L														
Calculated annual results for "solar-only / preheat system"														
Location	Daily drawoff	170	Daily drawoff	200	Daily drawoff	250								
	Qd,sh	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol					
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%					
Stockholm SE	-	9457	2711	0	28.7	11138	2804	0	25.2	13914	2909	0	20.9	
Würzburg DE	-	9072	3384	0	37.3	10685	3524	0	33.0	13356	3686	0	27.6	
Davos CH	-	10256	5350	0	52.2	12082	5677	0	47.0	15098	5818	0	38.5	
Athens GR	-	7042	4565	0	64.8	8298	4849	0	58.4	10382	5191	0	50.0	
Perf. indicators for the table above														
Qd,sh	MJ/y	Not relevant for solar domestic hot water system												
Qd	MJ/y	Annual heat demand for domestic hot water												
QL	MJ/y	Annual heat energy delivered by the solar system												
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)												
f _{sol} =Q _L /Q _d	-	Solar fraction												
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR									
	G	1,157	1,230	1,684	1,736									
	T _{a,ave}	7.5	9.0	3.2	18.5									
	T _{c,ave}	8.5	10.0	5.4	17.8									
	± ΔT _c	6.4	3.0	0.8	7.4									
G	kWh/m ²	Annual irradiation South, 45°												
T _{a,ave}	°C	Annual average outdoor air temperature												
T _{c,ave}	°C	Annual average mains cold water temp.												
ΔT _c	K	Seasonal variation of T _c												
Th	45 °C	Desired hot water temperature (mixing valve temperature).												
Max. operating press. - collector side		600	kPa	Max. operating press. - tank side		600	kPa							
Testing Laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch												
Website		www.intertek.com.cn												
Test report id. number		160311047GZU-001, 160311047GZU-002												
Date of test report		2021-07-20												
Test method		ISO 9459-2 (CSTG)												
Comments of test lab														
No comments														
														

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Version 4.5, 2017-10-24

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Summary of annex to Solar KEYMARK Certificate	EN12976-2	test results	Certification No.	011-7S3029 A									
Annex to Solar KEYMARK Certificate			Issued	2021-08-03									
Company	Zhejiang Jiadele Technology Co., Ltd.		Country	China									
Brand (optional)	Jiadele		Website	www.sh-jiadele.com									
Street	No.12 Fenghuang Rd, Dingqiao Town,		E-mail	webmaster@sh-jiadele.com									
Postal Code	314413	Haining,zhejiang	Tel. / Fax	+86 573-87797662									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	JDL-150L	JDL-200L	JDL-250L	JDL-300L									
JDL-PG2.0-80	1			2									
JDL-PG2.5-80		1	1										
Name of system configuration													
JDL-PG2.5-80			JDL-FPS/HP 250A										
Collector name	JDL-PG2.5-80	No. Collectors	1	Storage name									
JDL-250L													
Calculated annual results for "solar-only / preheat system"													
Location	Daily drawoff	200	Daily drawoff	250	Daily drawoff	300							
	Qd,sh	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol				
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%				
Stockholm SE	-	11138	2873	0	25.8	13914	2981	0	21.4	16697	3053	0	18.3
Würzburg DE	-	10685	3611	0	33.8	13356	3780	0	28.3	16027	3892	0	24.3
Davos CH	-	12082	5774	0	47.8	15098	5918	0	39.2	18137	6221	0	34.3
Athens GR	-	8298	4950	0	59.7	10382	5299	0	51.0	12452	5540	0	44.5
Perf. indicators for the table above													
Qd,sh	MJ/y	Not relevant for solar domestic hot water system											
Qd	MJ/y	Annual heat demand for domestic hot water											
QL	MJ/y	Annual heat energy delivered by the solar system											
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)											
f _{sol} =Q _L /Q _d	-	Solar fraction											
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR								
	G	1,157	1,230	1,684	1,736								
	T _{a,ave}	7.5	9.0	3.2	18.5								
	T _{c,ave}	8.5	10.0	5.4	17.8								
	± ΔT _c	6.4	3.0	0.8	7.4								
G	kWh/m ²	Annual irradiation South, 45°											
T _{a,ave}	°C	Annual average outdoor air temperature											
T _{c,ave}	°C	Annual average mains cold water temp.											
ΔT _c	K	Seasonal variation of T _c											
T _h	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		600	kPa	Max. operating press. - tank side		600	kPa						
Testing Laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch											
Website		www.intertek.com.cn											
Test report id. number		160311047GZU-001, 160311047GZU-002											
Date of test report		2021-07-20											
Test method		ISO 9459-2 (CSTG)											
Comments of test lab													
No comments													
													

All values are subject to some uncertainty; e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %

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Summary of annex to Solar KEYMARK Certificate	EN12976-2	test results	Certification No.	011-7S3029 A
Annex to Solar KEYMARK Certificate			Issued	2021-08-03
Company	Zhejiang Jiadele Technology Co., Ltd.		Country	China
Brand (optional)	Jiadele		Website	www.sh-jiadele.com
Street	No.12 Fenghuang Rd, Dingqiao Town,		E-mail	webmaster@sh-jiadele.com
Postal Code	314413	Haining,zhejiang	Tel. / Fax	+86 573-87797662
System family overview				
	For each storage and collector size, give number of collectors			
Collector name	JDL-150L	JDL-200L	JDL-250L	JDL-300L
JDL-PG2.0-80	1		2	2
JDL-PG2.5-80		1	1	
Name of system configuration				
Collector name	JDL-PG2.0-80	No. Collectors	2	Storage name
				JDL-250L
Calculated annual results for "solar-only / preheat system"				
Location	Daily drawoff	200	Daily drawoff	250
	Qd,sh	Qd,hw	QL	Qpar
	Qd,hw	QL	Qpar	fsol
	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	11138	4021	0
Würzburg DE	-	10685	4928	0
Davos CH	-	12082	7794	0
Athens GR	-	8298	6300	0
Perf. indicators for the table above				
Qd,sh	MJ/y	Not relevant for solar domestic hot water system		
Qd	MJ/y	Annual heat demand for domestic hot water		
QL	MJ/y	Annual heat energy delivered by the solar system		
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)		
f _{sol} =Q _L /Q _d	-	Solar fraction		
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH
	G	1,157	1,230	1,684
	T _{a,ave}	7.5	9.0	3.2
	T _{c,ave}	8.5	10.0	5.4
	± ΔT _c	6.4	3.0	0.8
G	kWh/m ²	Annual irradiation South, 45°		
T _{a,ave}	°C	Annual average outdoor air temperature		
T _{c,ave}	°C	Annual average mains cold water temp.		
ΔT _c	K	Seasonal variation of T _c		
T _h	45 °C	Desired hot water temperature (mixing valve temperature).		
Max. operating press. - collector side		600	kPa	Max. operating press. - tank side
		600	kPa	
Testing Laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch		
Website		www.intertek.com.cn		
Test report id. number		160311047GZU-001, 160311047GZU-002		
Date of test report		2021-07-20		
Test method		ISO 9459-2 (CSTG)		
Comments of test lab				
No comments				
				

All values are subject to some uncertainty; e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %

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Summary of annex to Solar KEYMARK Certificate	EN12976-2	test results	Certification No.	011-7S3029 A									
Annex to Solar KEYMARK Certificate			Issued	2021-08-03									
Company	Zhejiang Jiadele Technology Co., Ltd.		Country	China									
Brand (optional)	Jiadele		Website	www.sh-jiadele.com									
Street	No.12 Fenghuang Rd, Dingqiao Town,		E-mail	webmaster@sh-jiadele.com									
Postal Code	314413	Haining,zhejiang	Tel. / Fax	+86 573-87797662									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	JDL-150L	JDL-200L	JDL-250L	JDL-300L									
JDL-PG2.0-80	1		2	2									
JDL-PG2.5-80		1	1										
Name of system configuration													
JDL-PG2.0-80			JDL-FPS/HP 300										
Collector name	JDL-PG2.0-80	No. Collectors	2	Storage name									
JDL-300L													
Calculated annual results for "solar-only / preheat system"													
Location	Daily drawoff	250	Daily drawoff	300	Daily drawoff	400							
	Qd,sh	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol				
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%				
Stockholm SE	-	13914	4349	0	31.3	16697	4525	0	27.1	22295	4756	0	21.3
Würzburg DE	-	13356	5407	0	40.5	16027	5677	0	35.4	21366	6030	0	28.2
Davos CH	-	15098	8492	0	56.2	18137	8910	0	49.1	24167	9446	0	39.1
Athens GR	-	10382	7186	0	69.2	12452	7726	0	62.0	16610	8456	0	50.9
Perf. indicators for the table above													
Qd,sh	MJ/y	Not relevant for solar domestic hot water system											
Qd	MJ/y	Annual heat demand for domestic hot water											
QL	MJ/y	Annual heat energy delivered by the solar system											
Qpar	MJ/y	Annual parasitic energy: (electricity for pumps/controllers)											
f _{sol} =Q _L /Q _d	-	Solar fraction											
Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR								
	G	1,157	1,230	1,684	1,736								
	T _{a,ave}	7.5	9.0	3.2	18.5								
	T _{c,ave}	8.5	10.0	5.4	17.8								
	± ΔT _c	6.4	3.0	0.8	7.4								
G	kWh/m ²	Annual irradiation South, 45°											
T _{a,ave}	°C	Annual average outdoor air temperature											
T _{c,ave}	°C	Annual average mains cold water temp.											
ΔT _c	K	Seasonal variation of T _c											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		600	kPa	Max. operating press. - tank side		600	kPa						
Testing Laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch											
Website		www.intertek.com.cn											
Test report id. number		160311047GZU-001, 160311047GZU-002											
Date of test report		2021-07-20											
Test method		ISO 9459-2 (CSTG)											
Comments of test lab													
No comments													
													

All values are subject to some uncertainty; e.g. the uncertainty on system output is typically in the range of ± 5 % to ± 15 %

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