






**ICIM S.p.A. a socio unico**


Piazza Don Enrico Mapelli, 75 - 20099 Sesto San Giovanni (MI)
 Tel. 02/72534.1 - Fax 02/72002098 - e-mail: info@icim.it - www.icim.it
 Capitale Soc EUR. 260.000,00 int. versato ed esistente
 C.F./P. IVA e Iscriz. Reg. Imprese di Milano n. 12908230159 - R.E.A. n. 1596292

Summary of	EN12976-2	SOLAR SYSTEM test results	Licence Number	116BN/0						
Annex to Solar KEYMARK Certificate			Issued	2013-05-03						
Company	SOLIMPEKS Solar Energy Systems Corp.		Country	Turkey						
Brand (optional)			Website	www.solimpeks.com						
Street	Fevzi Cakmak Mah. 10753 Sk. No: 3/3A		E-mail	info@solimpeks.com						
Postal Code	42050	Karatay, Konya	Tel. / Fax	90	33 24 44 06 02 / -08					
System classification										
Application(s)	Hot water									
Solar loop, circulation principle	Thermosyphon									
Direct solar loop / heat exchanger	Heat exchanger									
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:	--									
Solar+supplementary OR Solar-only / Solar pre-heat	Solar only / Solar preheat									
Collector(s)			Heat store(s)							
Company	SOLIMPEKS Solar Energy		Company	SOLIMPEKS Solar Energy						
<i>Keymark lic.no. if available</i>	011-7S1941 F		<i>Keymark lic.no. if available</i>	N/A						
Collector name	Per module			Store name	Total nominal volume	Gross height	Gross width	Gross depth	Auxiliary heated volume	Electrical aux. heating power
	Gross Area (Ag)	Gross length	Gross width							
	m ²	mm	mm							
ALS 1809	1,62	1927	927	TSM 120	120	997	540	---	---	---
ALS 2110	1,92	1988	1041	TSM 150	180	1200	540	---	---	---
ALS 2512	2,23	1988	1218	TSM 200	180	1200	540	---	---	---
				TSM 300	290	1725	540	---	---	---
Solar loop controller			Solar loop fluid							
<i>Keymark lic.no. if available</i>	---		Recommended/required	No recommend./requirements						
Company	---		Company	---						
Name	---		Name	---						
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									
	TSM 120		TSM 150			TSM 200		TSM 300		
ALS 1809	0									
ALS 2110		1					2			
ALS 2512				1						
Testing Laboratory	Eurofins – Modulo Uno S.p.A.									
Website	www.eurofins.it									
Test report id. number	M1.13.NRG.0113/48731; M1.13.NRG.0112/48731; M1.12.NRG.0597/48731									
Date of test report	2012-12-21									
Comments of test lab	Additional test report: M1.11.SOLT.0105/42043; M1.11.SOLT.0135/42043rev1; M1.12.NRG.0596/48731rev2					 				

Summary of	EN12976-2	test results	Certification No.	116BN/0									
Annex to Solar KEYMARK Certificate			Issued	2013-05-03									
Company	SOLIMPEKS Solar Energy Systems Corp.		Country	Turkey									
Brand (optional)			Website	www.solimpeks.com									
Street	Fevzi Cakmak Mah. 10753 Sk. No: 3/3A		E-mail	info@solimpeks.com									
Postal Code	42050	Karatay, Konya	Tel. / Fax	90 33 24 44 06 02 / -08									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	TSM 120	TSM 150	TSM 200	TSM 300									
ALS 1809													
ALS 2110		1		2									
ALS 2512			1										
Name of system configuration													
			TSM 120 L										
Collector name	ALS 1809	No. Collectors	1	Storage name	TSM 120								
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff 110 l				Daily drawoff 140 l				Daily drawoff 170 l			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	6100	2391	0	39,2	7750	2553	0	32,9	9450	2677	0	28,3
WürzburgDE	-	5850	2441	0	41,7	7450	2601	0	34,9	9050	2707	0	29,9
Davos CH	-	6650	3963	0	59,6	8450	4228	0	50,0	10250	4413	0	43,1
Athens GR	-	4550	3016	0	66,3	5800	3323	0	57,3	7000	3519	0	50,3
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	1113,0	1230,0	1684,0	1718,0								
	T _{a,ave}	6,9	9,0	3,2	18,5								
	T _{c,ave}	8,5	12,0	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		Eurofins – Modulo Uno S.p.A.											
Website		www.eurofins.it											
Test report id. number		M1.13.NRG.0113/48731											
Date of test report		2013-03-08											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
No comments													

Summary of	EN12976-2	test results	Certification No.	116BN/0										
Annex to Solar KEYMARK Certificate			Issued	2013-05-03										
Company	SOLIMPEKS Solar Energy Systems Corp.		Country	Turkey										
Brand (optional)			Website	www.solimpeks.com										
Street	Fevzi Cakmak Mah. 10753 Sk. No: 3/3A		E-mail	info@solimpeks.com										
Postal Code	42050	Karatay, Konya	Tel. / Fax	90 33 24 44 06 02 / -08										
System family overview														
For each storage and collector size, give number of collectors														
Collector name	TSM 120	TSM 150	TSM 200	TSM 300										
ALS 1809														
ALS 2110		1		2										
ALS 2512			1											
Name of system configuration														
			TSM 150 L											
Collector name	ALS 2110	No. Collectors	1	Storage name	TSM 150									
Calculated annual results for "solar-only / preheat system"														
Location	Qd,sh	Daily drawoff 110 l				Daily drawoff 140 l				Daily drawoff 170 l				
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	
Stockholm SE	-	6100	2759	0	45,2	7750	2981	0	38,5	9450	3150	0	33,3	
WürzburgDE	-	5850	2845	0	48,6	7450	3067	0	41,2	9050	3216	0	35,5	
Davos CH	-	6650	4547	0	68,4	8450	4912	0	58,1	10250	5169	0	50,4	
Athens GR	-	4550	3387	0	74,4	5800	3813	0	65,7	7000	4084	0	58,3	
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	1113,0	1230,0	1684,0	1718,0									
	T_{a,ave}	6,9	9,0	3,2	18,5									
	T_{c,ave}	8,5	12,0	5,4	17,8									
	± ΔTc	6,4	3,0	0,8	7,4									
G	kWh/m²	Annual irradiation South, 45°												
T_{a,ave}	°C	Annual average outdoor air temperature												
T_{c,ave}	°C	Annual average mains cold water temp.												
ΔTc	K	Seasonal variation of Tc												
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		Eurofins – Modulo Uno S.p.A.												
Website		www.eurofins.it												
Test report id. number		M1.12.NRG.0112/48731												
Date of test report		2013-03-08												
Test method		ISO 9459-5 (DST)												
Comments of test lab		No comments												
														

Summary of	EN12976-2	test results	Certification No.	116BN/0													
Annex to Solar KEYMARK Certificate			Issued	2013-05-03													
Company	SOLIMPEKS Solar Energy Systems Corp.		Country	Turkey													
Brand (optional)			Website	www.solimpeks.com													
Street	Fevzi Cakmak Mah. 10753 Sk. No: 3/3A		E-mail	info@solimpeks.com													
Postal Code	42050	Karatay, Konya	Tel. / Fax	90 33 24 44 06 02 / -08													
System family overview																	
For each storage and collector size, give number of collectors																	
Collector name	TSM 120	TSM 150	TSM 200	TSM 300													
ALS 1809																	
ALS 2110		1		2													
ALS 2512			1														
Name of system configuration																	
			TSM 200 L														
Collector name	ALS 2512	No. Collectors	1	Storage name	TSM 200												
Calculated annual results for "solar-only / preheat system"																	
Location	Q_{d,sh}	Daily drawoff 170 l				Daily drawoff 200 l				Daily drawoff 250 l							
		Q_{d,hw}		Q_L		Q_{par}		f_{sol}		Q_{d,hw}		Q_L		Q_{par}		f_{sol}	
		MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%			
Stockholm SE	-	9450	3627	0	38,4	11100	3768	0	33,9	13850	3938	0	28,4				
WürzburgDE	-	9050	3735	0	41,3	10650	3877	0	36,4	13300	4044	0	30,4				
Davos CH	-	10250	5924	0	57,8	12050	6159	0	51,1	15050	6440	0	42,8				
Athens GR	-	7000	4635	0	66,2	8250	4924	0	59,7	10350	5281	0	51,0				
Perf. indicators for the table above																	
Q _{d,sh}	MJ/y	Not relevant for solar domestic hot water system															
Q _d	MJ/y	Annual heat demand for domestic hot water															
Q _L	MJ/y	Annual heat energy delivered by the solar system															
Q _{par}	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	1113,0	1230,0	1684,0	1718,0												
	T _{a,ave}	6,9	9,0	3,2	18,5												
	T _{c,ave}	8,5	12,0	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	Eurofins – Modulo Uno S.p.A.																
Website	www.eurofins.it																
Test report id. number	M1.12.NRG.0597/48731																
Date of test report	2013-12-21																
Test method	ISO 9459-5 (DST)																
Comments of test lab																	
No comments																	

Summary of	EN12976-2	test results	Certification No.	116BN/0									
Annex to Solar KEYMARK Certificate			Issued	2013-05-03									
Company	SOLIMPEKS Solar Energy Systems Corp.		Country	Turkey									
Brand (optional)			Website	www.solimpeks.com									
Street	Fevzi Cakmak Mah. 10753 Sk. No: 3/3A		E-mail	info@solimpeks.com									
Postal Code	42050	Karatay, Konya	Tel. / Fax	90 33 24 44 06 02 / -08									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	TSM 120	TSM 150	TSM 200	TSM 300									
ALS 1809													
ALS 2110		1		2									
ALS 2512			1										
Name of system configuration													
			TSM 300 L										
Collector name	ALS 2110	No. Collectors	2	Storage name									
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff 250 l				Daily drawoff 300 l				Daily drawoff 400 l			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	fsol
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%
Stockholm SE	-	13850	6153	0	44,4	16650	6491	0	39,0	22200	6909	0	31,1
WürzburgDE	-	13300	6376	0	47,9	15950	6695	0	42,0	21300	7115	0	33,4
Davos CH	-	15050	9947	0	66,1	18050	10466	0	58,0	24100	11185	0	46,4
Athens GR	-	10350	7719	0	74,6	12400	8347	0	67,3	16500	9159	0	55,5
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	1.200	1.270	1.740	1.750								
	T _{a,ave}	6,9	9,5	3,2	17,7								
	T _{c,ave}	8,5	12,0	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		Eurofins – Modulo Uno S.p.A.											
Website		www.eurofins.it											
Test report id. number		M1.12.NRG.0596/48731											
Date of test report		2013-12-21											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
No comments													