





Summary of	EN12976-2	SOLAR SYSTEM test results	Licence Number	011-7S2956 A							
Annex to Solar KEYMARK Certificate			Issued	2019-11-13							
Company	GREENoneTEC Solarindustrie GmbH		Country	Austria							
Brand (optional)	SUNPAD / SUNPAD E		Website	www.greenonetec.com							
Street	Energieplatz 1		E-mail	info@greenonetec.com							
Postal Code	9300	St. Veit/ Glan	Tel. / Fax	+43	4212 281 36 0						
System classification											
Application(s)	Hot water										
Solar loop, circulation principle	Other										
Direct solar loop / heat exchanger	Direct										
Open, vented or closed solar loop	Vented										
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	GREENoneTEC		Company	GREENoneTEC							
Keymark lic.no. if available	ICS (see above)		Keymark lic.no. if available	ICS (see above)							
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)	Gross length	Gross width								litres
SUNPAD / SUNPAD E	2.07	2250	920	SUNPAD / SUNPAD E	150	198	920	2250	-	-	
Solar loop controller						Solar loop fluid					
Keymark lic.no. if available	ICS					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										
SUNPAD / SUNPAD E	1										
Testing Laboratory						TÜV Rheinland Energy GmbH					
Website						www.tuv.com/solarenergy					
Test report id. number						21246623.001rev01; 21246623.002rev01					
Date of test report						2019-11-13; 2019-11-13					
Comments of test lab											
No comments											



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System family overview													
For each storage and collector size, give number of collectors													
Collector name	SUNPAD / SUNPAD E												
SUNPAD / SUNPAD E	1												
Name of system configuration	SUNPAD / SUNPAD E												
Collector name	SUNPAD / SUNPAD E	No. Collectors	1	Storage name	SUNPAD / SUNPAD E								
Calculated annual results for "solar-only / preheat system"													
Location	Q_{d,sh}	Daily drawoff 80 l				Daily drawoff 110 l				Daily drawoff 140 l			
		Q_{d,hw}	Q_L	Q_{par}	f_{sol}	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	-	4478	1943	-	44	6150	2394	-	39	7821	2652	-	34
WürzburgDE	-	4289	2003	-	47	5897	2498	-	42	7506	2857	-	38
Davos CH	-	4857	2756	-	57	6654	3343	-	50	8483	3784	-	45
Athens GR	-	3343	2520	-	76	4573	3217	-	71	5834	3816	-	65
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	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		0	kPa	Max. operating press. - tank side		1 000	kPa						
Testing Laboratory		TÜV Rheinland Energy GmbH											
Website		www.tuv.com\solarenergy											
Test report id. number		21246623.001rev01; 21246623.002rev01											
Date of test report		2019-11-13; 2019-11-13											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
No comments													
 TÜVRheinland® lab Geneu. Richtg. TÜV Rheinland Energy GmbH Am Grauen Stein 51105 Köln													

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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