Summary of	EN12976-2	SOLAR SYSTEM test results	Licence Number	011-7S1576 A
Annex to Solar KEYMARK Certificate			Issued	2016-05-27

Company	GREENoneTEC Solarindustrie GmbH		Country	Austria	
Brand (optional)	Solcrafte		Website	www.greenonetec.com	
Street	Energieplatz 1, Industriepark St. Veit		E-mail	info@greenonetec.com	
Postal Code	9300	St. Veit/ Glan	Tel. / Fax	+43	(0) 4212 - 28 136-0

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)	Electric
If other auxiliary/internal back-up heating, please specifiy:	
Solar+supplementary OR Solar-only / Solar pre-heat	Solar only / Solar preheat

Collector(s)				Heat store(s)						
Company	GREENoneTEC Solarindustrie			Company	GREENoneTEC					
Keymark lic.no. if available	-			*Keymark lic.no. if available*	-					
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							
	m²	mm	mm		litres	mm	mm	mm	litres	kW
Solcrafte 100	1.11	2184	508	Solcrafte 100	100	-	-	-	-	-
Solcrafte 150	1.76	2184	804	Solcrafte 150	150	-	-	-	-	-
Solcrafte 200	2.40	2184	1100	Solcrafte 200	200	-	-	-	-	-

Solar loop controller			Solar loop fluid		
Keymark lic.no. if available	-		Recommended/required	Required	
Company	-		Company	-	
Name	-		Name	water	
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																							
	Solcrafte 100						Solcrafte 150						Solcrafte 200											
Solcrafte 100	1																							
Solcrafte 150							1																	
Solcrafte 200													1											

Testing Laboratory	TÜV Rheinland Energie und Umwelt GmbH
Website	www.tuv.com/st
Test report id. number	see page 2-4
Date of test report	see page 2-4

Comments of test lab

The long term prediction (annual results) was performed by TÜV Rheinland Energy GmbH based on the DST-test results determined by izes in 2011. The full EN 12976 test was performed by izes and Lneg.

TÜVRheinland®
Genau. Prüfig.
TÜV Rheinland Energy GmbH
Am Grauen Stein
51105 Köln

Version 3.6, 2014-06-18

Summary of	EN12976-2	test results	Certification No.	011-7S1576 A
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Postal Code	9300 St. Veit/ Glan	Tel. / Fax	+43 (0) 4212 - 28 136-0

System family overview

Collector name	For each storage and collector size, give number of collectors																													
	Solcrafte 100						Solcrafte 150						Solcrafte 200																	
Solcrafte 100	1																													
Solcrafte 150							1																							
Solcrafte 200													1																	

Name of system configuration	Solcrafte 100				
Collector name	Solcrafte 100	No. Collectors	1	Storage name	Solcrafte 100

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	Qpar	fsol	$Q_{d,hw}$	Q_L	Qpar	Solarin	$Q_{d,hw}$	Q_L	Qpar	fsol
	MJ/y	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%	MJ/y	MJ/y	MJ/y	%
Stockholm SE		4478	1548	-	35	6150	1656	-	27	7821	1700	-	22
WürzburgDE		4289	1624	-	38	5897	1747	-	30	7506	1804	-	24
Davos CH		4857	2126	-	44	6654	2258	-	34	8483	2321	-	27
Athens GR		3343	2163	-	65	4573	2457	-	54	5834	2576	-	44

Solcrafte 100

Solcrafte	MJ/y	**Not relevant for solar domestic hot water system**
Solcrafte	MJ/y	**Annual heat demand for domestic hot water**
Q_L	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
	Ta,ave	7.5	9.0	3.2	18.5
	Tc,ave	8.5	10.0	5.4	17.8
	± ΔTc	6.4	3.0	0.8	7.4

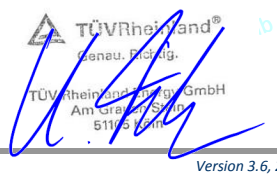
G	kWh/m²	**Annual irradiation South, 45°**
Ta,ave	°C	**Annual average outdoor air temperature**
Tc,ave	°C	**Annual average mains cold water temp.**
ΔTc	K	**Seasonal variation of Tc**
Th	45 °C	**Desired hot water temperature (mixing valve temperature).**

Max. operating press. - collector side	400	kPa	Max. operating press. - tank side	400	kPa

Testing Laboratory	tzsb/ izes gGmbH
Website	www.izes.de/tzsb
Test report id. number	SYS10_08
Date of test report	2011-04-12
Test method	ISO 9459-5 (DST)

Comments of test lab

The long term prediction (annual results) was performed by TÜV Rheinland Energy GmbH based on the DST-test results determined by izes in 2011. The full EN 12976 test was performed by izes and Lneg.



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

Version 3.6, 2014-06-18

Summary of	EN12976-2	test results	Certification No.	011-7S1576 A
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Brand (optional)	Solcrafte	Website	www.greenonetec.com
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Postal Code	9300 St. Veit/ Glan	Tel. / Fax	+43 (0) 4212 - 28 136-0

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Solcrafte 100	Solcrafte 150	Solcrafte 200
Solcrafte 100	1		
Solcrafte 150		1	
Solcrafte 200			1

Name of system configuration	Solcrafte 150				
Collector name	Solcrafte 150	No. Collectors	1	Storage name	Solcrafte 150

Calculated annual results for "solar-only / preheat system"

Location	Qd,sh	Daily drawoff 80 l				Daily drawoff 110 l				Daily drawoff 140 l			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	Solarin	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		4478	2283	-	51	6150	2854	-	47	7821	3147	-	40
WürzburgDE		4289	2290	-	53	5897	2904	-	49	7506	3311	-	44
Davos CH		4857	3311	-	69	6654	4100	-	62	8483	4510	-	53
Athens GR		3343	2785	-	84	4573	3595	-	79	5834	4226	-	73

Solcrafte 100

Solcrafte	MJ/y	**Not relevant for solar domestic hot water system**
Solcrafte	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
Ta,ave	7.5	9.0	3.2	18.5
Tc,ave	8.5	10.0	5.4	17.8
± ΔTc	6.4	3.0	0.8	7.4

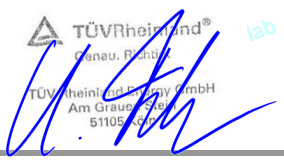
G	kWh/m²	**Annual irradiation South, 45°**
Ta,ave	°C	**Annual average outdoor air temperature**
Tc,ave	°C	**Annual average mains cold water temp.**
ΔTc	K	**Seasonal variation of Tc**
Th	45 °C	**Desired hot water temperature (mixing valve temperature).**

Max. operating press. - collector side	400	kPa	Max. operating press. - tank side	400	kPa

Testing Laboratory	tzsb/ izes gGmbH
Website	www.izes.de/tzsb
Test report id. number	SYS10_07
Date of test report	2011-04-18
Test method	ISO 9459-5 (DST)

Comments of test lab

The long term prediction (annual results) was performed by TÜV Rheinland Energy GmbH based on the DST-test results determined by izes in 2011. The full EN 12976 test was performed by izes and Lneg.



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Version 3.6, 2014-06-18

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Brand (optional)	Solcrafte	**Website**	www.greenonetec.com
Street	Energieplatz 1, Industriepark St. Veit	**E-mail**	info@greenonetec.com
Postal Code	9300 St. Veit/ Glan	**Tel. / Fax**	+43 (0) 4212 - 28 136-0

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Solcrafte 100	Solcrafte 150	Solcrafte 200
Solcrafte 100	1		
Solcrafte 150		1	
Solcrafte 200			1

Name of system configuration	Solcrafte 200		
Collector name	Solcrafte 200	**No. Collectors** 1	**Storage name** Solcrafte 200

Calculated annual results for "solar-only / preheat system"

Location	Qd,sh	Daily drawoff 140 l				Daily drawoff 170 l				Daily drawoff 200 l			
		Qd,hw	QL	Qpar	fsol	Qd,hw	QL	Qpar	Solarin	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		7821	3847	-	49	9492	4257	-	45	11164	4510	-	40
WürzburgDE		7506	3942	-	52	9114	4415	-	49	10691	4762	-	45
Davos CH		8483	5645	-	67	10281	6244	-	61	12110	6528	-	54
Athens GR		5834	4793	-	82	7064	5519	-	78	8326	6086	-	73

Solcrafte 100

Solcrafte	MJ/y	**Not relevant for solar domestic hot water system**
Solcrafte	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
Ta,ave	7.5	9.0	3.2	18.5
Tc,ave	8.5	10.0	5.4	17.8
± ΔTc	6.4	3.0	0.8	7.4

G	kWh/m²	**Annual irradiation South, 45°**
Ta,ave	°C	**Annual average outdoor air temperature**
Tc,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	400	kPa	**Max. operating press. - tank side**	400 kPa

Testing Laboratory	tzsb/ izes gGmbH
Website	www.izes.de/tzsb
Test report id. number	SYS10_06
Date of test report	2011-04-12
Test method	ISO 9459-5 (DST)

Comments of test lab

The long term prediction (annual results) was performed by TÜV Rheinland Energy GmbH based on the DST-test results determined by izes in 2011. The full EN 12976 test was performed by izes and Lneg.

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