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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	127BN/0
Annex to Solar KEYMARK Certificate			Issued	2014-01-27

Company	Cordivari S.r.l.		Country	Italy	
Brand (optional)			Website	www.cordivari.it	
Street	Zona Industriale Pagliare		E-mail	info@cordivari.it	
Postal Code	64020	Morro d'Oro (TE)	Tel. / Fax	+39	085 80 40 1

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 specifiy:	
Solar+supplementary OR Solar-only / Solar pre-heat	Solar only / Solar preheat

Collector(s)				Heat store(s)						
Company	Cordivari S.r.l.			Company	Cordivari S.r.l.					
Keymark lic.no. if available	*071BN/0*			*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
V1; V2; V3; V4 2 m²	2,00	1881	1063	Interka Solare 150	150	1100	500	500	--	--
V1; V2; V3; V4 2,5 m²	2,50	2150	1163	Interka Solare 200	200	1300	500	500	--	--
				Interka Solare 300	300	2000	500	500	--	--

Solar loop controller		Solar loop fluid	
Keymark lic.no. if available	--	Recommended/required	Recommended
Company	--	Company	
Name	--	Name	Propilenglycol+Water
Solar loop pump - power range	-- W to -- W	Freezing point	-25 °C

System family overview

Collector name	Number of collectors in each configuration for each store																													
	Store name																													
	Interka Solare 150						Interka Solare 200						Interka Solare 300																	
V1; V2; V3; V4 2 m2	1						2						2	3																
V1; V2; V3; V4 2,5 m2	1						1						2																	

Testing Laboratory	Eurofins – Modulo Uno S.p.A.
Website	www.eurofins.com
Test report id. number	See comments
Date of test report	2013-10-24; 2014-1-14

Comments of test lab
M1.14.NRG.0007/51165; M1.13.NRG.0382/51165; M1.14.NRG.0010/51165; M1.14.NRG.0011/51165 ; M1.14.NRG.0012/51165; M1.14.NRG.0008/51165; M1.14.NRG.0009/51165.

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Eurofins TECH S.r.l.
Sede legale e laboratorio: Via Cuorgnè 21 - 10156 Torino (Italy)
Tel.: +39.011.2222225 - Fax +39.011.2222226
Laboratorio: Strada Savonesa 9 - 15057 Fraz. Rivalta Scrivia, Tortona (AL)
Tel.: +39.0131.850100-Fax +39.0131.860185
C.F./P.IVA 01449620010

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Summary of	EN12976-2	test results	Certification No.	127BN/0
Annex to Solar KEYMARK Certificate			Issued	2014-01-27

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Brand (optional)			Website	www.cordivari.it	
Street	Zona Industriale Pagliare		E-mail	info@cordivari.it	
Postal Code	64020	Morro d'Oro (TE)	Tel. / Fax	+39	085 80 40 1

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Interka Solare 150	Interka Solare 200	Interka Solare 300
V1; V2; V3; V4 2 m2	1	2	2 3
V1; V2; V3; V4 2,5 m2	1	1	2

Name of system konfiguration				Natural 150/2	
Collector name	V1; V2; V3; V4 2 m2	No. Collectors	1	Storage name	Interka Solare 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	2710	0	44	7750	2923	0	38	9450	3085	0	33
WürzburgDE	--	5850	2792	0	48	7450	3004	0	40	9050	3146	0	35
Davos CH	--	6650	4469	0	67	8450	4817	0	57	10250	5062	0	49
Athens GR	--	4550	3343	0	73	5800	3751	0	65	7000	4009	0	57

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
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	250	kPa	Max. operating press. - tank side	600	kPa

Testing Laboratory	Eurofins – Modulo Uno S.p.A.
Website	www.eurofins.com
Test report id. number	M1.14.NRG.0007/51165
Date of test report	2014-01-14
Test method	ISO 9459-5 (DST)

Comments of test lab

No comments

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Eurofins TECH S.r.l.
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Laboratorio: Strada Savonesa 9 - 15057 Fraz. Rivalta Scrivia, Tortona (AL)
Tel.: +39.0131.850100-Fax +39.0131.860185
C.F./P.IVA 01449620010

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	EN12976-2	test results	Certification No.	127BN/0
Annex to Solar KEYMARK Certificate			Issued	2014-01-27

Company	Cordivari S.r.l.	Country	Italy
Brand (optional)		Website	www.cordivari.it
Street	Zona Industriale Pagliare	E-mail	info@cordivari.it
Postal Code	64020 Morro d'Oro (TE)	Tel. / Fax	+39 085 80 40 1

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Interka Solare 150	Interka Solare 200	Interka Solare 300
V1; V2; V3; V4 2 m2	1	2	2 3
V1; V2; V3; V4 2,5 m2	1	1	2

Name of system konfiguration				Natural 150/2,5	
Collector name	V1; V2; V3; V4 2,5 m2	No. Collectors	1	Storage name	Interka Solare 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	3145	0	52	7750	3463	0	45	9450	3702	0	39
WürzburgDE	-	5850	3267	0	56	7450	3582	0	48	9050	3798	0	42
Davos CH	-	6650	5174	0	78	8450	5695	0	67	10250	6065	0	59
Athens GR	-	4550	3663	0	81	5800	4286	0	74	7000	4684	0	67

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
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	250 kPa	Max. operating press. - tank side	600 kPa

Testing Laboratory	Eurofins – Modulo Uno S.p.A.
Website	www.eurofins.com
Test report id. number	M1.13.NRG.0382/51165
Date of test report	2013-10-24
Test method	ISO 9459-5 (DST)

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Comments of test lab

No comments

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C.F./P.IVA 01449620010

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Summary of	EN12976-2	test results	Certification No.	127BN/0
Annex to Solar KEYMARK Certificate			Issued	2014-01-27

Company	Cordivari S.r.l.		Country	Italy	
Brand (optional)	0		Website	www.cordivari.it	
Street	Zona Industriale Pagliare		E-mail	info@cordivari.it	
Postal Code	64020	Morro d'Oro (TE)	Tel. / Fax	+39	085 80 40 1

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Interka Solare 150	Interka Solare 200	Interka Solare 300
V1; V2; V3; V4 2 m2	1	2	2 3
V1; V2; V3; V4 2,5 m2	1	1	2

Name of system konfiguration				Natural 200/2,5	
Collector name	V1; V2; V3; V4 2,5 m2	No. Collectors	1	Storage name	Interka Solare 200

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

Location	Qd,sh	Daily drawoff	170 l			Daily drawoff	200 l			Daily drawoff	250 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	-	9450	3777	0	40	11100	3931	0	35	13850	4118	0	30
WürzburgDE	-	9050	3892	0	43	10650	4048	0	38	13300	4232	0	32
Davos CH	-	10250	6164	0	60	12050	6422	0	53	15050	6734	0	45
Athens GR	-	7000	4790	0	68	8250	5106	0	62	10350	5497	0	53

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
	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	250	kPa	Max. operating press. - tank side	600	kPa

Testing Laboratory	Eurofins – Modulo Uno S.p.A.
Website	www.eurofins.com
Test report id. number	M1.14.NRG.0011/51165
Date of test report	2014-01-14
Test method	ISO 9459-5 (DST)

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Comments of test lab

No comments

Eurofins TECH S.r.l.
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Summary of	EN12976-2	test results	Certification No.	127BN/0
Annex to Solar KEYMARK Certificate			Issued	2014-01-27

Company	Cordivari S.r.l.		Country	Italy	
Brand (optional)			Website	www.cordivari.it	
Street	Zona Industriale Pagliare		E-mail	info@cordivari.it	
Postal Code	64020	Morro d'Oro (TE)	Tel. / Fax	+39	085 80 40 1

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Interka Solare 150	Interka Solare 200	Interka Solare 300
V1; V2; V3; V4 2 m2	1	2	2 3
V1; V2; V3; V4 2,5 m2	1	1	2

Name of system konfiguration				Natural 200/4	
Collector name	V1; V2; V3; V4 2 m2	No. Collectors	2	Storage name	Interka Solare 200

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

Location	Qd,sh	Daily drawoff	170 l			Daily drawoff	200 l			Daily drawoff	250 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	-	9450	5090	0	54	11100	5445	0	49	13850	5869	0	42
WürzburgDE	-	9050	5302	0	59	10650	5650	0	53	13300	6072	0	46
Davos CH	-	10250	8278	0	81	12050	8861	0	74	15050	9571	0	64
Athens GR	-	7000	5796	0	83	8250	6506	0	79	10350	7424	0	72

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
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	250	kPa	Max. operating press. - tank side	600	kPa

Testing Laboratory	Eurofins – Modulo Uno S.p.A.
Website	www.eurofins.com
Test report id. number	M1.14.NRG.0010/51165
Date of test report	2014-01-14
Test method	ISO 9459-5 (DST)

Comments of test lab
No comments

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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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Annex to Solar KEYMARK Certificate			Issued	2014-01-27

Company	Cordivari S.r.l.		Country	Italy	
Brand (optional)			Website	www.cordivari.it	
Street	Zona Industriale Pagliare		E-mail	info@cordivari.it	
Postal Code	64020	Morro d'Oro (TE)	Tel. / Fax	+39	085 80 40 1

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Interka Solare 150	Interka Solare 200	Interka Solare 300
V1; V2; V3; V4 2 m2	1	2	2 3
V1; V2; V3; V4 2,5 m2	1	1	2

Name of system konfiguration				Natural 300/4	
Collector name	V1; V2; V3; V4 2 m2	No. Collectors	2	Storage name	Interka Solare 300

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	6074	0	44	16650	6399	0	38	22200	6802	0	31
WürzburgDE	-	13300	6299	0	47	16000	6634	0	41	21400	7039	0	33
Davos CH	-	15050	9826	0	65	18050	10327	0	57	24100	11017	0	46
Athens GR	-	10350	7661	0	74	12400	8266	0	67	16500	9050	0	55

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
	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	250	kPa	Max. operating press. - tank side	600	kPa

Testing Laboratory	Eurofins – Modulo Uno S.p.A.
Website	www.eurofins.com
Test report id. number	M1.14.NRG.0012/51165
Date of test report	2014-01-14
Test method	ISO 9459-5 (DST)

Comments of test lab

No comments

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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	EN12976-2	test results	Certification No.	127BN/0
Annex to Solar KEYMARK Certificate			Issued	2014-01-27

Company	Cordivari S.r.l.	Country	Italy
Brand (optional)		Website	www.cordivari.it
Street	Zona Industriale Pagliare	E-mail	info@cordivari.it
Postal Code	64020 Morro d'Oro (TE)	Tel. / Fax	+39 085 80 40 1

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Interka Solare 150	Interka Solare 200	Interka Solare 300
V1; V2; V3; V4 2 m2	1	2	2 3
V1; V2; V3; V4 2,5 m2	1	1	2

Name of system konfiguration				Natural 300/5	
Collector name	V1; V2; V3; V4 2,5 m2	No. Collectors	2	Storage name	Interka Solare 300

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	7060	0	51	16650	7541	0	45	22200	8153	0	37
WürzburgDE		13300	7349	0	55	16000	7841	0	49	21400	8456	0	40
Davos CH		15050	11411	0	76	18050	12165	0	67	24100	13205	0	55
Athens GR		10350	8381	0	81	12400	9388	0	76	16500	10591	0	64

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
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	250 kPa	Max. operating press. - tank side	600 kPa

Testing Laboratory	Eurofins – Modulo Uno S.p.A.
Website	www.eurofins.com
Test report id. number	M1.14.NRG.0008/51165
Date of test report	2014-01-14
Test method	ISO 9459-5 (DST)

Comments of test lab

No comments

eurofins | TECH

Eurofins TECH S.r.l.
Sede legale e laboratorio: Via Cuorgnè 21 - 10156 Torino (Italy)
Tel.: +39.011.2222225 - Fax +39.011.2222226
Laboratorio: Strada Savonesa 9 - 15057 Fraz. Rivalta Scrivia, Tortona (AL)
Tel.: +39.0131.850100-Fax +39.0131.860185
C.F./P.IVA 01449620010

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

2014-05-05

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	test results	Certification No.	127BN/0
Annex to Solar KEYMARK Certificate			Issued	2014-01-27

Company	Cordivari S.r.l.		Country	Italy	
Brand (optional)			Website	www.cordivari.it	
Street	Zona Industriale Pagliare		E-mail	info@cordivari.it	
Postal Code	64020	Morro d'Oro (TE)	Tel. / Fax	+39	085 80 40 1

System family overview

Collector name	For each storage and collector size, give number of collectors		
	Interka Solare 150	Interka Solare 200	Interka Solare 300
V1; V2; V3; V4 2 m2	1	2	2 **3**
V1; V2; V3; V4 2,5 m2	1	1	2

Name of system konfiguration				Natural 300/6	
Collector name	V1; V2; V3; V4 2 m2	No. Collectors	3	Storage name	Interka Solare 300

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	7733	0	56	16650	8406	0	50	22200	9232	0	42
WürzburgDE		13300	8118	0	61	16000	8764	0	55	21400	9592	0	45
Davos CH		15050	12551	0	83	18050	13555	0	75	24100	14953	0	62
Athens GR		10350	8780	0	85	12400	9988	0	81	16500	11732	0	71

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
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Ref. conditions	Stockholm SE	Würzburg DE	Davos CH	Athens GR
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Comments of test lab

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