

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK		Registration No. Registernummer Num. d'enregistrement Date / Datum / Date	OEM 9965/14/1 10/2/2020
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Company / Firma / Société Street / Straße / Rue Postal Code, Place / PLZ, Ort / Code postal, Place	FONDERIE SIME SpA 27, Via Garbo 37045 Legnano (VR)	Country/Land/Pays Website E-mail Tel. / Fax	Italy http://www.sime.it/ info@sime.it +039 0442 631111
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System classification / G / F	
Flow principle / G / F	Thermosyphon / G / F
Direct / indirect / G / F	Direct / G / F
Press. principle / G / F	Closed / G / F
Drain back/down / G / F	No drain (always filled) / G / F
Storage location / G / F	Outdoor / G / F
Storage position / G / F	Horizontal / G / F
Int. back-up / G / F	None / G / F
If other: / G / F	English / Deutsch / Français
EN12976 type / G / F	Solar only / G / F

Collector(s) / Kollektor(en) / Capteur(s)							Storage(s) / Akkumulator(en) / F											
Company / Hersteller / Manufactuer			FONDERIE SIME SpA				Company / Hersteller / Manufactuer			FONDERIE SIME SpA								
Keymark reg. no. (optional)			OEM 9965/6/2															
Model Bezeichnung Modèle	Per module / G / F			No. modules G F														
	Aperture area (A _g) Aperturfläche (A _g) Superficie d'entrée (A _g) m ²	Gross length Länge (Außenmaß) Longueur Hors tout m	Gross width Breite (Außenmaß) Largeur hors Tout m															
SIMEPLANO 132	1,4	1,53	1,03	1	-	1	120L	litres 114	Gross diameter/width Diam. / Breite (Außenmaß) Diam. / Largeur hors Tout mm 580	Gross length Länge (Außenmaß) longeur hors tout mm 782							Back-up heated volume G F litres ~	Ei. back-up power G F kW 0 ~ 4
SIMEPLANO 182	1,88	2,03	1,03	1	-	1	150L	141	530	1280							~	0 ~ 4
SIMEPLANO 230	2,37	2,03	1,28	1	-	1	160L	151	580	1053							~	0 ~ 4
							200L	191	580	1312							~	0 ~ 4
							250L	241	580	1706							~	0 ~ 4
							300L	293	580	1970							~	0 ~ 4
							320L	309	580	2072							~	0 ~ 4

Controller / G / F					Fluid / G / F				
Company/Hersteller/Manufactuer					Company/Hersteller/Manufactuer				
Model / Bezeichnung / Modèle					Model / Bezeichnung / Modèle				
Functions G English F Deutsch Français					Freezing point G -6 to F 10 °C				

System family overview / G / F																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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Testing Laboratory / Prüflaboratorium / Laboratoire d'essais					NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB				
Website					www.solar.demokritos.gr				
Test report id. number / Prüfberichtsnummer / F					6031 DE3, 6033 DE8, 6033 F7				
Date of test report / Datum G / date F					4/9/2013, 24/10/2017				

Comments of test lab / Kommentare des laboratoriums / Commentaires du laboratoire									
English Deutsch Français									



Version 0.5, 04-02-2008

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		Date / Datum / Date 10/2/2020

Company / Firma / Société	FONDERIE SIME SpA	Country/Land/Pays	Italy
Street / Straße / Rue	27, Via Garbo	Website	http://www.sime.it/
Postal Code, Place / PLZ, Ort / Code postal, Place	37045 Legnano (VR)	E-mail	info@sime.it
		Tel. / Fax	+039 0442 631111

System family overview / G / F	
Collector type	Number of collectors / G / F
	Storage type / G / F
G	
F	
	120L
	150L
	160L
	200L
	250L
	300L
	320L
SIMEPLANO 132	2
SIMEPLANO 182	1
SIMEPLANO 230	1

Name of system konfiguration / G / F		SIME NATURAL 120/2 S
Collector type		
G	SIMEPLANO 182	No. collectors
F		1
		Storage type
		G
		F
		120L

Calculated annual results / G / F	
Location	Daily draw-off litres/day / G / F /
G	
F	
	80
	110
	140
	80
	110
	140
	80
	110
	140
	80
	110
	140
	80
	110
	140
Stockholm, SE	1.244
Würzburg, DE	1.191
Davos, CH	1.349
Athens, GR	929

Perf. indicators	Q _d	Heat demand / G / F
	Q _L	System output / G / F
	f _{sol}	Q _L /Q _d ; solar fraction / G / F
	Q _{par}	Elec. for pumps/controllers / G / F

Ref. conditions		Stockholm	Würzburg DE	Davos CH	Athens GR
G		1.156	1.226	1.682	1.717
G	Ta	7,5	9,0	3,2	18,5
F	Tc	8,5	10,0	5,4	17,8
	ΔTc	2,1 - 14,9	7,0 - 13,0	4,6 - 6,2	10,4 - 25,2
G	kWh/m ²	Annual irradiation South, 45° / G / F			
Ta	°C	Annual mean air temp. / G / F			
Tc	°C	Annual mean cold water temp. / G / F			
ΔTc	°C	Seasonal variation of Tc / G / F			
Th	45°C	Desired (mix. valve) temp. / G / F			

Max. operating press. - collector side		300	kPa	Max. operating press. - tank side	1.000	kPa
G				G		
F				F		

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Date of test report / G / F	4/9/2013, 24/10/2017
Test method / G / F	ISO 9459-5 (DST)

Comments of test lab / Kommentare des laboratoriums / Commentaires du laboratoire	
English	
Deutsch	
Francais	



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System family overview / G / F							
Collector type G F	Number of collectors / G / F						
	Storage type / G / F						
	120L	150L	160L	200L	250L	300L	320L
SIMEPLANO 132			2	2			
SIMEPLANO 182	1	1	1	2	2	2	2 3
SIMEPLANO 230		1	1	1	2	2	2

Name of system configuration / G / F				SIME NATURAL 160 S	
Collector type	SIMEPLANO 182	No. collectors	1	Storage type	160L
G		G		G	
F		F		F	

Calculated annual results / G / F																		
Location G F	Daily draw-off litres/day / G / F /																	
	110	140	170	110	140	170	110	140	170	110	140	170	110	140	170	110	140	170
	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d
	Q _d kWh/y			Q _L kWh/y			f _{sol} %									Q _{par} kWh/y		
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Athens, GR	1.270	1.621	1.962	1.095	1.314	1.472	86,5	81,1	75,1									

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	Q _L	System output / G / F
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G	kWh/m ²	Annual irradiation South, 45° / G / F			
Ta	°C	Annual mean air temp. / G / F			
Tc	°C	Annual mean cold water temp. / G / F			
ΔTc	°C	Seasonal variation of Tc / G / F			
Th	45°C	Desired (mix. valve) temp. / G / F			

Max. operating press. - collector side	300	kPa	Max. operating press. - tank side	1.000	kPa
G			G		
F			F		

Testing Laboratory / Prüflaboratorium / Laboratoire d'essais	NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB
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Test report id. number / Prüfberichtsnummer / F	6031 DE3, 6033 DE8, 6033 F7
Date of test report / G / F	4/9/2013, 24/10/2017
Test method / G / F	ISO 9459-5 (DST)

Comments of test lab / Kommentare des laboratoires / Commentaires du laboratoire	
English Deutsch Français	

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate		Registration	OEM 9965/14/1
Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat		Registernummer	
Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK		Num. d'enregistrement	
		Date / Datum / Date	10/2/2020

Company / Firma / Société	FONDERIE SIME SpA	Country/Land/Pays	Italy
Street / Straße / Rue	27, Via Garbo	Website	http://www.sime.it/
Postal Code, Place / PLZ, Ort / Code postal, Place	37045 Legnano (VR)	E-mail	info@sime.it
		Tel. / Fax	+039 0442 631111

System family overview / G / F							
Collector type G F	Number of collectors / G / F						
	Storage type / G / F						
	120L	150L	160L	200L	250L	300L	320L
SIMEPLANO 132			2				
SIMEPLANO 182	1	1	1	2	2	2	2 3
SIMEPLANO 230		1	1	1	2	2	2

Name of system configuration / G / F				SIME NATURAL 160/3 S	
Collector type	SIMEPLANO 132	No. collectors	2	Storage type	160L
G		G		G	
F		F		F	

Calculated annual results / G / F																		
Location G F	Daily draw-off litres/day / G / F /																	
	110	140	170	110	140	170	110	140	170	110	140	170	110	140	170	110	140	170
	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d
	Q _d kWh/y			Q _L kWh/y			f _{sol} %									Q _{par} kWh/y		
Stockholm, SE	1.708	2.172	2.637	1.034	1.218	1.340	60,8	55,9	50,9									
Würzburg, DE	1.638	2.085	2.532	1.007	1.191	1.332	61,4	57,1	52,8									
Davos, CH	1.848	2.356	2.856	1.454	1.691	1.857	78,6	71,8	65,0									
Athens, GR	1.270	1.621	1.962	1.183	1.445	1.682	92,9	89,5	85,5									

Perf. indicators G F	Q _d	Heat demand / G / F
	Q _L	System output / G / F
	f _{sol}	Q _L /Q _d ; solar fraction / G / F
	Q _{par}	Elec. for pumps/controllers / G / F

Ref. conditions G F	Stockholm SE Würzburg DE Davos CH Athens GR				
	G	1.156	1.226	1.682	1.717
	Ta	7,5	9,0	3,2	18,5
	Tc	8,5	10,0	5,4	17,8
	ΔTc	2.1 - 14.9	7.0 - 13.0	4.6 - 6.2	10.4 - 25.2
G	kWh/m²	Annual irradiation South, 45° / G / F			
Ta	°C	Annual mean air temp. / G / F			
Tc	°C	Annual mean cold water temp. / G / F			
ΔTc	°C	Seasonal variation of Tc / G / F			
Th	45°C	Desired (mix. valve) temp. / G / F			

Max. operating press. - collector side	300	kPa	Max. operating press. - tank side	1.000	kPa
G			G		
F			F		

Testing Laboratory / Prüflaboratorium / Laboratoire d'essais	NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB
Website	www.solar.demokritos.gr
Test report id. number / Prüfberichtsnummer / F	6031 DE3, 6033 DE8, 6033 F7
Date of test report / G / F	4/9/2013, 24/10/2017
Test method / G / F	ISO 9459-5 (DST)

Comments of test lab / Kommentare des laboratoires / Commentaires du laboratoire	
English Deutsch Francais	

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate		Registration	OEM 9965/14/1
Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat		Registernummer	
Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK		Num. d'enregistrement	
		Date / Datum / Date	10/2/2020

Company / Firma / Société	FONDERIE SIME SpA	Country/Land/Pays	Italy
Street / Straße / Rue	27, Via Garbo	Website	http://www.sime.it/
Postal Code, Place / PLZ, Ort / Code postal, Place	37045 Legnano (VR)	E-mail	info@sime.it
		Tel. / Fax	+039 0442 631111

System family overview / G / F	
Collector type	Number of collectors / G / F
	Storage type / G / F
	120L 150L 160L 200L 250L 300L 320L
SIMEPLANO 132	
SIMEPLANO 182	1 1 2 2 2 2 2 3
SIMEPLANO 230	1 1 1 1 2 2 2 2

Name of system configuration / G / F		SIME NATURAL 200 S	
Collector type	No. collectors	Storage type	
G	SIMEPLANO 230	G	200L
F	1	F	

Calculated annual results / G / F	
Daily draw-off litres/day / G / F /	
Location	170 200 250 170 200 250 170 200 250 170 200 250 170 200 250 170 200 250
G	l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d
F	l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d
	Qd kWh/y QL kWh/y fsol % Qpar kWh/y
Stockholm, SE	2.637 3.101 3.881 1.261 1.340 1.428 47,7 43,2 36,9
Würzburg, DE	2.532 2.970 3.714 1.261 1.358 1.454 50,0 45,7 39,1
Davos, CH	2.856 3.364 4.205 1.726 1.822 1.918 60,2 54,1 45,7
Athens, GR	1.962 2.313 2.891 1.621 1.805 2.015 82,6 78,0 69,7

Perf. indicators	Qd Heat demand / G / F
G	QL System output / G / F
F	f _{sol} QL/Qd; solar fraction / G / F
	Q _{par} Elec. for pumps/controllers / G / F

Ref. conditions	
	Stockholm SE Würzburg DE Davos CH Athens GR
G	1.156 1.226 1.682 1.717
Ta	7,5 9,0 3,2 18,5
Tc	8,5 10,0 5,4 17,8
ΔTc	2.1 - 14.9 7.0 - 13.0 4.6 - 6.2 10.4 - 25.2
G	kWh/m² Annual irradiation South, 45° / G / F
Ta	°C Annual mean air temp. / G / F
Tc	°C Annual mean cold water temp. / G / F
ΔTc	°C Seasonal variation of Tc / G / F
Th	45°C Desired (mix. valve) temp. / G / F

Max. operating press. - collector side	300 kPa	Max. operating press. - tank side	1.000 kPa
G		G	
F		F	

Testing Laboratory / Prüflaboratorium / Laboratoire d'essais	NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB
Website	www.solar.demokritos.gr
Test report id. number / Prüfberichtsnummer / F	6031 DE3, 6033 DE8, 6033 F7
Date of test report / G / F	4/9/2013, 24/10/2017
Test method / G / F	ISO 9459-5 (DST)

Comments of test lab / Kommentare des laboratoriums / Commentaires du laboratoire	
English	
Deutsch	
Francais	

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK				Registration Registernummer Num. d'enregistrement Date / Datum / Date		OEM 9965/14/1 10/2/2020													
Company / Firma / Société Street / Straße / Rue Postal Code, Place / PLZ, Ort / Code postal, Place		FONDERIE SIME SpA 27, Via Garbo 37045 Legnano (VR)		Country/Land/Pays Website E-mail Tel. / Fax		Italy http://www.sime.it/ info@sime.it +039 0442 631111													
System family overview / G / F																			
Collector type G F		Number of collectors / G / F Storage type / G / F																	
		120L		150L		160L		200L		250L		300L		320L					
SIMEPLANO 132						2		2		2		2		2					
SIMEPLANO 182		1		1		1		2		2		2		3					
SIMEPLANO 230				1		1		1		2		2		2					
Name of system configuration / G / F								SIME NATURAL 200/3 S											
Collector type G F		No. collectors G F		Storage type G F															
SIMEPLANO 132		2				200L													
Calculated annual results / G / F								Daily draw-off litres/day / G / F /											
Location G F		170		200		250		170		200		250		170		200		250	
		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d	
		Qd kWh/y		QL kWh/y		f _{sol} %										Q _{par} kWh/y			
Stockholm, SE		2.637		3.101		3.881		1.367		1.472		1.586		51,9		47,5		40,8	
Würzburg, DE		2.532		2.970		3.714		1.358		1.480		1.612		53,6		49,7		43,3	
Davos, CH		2.856		3.364		4.205		1.892		2.024		2.155		66,1		60,0		51,2	
Athens, GR		1.962		2.313		2.891		1.691		1.910		2.172		86,2		82,4		75,3	
Perf. indicators G F		Q _d		Heat demand / G / F		Q _L		System output / G / F		f _{sol}		Q _L /Q _d ; solar fraction / G / F		Q _{par}		Elec. for pumps/controllers / G / F			
Ref. conditions G F		Stockholm SE		Würzburg DE		Davos CH		Athens GR											
		G		1.156		1.226		1.682		1.717									
		Ta		7,5		9,0		3,2		18,5									
		Tc		8,5		10,0		5,4		17,8									
		ΔTc		2.1 - 14.9		7.0 - 13.0		4.6 - 6.2		10.4 - 25.2									
G		kWh/m ²		Annual irradiation South, 45° / G / F															
Ta		°C		Annual mean air temp. / G / F															
Tc		°C		Annual mean cold water temp. / G / F															
ΔTc		°C		Seasonal variation of Tc / G / F															
Th		45°C		Desired (mix. valve) temp. / G / F															
Max. operating press. - collector side G F		300		kPa		Max. operating press. - tank side G F		1.000		kPa									
Testing Laboratory / Prüflaboratorium / Laboratoire d'essais Website Test report id. number / Prüfberichtsnummer / F Date of test report / G / F Test method / G / F				NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB www.solar.demokritos.gr 6031 DE3, 6033 DE8, 6033 F7 4/9/2013, 24/10/2017 ISO 9459-5 (DST)															
Comments of test lab / Kommentare des laboratoires / Commentaires du laboratoire English Deutsch Français																			

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate		Registration	OEM 9965/14/1
Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat		Registernummer	
Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK		Num. d'enregistrement	
		Date / Datum / Date	10/2/2020

Company / Firma / Société	FONDERIE SIME SpA	Country/Land/Pays	Italy
Street / Straße / Rue	27, Via Garbo	Website	http://www.sime.it/
Postal Code, Place / PLZ, Ort / Code postal, Place	37045 Legnano (VR)	E-mail	info@sime.it
		Tel. / Fax	+039 0442 631111

System family overview / G / F							
Collector type G F	Number of collectors / G / F						
	Storage type / G / F						
	120L	150L	160L	200L	250L	300L	320L
SIMEPLANO 132			2	2			
SIMEPLANO 182	1	1	1	2	2	2	2
SIMEPLANO 230		1	1	1	2	2	2

Name of system configuration / G / F				SIME NATURAL 200/4			
Collector type	SIMEPLANO 182	No. collectors	2	Storage type			
G		G		G			
F		F		F	200L		

Calculated annual results / G / F																
Location G F	Daily draw-off litres/day / G / F /															
	170	200	250	170	200	250	170	200	250	170	200	250	170	200	250	170
	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d
	Q _d kWh/y			Q _L kWh/y			f _{sol} %			Q _{par} kWh/y						
Stockholm, SE	2.637	3.101	3.881	1.542	1.699	1.875	58,6	54,7	48,3							
Würzburg, DE	2.532	2.970	3.714	1.498	1.664	1.883	59,4	56,1	50,6							
Davos, CH	2.856	3.364	4.205	2.155	2.365	2.602	75,4	70,3	61,8							
Athens, GR	1.962	2.313	2.891	1.796	2.050	2.409	91,5	88,7	83,5							
Perf. indicators G F	Q _d	Heat demand / G / F														
	Q _L	System output / G / F														
	f _{sol}	Q _L /Q _d ; solar fraction / G / F														
	Q _{par}	Elec. for pumps/controllers / G / F														

Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR		
G	G	1.156	1.226	1.682	1.717		
F	Ta	7,5	9,0	3,2	18,5		
	Tc	8,5	10,0	5,4	17,8		
	ΔTc	2.1 - 14.9	7.0 - 13.0	4.6 - 6.2	10.4 - 25.2		
G	kWh/m ²	Annual irradiation South, 45° / G / F					
Ta	°C	Annual mean air temp. / G / F					
Tc	°C	Annual mean cold water temp. / G / F					
ΔTc	°C	Seasonal variation of Tc / G / F					
Th	45°C	Desired (mix. valve) temp. / G / F					

Max. operating press. - collector side		300	kPa	Max. operating press. - tank side		1.000	kPa
G				G			
F				F			

Testing Laboratory / Prüflaboratorium / Laboratoire d'essais		NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB					
Website		www.solar.demokritos.gr					
Test report id. number / Prüfberichtsnummer / F		6031 DE3, 6033 DE8, 6033 F7					
Date of test report / G / F		4/9/2013, 24/10/2017					
Test method / G / F		ISO 9459-5 (DST)					

Comments of test lab / Kommentare des laboratoires / Commentaires du laboratoire							
English Deutsch Français							

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK				Registration Registernummer Num. d'enregistrement Date / Datum / Date		OEM 9965/14/1 10/2/2020													
Company / Firma / Société Street / Straße / Rue Postal Code, Place / PLZ, Ort / Code postal, Place				FONDERIE SIME SpA 27, Via Garbo Legnano (VR)		Country/Land/Pays Website E-mail Tel. / Fax		Italy http://www.sime.it/ info@sime.it +039 0442 631111											
System family overview / G / F																			
Collector type G F		Number of collectors / G / F																	
		Storage type / G / F																	
		120L		150L		160L		200L		250L		300L		320L					
SIMEPLANO 132						2		2				2		2					
SIMEPLANO 182		1		1		1		2		2		2		3					
SIMEPLANO 230				1		1		1		2		2		2					
Name of system konfiguration / G / F										SIME NATURAL 250/4 S									
Collector type G F		SIMEPLANO 182		No. collectors G F		2		Storage type G F				250L							
Calculated annual results / G / F																			
Location G F		Daily draw-off litres/day / G / F /																	
		200		250		300		200		250		300		200		250		300	
		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d	
		Q _d kWh/y		Q _L kWh/y		Q _L kWh/y		f _{sol} %								Q _{par} kWh/y			
Stockholm, SE		3.101		3.881		4.652		1.717		1.927		2.050		55,4		49,6		44,1	
Würzburg, DE		2.970		3.714		4.459		1.682		1.918		2.085		56,7		51,7		46,7	
Davos, CH		3.364		4.205		5.046		2.391		2.654		2.812		71,0		63,2		55,8	
Athens, GR		2.313		2.891		3.469		2.059		2.444		2.751		89,1		84,5		79,3	
Perf. indicators G F		Q_d Heat demand / G / F Q_L System output / G / F f_{sol} Q_L/Q_d; solar fraction / G / F Q_{par} Elec. for pumps/controllers / G / F																	
Ref. conditions G F		Stockholm SE Würzburg DE Davos CH Athens GR G 1.156 1.226 1.682 1.717 Ta 7,5 9,0 3,2 18,5 Tc 8,5 10,0 5,4 17,8 ΔTc 2,1 - 14,9 7,0 - 13,0 4,6 - 6,2 10,4 - 25,2																	
G kWh/m ² Ta °C Tc °C ΔTc °C Th 45°C		Annual irradiation South, 45° / G / F Annual mean air temp. / G / F Annual mean cold water temp. / G / F Seasonal variation of Tc / G / F Desired (mix. valve) temp. / G / F																	
Max. operating press. - collector side G F				300 kPa		Max. operating press. - tank side G F				1.000 kPa									
Testing Laboratory / Prüflaboratorium / Laboratoire d'essais Website Test report id. number / Prüfberichtsnummer / F Date of test report / G / F Test method / G / F				NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB www.solar.demokritos.gr 6031 DE3, 6033 DE8, 6033 F7 4/9/2013, 24/10/2017 ISO 9459-5 (DST)															
Comments of test lab / Kommentare des laboratoriums / Commentaires du laboratoire English Deutsch Français																			

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK				Registration Registernummer Num. d'enregistrement Date / Datum / Date		OEM 9965/14/1 10/2/2020										
Company / Firma / Société Street / Straße / Rue Postal Code, Place / PLZ, Ort / Code postal, Place				FONDERIE SIME SpA 27, Via Garbo 37045 Legnano (VR)		Country/Land/Pays Website E-mail Tel. / Fax		Italy http://www.sime.it/ info@sime.it +039 0442 631111								
System family overview / G / F																
Collector type G F		Number of collectors / G / F Storage type / G / F														
		120L		150L		160L		200L		250L		300L		320L		
SIMEPLANO 132						2		2				2		2		
SIMEPLANO 182		1		1		1		2		2		2		2		
SIMEPLANO 230				1		1		1		2		2		2		
Name of system konfiguration / G / F										SIME NATURAL 250/5.2 S						
Collector type G F		SIMEPLANO 230		No. collectors G F		2		Storage type G F						250L		
Calculated annual results / G / F																
Location G F		Daily draw-off litres/day / G / F /														
		200	250	300	200	250	300	200	250	300	200	250	300	200	250	300
		l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d	l/d
		Q _d kWh/y			Q _L kWh/y			f _{sol} %						Q _{par} kWh/y		
Stockholm, SE		3.101	3.881	4.652	1.734	1.962	2.137	55,9	50,6	45,9						
Würzburg, DE		2.970	3.714	4.459	1.752	2.032	2.243	59,0	54,7	50,3						
Davos, CH		3.364	4.205	5.046	2.610	2.970	3.224	77,6	70,6	63,9						
Athens, GR		2.313	2.891	3.469	2.050	2.435	2.768	88,6	84,2	79,8						
Perf. indicators G F		Heat demand / G / F System output / G / F Q_L/Q_d; solar fraction / G / F Elec. for pumps/controllers / G / F														
Ref. conditions G F		Stockholm SE Würzburg DE Davos CH Athens GR G 1.156 1.226 1.682 1.717 Ta 7,5 9,0 3,2 18,5 Tc 8,5 10,0 5,4 17,8 ΔTc 2,1 - 14,9 7,0 - 13,0 4,6 - 6,2 10,4 - 25,2														
G kWh/m ² Ta °C Tc °C ΔTc °C Th 45°C		Annual irradiation South, 45° / G / F Annual mean air temp. / G / F Annual mean cold water temp. / G / F Seasonal variation of Tc / G / F Desired (mix. valve) temp. / G / F														
Max. operating press. - collector side G F				300 kPa		Max. operating press. - tank side G F				1.000 kPa						
Testing Laboratory / Prüflaboratorium / Laboratoire d'essais Website Test report id. number / Prüfberichtsnummer / F Date of test report / G / F Test method / G / F				NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB www.solar.demokritos.gr 6031 DE3, 6033 DE8, 6033 F7 4/9/2013, 24/10/2017 ISO 9459-5 (DST)												
Comments of test lab / Kommentare des laboratoriums / Commentaires du laboratoire English Deutsch Français																

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate		Registration	OEM 9965/14/1
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		Date / Datum / Date	10/2/2020

Company / Firma / Société	FONDERIE SIME SpA	Country/Land/Pays	Italy
Street / Straße / Rue	27, Via Garbo	Website	http://www.sime.it/
Postal Code, Place / PLZ, Ort / Code postal, Place	37045 Legnano (VR)	E-mail	info@sime.it
		Tel. / Fax	+039 0442 631111

System family overview / G / F	
Collector type G F	Number of collectors / G / F
	Storage type / G / F
	120L 150L 160L 200L 250L 300L 320L
SIMEPLANO 132	
SIMEPLANO 182	1 1 2 2 2 2 2 3
SIMEPLANO 230	1 1 1 2 2 2 2

Name of system configuration / G / F				SIME NATURAL 300/4 S
Collector type	No. collectors	Storage type		
G	G	G		
F	F	F		
SIMEPLANO 182	2	300L		

Calculated annual results / G / F	
Location G F	Daily draw-off litres/day / G / F
	250 300 400 250 300 400 250 300 400 250 300 400 250 300 400 250 300 400
	l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d l/d
	Qd kWh/y QL kWh/y fsol % Qpar kWh/y
Stockholm, SE	3.881 4.652 6.202 1.813 1.936 2.102 46,7 41,6 33,9
Würzburg, DE	3.714 4.459 5.948 1.875 2.050 2.234 50,5 46,0 37,6
Davos, CH	4.205 5.046 6.728 2.672 2.856 3.048 63,5 56,6 45,3
Athens, GR	2.891 3.469 4.625 2.313 2.602 2.996 80,0 75,0 64,8
Perf. indicators	Qd Heat demand / G / F
G	QL System output / G / F
F	fsol QL/Qd; solar fraction / G / F
	Qpar Elec. for pumps/controllers / G / F

Ref. conditions	
G F	Stockholm SE Würzburg DE Davos CH Athens GR
	G 1.156 1.226 1.682 1.717
	Ta 7,5 9,0 3,2 18,5
	Tc 8,5 10,0 5,4 17,8
	ΔTc 2.1 - 14.9 7.0 - 13.0 4.6 - 6.2 10.4 - 25.2
G	kWh/m² Annual irradiation South, 45° / G / F
Ta	°C Annual mean air temp. / G / F
Tc	°C Annual mean cold water temp. / G / F
ΔTc	°C Seasonal variation of Tc / G / F
Th	45°C Desired (mix. valve) temp. / G / F

Max. operating press. - collector side	300 kPa	Max. operating press. - tank side	1.000 kPa
G	G	G	G
F	F	F	F

Testing Laboratory / Prüflaboratorium / Laboratoire d'essais	NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB
Website	www.solar.demokritos.gr
Test report id. number / Prüfberichtsnummer / F	6031 DE3, 6033 DE8, 6033 F7
Date of test report / G / F	4/9/2013, 24/10/2017
Test method / G / F	ISO 9459-5 (DST)

Comments of test lab / Kommentare des laboratoires / Commentaires du laboratoire	
English Deutsch Français	

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK				Registration Registernummer Num. d'enregistrement Date / Datum / Date		OEM 9965/14/1 10/2/2020													
Company / Firma / Société Street / Straße / Rue Postal Code, Place / PLZ, Ort / Code postal, Place		FONDERIE SIME SpA 27, Via Garbo 37045 Legnano (VR)		Country/Land/Pays Website E-mail Tel. / Fax		Italy http://www.sime.it/ info@sime.it +039 0442 631111													
System family overview / G / F																			
Collector type G F		Number of collectors / G / F Storage type / G / F																	
		120L		150L		160L		200L		250L		300L		320L					
SIMEPLANO 132						2		2				2		2					
SIMEPLANO 182		1		1		1		2		2		2		3					
SIMEPLANO 230				1		1		1		2		2		2					
Name of system konfiguration / G / F								SIME NATURAL 300/5.2 S											
Collector type G F		SIMEPLANO 230 G F		No. collectors G F		2 F		Storage type G F						300L F					
Calculated annual results / G / F								Daily draw-off litres/day / G / F /											
Location G F		250		300		400		250		300		400		250		300		400	
		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d	
		Q _d kWh/y		Q _L kWh/y		f _{sol} %								Q _{par} kWh/y					
Stockholm, SE		3.881		4.652		6.202		2.015		2.190		2.435		51,9		47,1		39,3	
Würzburg, DE		3.714		4.459		5.948		2.050		2.286		2.575		55,2		51,3		43,3	
Davos, CH		4.205		5.046		6.728		3.005		3.285		3.574		71,5		65,1		53,1	
Athens, GR		2.891		3.469		4.625		2.462		2.803		3.311		85,1		80,8		71,6	
Perf. indicators G F		Q _d		Heat demand / G / F		Q _L		System output / G / F		f _{sol}		Q _L /Q _d ; solar fraction / G / F		Q _{par}		Elec. for pumps/controllers / G / F			
Ref. conditions G F		Stockholm SE		Würzburg DE		Davos CH		Athens GR											
		G		1.156		1.226		1.682		1.717									
		Ta		7,5		9,0		3,2		18,5									
		Tc		8,5		10,0		5,4		17,8									
		ΔTc		2.1 - 14.9		7.0 - 13.0		4.6 - 6.2		10.4 - 25.2									
G		kWh/m ²		Annual irradiation South, 45° / G / F															
Ta		°C		Annual mean air temp. / G / F															
Tc		°C		Annual mean cold water temp. / G / F															
ΔTc		°C		Seasonal variation of Tc / G / F															
Th		45°C		Desired (mix. valve) temp. / G / F															
Max. operating press. - collector side G F		300		kPa		Max. operating press. - tank side G F		1.000		kPa									
Testing Laboratory / Prüflaboratorium / Laboratoire d'essais Website Test report id. number / Prüfberichtsnummer / F Date of test report / G / F Test method / G / F				NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB www.solar.demokritos.gr 6031 DE3, 6033 DE8, 6033 F7 4/9/2013, 24/10/2017 ISO 9459-5 (DST)															
Comments of test lab / Kommentare des laboratoriums / Commentaires du laboratoire English Deutsch Français																			

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK				Registration Registernummer Num. d'enregistrement Date / Datum / Date		OEM 9965/14/1 10/2/2020													
Company / Firma / Société Street / Straße / Rue Postal Code, Place / PLZ, Ort / Code postal, Place		FONDERIE SIME SpA 27, Via Garbo 37045 Legnano (VR)		Country/Land/Pays Website E-mail Tel. / Fax		Italy http://www.sime.it/ info@sime.it +039 0442 631111													
System family overview / G / F																			
Collector type G F		Number of collectors / G / F Storage type / G / F																	
		120L		150L		160L		200L		250L		300L		320L					
SIMEPLANO 132						2		2				2		2					
SIMEPLANO 182		1		1		1		2		2		2		2					
SIMEPLANO 230				1		1		1		2		2		2					
Name of system configuration / G / F								SIME NATURAL 320/4 S											
Collector type G F		SIMEPLANO 182 G F		No. collectors G F		2 2		Storage type G F						320L 320L					
Calculated annual results / G / F								Daily draw-off litres/day / G / F /											
Location G F		250		300		400		250		300		400		250		300		400	
		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d	
		Q _d kWh/y		Q _L kWh/y		Q _L kWh/y		f _{sol} %								Q _{par} kWh/y			
Stockholm, SE		3.881		4.652		6.202		1.953		2.111		2.304		50,4		45,4		37,1	
Würzburg, DE		3.714		4.459		5.948		1.945		2.137		2.339		52,4		47,8		39,4	
Davos, CH		4.205		5.046		6.728		2.689		2.882		3.101		64,0		57,1		46,0	
Athens, GR		2.891		3.469		4.625		2.462		2.794		3.241		85,1		80,5		70,1	
Perf. indicators G F		Q _d		Heat demand / G / F				Q _L		System output / G / F				f _{sol}		Q _L /Q _d ; solar fraction / G / F			
		Q _{par}		Elec. for pumps/controllers / G / F															
Ref. conditions G F		Stockholm SE		Würzburg DE		Davos CH		Athens GR											
		G		1.156		1.226		1.682		1.717									
		Ta		7,5		9,0		3,2		18,5									
		Tc		8,5		10,0		5,4		17,8									
		ΔTc		2,1 - 14,9		7,0 - 13,0		4,6 - 6,2		10,4 - 25,2									
G kWh/m ² Ta °C Tc °C ΔTc °C Th 45°C		Annual irradiation South, 45° / G / F		Annual mean air temp. / G / F		Annual mean cold water temp. / G / F		Seasonal variation of Tc / G / F		Desired (mix. valve) temp. / G / F									
Max. operating press. - collector side G F		300		kPa		Max. operating press. - tank side		G F		1.000		kPa							
Testing Laboratory / Prüflaboratorium / Laboratoire d'essais Website Test report id. number / Prüfberichtsnummer / F Date of test report / G / F Test method / G / F				NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB www.solar.demokritos.gr 6031 DE3, 6033 DE8, 6033 F7 4/9/2013, 24/10/2017 ISO 9459-5 (DST)															
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Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate Kurzfassung EN 12976 Test Ergebnisse, Anlage zum Solar KEYMARK-Zertifikat Synthèse des résultats d'essais selon EN 12976, Annexe au certificat Solar KEYMARK				Registration Registernummer Num. d'enregistrement Date / Datum / Date		OEM 9965/14/1 10/2/2020													
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System family overview / G / F																			
Collector type G F		Number of collectors / G / F Storage type / G / F																	
		120L		150L		160L		200L		250L		300L		320L					
SIMEPLANO 132						2		2				2		2					
SIMEPLANO 182		1		1		1		2		2		2		2					
SIMEPLANO 230				1		1		1		2		2		2					
Name of system konfiguration / G / F								SIME NATURAL 320/5.2 S											
Collector type G F		SIMEPLANO 230 G F		No. collectors G F		2 F		Storage type G F		320L F									
Calculated annual results / G / F								Daily draw-off litres/day / G / F /											
Location G F		250		300		400		250		300		400		250		300		400	
		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d		l/d	
		Q _d kWh/y		Q _L kWh/y		Q _L kWh/y		f _{sol} %								Q _{par} kWh/y			
Stockholm, SE		3.881		4.652		6.202		2.015		2.199		2.453		51,9		47,3		39,5	
Würzburg, DE		3.714		4.459		5.948		2.050		2.286		2.602		55,2		51,3		43,7	
Davos, CH		4.205		5.046		6.728		3.005		3.294		3.600		71,5		65,3		53,5	
Athens, GR		2.891		3.469		4.625		2.462		2.812		3.329		85,1		81,1		72,0	
Perf. indicators G F		Q _d		Heat demand / G / F		Q _L		System output / G / F		f _{sol}		Q _L /Q _d ; solar fraction / G / F		Q _{par}		Elec. for pumps/controllers / G / F			
Ref. conditions G F		Stockholm SE		Würzburg DE		Davos CH		Athens GR											
		G		1.156		1.226		1.682		1.717									
		Ta		7,5		9,0		3,2		18,5									
		Tc		8,5		10,0		5,4		17,8									
		ΔTc		2.1 - 14.9		7.0 - 13.0		4.6 - 6.2		10.4 - 25.2									
G		kWh/m ²		Annual irradiation South, 45° / G / F															
Ta		°C		Annual mean air temp. / G / F															
Tc		°C		Annual mean cold water temp. / G / F															
ΔTc		°C		Seasonal variation of Tc / G / F															
Th		45°C		Desired (mix. valve) temp. / G / F															
Max. operating press. - collector side G F				300 kPa		Max. operating press. - tank side G F				1.000 kPa									
Testing Laboratory / Prüflaboratorium / Laboratoire d'essais Website Test report id. number / Prüfberichtsnummer / F Date of test report / G / F Test method / G / F				NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB www.solar.demokritos.gr 6031 DE3, 6033 DE8, 6033 F7 4/9/2013, 24/10/2017 ISO 9459-5 (DST)															
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System family overview / G / F																												
Collector type G F		Number of collectors / G / F Storage type / G / F																										
		120L		150L		160L		200L		250L		300L		320L														
SIMEPLANO 132						2		2				2		2														
SIMEPLANO 182		1		1		1		2		2		2		3														
SIMEPLANO 230				1		1		1		2		2		2														
Name of system konfiguration / G / F										SIME NATURAL 320/6 S																		
Collector type G F		SIMEPLANO 182		No. collectors G F		3		Storage type G F				320L																
Calculated annual results / G / F																												
Location G F		Daily draw-off litres/day / G / F /																										
		250			300			400			250			300			400			250			300			400		
		l/d			l/d			l/d			l/d			l/d			l/d			l/d			l/d			l/d		
		Q _d kWh/y			Q _L kWh/y			f _{sol} %												Q _{par} kWh/y								
Stockholm, SE		3.881			4.652			6.202			2.313			2.584			2.935			59,7			55,6			47,3		
Würzburg, DE		3.714			4.459			5.948			2.251			2.540			2.961			60,5			56,9			49,7		
Davos, CH		4.205			5.046			6.728			3.241			3.600			4.056			77,0			71,3			60,3		
Athens, GR		2.891			3.469			4.625			2.672			3.101			3.819			92,4			89,4			82,6		
Perf. indicators G F		Q_d Heat demand / G / F Q_L System output / G / F f_{sol} Q_L/Q_d; solar fraction / G / F Q_{par} Elec. for pumps/controllers / G / F																										
Ref. conditions G F		Stockholm SE Würzburg DE Davos CH Athens GR G 1.156 1.226 1.682 1.717 Ta 7,5 9,0 3,2 18,5 Tc 8,5 10,0 5,4 17,8 ΔTc 2,1 - 14,9 7,0 - 13,0 4,6 - 6,2 10,4 - 25,2																										
G kWh/m ² Ta °C Tc °C ΔTc °C Th 45°C		Annual irradiation South, 45° / G / F Annual mean air temp. / G / F Annual mean cold water temp. / G / F Seasonal variation of Tc / G / F Desired (mix. valve) temp. / G / F																										
Max. operating press. - collector side G F				300 kPa		Max. operating press. - tank side G F				1.000 kPa																		
Testing Laboratory / Prüflaboratorium / Laboratoire d'essais Website Test report id. number / Prüfberichtsnummer / F Date of test report / G / F Test method / G / F										NCSR "DEMOKRITOS"- SOLAR & ENERGY SYSTEMS LAB www.solar.demokritos.gr 6031 DE3, 6033 DE8, 6033 F7 4/9/2013, 24/10/2017 ISO 9459-5 (DST)																		
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