



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	Registration No.	011-7S218 A
	Registernummer	
	Num. d'enregistrement	
	Date / Datum / Date	26.08.2009

Company / Firma / Société	Saunier Duval	Country/Land/Pays	France
Street / Straße / Rue	Avenue Pablo Picasso	Website	www.saunierduval.co
Postal Code, Place / PLZ, Ort / Code postal, Place	94132 Fontenay-sous-Bois cedex	E-mail	marc.imann@vaillant.de
		Tel.	+49 2 191 182 043

System classification / G / F	
Flow principle / G / F	Forced / G / F
Direct / indirect / G / F	Direct / G / F
Press. principle / G / F	Closed / G / F
Drain back/down / G / F	Drain back / G / F
Storage location / G / F	Indoor / G / F
Storage position / G / F	Vertical / G / F
Int. back-up / G / F	Indirect G / F
If other: / G / F	English / Deutsch / Francais
EN12976 type / G / F	Solar + suppl. / G / F

Collector(s) / Kollektor(en) / Capteur(s)					Storage(s) / Akkumulator(en) / F						
Company / Hersteller / Manufactuer Saunier Duval					Company / Hersteller / Manufactuer Saunier Duval						
Keymark reg. no. (optional)											
Model Bezeichnung Modèle	Per module / G / F				No. modules G F	Model Bezeichnung Modèle	Total volume G F	Gross diameter/width Diam. / Breite (Außenmaß) Diam. / Largeur hors Tout Höhe (Außenmaß) Höhe (Außenmaß) epaisseur hors tout	Back-up heated volume G F	El. back-up power G F	
	Aperture area (Aa) Aperturfläche (Aa) Superficie d'entrée (Aa)	Gross length Länge (Außenmaß) Longueur Hors tout	Gross width Breite (Außenmaß) Largeur hors Tout	min - max							litres
SRD 2.3	2.352	2035	1232	2	-	2	250	600	1692	120	
							250	600	1692	135	2

Controller / G / F			Fluid / G / F		
Company/Hersteller/Manufacteur Saunier Duval			Company/Hersteller/Manufacteur Propylen Glycol		
Model / Bezeichnung / Modèle Saunier Duval			Model / Bezeichnung / Modèle TYFO GLS		
Functions	collector loop		Freezing point	-28 °C	
G			G		
F			F		

System family overview / G / F						
Collector G F	No. collectors / G / F					
	Storage / G / F					
	Helio Set 250		Helio Set 250 E			
SRD 2.3	1		1			

Testing Laboratory / Prüflaboratorium / Laboratoire d'essais	TZS, ITW University of Stuttgart
Website	www.tzs.uni-stuttgart.de
Test report id. number / Prüberichtnummer / F	06SYS39/1OEM01 +06SYS40/1OEM01
Date of test report / Datum G / date F	25.11.2008

Comments of test lab / Kommentare des Laboratoriums / Commentaires du laboratoire	
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		Tel. / Fax	+49 2 191 182 043

System family overview / G / F												
Collector type G F	Number of collectors / G / F											
	Storage type / G / F											
	Helio Set 250			Helio Set 250 E								
SRD 2.3	1			1								

Name of system configuration / G / F			
Collector type		No. collectors	
G	SRD 2.3	G	2
F		F	
		Storage type	
		G	Helio Set 250
		F	

Calculated annual results / G / F												
Location G F	Daily draw-off litres/day / G / F /											
	140	170	200	140	170	200	140	170	200	140	170	200
	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 MJ/a			Q _{aux,net} MJ/a			fsav %			Q _{par} MJ/a		
Stockholm, SE	7 821	9 492	11 164	5 267	6 433	7 632	48.1	45.5	43.4	504	504	504
Würzburg, DE	7 442	9 114	10 628	4 604	5 676	6 780	52.8	50.3	47.6	504	504	504
Davos, CH	8 483	10 281	12 110	3 467	4 604	5 960	67.9	63.5	58.7	504	504	504
Athens, GR	5 834	7 064	8 326	2 595	3 248	4 037	68.2	65.4	62.1	504	504	504

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

Ref. conditions G F		Stockholm	Würzburg DE	Davos CH	Athens GR
	G	1 113	1 230	1 684	1 359
	T _a	6.9	9.0	3.2	18.2
	T _c	8.5	10.0	5.4	17.8
	ΔT _c	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
T _a	°C	Annual mean air temp. / G / F
T _c	°C	Annual mean cold water temp. / G / F
ΔT _c	°C	Seasonal variation of T _c / G / F
T _h	45°C	Desired (mix. valve) temp. / G / F

Max. operating press. - collector side		Max. operating press. - tank side	
G	300 kPa	G	1 000 kPa
F		F	

Testing Laboratory / Prüflaboratorium / Laboratoire d'essais	TZS, ITW University of Stuttgart
Website	www.tzs.uni-stuttgart.de
Test report id. number / Prüberichtnummer / F	06SYS39/1OEM01
Date of test report / G / F	25.11.2008
Test method / G / F	ISO 9459-5 (DST)

Comments of test lab / Kommentare des laboratoriums / Commentaires du laboratoire	TZS Stuttgart Pfaffenwaldring 6 70550 Stuttgart
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System family overview / G / F

Collector type G F	Number of collectors / G / F											
	Storage type / G / F											
	Helio Set 250			Helio Set 250 E								
SRD 2.3	1			1								

Name of system configuration / G / F

Collector type		No. collectors		Storage type	
G	SRD 2.3	G	2	G	Helio Set 250 E
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
	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 MJ/a			Q _{aux,net} MJ/a			f _{sav} %			Q _{par} MJ/a		
Stockholm, SE	6 150	7 821	9 492	4 068	5 267	6 276	50.9	47.1	46.0	504	504	504
Würzburg, DE	5 897	7 442	9 114	3 564	4 604	5 550	55.6	51.9	50.7	504	504	504
Davos, CH	6 654	8 483	10 281	2 469	3 595	4 793	71.9	66.1	61.4	504	504	504
Athens, GR	4 573	5 834	7 064	1 949	3 248	3 248	71.0	64.7	64.7	504	504	504

Perf. indicators G F	Q _d	Heat demand / G / F
	Q _L	System output / G / F
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Max. operating press. - collector side		Max. operating press. - tank side	
G	300 kPa	G	1 000 kPa
F		F	

Testing Laboratory / Prüflaboratorium / Laboratoire d'essais	TZS, ITW University of Stuttgart
Website	www.tzs.uni-stuttgart.de
Test report id. number / Prüberichtnummer / F	06SYS40/1OEM01
Date of test report / G / F	25.11.2008
Test method / G / F	ISO 9459-5 (DST)

Comments of test lab / Kommentare des laboratoriums / Commentaires du laboratoire	TZS Stuttgart Pfaffenwaldring 6 70550 Stuttgart
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