Solar Keymark Certificate

SC1397-13

Holder/Issued to/Manufacturer

Jiangsu Micoe Solar Energy Co., Ltd.

199 Yingzhou Road, Lianyungang City, Jiangsu Province, P.R. China

Product name and description

Solar thermal systems for water heating.
For technical information see Appendix (4 pages).

Models: SZ58/1800-15HP SZ58/1800-20HP SZ58/1800-30HP

Performance specification

The product is found to comply with the requirements in EN 12976-1:2006 Factory made systems, Part 1: General requirements and the Specific CEN Keymark Scheme Rules for Solar Thermal Products and are based on test results according to EN 12976-2:2006 Part 2: Test methods.

Marking

Products conforming to this certificate shall be marked in accordance with the requirements in the Specific CEN Keymark Scheme Rules for Solar Thermal Products. The marking shall, together with the Keymark logo, show the identification code of the empowered certification body (RISE Research Institutes of Sweden AB, No. 012), also see CEN-CENELEC Internal Regulations Part 4 Certification, Annex A.

Validity

This certificate is valid until 2024-02-26 provided that the conditions in the Solar Keymark Rules are fulfilled and the standard or rules are not modified significantly. The validity of the certificate can be checked in the database, see Solar Keymark website http://www.solarkeymark.org.

Miscellaneous

The manufacturer's factory production control procedures are under surveillance by the responsibility of RISE. This certificate was first issued 2014-02-26. RISE certification rules SPCR 402 for Keymark – Solar Thermal Products applies.

Johan Åkesson

Magnus Sturesson

Certificate No. SC1397-13 | issue 2 | 2018-12-31

RISE Research Institutes of Sweden AB | Certification
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2017-08-08

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Summary of annex to	EN12976-2	SOLAR SYSTEM test results	Licence Number	SC1397-13
Annex to Solar KEYMARK Certificate			Issued	2018-12-31

Company	Jiangsu Micoe Solar Energy Co.,ltd		Country	China	
Brand (optional)	Micoe		Website	http://en.micoe.com	
Street	NingHai Industrial Zone		E-mail	info@micoe.com	
Postal Code	222000	Lianyungang city, Jiangsu Province	Tel. / Fax	+86	518-85959563

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	Drain down
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:	None
Solar+supplementary OR Solar-only / Solar pre-heat	Solar only / Solar preheat

Collector(s)

Company	Jiangsu Micoe Solar Energy		
Keymark lic.no. if available	*NA*		
Collector name	Per module		
	Gross Area (AG)	Gross length	Gross width
	m²	mm	mm
SZ58/1800-15HP	1,39	1788	1285
SZ58/1800-20HP	1,86	1788	1702
SZ58/1800-30HP	2,78	1788	2534

Heat store(s)

Company	Jiangsu Micoe Solar Energy Co.,ltd					
Keymark lic.no. if available	*NA*					
Store name	Total nominal volume	Gross height	Gross width	Gross depth	Auxiliary heated volume	Electrical aux. heating power
	litres	mm	mm	mm	litres	kW
150L	139	472	1538	472	--	1,5
200L	180	472	1953	472	--	1,5
300L	266	472	2783	472	--	1,5

Solar loop controller					Solar loop fluid		
Keymark lic.no. if available	--				Recommended/required	No recommend./requirements	
Company	--				Company	No recommend./requirements	
Name	--				Name	No recommend./requirements	
Solar loop pump - power range	--	W	to	-- W	Freezing point	5	°C

System family overview

Collector name	Number of collectors in each configuration for each store																																	
	Store name																																			
	150L						200L						300L																							
SZ58/1800-15HP	1																																			
SZ58/1800-20HP							1																													
SZ58/1800-30HP													1																							

Testing Laboratory	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Website	www.intertek.com.cn
Test report id. number	130628160GZU-005/006/007/008
Date of test report	2013-12-31

Comments of test lab

The negative pressure test hasn't been perform on the collector.

intertek

William zheng

Version 4.5, 2017-10-24

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Postal Code	222000	Lianyungang city, Jiangsu Province	Tel. / Fax	+86 518-85959563

System family overview

Collector name	For each storage and collector size, give number of collectors																																	
	150L						200L						300L																							
SZ58/1800-15HP	1																																	
SZ58/1800-20HP							1																											
SZ58/1800-30HP													1																					

Name of system configuration			SZ58/1800-15HP
Collector name	SZ58/1800-15HP	No. Collectors	1
		Storage name	150L

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	NA	6126	3108	0	51	7796	3656	0	47	9467	3910	0	41
WürzburgDE	NA	5874	3138	0	53	7476	3793	0	51	9078	4134	0	46
Davos CH	NA	6646	4542	0	68	8459	5265	0	62	10271	5507	0	54
Athens GR	NA	4565	3506	0	77	5810	4277	0	74	7055	4867	0	69

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

Testing Laboratory	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Website	www.intertek.com.cn
Test report id. number	130628160GZU-005/006/007/008
Date of test report	2013-12-31
Test method	ISO 9459-2 (CSTG)

Comments of test lab

The negative pressure test hasn't been perform on the collector.

intertek

William zheng

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

Version 4.5, 2017-10-24

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System family overview

Collector name	For each storage and collector size, give number of collectors																																	
	150L						200L						300L																							
SZ58/1800-15HP	1																																	
SZ58/1800-20HP							1																											
SZ58/1800-30HP													1																					

Name of system configuration							
					SZ58/1800-20HP		
Collector name	SZ58/1800-20HP	No. Collectors	1	Storage name	200L		

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	NA	9467	4488	0	47	11138	4840	0	43	13922	5029	0	36
WürzburgDE	NA	9078	4712	0	52	10680	5107	0	48	13350	5364	0	40
Davos CH	NA	10271	6673	0	65	12084	7022	0	58	15104	7130	0	47
Athens GR	NA	7055	5332	0	76	8300	5814	0	70	10375	6621	0	64

Perf. indicators for the table above

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Qd	MJ/y	**Annual heat demand for domestic hot water**
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$f_{sol}=Q_L/Q_d$	-	**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	600	kPa	Max. operating press. - tank side	600	kPa

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Annex to Solar Keymark Certificate

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System family overview

Collector name	For each storage and collector size, give number of collectors																													
	150L						200L						300L																		
SZ58/1800-15HP	1																													
SZ58/1800-20HP							1																							
SZ58/1800-30HP													1																	

Name of system configuration				Storage name	
Collector name	SZ58/1800-30HP	No. Collectors	1		SZ58/1800-30HP

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	NA	13922	6536	0	47	16706	7040	0	42	22275	7400	0	33
WürzburgDE	NA	13350	6925	0	52	16020	7604	0	47	21360	8027	0	38
Davos CH	NA	15104	8961	0	59	18125	9256	0	51	24167	9391	0	39
Athens GR	NA	10375	7504	0	72	12450	8559	0	69	16599	10341	0	62

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