AENOR

Keymark Certificate
Solar thermal energy

078/000199

AENOR certifies that the organization

IMS CALEFACCION, S.L.

registered office	PI RIO GALLEGO, CL G PARCELA 28-1 50840 SAN MATEO DE GÁLLEGO *(Zaragoza - España)*
supplies	Factory made thermal solar heating systems
in compliance with	UNE-EN 12976-1:2006 *(EN 12976-1:2006)*
Trade Mark	CPC STS 150, CPC STS 200, CPC STS 250, CPC STS 300
Technical information	Specified in Annexes to the Certificate
Production site	PI RIO GALLEGO, CL G PARCELA 28-1 50840 SAN MATEO DE GÁLLEGO *(Zaragoza - España)*
Certification scheme	In order to grant this Certificate, AENOR has tested the product and has verified the quality system implemented for its manufacture. AENOR performs these tasks periodically while the Certificate has not been cancelled, in accordance with Specific Rules RP 078.02.
First issued on	2013-05-31
Last issued on	2018-05-31
Validity date	2023-05-31

Rafael GARCÍA MEIRO
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.
Génova, 6. 28004 Madrid. España
Tel. 91 432 60 00.- www.aenor.com

Product certification body accredited by ENAC, number 01/C-PR002.078

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate	Licence Number	078/000199
	Issued	2018-05-31

Company holding licence	IMS CALEFACCIÓN, S.L.		**Country**	Spain	
Street	Pol. Ind. Río Gallego, Cl G Parcela 28-1		**Website**	www.imsheating.com	
Postal Code	50840	San Mateo de Gallego (Zaragoza)	**E-mail**	info@cpcsolar.com	
			Tel. / Fax	34	976684128

System classification / Systemeigenschaften / Caractéristiques du système	
Flow principle	Thermosyphon
Direct/indirect	Indirect
Press. principle	Closed
Drain back/down	Always filled (no drain)
Storage location	Outdoor
Storage position	Horizontal
Internal back-up	None
If other internal back-up, please specifiy:	
EN12976 type	Solar only

Collector(s)

Company	IMS Calefacción, S.L.
Keymark reg, no (if available)	*078/000151*

Model	**Per module/ Aperture area (Aa)**	**Gross length**	**Gross width**	**Number of modules**		
	m²	m	m	min	-	max
ML 2.0 BLUE	1,87	2,00	1,00	1	-	2
ML 2.8 BLUE	2,52	2,15	1,24	1	-	1
ML 3.0 BLUE	2,70	2,30	2,24	2	-	2
					-	
					-	

Storage(s)

Company	IMS Calefacción
Keymark reg, no. (if available)	

Model	**Total volume**	**Gross diameter/width**	**Gross length**	**Back-up heated volume**	**El. back-up power**
	litres	mm	mm	litres	kW
TFV150H	150	570		0	0
TFV200H	202,139	570		0	0
TFV250H	250	570		0	0
TFV300H	300	570		0	0

Controller

Company	-
Model	-

Fluid

Company	FluidCompany	
Model	Water-Glycol-40%	
	-20	°C

System family overview

Collector name	**Number of collectors**																							
	Storage																							
	TFV150H						TFV200H						TFV250H						TFV300H					
ML 2.0 BLUE	1						0						0						2					
ML 2.8 BLUE	0						1						0						0					
ML 3.0 BLUE	0						0						1						0					

Testing Laboratory	INTA
Website	www.inta.es
Test report id. number	CO/RPT/4451/001/INTA/13, Ed. 03
Date of test reportd'essai	2013/07/24

Comments of test lab

CPC STS 150, CPC STS 200, CPC STS 250 and CPC STS 300 is considered a Solar System Family. The thermal characterisation and the high-temperature test were performed on model CPC STS 150.

Stamp

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

Version 2.1, 2012-02-08

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	Issued	2018-05-31

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Postal Code	50840	San Mateo de Gallego (Zaragoza)	E-mail		info@cpcsolar.com
			Tel. / Fax	34	976684128

System family overview

Collector name	For each storage and collector size, give number of collectors			
	TFV150H	TFV200H	TFV250H	TFV300H
ML 2.0 BLUE	1			2
ML 2.8 BLUE		1		
ML 3.0 BLUE			1	

Name of system configuration					
	CPC STS 150				
Collector name	ML 2.0 BLUE	No. Collectors	1	Storage name	TFV150H

Calculated annual results

Location	Daily draw-off (litres/day)											
	110 l/d	140 l/d	170 l/d	110 l/d	140 l/d	170 l/d	110 l/d	140 l/d	170 l/d	110 l/d	140 l/d	170 l/d
	Q_d kWh/y			Q_L kWh/y			f_{sol} %			Q_{par} kWh/y		
Stockholm, SE	1.702	2.166	2.630	688	763	818	40	35	31	0	0	0
Würzburg, DE	1.631	2.076	2.521	768	851	912	47	41	36	0	0	0
Davos, CH	1.846	2.350	2.853	979	1.086	1.164	53	46	41	0	0	0
Athens, GR	1.268	1.613	1.959	947	1.104	1.234	75	68	63	0	0	0
Huelva, SP	1.370	1.744	2.118	1.095	1.281	1.418	80	73	67	0	0	0

Perf. indicators for the table above

Q_d	kWh/y	**Heat demand**
Q_L	kWh/y	**Back-up heating needed**
Q_{par}	kWh/y	**Electricity for pumps/controllers**

Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR	Huelva, SP
	G	1.157	1.230	1.684	1.718	
	Ta	7,5	9,0	3,2	18,5	
	Tc	d.d	d.d	d.d	d.d	
	± ΔTc	d.d	d.d.	d.d.	d.d	

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

Max. operating press. - collector side	300	kPa	**Max. operating press. - tank side**	800	kPa

Testing Laboratory	INTA
Website	www.inta.es
Test report id. number	CO/RPT/4451/001/INTA/13, Ed. 03
Date of test report	2013/07/24
Test method	ISO 9459-2 (CSTG)

Comments of test lab laboratoire

No comments

Stamp & Sign

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

Version 2.1, 2012-02-08

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			Tel. / Fax	34	976684128

System family overview

Collector name	For each storage and collector size, give number of collectors																							
	TFV150H						TFV200H						TFV250H						TFV300H							
ML 2.0 BLUE	1																		2							
ML 2.8 BLUE							1																			
ML 3.0 BLUE													1													

Name of system configuration												
	CPC STS 200											
Collector name	ML 2.8 BLUE			**No. Collectors**	1			**Storage name**	TFV200H			

Calculated annual results

Location	Daily draw-off (litres/day)											
	170	200	250	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	l/d	l/d	l/d
	Q_d kWh/y			Q_L kWh/y			f_{sol} %			Q_{par} kWh/y		
Stockholm, SE	2.630	3.094	3.867	818	862	914	31	28	24	0	0	0
Würzburg, DE	2.521	2.966	3.708	912	961	1.019	36	32	27	0	0	0
Davos, CH	2.853	3.356	4.196	1.164	1.225	1.299	41	36	31	0	0	0
Athens, GR	1.959	2.305	2.881	1.234	1.335	1.427	63	58	50	0	0	0
Huelva, SP	2.118	2.492	3.114	1.418	1.510	1.601	67	61	51	0	0	0

Perf. indicators for the table above

Q_d	kWh/y	**Heat demand**
Q_L	kWh/y	**Back-up heating needed**
Q_{par}	kWh/y	**Electricity for pumps/controllers**

Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR	Huelva, SP		
	G	1.157	1.230	1.684	1.718			
	Ta	7,5	9,0	3,2	18,5			
	Tc	d.d	d.d	d.d	d.d			
	± ΔTc	d.d	d.d.	d.d.	d.d			

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

Max. operating press. - collector side	300	kPa	**Max. operating press. - tank side**	800	kPa

Testing Laboratory	INTA
Website	www.inta.es
Test report id. number	CO/RPT/4451/001/INTA/13, Ed. 03
Date of test report	2013/07/24
Test method	ISO 9459-2 (CSTG)

Comments of test lab laboratoire

No comments

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			Tel. / Fax	34	976684128

System family overview

Collector name	For each storage and collector size, give number of collectors																							
	TFV150H						TFV200H						TFV250H						TFV300H							
ML 2.0 BLUE	1																		2							
ML 2.8 BLUE							1																			
ML 3.0 BLUE													1													

Name of system configuration						CPC STS 250	
Collector name	ML 3.0 BLUE	**No. Collectors**	1		**Storage name**	TFV250H	

Calculated annual results

Location	Daily draw-off (litres/day)											
	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
	Q_d kWh/y			Q_L kWh/y			f_{sol} %			Q_{par} kWh/y		
Stockholm, SE	3.094	3.867	4.641	862	914	948	28	24	18	0	0	0
Würzburg, DE	2.966	3.708	4.449	961	1.019	1.057	32	27	21	0	0	0
Davos, CH	3.356	4.196	5.035	1.225	1.299	1.348	36	31	24	0	0	0
Athens, GR	2.035	2.881	3.457	1.335	1.427	1.480	66	50	40	0	0	0
Huelva, SP	2.492	3.114	3.737	1.510	1.601	1.660	61	51	43			

Perf. indicators for the table above

Q_d	kWh/y	**Heat demand**
Q_L	kWh/y	**Back-up heating needed**
Q_{par}	kWh/y	**Electricity for pumps/controllers**

Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR	Huelva, SP		
	G	1.157	1.230	1.684	1.718			
	Ta	7,5	9,0	3,2	18,5			
	Tc	d.d	d.d	d.d	d.d			
	± ΔTc	d.d	d.d.	d.d.	d.d			

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

Max. operating press. - collector side	300	kPa	Max. operating press. - tank side	800	kPa

Testing Laboratory	INTA
Website	www.inta.es
Test report id. number	CO/RPT/4451/001/INTA/13, Ed. 03
Date of test report	2013/07/24
Test method	ISO 9459-2 (CSTG)

Comments of test lab laboratoire

No comments

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			Tel. / Fax 34	976684128

System family overview

Collector name	For each storage and collector size, give number of collectors			
	TFV150H	TFV200H	TFV250H	TFV300H
ML 2.0 BLUE	1			2
ML 2.8 BLUE		1		
ML 3.0 BLUE			1	

Name of system configuration					
				CPC STS 300	
Collector name	ML 2.0 BLUE	No. Collectors	2	Storage name	TFV300H

Calculated annual results

Location	Daily draw-off (litres/day)											
	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
	Q_d kWh/y			Q_L kWh/y			f_{sol} %			Q_{par} kWh/y		
Stockholm, SE	3.867	4.641	6.188	914	948	989	24	20	16	0	0	0
Würzburg, DE	3.708	4.449	5.933	1.019	1.057	1.102	27	24	19	0	0	0
Davos, CH	4.196	5.035	6.713	1.299	1.348	1.404	31	27	21	0	0	0
Athens, GR	2.881	3.457	4.609	1.427	1.480	1.542	50	43	33	0	0	0
Huelva, SP	3.114	3.737	4.983	1.601	1.660	1.730	51	44	35			

Perf. indicators for the table above

Q_d	kWh/y	**Heat demand**
Q_L	kWh/y	**Back-up heating needed**
Q_{par}	kWh/y	**Electricity for pumps/controllers**

Ref. conditions		Stockholm SE	Würzburg DE	Davos CH	Athens GR	Huelva, SP		
	G	1.157	1.230	1.684	1.718			
	Ta	7,5	9,0	3,2	18,5			
	Tc	d.d	d.d	d.d	d.d			
	± ΔTc	d.d	d.d.	d.d.	d.d			

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

Max. operating press. - collector side	300	kPa	**Max. operating press. - tank side**	800	kPa

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Date of test report	2013/07/24
Test method	ISO 9459-2 (CSTG)

Comments of test lab laboratoire

No comments

Stamp & sign

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