AENOR

Keymark Certificate
Solar thermal energy

078/000274

AENOR certifies that the organization

BDR THERMEA GROUP B.V

registered office	MARCHANTSTRAAT, 55 7300 AA APELDOORN *(Holanda - Países Bajos)*
supplies	Factory made thermal solar heating systems
in compliance with	UNE-EN 12976-1:2006 *(EN 12976-1:2006)*
Trade Mark	BAXI STS 150 - 2.0 sl, BAXI STS 200 - 2.0 sl, BAXI STS 200 - 2.5 sl, BAXI STS 300 - 2.0 sl, BAXI STS 300 - 2.5 sl
Technical information	Specified in Annexes to the Certificate
Production site	CL MANGANÉS, 2 08755 CASTELLBISBAL *(Barcelona - 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	2016-04-07
Last issued on	2021-04-07
Validity date	2026-04-07

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 1/C-PR271

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate	Licence Number	078/000274
	Issued	2021-04-07

Company holding licence	BDR THERMEA GROUP B.V.		**Country**	NETHERLANDS	
Street	MARCHANSTRAAT 55		**Website**	www.bdrthermeagroup.com	
Postal Code	7300 AA	APPELDOORN	**E-mail**	oleguer.fuertes@BDRThermea.com	
			Tel. / Fax	+34	902898989

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)		**Storage(s)**	
Company	Fabrisolia, S.L.U.	**Company**	Sole S.A.
Keymark reg, no (if available)	078/000258 and 078/000266	*Keymark reg, no. (if available)*	

Model	Per module/ Aperture area (Aa)	Gross length	Gross width	Number of modules			Model	Total volume	Gross diameter/width	Gross length	Back-up heated volume	El. back-up power
	m²	m	m	min	-	max		litres	mm	mm	litres	kW
Baxi Mediterraneo Slim 200	1,92	1,757	1,151	1	-	2	STS 150	150	500	1203	0	0
Baxi Mediterraneo Slim 250	2,4	2,190	1,150	1	-	2	STS 200	200	580	1229	0	0
							STS 300	300	580	1744	0	0

Controller		**Fluid**	
Company	-	**Company**	FAC 10
Model	-	**Model**	Water-Glycol
-		**Freezing point**	-10 °C

System family overview

Collector name	Number of collectors / Storage		
	STS 150	STS 200	STS 300
Baxi Mediterraneo Slim 200	1	1	2
Baxi Mediterraneo Slim 250		1	2

Testing Laboratory	CENER
Website	www.cener.com
Test report id. number	30.2754.0 Technical Appendix of Solar System Family, 30.2754.0-2 Test report and 30.24754.1-1 Test report
Date of test report	2016/02/22

Comments of test lab

STS 150 2.0, STS 200 2.0 ,STS 200 2.5, STS 300 2.0 and STS 300 2.5 is considered a Solar System Family. The thermal characterisation was performed on model STS 300 2.0 and the high-temperature test was performed on model STS 300 2.5.

CENER NATIONAL RENEWABLE ENERGY CENTRE ADItech

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

Summary of EN 12976 Test Results, annex to Solar KEYMARK Certificate	Certification No.	078/000274
	Issued	2021-04-07

Company	BDR THERMEA GROUP B.V.		Country	NETHERLANDS
Street	MARCHANSTRAAT 55		Website	www.bdrthermeagroup.com
Postal Code	7300 AA	APPELDOORN	E-mail	oleguer.fuertes@BDRThermea.com
			Tel. / Fax	+34 902898989

System family overview

Collector name	For each storage and collector size, give number of collectors		
	STS 150	STS 200	STS 300
Baxi Mediterraneo Slim 200	1	1	2
Baxi Mediterraneo Slim 250		1	2

Name of system configuration					BAXI STS 150 - 2.0 sl
Collector name	Baxi Mediterraneo Slim 200	No. Collectors	1	Storage name	STS 150

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
	Qd kWh/y			QL kWh/y			fsol %			Qpar kWh/y		
Stockholm, SE	1.706	2.171	2.636	741	827	892	43,5	38,1	33,8	--	--	--
Würzburg, DE	1.635	2.082	2.528	767	884	973	46,9	42,5	38,5	--	--	--
Davos, CH	1.850	2.355	2.860	1.082	1.225	1.332	58,5	52,0	46,6	--	--	--
Athens, GR	1.271	1.617	1.964	971	1.153	1.308	76,4	71,3	66,6	--	--	--

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	#¡REF!	#¡REF!	
	G	1.157	1.230	1.684	1.718			
	Ta	7,5	9,0	3,2	18,5			
	Tc	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	°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	250	kPa	**Max. operating press. - tank side**	800	kPa

Testing Laboratory	Fundación CENER-CIEMAT
Website	www.cener.com
Test report id. number	30.2754.0 Technical Appendix of Solar System Family
Date of test report	22/02/2016
Test method	ISO 9459-5 (DST)

Comments of test lab laboratoire

The thermal performance and the long-term prediction were extrapolated according to Annex D of Solar keymark Specific Scheme Rule for model STS 300 2.0.

CENER NATIONAL RENEWABLE ENERGY CENTRE ADItech

Stamp & Signature of test lab

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	2021-04-07

Company	BDR THERMEA GROUP B.V.		Country		NETHERLANDS
Street	MARCHANSTRAAT 55		Website		www.bdrthermeagroup.com
Postal Code	7300 AA	APPELDOORN	E-mail		oleguer.fuertes@BDRThermea.com
			Tel. / Fax	+34	902898989

System family overview

Collector name	For each storage and collector size, give number of collectors		
	STS 150	STS 200	STS 300
Baxi Mediterraneo Slim 200	1	1	2
Baxi Mediterraneo Slim 250		1	2

Name of system configuration					BAXI STS 200 - 2.0 sl
Collector name	Baxi Mediterraneo Slim 200	No. Collectors	1	Storage name	STS 200

Calculated annual results

Location	Daily draw-off (litres/day)											
	170 l/d	200 l/d	250 l/d	170 l/d	200 l/d	250 l/d	170 l/d	200 l/d	250 l/d	170 l/d	200 l/d	250 l/d
	Qd kWh/y			QL kWh/y			fsol %			Qpar kWh/y		
Stockholm, SE	2.636	3.101	3.876	877	942	1.001	33,3	30,4	25,8	--	--	--
Würzburg, DE	2.528	2.974	3.717	951	1.025	1.119	37,6	34,5	30,1	--	--	--
Davos, CH	2.860	3.365	4.206	1.295	1.385	1.498	45,3	41,2	35,6	--	--	--
Athens, GR	1.964	2.311	2.888	1.290	1.419	1.578	65,7	61,4	54,6	--	--	--

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	#¡REF!	#¡REF!	
	G	1.157	1.230	1.684	1.718			
	Ta	7,5	9,0	3,2	18,5			
	Tc	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	°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	250	kPa	Max. operating press. - tank side	800	kPa

Testing Laboratory	Fundación CENER-CIEMAT
Website	www.cener.com
Test report id. number	30.2754.0 Technical Appendix of Solar System Family
Date of test report	22/02/2016
Test method	ISO 9459-5 (DST)

Comments of test lab laboratoire

The thermal performance and the long-term prediction were extrapolated according to Annex D of Solar keymark Specific Scheme Rule for model STS 300 2.0.

CENER NATIONAL RENEWABLE ENERGY CENTRE

ADItech

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Version 2.1, 2012-02-08

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Postal Code	7300 AA	APPELDOORN	**E-mail**		oleguer.fuertes@BDRThermea.com
			Tel. / Fax	+34	902898989

System family overview

Collector name	For each storage and collector size, give number of collectors																							
	STS 150						STS 200						STS 300											
Baxi Mediterraneo Slim 200	1						1						2											
Baxi Mediterraneo Slim 250							1						2											

Name of system configuration					BAXI STS 200 - 2.5 sl
Collector name	Baxi Mediterraneo Slim 250	**No. Collectors**	1	**Storage name**	STS 200

Calculated annual results

Location	Daily draw-off (litres/day)											
	170 l/d	200 l/d	250 l/d	170 l/d	200 l/d	250 l/d	170 l/d	200 l/d	250 l/d	170 l/d	200 l/d	250 l/d
	Q_d kWh/y			Q_L kWh/y			f_{sol} %			Q_{par} kWh/y		
Stockholm, SE	2.636	3.101	3.876	1.036	1.122	1.200	39,3	36,2	31,0	--	--	--
Würzburg, DE	2.528	2.974	3.717	1.115	1.213	1.335	44,1	40,8	35,9	--	--	--
Davos, CH	2.860	3.365	4.206	1.553	1.671	1.819	54,3	49,7	43,3	--	--	--
Athens, GR	1.964	2.311	2.888	1.435	1.601	1.828	73,1	69,3	63,3	--	--	--

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	#¡REF!	#¡REF!	
	G	1.157	1.230	1.684	1.718			
	Ta	7,5	9,0	3,2	18,5			
	Tc	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	°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	250	kPa	**Max. operating press. - tank side**	800	kPa

Testing Laboratory	Fundación CENER-CIEMAT
Website	www.cener.com
Test report id. number	30.2754.0 Technical Appendix of Solar System Family
Date of test report	22/02/2016
Test method	ISO 9459-5 (DST)

Comments of test lab laboratoire

The thermal performance and the long-term prediction were extrapolated according to Annex D of Solar keymark Specific Scheme Rule for model STS 300 2.0.

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		Tel. / Fax	+34	902898989

System family overview

Collector name	For each storage and collector size, give number of collectors																											
	STS 150						STS 200						STS 300																
Baxi Mediterraneo Slim 200	1						1						2																
Baxi Mediterraneo Slim 250							1						2																

Name of system configuration					
				BAXI STS 300 - 2.0 sl	
Collector name	Baxi Mediterraneo Slim 200	No. Collectors	2	Storage name	STS 300

Calculated annual results

Location	Daily draw-off (litres/day)											
	250 l/d	300 l/d	400 l/d	250 l/d	300 l/d	400 l/d	250 l/d	300 l/d	400 l/d	250 l/d	300 l/d	400 l/d
	Qd kWh/y			QL kWh/y			fsol %			Qpar kWh/y		
Stockholm, SE	3.876	4.651	6.202	1.560	1.638	1.778	40,3	35,2	28,7	--	--	--
Würzburg, DE	3.717	4.460	5.947	1.645	1.767	1.903	44,2	39,6	32,0	--	--	--
Davos, CH	4.206	5.047	6.729	2.284	2.428	2.593	54,3	48,1	38,5	--	--	--
Athens, GR	2.888	3.466	4.621	2.103	2.347	2.639	72,8	67,7	57,1	--	--	--

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		#¡REF!	
	G	1.157	1.230	1.684	1.718			
	Ta	7,5	9,0	3,2	18,5			
	Tc	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	°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	250	kPa	**Max. operating press. - tank side**	800	kPa

Testing Laboratory	Fundación CENER-CIEMAT
Website	www.cener.com
Test report id. number	30.2754.0-2 Test report
Date of test report	22/02/2016
Test method	ISO 9459-5 (DST)

Comments of test lab laboratoire

No comments

CENER ADItech NATIONAL RENEWABLE ENERGY CENTRE

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Version 2.1, 2012-02-08

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			Tel. / Fax	+34 902898989

System family overview

Collector name	For each storage and collector size, give number of collectors		
	STS 150	STS 200	STS 300
Baxi Mediterraneo Slim 200	1	1	2
Baxi Mediterraneo Slim 250		1	2

Name of system configuration					BAXI STS 300 - 2.5 sl
Collector name	Baxi Mediterraneo Slim 250	No. Collectors	2	Storage name	STS 300

Calculated annual results

Location	Daily draw-off (litres/day)											
	250 l/d	300 l/d	400 l/d	250 l/d	300 l/d	400 l/d	250 l/d	300 l/d	400 l/d	250 l/d	300 l/d	400 l/d
	Qd kWh/y			QL kWh/y			fsol %			Qpar kWh/y		
Stockholm, SE	3.876	4.651	6.202	1.882	2.023	2.309	48,5	43,5	37,2	--	--	--
Würzburg, DE	3.717	4.460	5.947	1.933	2.170	2.492	52,0	48,6	41,9	--	--	--
Davos, CH	4.206	5.047	6.729	2.804	3.090	3.457	66,7	61,2	51,4	--	--	--
Athens, GR	2.888	3.466	4.621	2.369	2.703	3.208	82,0	78,0	69,4	--	--	--

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		#¡REF!	
	G	1.157	1.230	1.684	1.718			
	Ta	7,5	9,0	3,2	18,5			
	Tc	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	°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	250	kPa	Max. operating press. - tank side	800	kPa

Testing Laboratory	Fundación CENER-CIEMAT
Website	www.cener.com
Test report id. number	30.2754.0 Technical Appendix of Solar System Family
Date of test report	22/02/2016
Test method	ISO 9459-5 (DST)

Comments of test lab laboratoire

The thermal performance and the long-term prediction were extrapolated according to Annex D of Solar keymark Specific Scheme Rule for model STS 300 2.0.

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