AUTOCERTIFICAZIONE DEL COSTRUTTORE

(ai sensi del D.M. 07 agosto 2025 e del D.P.R. n. 445/2000)

La sottoscritta società PLEION s.p.a., dichiara che gli apparecchi della tipologia INTERVENTO III.D – art.8, comma 1, lettera d, elencati nell'allegato A e immessi sul mercato dalla stessa, soddisfano:

- **i requisiti tecnici,** richiesti nel **DM 07 agosto 2025, misurati secondo le metodologie previste dalla specifica normativa tecnica di riferimento:**

III.D) Solare termico

- Impianti prefabbricati Factory Made, normativa di riferimento: UNI EN 12976

Rappresentante legale: Adalberto Scarrone

Pleion S.p.A. - Società con unico Socio
Via Venezia, 11 - 37053 CEREA (VR)
Tel. 0442 320295 E-mail: info@pleion.it
pleion@pec.pleion.it
Capitale sociale € 500.000 i.v.
C.F., P.I. e R.I. di VR 03820120230
R.E.A. 368332

AUTOCERTIFICAZIONE DEL COSTRUTTORE

(ai sensi del D.M. 07 agosto 2025 e del D.P.R. n. 445/2000)

ALLEGATO A

ELENCO APPARECCHI CONFORMI AL CONTO TERMICO
(con relativi dati tecnici)

PRODOTTO	SOLAR KEYMARK	QL [MJ/anno]	AG [m^2]	Aa [m^2]	PRODUCIBILITA' SPECIFICA [kWht/m^2 anno]	ANNI GARANZIA
EGO 110	17021 Rev.1	2365	1,52	1,09	603	5
EGO 150	17021 Rev.1	3168	1,93	1,48	595	5
EGO 180	17021 Rev.1	3926	2,35	1,86	586	5
EGO 220	17021 Rev.1	4727	2,77	2,25	584	5
EGO 260	17021 Rev.1	5693	3,18	2,64	599	5
EGO PRIME 110	15558 Rev.2	2365	1,28	1,09	603	5
EGO PRIME 150	15559 Rev.2	3168	1,68	1,48	595	5
EGO PRIME 180	15560 Rev.2	3926	2,08	1,86	586	5
EGO PRIME 220	15561 Rev.2	4727	2,48	2,25	584	5
EGO PRIME 260	15562 Rev.2	5639	2,88	2,64	593	5
FREE S 150.1.20	011-7S3285 A	4120	2,02	1,83	625	5
FREE S 200.1.20	011-7S3285 A	5023	2,02	1,83	762	5
FREE S 300.2.25	011-7S3285 A	9435	5,04	4,64	565	5

Rappresentante legale: Adalberto Scarrone

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TÜVRheinland®
DIN CERTCO
Genau. Richtig.

CERTIFICATE

Certificate holder	**Pleion S.P.A.** **Via Venezia 11** **37053 Cerea VR** **ITALY**
Production facility	Argos
Product	Solar collectors
Type, Model	120.1.15,-17,-19,-20, 150.1.15,-20,-23,-25 150.2.15, 170.1.19, -20,-25, 170.2.15 200.1.20,-23,-25,-27,-29, 200.2.15,-20 250.1.25,-29, 250.2.15,-20, 300.1.29 300.2.15,-20,-25,-29, 300.3.25 brand: FREE S
Testing basis	DIN EN 12976-1:2022-03 DIN EN 12976-2:2019-11 SOLAR KEYMARK Scheme Rules SKN N0444R7 (2024-01)
Mark of conformity	
Registration No.	011-7S3285 A
Valid until	2029-05-31
Right of use	This certificate entitles the holder to use the mark of conformity shown above in conjunction with the specified registration number. See annex for further information.

2025-04-29

Dr. Ina Förster
Certification Body

DAkkS Deutsche Akkreditierungsstelle D-ZE-11125-01-01

GESELLSCHAFT FÜR KONFORMITÄTSBEWERTUNG MBH DIN CERTCO

ANNEX

Certificate	011-7S3285 A dated 2025-04-29
Technical Data	See data sheet, part of the test report of 2025-04-22
Testing laboratory/ Inspection body	Universität Stuttgart Institut für Gebäudeenergetik, Thermotechnik und Energie-speicherung Pfaffenwaldring 6-6 a 70569 Stuttgart GERMANY
Test report(s)	23SYS156/20EM03 dated 2025-04-22

Summary of	EN12976-2	SOLAR SYSTEM test results	Licence Number	011-7S3285 A
Annex to Solar KEYMARK Certificate			Issued	2025-04-22

Company	PLEION SPA		Country	ITALY	
Brand (optional)	FREE S		Website	http://www.pleion.it	
Street	VIA VENEZIA 11		E-mail	zeno.benciolini@pleion.it	
Postal Code	14122	37053 CEREA (VERONA)	Tel. / Fax	+39	347 7532906

System classification	
Application(s)	Hot water
Solar loop, circulation principle	Thermosyphon
Direct solar loop / heat exchanger	Heat exchanger
Open, vented or closed solar loop	Closed
Drain back/down	Always filled (no drain)
Store location	Outdoor
Store orientation (of main axis)	Horizontal
Type of auxiliary heating (internal back-up heat)	Electric
If other auxiliary/internal back-up heating, please specifiy:	n/a
Solar+supplementary OR Solar-only / Solar pre-heat	Solar only / Solar preheat

Collector(s)

Company	Pleion SPA
Keymark lic.no. if available	*011-7S3295 F*

Collector name	Per module: Gross Area (AG)	Per module: Gross length	Per module: Gross width
	m²	mm	mm
KSF-S15	1.51	1503	1007
KSF-S17	1.68	1420	1183
KSF-S19	1.96	1503	1305
KSF-S20	2.02	2006	1007
KSF-S23	2.24	1893	1183
KSF-S25	2.52	2006	1257
KSF-S27	2.67	2261	1183
KSF-S29	2.92	2006	1457

Heat store(s)

Company	Pleion SPA
Keymark lic.no. if available	-

Store name	Total nominal volume	Gross height	Gross width	Gross depth	Auxiliary heated volume	Electrical aux. heating power
	litres	mm	mm	mm	litres	kW
S 120	120	500	1000	-	-	-
S 150	150	500	1250	-	-	-
S 170	170	530	1250	-	-	-
S 200	200	580	1250	-	-	-
S 250	250	580	1650	-	-	-
S 300	300	580	1800	-	-	-

Solar loop controller

Keymark lic.no. if available	-
Company	-
Name	-
Solar loop pump - power range	- W to - W

Solar loop fluid

Recommended/required	Required	
Company	n/a	
Name	n/a	
Freezing point	n/a	°C

System family overview

Collector name	Number of collectors in each configuration for each store: Store name																							
	S 120						S 150						S 170						S 200						S 250			S 300		
KSF-S15	1						2	1					2						2						2			2		
KSF-S17	1																													
KSF-S19	1												1																	
KSF-S20	1						1						1						1	2					2			2		
KSF-S23							1												1											
KSF-S25							1						1						1						1			2	3	
KSF-S27																			1											
KSF-S29																			1						1			2	1	

Testing Laboratory	TZS/IGTE
Website	www.igte.uni-stuttgart.de
Test report id. number	23SYS156/2OEM03
Date of test report	2025-04-22

Comments of test lab

No comments

DIN CERTCO ● Alboinstraße 56 ● 12103 Berlin, Germany
Tel: +49 30 7562-1131 ● Fax: +49 30 7562-1141 ● E-Mail: info@dincertco.de ● www.dincertco.de

Summary of	EN12976-2	test results	Certification No.	011-7S3285 A
Annex to Solar KEYMARK Certificate			Issued	2025-04-22

Company	PLEION SPA		Country	ITALY	
Brand (optional)	FREE S		Website	http://www.pleion.it	
Street	VIA VENEZIA 11		E-mail	zeno.benciolini@pleion.it	
Postal Code	14122	37053 CEREA (VERONA)	Tel. / Fax	+39	347 7532906

Parameters for systems extrapolation (Annex D)

Collector of measured system		Storage tank of measured system	
A_{ref} [m^2]	2.52	Volume [l]	147
η_0	0.725	A_{hx} [m^2]	0.75
a_1 [W/Km^2]	3.620	Piping	
a_2 [W/Km^2]	0.006		
IAM (50º)	0.980	$U_{loop,p}$	0.91

System parameters

Name of System Configuration	Tested/Extrapol	A_c* [m^2]	u_c* [W/Km^2]	U_s [W/K]	C_s [MJ/K]	S_c [-]	D_L [-]	f_{aux} [-]
120.1.15	Extrapol	1.138	6.293	1.085	0.429	0.175	0.173	-
120.1.17	Extrapol	1.260	6.215	1.085	0.429	0.175	0.173	-
120.1.19	Extrapol	1.503	6.115	1.085	0.429	0.175	0.173	-
120.1.20	Extrapol	1.515	6.097	1.085	0.429	0.175	0.173	-
150.1.15	Extrapol	1.156	6.293	1.302	0.537	0.175	0.173	-
150.1.20	Extrapol	1.521	6.097	1.302	0.537	0.175	0.173	-
150.1.23	Extrapol	1.681	6.040	1.302	0.537	0.175	0.173	-
150.1.25	Extrapol	1.912	5.982	1.302	0.537	0.175	0.173	-
150.2.15	Extrapol	2.281	5.905	1.302	0.537	0.175	0.173	-
170.1.19	Extrapol	1.481	6.115	1.394	0.608	0.175	0.173	-
170.1.20	Extrapol	1.519	6.097	1.394	0.608	0.175	0.173	-
170.1.25	Tested	1.509	6.441	1.394	0.608	0.175	0.173	-
170.2.15	Extrapol	2.282	5.905	1.394	0.608	0.175	0.173	-
200.1.20	Extrapol	1.522	6.097	1.551	0.716	0.175	0.173	-
200.1.23	Extrapol	1.688	6.040	1.551	0.716	0.175	0.173	-
200.1.25	Extrapol	1.897	5.982	1.551	0.716	0.175	0.173	-
200.1.27	Extrapol	2.005	5.956	1.551	0.716	0.175	0.173	-
200.1.29	Extrapol	2.221	5.918	1.551	0.716	0.175	0.173	-
200.2.15	Extrapol	2.287	5.905	1.551	0.716	0.175	0.173	-
200.2.20	Extrapol	3.045	5.807	1.551	0.716	0.175	0.173	-
250.1.25	Extrapol	1.906	5.982	1.953	0.894	0.175	0.173	-
250.1.29	Extrapol	2.230	5.918	1.953	0.894	0.175	0.173	-
250.2.15	Extrapol	2.298	5.905	1.953	0.984	0.175	0.173	-
250.2.20	Extrapol	3.085	5.807	1.953	0.894	0.175	0.173	-
300.1.29	Extrapol	2.253	5.918	2.104	1.073	0.175	0.173	-
300.2.15	Extrapol	2.301	5.905	2.104	1.073	0.175	0.173	-
300.2.20	Extrapol	3.068	5.807	2.104	1.073	0.175	0.173	-
300.2.25	Extrapol	3.818	5.750	2.104	1.073	0.175	0.173	-
300.2.29	Extrapol	4.436	5.718	2.104	1.,073	0.175	0.173	-
300.3.25	Extrapol	5.834	5.672	2.104	1.073	0.175	0.173	-

Testing Laboratory	TZS/IGTE
Website	www.igte.uni-stuttgart.de
Test report id. number	23SYS156/2OEM03
Date of test report	2025-04-22
Test method	ISO 9459-5 (DST)

Comments of test lab	
No comments	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 4.5, 2017-10-24

Summary of	EN12976-2	test results	Certification No.	011-7S3285 A
Annex to Solar KEYMARK Certificate			Issued	2025-04-22

Company	PLEION SPA		Country	ITALY	
Brand (optional)	FREE S		Website	http://www.pleion.it	
Street	VIA VENEZIA 11		E-mail	zeno.benciolini@pleion.it	
Postal Code	14122	37053 CEREA (VERONA)	Tel. / Fax	+39	347 7532906

System family overview

For each storage and collector size, give number of collectors

Collector name	S 120	S 150	S 170	S 200	S 250	S 300
KSF-S15	1	2 1	2	2	2	2
KSF-S17	1					
KSF-S19	1		1			
KSF-S20	1	1	1	1 2	2	2
KSF-S23		1		1		
KSF-S25		1	1	1	1	2 3
KSF-S27				1		
KSF-S29				1	1	2 1

Name of system configuration					150.1.20	
Collector name	KSF-S20	No. Collectors	1	Storage name	S 150	

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	0	6107	3505	0	57	7772	4034	0	52	9437	4388	0	47
WürzburgDE	0	5854	3530	0	60	7450	4120	0	55	9047	4560	0	50
Davos CH	0	6628	5269	0	80	8435	6031	0	72	10243	6515	0	64
Athens GR	0	4545	4118	0	91	5784	4928	0	85	7023	5583	0	80

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	1 000	kPa	Max. operating press. - tank side	800	kPa

Testing Laboratory	TZS/IGTE
Website	www.igte.uni-stuttgart.de
Test report id. number	23SYS156/2OEM03
Date of test report	2025-04-22
Test method	ISO 9459-5 (DST)

Comments of test lab

No comments

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 4.5, 2017-10-24

Summary of	EN12976-2	test results	Certification No.	011-7S3285 A
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Postal Code	14122	37053 CEREA (VERONA)	Tel. / Fax	+39	347 7532906

System family overview

Collector name	For each storage and collector size, give number of collectors					
	S 120	S 150	S 170	S 200	S 250	S 300
KSF-S15	1	2 1	2	2	2	2
KSF-S17	1					
KSF-S19	1		1			
KSF-S20	1	1	1	1 2	2	2
KSF-S23		1		1		
KSF-S25		1	1	1	1	2 3
KSF-S27				1		
KSF-S29				1	1	2 1

Name of system configuration					200.1.20	
Collector name	KSF-S20	No. Collectors	1	Storage name	S 200	

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	0	9437	4511	0	48	11103	4796	0	43	13878	5024	0	36
WürzburgDE	0	9047	4668	0	52	10643	5023	0	47	13304	5322	0	40
Davos CH	0	10243	6689	0	65	12050	7025	0	58	15063	7290	0	48
Athens GR	0	7023	5682	0	81	8263	6255	0	76	10328	7013	0	68

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	1 000	kPa	Max. operating press. - tank side	800	kPa

Testing Laboratory	TZS/IGTE
Website	www.igte.uni-stuttgart.de
Test report id. number	23SYS156/2OEM03
Date of test report	2025-04-22
Test method	ISO 9459-5 (DST)

Comments of test lab

No comments

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 4.5, 2017-10-24

Summary of	EN12976-2	test results	Certification No.	011-7S3285 A
Annex to Solar KEYMARK Certificate			Issued	2025-04-22

Company	PLEION SPA		Country	ITALY	
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Street	VIA VENEZIA 11		E-mail	zeno.benciolini@pleion.it	
Postal Code	14122	37053 CEREA (VERONA)	Tel. / Fax	+39	347 7532906

System family overview

Collector name	For each storage and collector size, give number of collectors											
	S 120	S 150	S 170	S 200	S 250	S 300
KSF-S15	1	2 1	2	2	2	2
KSF-S17	1					
KSF-S19	1		1			
KSF-S20	1	1	1	1 2	2	2
KSF-S23		1		1		
KSF-S25		1	1	1	1	2 3
KSF-S27				1		
KSF-S29				1	1	2 1

Name of system configuration					300.2.25	
Collector name	KSF-S25	No. Collectors	2	Storage name	S 300	

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	0	13878	8355	0	60	16654	9326	0	56	22206	10592	0	48
WürzburgDE	0	13304	8355	0	63	15965	9435	0	59	21287	10984	0	52
Davos CH	0	15063	12547	0	83	18076	14027	0	78	24101	15810	0	66
Athens GR	0	10328	9564	0	93	12394	11055	0	89	16525	13336	0	81

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	1 000	kPa	Max. operating press. - tank side	800	kPa

Testing Laboratory	TZS/IGTE
Website	www.igte.uni-stuttgart.de
Test report id. number	23SYS156/2OEM03
Date of test report	2025-04-22
Test method	ISO 9459-5 (DST)

Comments of test lab

No comments

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 4.5, 2017-10-24

Summary of	EN12976-2	test results	Certification No.	011-7S3285 A
Annex to Solar KEYMARK Certificate			Issued	2025-04-22

Company	PLEION SPA		Country	ITALY	
Brand (optional)	FREE S		Website	http://www.pleion.it	
Street	VIA VENEZIA 11		E-mail	zeno.benciolini@pleion.it	
Postal Code	14122	37053 CEREA (VERONA)	Tel. / Fax	+39	347 7532906

System family overview

Collector name	For each storage and collector size, give number of collectors					
	S 120	S 150	S 170	S 200	S 250	S 300
KSF-S15	1	2 1	2	2	2	2
KSF-S17	1					
KSF-S19	1		1			
KSF-S20	1	1	1	1 2	2	2
KSF-S23		1		1		
KSF-S25		1	1	1	1	2 3
KSF-S27				1		
KSF-S29				1	1	2 1

Annual performance parameters in the frame of the EU regulation CDR 811, 812 and 813 dated 2013

Name of system configuration					150.1.20
Collector name	KSF-S20	No. Collectors	1	Storage name	S 150

Annual performance parameters in the frame of the EU regulation CDR 811, 812 and 813 dated 2013

Load profile	M	L	XL	XXL	
Annual heat demand (kWh)	1523	2799	4427	5626	
Auxiliary heat contribution		Qnonsol			section 5.9.3.6, see note 1
Average climate (kWh)	32	359	1126	1802	Strasbourg
Cold climate (kWh)	293	745	1555	2240	Helsinki
Hot climate (kWh)	0	0	434	1075	Athens
Qaux (kWh)	-	-	-	-	section 5.9.3.4, see note 1
Comply to the load profile (Yes/No)	-	-	-	-	section 5.10.6 , see note 1
ηwh_nonsol (%)	-	-	-	-	section 5.9.3.5 , see note 1
Qelec (kWh)	-	-	-	-	section 5.9.3.5 , see note 1
Qfuel (kWh)	-	-	-	-	section 5.9.3.5 , see note 1
V40, measured (l)	-	-	-	-	section 5.10.7, see note 1

Auxiliary thermostat setting	-	ºC	Effective power of auxiliary heater	-	kW

Note 1: Clause of EN 12976-2:2017

Testing Laboratory	TZS/IGTE
Website	www.igte.uni-stuttgart.de
Test report id. number	23SYS156/2OEM03
Date of test report	2025-04-22
Test method	ISO 9459-5 (DST)

Comments of test lab	
No comments	Stamp & signature of test lab

DIN CERTCO ● Alboinstraße 56 ● 12103 Berlin, Germany
Tel: +49 30 7562-1131 ● Fax: +49 30 7562-1141 ● E-Mail: info@dincertco.de ● www.dincertco.de

Summary of	EN12976-2	test results	Certification No.	011-7S3285 A
Annex to Solar KEYMARK Certificate			Issued	2025-04-22

Company	PLEION SPA		Country	ITALY	
Brand (optional)	FREE S		Website	http://www.pleion.it	
Street	VIA VENEZIA 11		E-mail	zeno.benciolini@pleion.it	
Postal Code	14122	37053 CEREA (VERONA)	Tel. / Fax	+39	347 7532906

System family overview

Collector name	For each storage and collector size, give number of collectors					
	S 120	S 150	S 170	S 200	S 250	S 300
KSF-S15	1	2 1	2	2	2	2
KSF-S17	1					
KSF-S19	1		1			
KSF-S20	1	1	1	1 2	2	2
KSF-S23		1		1		
KSF-S25		1	1	1	1	2 3
KSF-S27				1		
KSF-S29				1	1	2 1

Annual performance parameters in the frame of the EU regulation CDR 811, 812 and 813 dated 2013

Name of system configuration					200.1.20
Collector name	KSF-S20	No. Collectors	1	Storage name	S 200

Annual performance parameters in the frame of the EU regulation CDR 811, 812 and 813 dated 2013

Load profile	M	L	XL	XXL	
Annual heat demand (kWh)	1523	2799	4427	5626	
Auxiliary heat contribution		Qnonsol			section 5.9.3.6, see note 1
Average climate (kWh)	23	307	1039	1705	Strasbourg
Cold climate (kWh)	290	710	1503	2178	Helsinki
Hot climate (kWh)	0	0	311	943	Athens
Qaux (kWh)	-	-	-	-	section 5.9.3.4, see note 1
Comply to the load profile (Yes/No)	-	-	-	-	section 5.10.6 , see note 1
ηwh_nonsol (%)	-	-	-	-	section 5.9.3.5 , see note 1
Qelec (kWh)	-	-	-	-	section 5.9.3.5 , see note 1
Qfuel (kWh)	-	-	-	-	section 5.9.3.5 , see note 1
V40, measured (l)	-	-	-	-	section 5.10.7, see note 1

Auxiliary thermostat setting	-	ºC	Effective power of auxiliary heater	-	kW

Note 1: Clause of EN 12976-2:2017

Testing Laboratory	TZS/IGTE
Website	www.igte.uni-stuttgart.de
Test report id. number	23SYS156/2OEM03
Date of test report	2025-04-22
Test method	ISO 9459-5 (DST)

Comments of test lab	
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Summary of	EN12976-2	test results	Certification No.	011-7S3285 A
Annex to Solar KEYMARK Certificate			Issued	2025-04-22

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Brand (optional)	FREE S		Website	http://www.pleion.it	
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Postal Code	14122	37053 CEREA (VERONA)	Tel. / Fax	+39	347 7532906

System family overview

Collector name	For each storage and collector size, give number of collectors					
	S 120	S 150	S 170	S 200	S 250	S 300
KSF-S15	1	2 1	2	2	2	2
KSF-S17	1					
KSF-S19	1		1			
KSF-S20	1	1	1	1 2	2	2
KSF-S23		1		1		
KSF-S25		1	1	1	1	2 3
KSF-S27				1		
KSF-S29				1	1	2 1

Annual performance parameters in the frame of the EU regulation CDR 811, 812 and 813 dated 2013

Name of system configuration					300.2.25
Collector name	KSF-S25	No. Collectors	2	Storage name	S 300

Annual performance parameters in the frame of the EU regulation CDR 811, 812 and 813 dated 2013

Load profile	M	L	XL	XXL	
Annual heat demand (kWh)	1523	2799	4427	5626	
Auxiliary heat contribution		Qnonsol			section 5.9.3.6, see note 1
Average climate (kWh)	0	0	0	67	Strasbourg
Cold climate (kWh)	84	167	495	899	Helsinki
Hot climate (kWh)	0	0	0	0	Athens
Qaux (kWh)	-	-	-	-	section 5.9.3.4, see note 1
Comply to the load profile (Yes/No)	-	-	-	-	section 5.10.6 , see note 1
ηwh_nonsol (%)	-	-	-	-	section 5.9.3.5 , see note 1
Qelec (kWh)	-	-	-	-	section 5.9.3.5 , see note 1
Qfuel (kWh)	-	-	-	-	section 5.9.3.5 , see note 1
V40, measured (l)	-	-	-	-	section 5.10.7, see note 1

Auxiliary thermostat setting	-	ºC	Effective power of auxiliary heater	-	kW

Note 1: Clause of EN 12976-2:2017

Testing Laboratory	TZS/IGTE
Website	www.igte.uni-stuttgart.de
Test report id. number	23SYS156/2OEM03
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Tel: +49 30 7562-1131 ● Fax: +49 30 7562-1141 ● E-Mail: info@dincertco.de ● www.dincertco.de

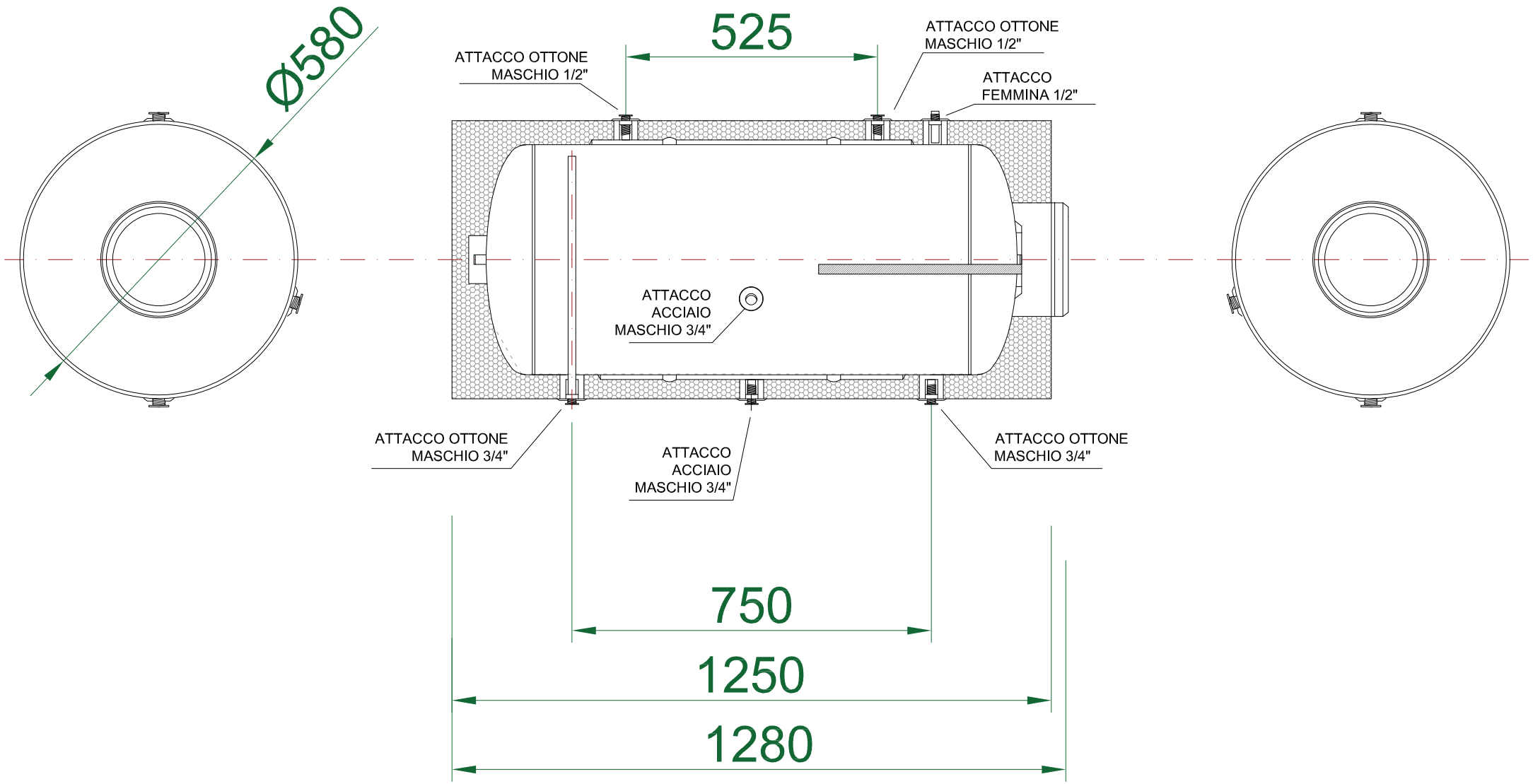
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MODELLO S 200

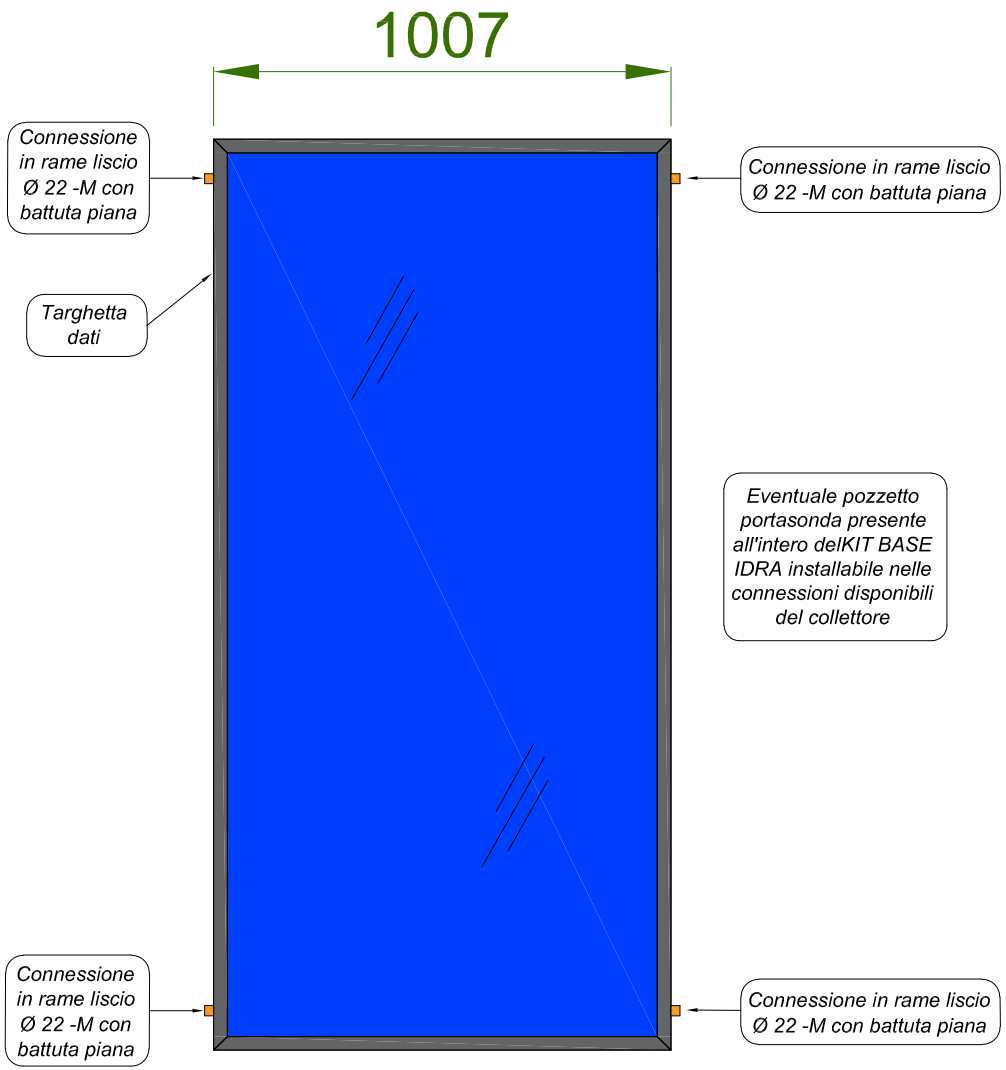
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Passion and Innovation make the difference

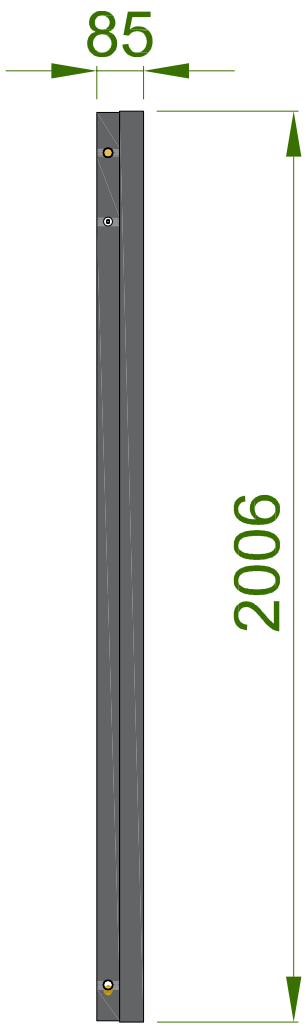
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OGGETTO :
Collettore Piano ACCUMULO

09.12.24







DATI TECNICI KSF S20

Collettore solare piano PLEION KSF S 20, costituito da un'ampia superficie assorbente in grado di catturare e trasformare in calore la radiazione solare, con innovativo vetro che massimizza la quantità di radiazione solare assorbita. Il telaio è realizzato con profili saldati, in alluminio di spessore maggiorato che conferiscono alla struttura stabilità, robustezza e protezione al deterioramento. Assorbitore in alluminio, saldato al circuito in rame con tecnologia laser. Circuito interno in rame a singola arpa dotato di distributori orizzontali di mandata e ritorno, con arpa dotata di 8 canali verticali. Copertura in vetro temprato altamente resistente, classe U1 certificato secondo EN 12975-2.
Isolamento interno in lana di roccia per garantire le proprietà di isolamento nel tempo. Installazione su tetto a falda, piano e verticale con struttura triangolare. Collegabili da standard in serie fino a 6 collettori. Su richiesta si studiano soluzioni particolari.
Connessioni idrauliche 4 attacchi in RAME LISCIO diametro 22 mm, attacco maschio. Per il collegamento è necessario il SET BASE IDRA (per l'installazione singola o del primo collettore, composto da tappo, sonda ad immersione e guarnizioni) ed il SET PLUS IDRA (per la serie di due collettori, composto da 2 giunti d'espansione con guarnizioni)

DIMENSIONI (lunghezza x larghezza x profondità)	[mm]	2006x1007x85
SUPERFICIE LORDA	[m²]	2,02
SUPERFICIE APERTURA	[m²]	1,83
SUPERFICIE ASSORBIMENTO	[m²]	1,80
PESO A VUOTO	[kg]	40,0
CONTENUTO DI LIQUIDO	[l]	1,90
PRESSIONE MASSIMA DI ESERCIZIO	[bar]	10
ISOLAMENTO LANA MINERALE	[mm]	40 inf./ 10 lat.
COEFF. DI TRASMISSIONE a_1 (rif. superficie LORDA)	[W/m²K]	3,31
COEFF. DI TRASMISSIONE a_2 (rif. superficie LORDA)	[W/m²K²]	0,011
RENDIMENTO OTTICO η_0 (rif. superficie LORDA)	[-]	71,5
COEFF. ASSORBIMETO	[%]	95
COEFF. EMISSIONE	[%]	5
COEFF. TRASMISSIONE	[%]	91
TUBO COLLETTORE DI DISTRIBUZIONE	[Ø]	22
SPESSORE VETRO	[mm]	4
MASSIMA TEMPERATURA DI STAGNAZIONE	[°C]	230
INCLINAZIONE MINIMA	[°]	15
INCLINAZIONE MASSIMA	[°]	75
POTENZA DI PICCO COLLETTORE SOLARE	[W]	1444
FATTORE DI CORREZZIONE ANGOLO DI INCIDENZA	[K50°]	0,98
CERTIFICATO SOLAR KEYMARK		011 - 7S1491 F
VALORE ENERGIA WURZBURG SKM - Tm 50°C	[kWh]	941

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OGGETTO :
Collettore Piano KSF S20

05.12.24