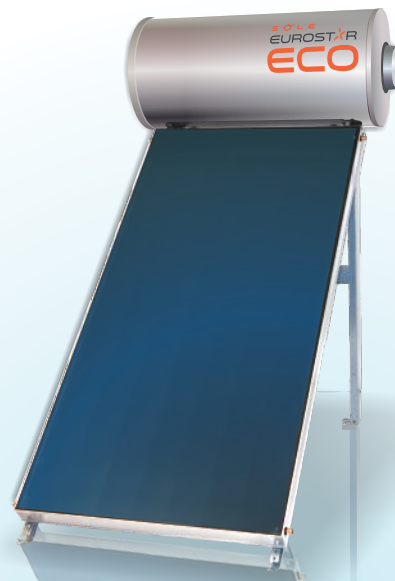




Quality Solar Systems



SOLE S.A. is the inventor of the closed circuit Solar Water Heater.



Advantages

- Maximizes efficiency
- No need for refilling the solar loop
- Best aesthetic results. Low version with hidden tank available
- Easy to install
- Minimum maintenance needed
- Anode protection

Commitment to the Environment

Since its foundation in 1974 SOLE S.A. has been committed to the protection of the environment and the reduction of CO₂ emission.

SOLE S.A. holds numerous prizes and environmental distinctions, contributing with its products to the improvement of environment in all 5 continents.

Solar Water Heater EUROSTAR ECO

The new series of thermosiphon systems EUROSTAR ECO, have been designed in order to cope with the demands of any market all over the world specializing in very hot climates without the need for refilling the solar circuit.



Durable
withstanding 22,5 bar pressure!!!

Discrete
with a low version (hidden tank) for preserving architectural designs.

The EUROSTAR ECO solar water heater is manufactured in compliance with the International Standards for Quality Assurance ISO 9001:2008, is tested according to international standards EN12976-1-2.

The collector's performance and reliability is tested according to EN 12975-2. The system has been granted with the Solar Keymark Certificate.

SOLE S.A.

SOLAR APPLIANCES MANUFACTURER
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www.eurostar-solar.com



www.eurostar-solar.com

Eurostar EcoCollector



The EUROSTAR ECO collector casing is made of specially designed extruded aluminum profile, without any external connections, screws, nuts or rivets. The Rockwool insulation will maintain very high temperatures achieving an incredibly high efficiency.

The absorber is composed of Blue Selective Aluminum fins 0,50mm thickness, welded to copper pipes with laser welding.

The thermal liquid achieves maximum transfer of heat to the water while protecting the system against scaling, rusting, freezing and overheating.

Eurostar EcoTank



The EUROSTAR ECO tank has a mild steel external casing, with high temperature oven powder coating for maximum protection from rain, sun and salty environment, ensuring durability and an elegant appearance.

The FREON FREE polyurethane insulation is casted under pressure in the tank, surrounding the cylinder and maintaining hot water for up to 48 hours.

The new revolutionary heat exchanger of the closed circuit assures instant hot water at very high temperature. The tank is made of low carbon steel with a double "enameling" coating (glass), oven-treated at 860°C.

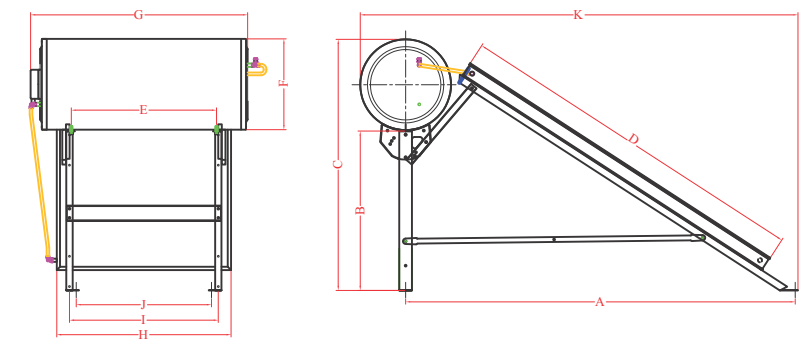
The magnesium anode effectively protects the cylinder from electrolysis. The backup electric heater ensures hot water even in very cloudy days.



The eurostar eco is **eco-friendly** Thermosiphon solar water heater completely made from material that can be recycled.

STANDARD HEIGHT DIMENSIONS mm.

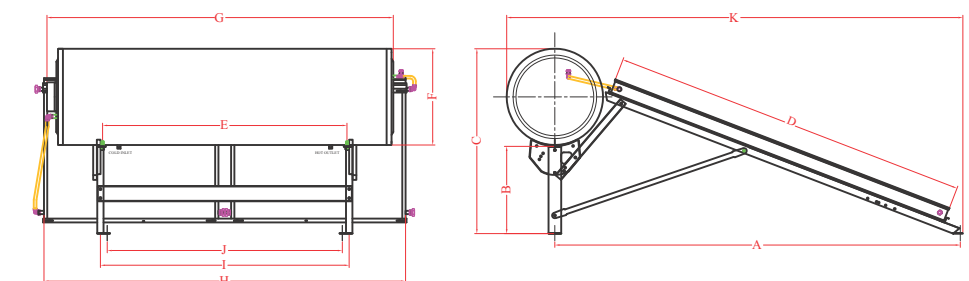
TYPE	A	B	C	D	E	F	G	H	I	J	K
80-1-S100	897	776	1216	1026	480	440	870	960	565	425	1123
100-1-S125	1092	940	1380	1280	650	440	1030	960	735	595	1317
125-1-S150	1291	1107	1547	1540	800	440	1080	960	895	745	1516
150-1-S200	1613	1377	1877	1960	800	500	1195	960	895	745	1868
150-1-S230	1613	1377	1877	1960	800	500	1195	1165	895	745	1868
200-1-S200	1613	1377	1907	1960	800	530	1215	960	895	745	1883
200-1-S230	1613	1377	1907	1960	800	530	1215	1165	895	745	1883
200-1-S260	1747	1489	2019	2135	800	530	1215	1238	895	745	2017
300-2-S200	1613	1377	1907	1960	1345	530	1905	1980	1439	1289	1883
300-2-S230	1613	1377	1907	1960	1345	530	1905	2390	1439	1289	1883



LOW HEIGHT DIMENSIONS mm.

TYPE	A	B	C	D	E	F	G	H	I	J	K
150-1-S200	2147	878	1383	1960	800	500	1195	960	820	745	2411
200-1-S230	2147	878	1413	1960	800	530	1215	1165	820	745	2426
300-2-S200	2147	878	1413	1960	1345	530	1905	1980	1370	1295	2426

The new thermosiphon system of SOLE is also available in low height in three sizes, 150, 200 and 300ltr.



EXTRA LOW HEIGHT DIMENSIONS mm.

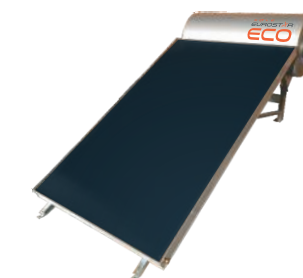
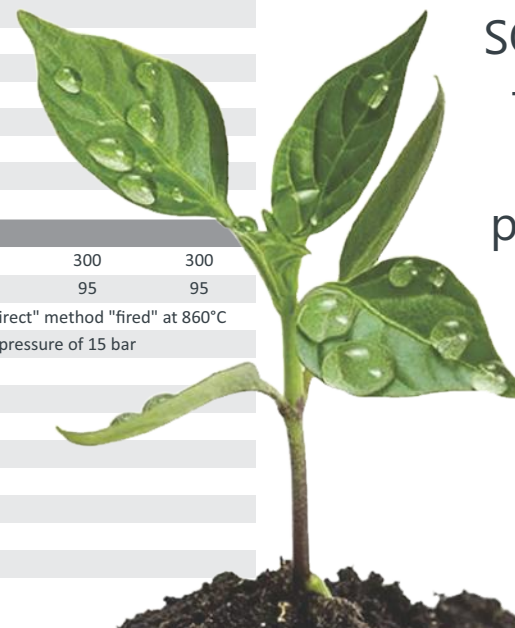
TYPE	A	B	C	D	E	F	G	H	I	J	K
150-1-S200	2231	480	988	1960	800	500	1195	960	820	745	2495
200-1-S230	2231	480	1018	1960	800	530	1215	1165	820	745	2510
300-2-S200	2231	480	1018	1960	1345	530	1905	1980	1370	1295	2510

THERMOSIPHON SYSTEMS

EUROSTAR ECO SPECIFICATIONS

TYPE	80-1-S100	100-1-S125	125-1-S150	150-1-S200	150-1-S230	200-1-S200	200-1-S230	200-1-S260	300-2-S200	300-2-S230
SOLAR COLLECTORS										
NUMBER OF COLLECTORS	1	1	1	1	1	1	1	1	2	2
AREA OF COLLECTORS m ²	0.99	1.23	1.48	1.88	2.28	1.88	2.28	2.64	3.76	4.56
DIMENSIONS mm	1026x960x81	1280x960x81	1540x960x81	1960x960x81	1960x1165x81	1960x960x81	1960x1165x81	2135x1238x81	1960x960x81	1960x1165x81
WEIGHT kg	20,00	22,00	24,00	29,50	35,50	29,50	35,50	40,00	59,00	71,00
FRAME	Aluminum profile. Free of screws and rivets.									
COVER	Tempered low iron prismatic glass 3.2 mm. 90,5% transmission.									
SEALING	Acrylic foam - Structural Silicon									
INSULATION	Rockwool 40mm (50kg/m ³) back and Glass wool 20 mm (30kg/m ³) sides									
ABSORBER MATERIAL	Blue Selective Aluminum fins 0,50mm thickness, welded to copper pipes with laser welding.									
ABSORPTION (α)	95% (± 0.02)									
EMISSIVITY (ε)	5% (± 0.02)									
EFFICIENCY (η _s)	0.763									
MAX. WORKING PRESSURE	1000kPa									
MAX. WORKING TEMPERATURE	150°C									
TANK										
NOMINAL CAPACITY (lt)	80	100	125	150	150	200	200	200	300	300
WEIGHT EMPTY (kg)	32	41	49	55	55	61	61	61	95	95
BOILER BODY	The boiler "body" is made from USD 37.2 steel plate. The boiler is (glass) enameled with the advanced double "direct" method "fired" at 860°C									
HEAT EXCHANGER	Internal heat exchanger made from 3.0 mm EN-10219 steel certified for testing pressure at 22,5 bar & operating pressure of 15 bar									
INSULATION	Freon free Polyurethane 40-50mm (40kg/m ³) casted under pressure.									
EXTERNAL COVER	Steel sheet galvanized, powder coated, oven treated RAL 9006.									
ANODE PROTECTION	Magnesium rod									
MAX. WORKING PRESSURE	10 bar									
MAX. WORKING TEMP. OF SOLAR CIRCUIT	150°C									
MAX. WORKING PRESS. OF SOLAR CIRCUIT	15 bar									
TEST PRESSURE OF SOLAR CIRCUIT	22,5 bar									

SOLE's respect for the environment starts at the production stage.



Quality Solar Systems

SOLE
SOLAR SYSTEMS MANUFACTURER



SOLE S.A. is a pioneer in large centralized systems since 1974



Advantages

- Maximizes efficiency
- Rapid Heating
- Best aesthetic results
- Easy to install
- Compatible with all types of auxiliary heating
- Minimum maintenance needed
- Long durability

Commitment to the environment

Since its foundation in 1974 SOLE S.A. has been committed to the protection of the environment and the reduction of CO2 emission.

SOLE S.A. holds numerous prizes and environmental distinctions, contributing with its products to the environment in all 5 continents.

Solar Water Heating Systems

FCK
FORCED CIRCULATION KITS

FOR HOT WATER PRODUCTION BY SOLAR ENERGY

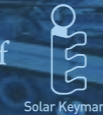
The new series of Forced Circulation Kits, have been designed in order to cope with the demands of any market all over the world, specializing in any application where hot water is demanded.

Durable
Withstanding 22,5 bar pressure!!!



SOLE S.A.

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www.eurostar-solar.com

SOLAR SYSTEM AT BURJ KHALIFA

EcoCollector



The EUROSTAR ECO collector casing is made of specially designed extruded aluminum profile, without any external connections, screws, nuts or rivets. The high density rockwool insulation will maintain very high temperatures achieving an incredibly high efficiency.

The absorber is composed of Blue Selective Aluminum fins of 0.50mm thickness, welded to copper pipes with laser welding.

The thermal liquid achieves maximum transfer of heat to the water while protecting the system against scaling, rusting, freezing and overheating.

Eurostar Floor Standing Tank



The EUROSTAR Floor Standing tank is made of low carbon steel with a double "enamelling" coating (glass), oven treated at 860°C.

The FREON FREE high density polyurethane insulation maintains hot water for many days.

The magnesium anode effectively protects the cylinder from electrolysis. The backup electric heater ensures hot water even in very cloudy days.

SOLE's Solar Systems are manufactured in compliance with the International Standards for Quality Assurance ISO 9001:2015.

The collector's performance and reliability is tested according to EN 12975-2 and has been granted with the Solar Keymark Certificate and TÜV Certificate for max pressure of 22,5 bar.

SYSTEM SPECIFICATIONS

SOLAR COLLECTORS							
TYPE	S100	S125	S150	S200	S230	S260	
AREA OF COLLECTOR m ²	0.99	1.23	1.48	1.88	2.28	2.64	
DIMENSIONS mm	1026x960x81	1280x960x81	1540x960x81	1960x960x81	1960x1165x81	2135x1238x81	
WEIGHT kg	20,00	22,00	24,00	29,50	35,50	40,00	
FRAME	Aluminum profile. Free of screws and rivets.						
COVER	Tempered low iron prismatic glass 3.2 mm. 90,5% transmission.						
SEALING	Acrylic foam - Structural Silicon						
INSULATION	Rockwool 40mm (50kg/m ³) back and Glass wool 20 mm (30kg/m ³) sides						
ABSORBER MATERIAL	Blue Selective Aluminum fins 0.50mm thickness, welded to copper pipes with laser welding.						
ABSORPTION (α)	95% (± 0.02)						
EMISSIVITY (ε)	5% (± 0.02)						
EFFICIENCY (η ₀)	0.763						
MAX. TEST PRESSURE	2250kPa (22.5 bar)						
MAX. WORKING PRESSURE	1500kPa (15 bar)						
STAGNATION TEMPERATURE	164°C						

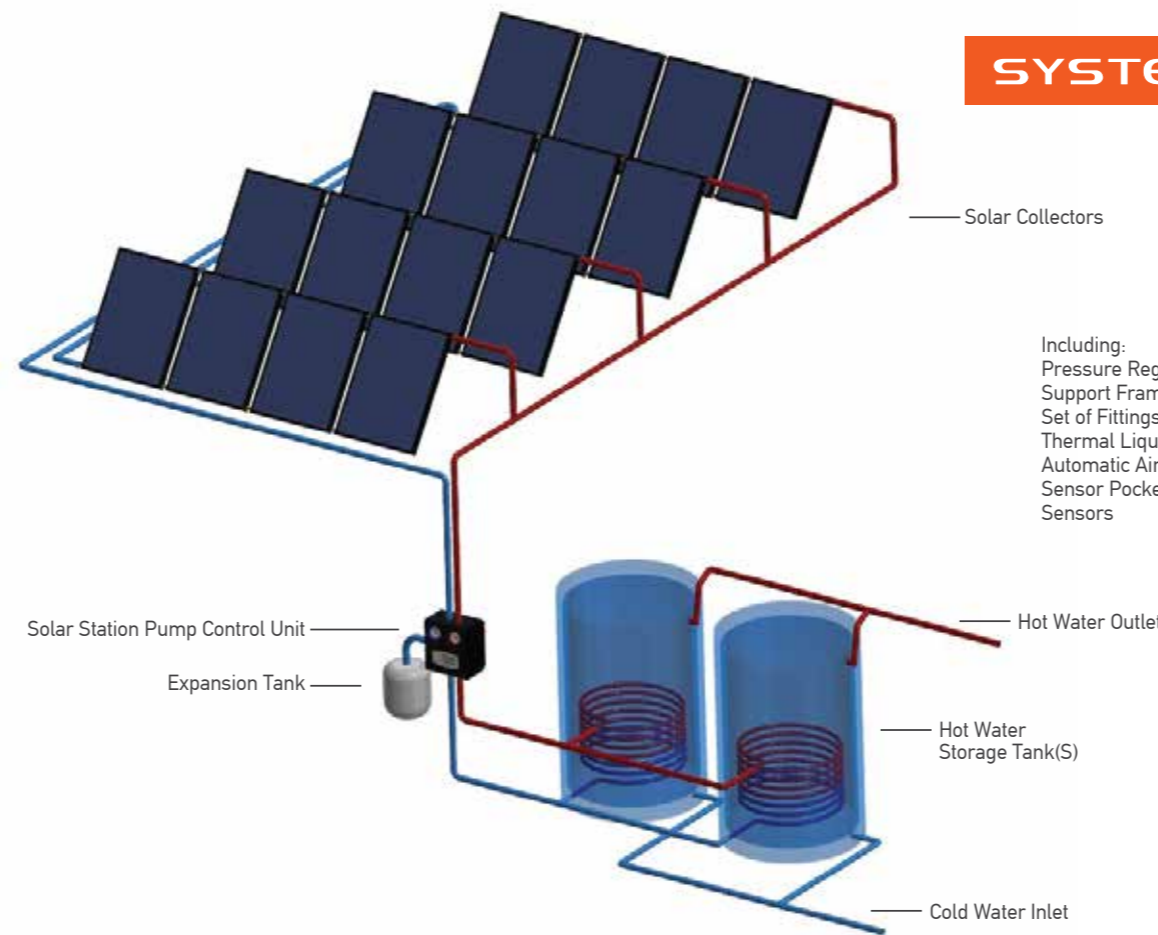
FLOOR STANDING TANKS BL1 / BL2 / CBL1 / CBL2													
TYPE BL1/BL2/CBL1/CBL2	160	200	300	400	500	800	1000	1500	2000	2500	3000	4000	5000
NOMINAL CAPACITY (lt)	160	200	300	400	500	800	1000	1500	2000	2500	3000	4000	5000
WEIGHT EMPTY (kg) BL1	54	65	92	137	145	215	233	325	442	-	552	576	699
WEIGHT EMPTY (kg) BL2	66	70	100	146	158	220	279	365	486	-	567	593	720
BOILER BODY	The boiler "body" is made from steel plate S235JR. The boiler is (glass) enamelled with the advanced double "direct" method "fired" at 860°C for tanks up to 2000ltr and epoxy resins for tanks larger than 2000ltr												
HEAT EXCHANGER	Internal heat exchanger made from Enamelled Steel or copper (depending on the size). Stainless steel heat exchanger also available.												
INSULATION	Freon free Polyurethane 50-100mm (40kg/m ³) casted under pressure or flexible (tanks larger than 500ltr).												
EXTERNAL COVER	Coloured PVC flexible jacket with zipper.												
ANODE PROTECTION	Magnesium rod.												
MAX. WORKING PRESSURE	6-10 bar upon request.												

BL1= Storage tank with 1 heat exchanger
BL2 = Storage tank with 2 heat exchangers
Optional electric element 2-24kW

CBL1 = Storage tanks with 1 removable heat exchanger
CBL2 = Storage tanks with 2 removable heat exchangers

DATA, DESCRIPTIONS, TECHNICAL CHARACTERISTICS AND ACCESSORIES ARE ONLY INDICATIVE.
NOT BINDING AND CAN BE SUBJECTED TO VARIATIONS

SYSTEM COMPONENTS



Including:
Pressure Regulator
Support Frames
Set of Fittings and Accessories
Thermal Liquid
Automatic Air Vents
Sensor Pockets
Sensors



FORCED CIRCULATION KITS

MODEL	STORAGE TANK	COLLECTOR	PRESSURE REGULATOR	SOLAR STATION (PUMP CONTROL UNIT)	EXPANSION TANK	SUPPORT FRAME	SET OF FITTING ACCESSORIES	THERMAL LIQUID
FCK 200	FCK 200	2 x ECO S260	1	1	1	1	1	2
FCK 300	FCK 300	3 x ECO S260	1	1	1	2	1	2
FCK 500	FCK 500	4 x ECO S260	1	1	1	2	1	3
FCK 800	FCK 800	5 x ECO S260	1	1	1	3	1	4
FCK 1000	FCK 1000	6 x ECO S260	1	1	1	3	1	4

Systems with tanks including two heat exchangers are available. Larger projects are designed upon request.



HYGIENIC COMBI TANKS series SOLE BF INOX

vertical models
500, 800, 1000, 1500 L



SOLE BF-0 INOX
without coil

SOLE BF-1 INOX -
with one coil

SOLE BF-2 INOX -
with two coils

INSTALLATION and OPERATION MANUAL

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Dear Customers,


We strongly hope that the appliance you have bought from us will contribute to creating comfort at your homes and decreasing the energy expenditure.

This manual contains important information for the safe and correct installation, start-up and trouble-free operation and maintenance of the water heater.

Hygienic Combi Tanks can be used only in the manner described in this manual – to produce and accumulate sanitary hot water and hot water for space-heating system.

The application and any other was the area of operation is not recommended by the manufacturer and is not responsible for the occurrence of defects or failures.

1. INSTRUCTIONS TO INSTALLER

	<p>The preparation, installation and commissioning must be performed by an authorized installer / service.</p>
---	---

During installation and operation, the country specific requirements and regulations must be observed:

- local construction regulations on installation of water tank; weight of the boiler to comply with the stability of the floor of the room where it will be installed.
- regulations and norms concerning the fitting of the installation with safety devices.

- safety during installation - personal protective equipment

	<p>Use only original parts.</p>
---	--

1.1. Requirements to Water Tank installation room

When choosing a room for tank installation observe the following requirements:

- to have a drainage channel. Some maintenance procedures require draining of all water from the tank.
- Thermal insulation of the room. This provides efficiency of the appliance and prevents the water from freezing.

1.2. Requirements for installation.

- The length of connecting pipes between the water tank and consumer must be as short as possible.
- Before connecting the water tank to the installation, check all screw connections (plug and etc.). In very rare cases - during transportation, loading and unloading operations - the screw connections may be loosen.
- Before commissioning, check the installation for leaks
- Do not exceed the working pressure of 3 bar for buffer tank and 6 bar for hygienic stainless steel coil.
- If there is a risk of freezing of water in the tank - drain the tank completely or let the water tank works continuously.

2. DESCRIPTION ON HYGIENIC COMBI TANK



Hygienic Combi tanks are used to produce and accumulate sanitary hot water and hot water for space-heating system.

Coil-in-Tank construction - Flexible stainless-steel coil for sanitary hot water + Buffer tank powering space-heating system. Sanitary water heats up instantaneously as it flows through the large surface stainless coil. Thus water is delivered hot while still fresh and clean of depositions.

SOLE BF INOX series - Inlet/Outlet arrangement – 90 angle degrees.

SOLE BF-0 INOX models, the heat source is an electric heater.

SOLE BF-1 INOX models have a built-in heat exchanger (coil type) designed to connect to a solar installation or boiler. Option for installation of an electric heating element.

SOLE BF-2 INOX models have two built-in heat exchanger (coil type) for connection to the solar system and boiler. Option for installation of an electric heating element.

2.1. Removable insulation and outer casing.

The quality of the insulation of a water heater is a key factor for its heat conservation capability and energy efficiency.

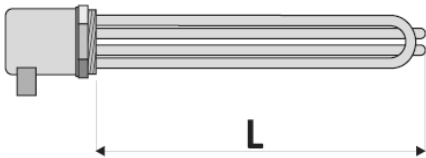
All Hygienic Combi tanks HYG series/ HYG-B series have Removable insulation with thickness 100 mm (DIN 4753, part 8) and outer casing of PVC with RAL 9006 color.

2.2. Water tank.

Floor standing. Water tank is made of low-carbon steel S235JR, DHW tube of sanitary grade stainless steel -316L, heats up instantaneously. All threads are internal (see technical parameters).

2.3. Electric heating element.

Outlet connection of electric heating element 1 1/2" :
3000W/230V;4500W/230V;6000W/230V;
7500W/400V.

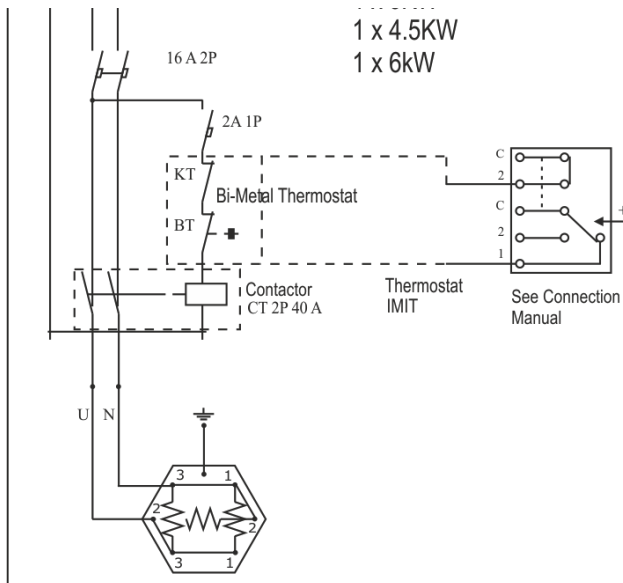


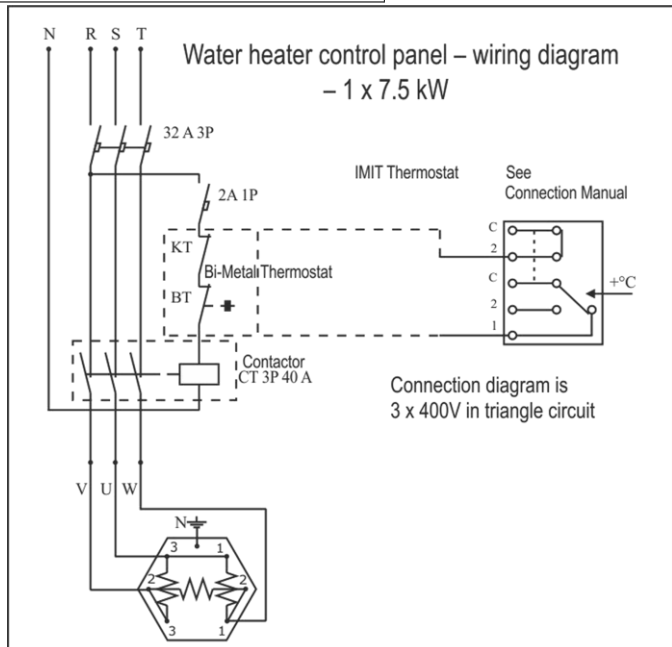
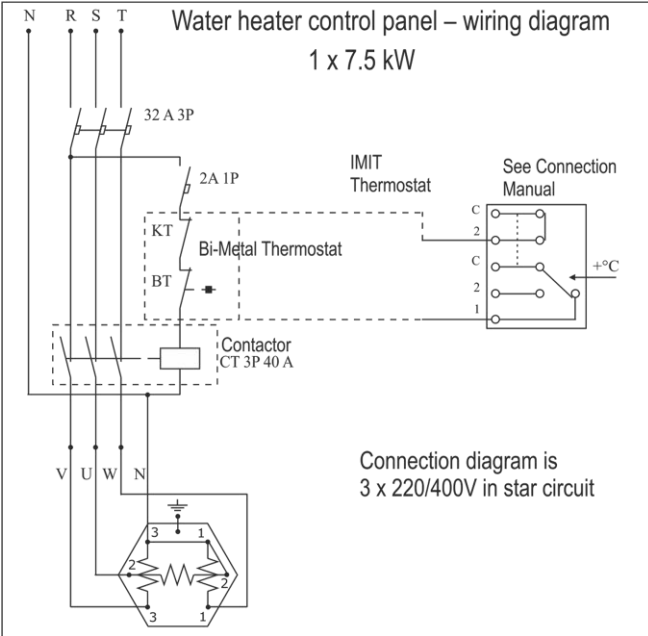
The connection of the electric heating element to the electric power supply must be done by a qualified electricians.
When connect the heating element to the electric network, make sure that it is properly grounded.

In the table of technical parameters is specified location for installation of electric heating element.

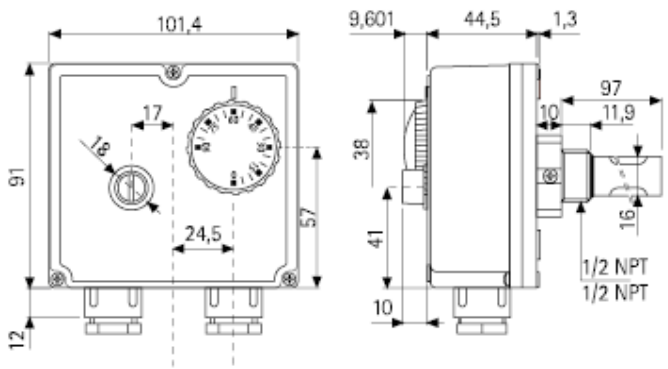
Water tank, L	Connection	Length L, mm	Current, W	Voltage, V
500	1 1/2"	410	6000	230
800	1 1/2"	590	7500	230/400
1000	1 1/2"	590	7500	230/400
1500	1 1/2"	590	7500	230/400

Wiring diagrams





2.4.Thermostat



sheme 1

The thermostat may be adjusted by the user within the range $30^{\circ}\text{C} \div 80^{\circ}\text{C}$, and the thermal protection would go off in case the water reaches 95°C .

This is an adjustable double THERMOSTAT which is designed to regulate the water temperature and ensures safety tolerance; it can be manually adjusted (TLSC model) or automatically adjusted (TLSC/A model).



CONFORMITY TO STANDARDS

This product is in conformity with:
- EN 60730-1 and subsequent editions;
- EN 60730-2-9

CONFORMITY TO REGULATIONS

This product complies with:
- Low Voltage Directive 73/23 EEC
- Electromagnetic Compatibility Directive 89/336/EC

TECHNICAL CHARACTERISTICS

Temperature range – regulation- $0^{\circ}\text{C} \div 90^{\circ}\text{C}$;
limit - $90^{\circ}\text{C} \div 110^{\circ}\text{C}$;
Tolerance
Regulation $\pm 5\text{k}$,
limit – $15\text{ k}; -6\text{ k}$ (depends on the type)

Temperature differential

Regulation $6 \pm 2\text{ k}; 4 \pm 1\text{ k}$ (depends on the type)
Limit $25 \pm 8\text{ k}; 15 \pm 8\text{ k}$ (depends on the type)

Automatic adjustment (TLSC/A) and manual adjustment (TLSC).

Degree of protection = IP 40

Insulation class = I.

Temperature change rate = $<1\text{K}/\text{min}$.

Maximal temperature point: 80°C

Maximal temperature for electric lamp: 125°C

Accumulation temperature: $15^{\circ}\text{C} \div 55^{\circ}\text{C}$
Maximum pressure of the cartridge: 10 bar

Constant time: $< 1''$

Electric connection:

C-1 ADJ.: $10(2,5)\text{A}/250\text{V}^{\circ}$;

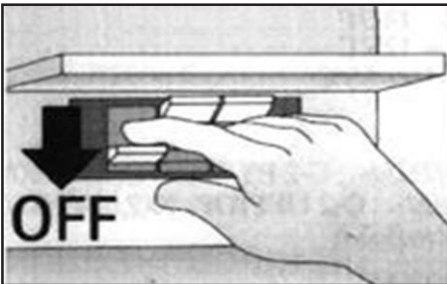
C-2 ADJ.: $6(2,5)\text{A}/250\text{V}^{\sim}$;

C-1LIM.:0,5A/250V~;
C2LIM.:10(2,5)A/250V~;
Terminal – circuit breaker or
switch-on contacts.
Switch-on action – 2B.
Place of installation – normal.
Type of wire – M20 x 1.5.

	<p>WARNING ! All installation operations, including manual adjustments, must be fulfilled by a qualified specialist following all safety conditions.</p>
--	---

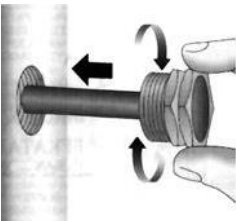
INSTALLATION AND CONNECTION .
Safety instructions:

Before connecting the thermostat, make sure that THE UNIT TO BE THERMALLY CONTROLLED (water heater, pump, etc.) IS NOT CONNECTED to the power supply network, and is in compliance with the instructions in Figure

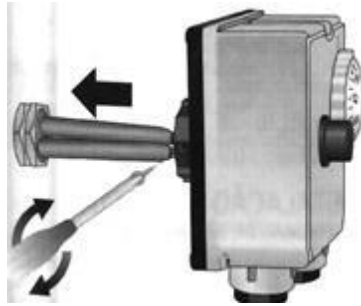


sheme 2

a)) See scheme 3 and scheme 4.

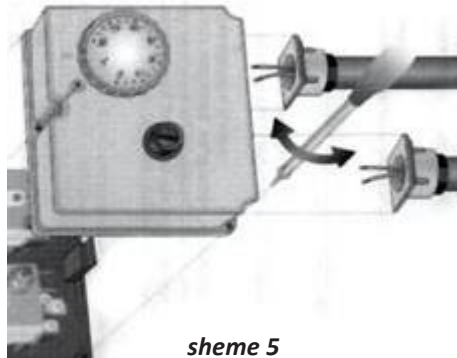


sheme 3

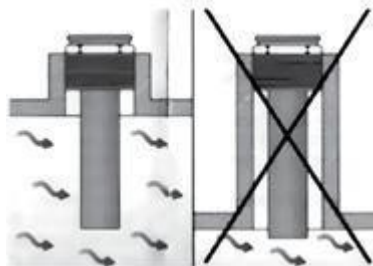


sheme 4

b) Unscrew the three bolts and remove the front part of the thermostat. Unravel the power supply wires and connect them to the terminals of the thermostat (Figure 5) following the instructions.



sheme 5



sheme 6

NOTE: See Scheme 6.

To close the front part, the cartridge opening must align with the coupling of the adjustment knob.

**CONNECTION
(Scheme 7)**

LIMITATION

TERMINAL 2 – opens the circuit when the temperature rises.

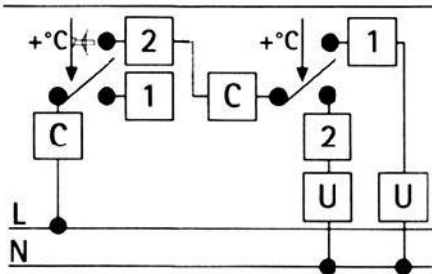
TERMINAL C – common contact.

THERMOSTAT

TERMINAL 1 – opens the circuit when the temperature rises.

TERMINAL 2 – closes the circuit when the temperature rises

TERMINAL C – common contact

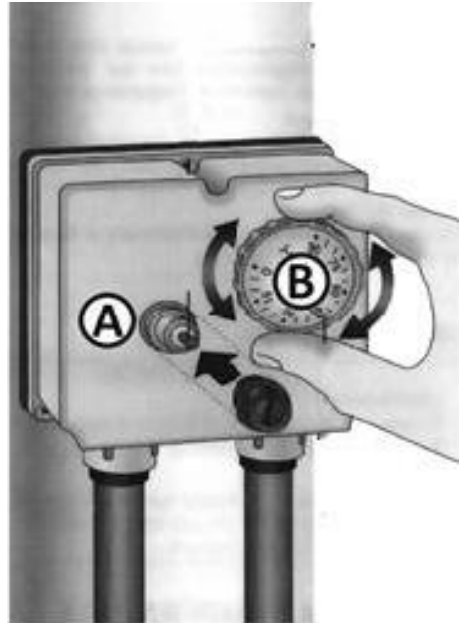


scheme 7

**TEMPERATURE ADJUSTMENT
(see Scheme 8)**

A – Reset button (only for TLSC)

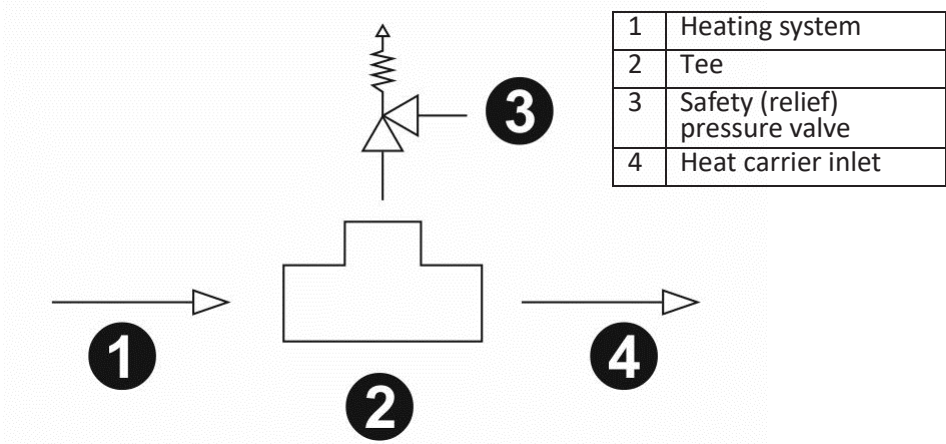
B – Knob for temperature adjustment



scheme 8

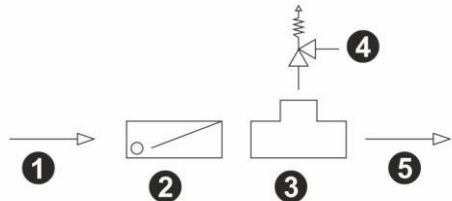
3. CONNECTING OF RELIEF VALVE TO WATER TANK

3.1. Connecting of Buffer tank.



2. Connecting of Stainless HYG coil.

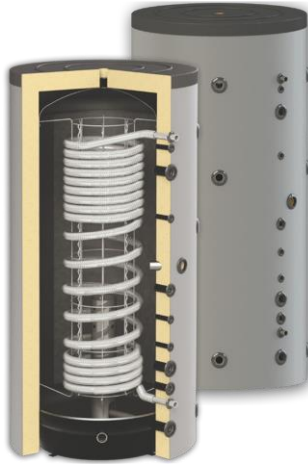
Stop (Shut-off) valves should never be installed between a safety (relief) valve and the tank. It is recommended once a year to check the operation of the safety valve.



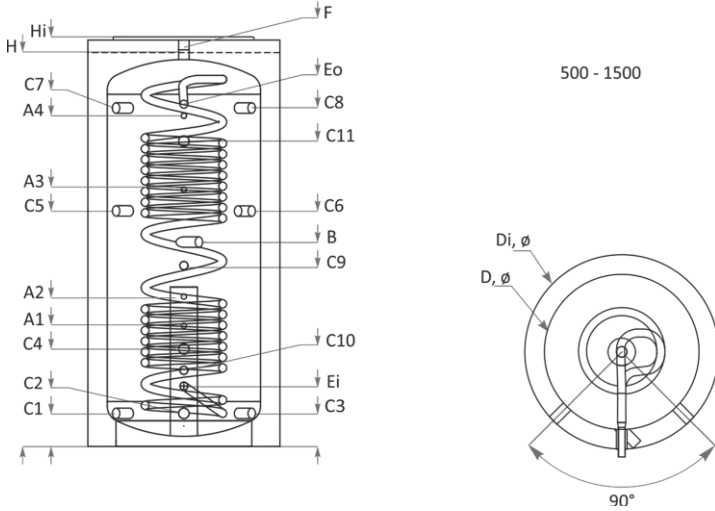
1	Cold water inlet - water supply
2	Check (return) valve
3	Tee
4	Safety (relief) pressure valve
5	Cold water inlet - coil

4. TECHNICAL PARAMETERS TO HYGIENIC COMBI TANK

4.1. SOLE BF-0 INOX - without coil



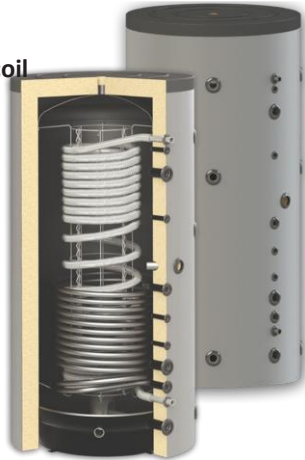
		SOLE BF-0 500 INOX	SOLE BF-0 800 INOX	SOLE BF-0 1000 INOX	SOLE BF-0 1500 INOX
Capacity	L	500	800	1000	1500
Capacity of water tank DHW / Buffer tank	L1/L2	22/478	25/775	25/975	40/1460
Height without insulation / with insulation	H, Hi, mm	1700/1750	1840/1890	2040/2090	2170/2220
Min. vertical clearance	mm	1720	1865	2074	2262
Diameter without insulation / with insulation	D, mm	∅ 650/850	∅ 790/990	∅ 790/990	∅ 1000/1200
Heat exchange surface	E, m ²	5.5	6.11	6.11	9.9
Operating pressure / Max. buffer temp	bar/°C	3/95	3/95	3/95	3/95
Operating pressure / Max. DHW tube temp.	bar/°C	6/95	6/95	6/95	6/95
Weight without insulation / with insulation	kg, kg i	119/131	155/171	164/182	266/289
Recommended boiler size, connected to buffer tank	kW	44	75	75	114
Continuous outflow 10/45°C, buffer tank is charged to 65°C	E, 10/45°C, L/h	1080	1840	1840	2800
Continuous outflow 10/38°C, buffer tank is charged to 65°C	E, 10/38°C, L/h	1350	2300	2300	3500
Single discharge capacity up to 38°C (when the buffer is charged to 65°C)	E, 38°C, L	375	580	790	1150
ΔT -temperature difference between buffer tank and DHW at flow rate 30/40/50 liters/minute..	E, ΔT	6/8/12	3.5/5/8	3.5/5/8	2/3/5
Water stratification unit	∅, mm	∅140	∅140	∅140	∅140
Thermometer	T	option			
Electric Heater		option			



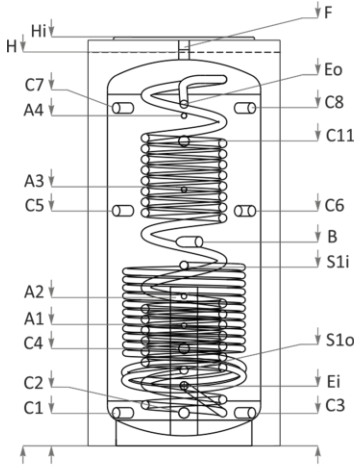
500 - 1500

		SOLE BF-0 500 INOX	SOLE BF-0 800 INOX	SOLE BF-0 1000 INOX	SOLE BF-0 1500 INOX
Boiler heat carrier outlet	C1, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Boiler heat carrier outlet	C2, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Boiler heat carrier outlet	C3, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Boiler heat carrier outlet	C10, mm	Rp1"/325	Rp1"/350	Rp1"/390	Rp1"/445
Boiler heat carrier	C4, mm	Rp1"/430	Rp1"/470	Rp1"/500	Rp1"/690
Boiler heat carrier	C5, mm	Rp1 ^{1/2} "/1030	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1210	Rp1 ^{1/2} "/1405
Boiler heat carrier	C6, mm	Rp1 ^{1/2} "/1030	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1210	Rp1 ^{1/2} "/1405
Heat carrier inlet	C7, mm	Rp1 ^{1/2} "/1450	Rp1 ^{1/2} "/1550	Rp1 ^{1/2} "/1740	Rp1 ^{1/2} "/1820
Heat carrier inlet	C8, mm	Rp1 ^{1/2} "/1450	Rp1 ^{1/2} "/1550	Rp1 ^{1/2} "/1740	Rp1 ^{1/2} "/1820
Heat carrier inlet	C9, mm	Rp1"/775	Rp1"/845	Rp1"/930	Rp1"/1045
Heat carrier inlet	C11, mm	Rp1 ^{1/2} "/1360	Rp1 ^{1/2} "/1410	Rp1 ^{1/2} "/1570	Rp1 ^{1/2} "/1720
Sensor sleeve	A1, mm	Rp1 ^{1/2} "/540	Rp1 ^{1/2} "/590	Rp1 ^{1/2} "/620	Rp1 ^{1/2} "/800
Sensor sleeve	A2, mm	Rp1 ^{1/2} "/650	Rp1 ^{1/2} "/710	Rp1 ^{1/2} "/770	Rp1 ^{1/2} "/920
Sensor sleeve	A3, mm	Rp1 ^{1/2} "/1140	Rp1 ^{1/2} "/1160	Rp1 ^{1/2} "/1320	Rp1 ^{1/2} "/1520
Sensor sleeve	A4, mm	Rp1 ^{1/2} "/1420	Rp1 ^{1/2} "/1520	Rp1 ^{1/2} "/1700	Rp1 ^{1/2} "/1790
Boiler heat carrier / Electric heating element	B, mm	Rp1 ^{1/2} "/900	Rp1 ^{1/2} "/930	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1280
Air Vent	F, mm	Rp1 ^{1/2} "/1700	Rp1 ^{1/2} "/1840	Rp1 ^{1/2} "/2040	Rp1 ^{1/2} "/2170
Inlet/outlet DHW coil (tube)	Ei/Eo, mm Rp1"	250/1480	270/1590	310/1760	345/1850

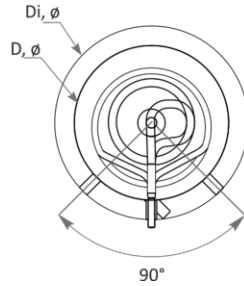
4.2. SOLE BF-1 INOX - with one coil



		SOLE BF-1 500 INOX	SOLE BF-1 800 INOX	SOLE BF-1 1000 INOX	SOLE BF-1 1500 INOX
Capacity	L	500	800	1000	1500
Capacity of water tank DHW / Buffer tank	L1/L2	22/478	25/775	25/975	40/1460
Height without insulation / with insulation	H, Hi, mm	1700/1750	1840/1890	2040/2090	2170/2220
Min. vertical clearance	mm	1720	1865	2074	2262
Diameter without insulation / with insulation	D, mm	Ø 650/850	Ø 790/990	Ø 790/990	Ø 1000/1200
Heat exchange surface	E, m ²	5.5	6.11	6.11	9.9
Lower heat exchanger coil S1 Heat exchange surface	S1, m ²	1.7	2.9	3.0	3.4
Lower heat exchanger coil - capacity S1	L	10.5	17.9	18.5	21.0
Heating power of the lower / upper coil (from an additional heat source)	kW	37	72	75	91
Lower / Upper Productivity 80°C/60°C (from an additional heat source)	L/h	1590	3095	3224	3912
Recommended Absorber Heat exchange surface of Solar Collectors	m ²	8.00	12.00	14.00	22.00
Operating pressure/Max. coil temperature	bar/°C	16/110	16/110	16/110	16/110
Operating pressure / Max. buffer temp	bar/°C	3/95	3/95	3/95	3/95
Operating pressure / Max. DHW tube temp.	bar/°C	6/95	6/95	6/95	6/95
Weight without insulation / with insulation	kg, kg i	142/154	188/204	210/228	331/354
Recommended boiler size, connected to buffer tank	kW	44	75	75	114
Continuous outflow 10/45°C, buffer tank is charged to 65°C	E, 10/45°C, L/h	1080	1840	1840	2800
Continuous outflow 10/38°C, buffer tank is charged to 65°C.	E, 10/38°C, L/h	1350	2300	2300	3500
Single discharge capacity up to 38°C (when the buffer is charged to 65°C)	E, 38°C, L	375	580	790	1150
ΔT - temperature difference between buffer tank and DHW at flow rate 30/40/50 liters/minute..	E, ΔT	6/8/12	3.5/5/8	3.5/5/8	2/3/5
Water stratification unit	Ø, mm	Ø140	Ø140	Ø140	Ø140



500 - 1500

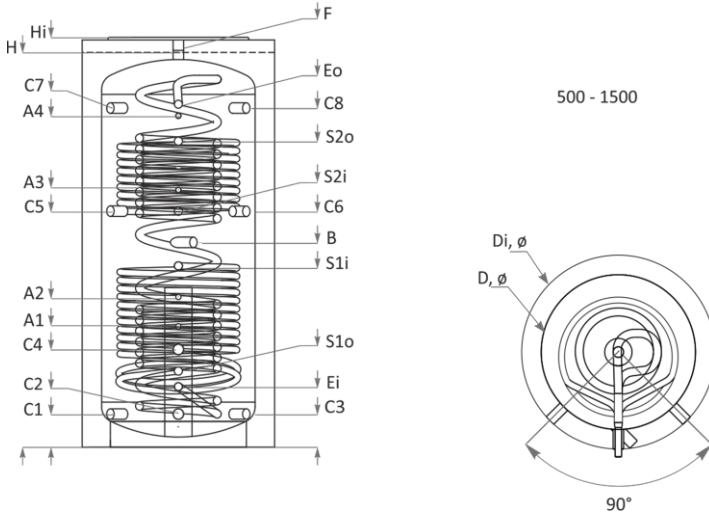


		SOLE BF-1 500 INOX	SOLE BF-1 800 INOX	SOLE BF-1 1000 INOX	SOLE BF-1 1500 INOX
Boiler heat carrier outlet	C1, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Boiler heat carrier outlet	C2, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Boiler heat carrier outlet	C3, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Outlet heat carrier/lower coil S1	S1o, mm	Rp1"/325	Rp1"/350	Rp1"/390	Rp1"/445
Boiler heat carrier	C4, mm	Rp1"/430	Rp1"/470	Rp1"/500	Rp1"/690
Boiler heat carrier	C5, mm	Rp1 ^{1/2} "/1030	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1210	Rp1 ^{1/2} "/1405
Boiler heat carrier	C6, mm	Rp1 ^{1/2} "/1030	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1210	Rp1 ^{1/2} "/1405
Heat carrier inlet	C7, mm	Rp1 ^{1/2} "/1450	Rp1 ^{1/2} "/1550	Rp1 ^{1/2} "/1740	Rp1 ^{1/2} "/1820
Heat carrier inlet	C8, mm	Rp1 ^{1/2} "/1450	Rp1 ^{1/2} "/1550	Rp1 ^{1/2} "/1740	Rp1 ^{1/2} "/1820
Inlet heat carrier/lower coil S1	S1i, mm	Rp1"/775	Rp1"/845	Rp1"/930	Rp1"/1045
Heat carrier inlet	C11, mm	Rp1 ^{1/2} "/1360	Rp1 ^{1/2} "/1410	Rp1 ^{1/2} "/1570	Rp1 ^{1/2} "/1720
Sensor sleeve	A1, mm	Rp ^{1/2} "/540	Rp ^{1/2} "/590	Rp ^{1/2} "/620	Rp ^{1/2} "/800
Sensor sleeve	A2, mm	Rp ^{1/2} "/650	Rp ^{1/2} "/710	Rp ^{1/2} "/770	Rp ^{1/2} "/920
Sensor sleeve	A3, mm	Rp ^{1/2} "/1140	Rp ^{1/2} "/1160	Rp ^{1/2} "/1320	Rp ^{1/2} "/1520
Sensor sleeve	A4, mm	Rp ^{1/2} "/1420	Rp ^{1/2} "/1520	Rp ^{1/2} "/1700	Rp ^{1/2} "/1790
Boiler heat carrier / Electric heating element	B, mm	Rp1 ^{1/2} "/900	Rp1 ^{1/2} "/930	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1280
Air Vent	F, mm	Rp1 ^{1/2} "/1700	Rp1 ^{1/2} "/1840	Rp1 ^{1/2} "/2040	Rp1 ^{1/2} "/2170
Inlet/outlet DHW coil (tube)	Ei/Eo, mm Rp1"	250/1480	270/1590	310/1760	345/1850
Thermometer	T	option			
Electric Heater		option			

4.3. SOLE BF-2 INOX - with two coils



		SOLE BF-2 500 INOX	SOLE BF-2 800 INOX	SOLE BF-2 1000 INOX	SOLE BF-2 1500 INOX
Capacity	L	500	800	1000	1500
Capacity of water tank DHW / Buffer tank	L1/L2	22/478	25/775	25/975	40/1460
Height without insulation / with insulation	H, Hi, mm	1700/1750	1840/1890	2040/2090	2170/2220
Min. vertical clearance	mm	1720	1865	2074	2262
Diameter without insulation / with insulation	D, mm	∅ 650/850	∅ 790/990	∅ 790/990	∅ 1000/1200
Heat exchange surface	E, m ²	5.5	6.11	6.11	9.9
Heat exchange surface - Lower/Upper coil S1/S2	S1, S2m ²	1.7/1.0	2.9/1.8	3.0/2.0	3.4/2.4
Capacity Lower/Upper coil S1/S2	L	10.5/6.2	17.9/11.1	18.5/12.3	21.0/14.8
Heating power of the lower / upper coil (from an additional heat source)	kW	37/19	72/39	75/42	91/55
Lower / Upper Productivity 80°C/60°C (from an additional heat source)	L/h	1590/816	3095/1677	3224/1806	3912/2365
Recommended Absorber Heat exchange surface of Solar Collectors	m ²	8.00	12.00	14.00	22.00
Operating pressure/Max. coil temperature	bar/°C	16/110	16/110	16/110	16/110
Operating pressure / Max. buffer temperature	bar/°C	3/95	3/95	3/95	3/95
Operating pressure / Max. DHW tube temperature.	bar/°C	6/95	6/95	6/95	6/95
Weight without insulation / with insulation	kg, kg i	164/176	213/229	230/248	352/375
Recommended boiler size, connected to buffer tank	kW	44	75	75	114
Continuous outflow 10/45°C, buffer tank is charged to 65°C	E, 10/45°C, L/h	1080	1840	1840	2800
Continuous outflow 10/38°C, buffer tank is charged to 65°C.	E, 10/38°C, L/h	1350	2300	2300	3500
Single discharge capacity up to 38°C (when the buffer is charged to 65°C)	E,38°C, L	375	580	790	1150
ΔT -temperature difference between buffer tank and DHW at flow rate 30/40/50 liters/minute..	E, ΔT	6/8/12	3.5/5/8	3.5/5/8	2/3/5
Water stratification unit	∅, mm	∅140	∅140	∅140	∅140



500 - 1500

		SOLE BF-2 500 INOX	SOLE BF-2 800 INOX	SOLE BF-2 1000 INOX	SOLE BF-2 1500 INOX
Boiler heat carrier outlet	C1, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Boiler heat carrier outlet	C2, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Boiler heat carrier outlet	C3, mm	Rp1 ^{1/2} "/150	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/170	Rp1 ^{1/2} "/235
Outlet heat carrier/lower coil S1	S1o, mm	Rp1 ¹ "/280	Rp1 ¹ "/310	Rp1 ¹ "/310	Rp1 ¹ "/375
Boiler heat carrier	C4, mm	Rp1 ¹ "/430	Rp1 ¹ "/470	Rp1 ¹ "/500	Rp1 ¹ "/690
Boiler heat carrier	C5, mm	Rp1 ^{1/2} "/1030	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1210	Rp1 ^{1/2} "/1405
Outlet heat carrier/upper coil S2	S2o, mm	Rp1 ^{1/2} "/1030	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1210	Rp1 ^{1/2} "/1405
Heat carrier inlet	C7, mm	Rp1 ^{1/2} "/1450	Rp1 ^{1/2} "/1550	Rp1 ^{1/2} "/1740	Rp1 ^{1/2} "/1820
Heat carrier inlet	C8, mm	Rp1 ^{1/2} "/1450	Rp1 ^{1/2} "/1550	Rp1 ^{1/2} "/1740	Rp1 ^{1/2} "/1820
Inlet heat carrier/lower coil S1	S1i, mm	Rp1 ¹ "/775	Rp1 ¹ "/845	Rp1 ¹ "/930	Rp1 ¹ "/1045
Inlet heat carrier/upper coil S2	S2i, mm	Rp1 ^{1/2} "/1360	Rp1 ^{1/2} "/1410	Rp1 ^{1/2} "/1570	Rp1 ^{1/2} "/1720
Sensor sleeve	A1, mm	Rp1 ^{1/2} "/540	Rp1 ^{1/2} "/590	Rp1 ^{1/2} "/620	Rp1 ^{1/2} "/800
Sensor sleeve	A2, mm	Rp1 ^{1/2} "/650	Rp1 ^{1/2} "/710	Rp1 ^{1/2} "/770	Rp1 ^{1/2} "/920
Sensor sleeve	A3, mm	Rp1 ^{1/2} "/1140	Rp1 ^{1/2} "/1160	Rp1 ^{1/2} "/1320	Rp1 ^{1/2} "/1520
Sensor sleeve	A4, mm	Rp1 ^{1/2} "/1420	Rp1 ^{1/2} "/1520	Rp1 ^{1/2} "/1700	Rp1 ^{1/2} "/1790
Boiler heat carrier / Electric heating element	B, mm	Rp1 ^{1/2} "/900	Rp1 ^{1/2} "/930	Rp1 ^{1/2} "/1050	Rp1 ^{1/2} "/1280
Air Vent	F, mm	Rp1 ^{1/2} "/1700	Rp1 ^{1/2} "/1840	Rp1 ^{1/2} "/2040	Rp1 ^{1/2} "/2170
Inlet/outlet DHW coil (tube)	Ei/Eo, mm Rp1 ¹ "	250/1480	270/1590	310/1760	345/1850
Thermometer	T	option			
Electric Heater		option			

5. TRANSPORT AND PACKAGING

We recommend to transport the water tank to the installation site in its packaging placed on the pallet, and stretch foil.

During transport and installation, depending on the weight, appropriate safety equipment must be used in accordance with Directive 2006/42/EC.

When transporting items weighing more than 30 kg, the use of pallet jack, fork truck or other hoisting devices is a must.

Hygienic Combi Tanks can be with or without insulation. They are secured on a pallet packed with foil.

Insulation, decorative cover and rosettes can be delivered separately.

Advantages:

- Easy transportation (takes less space at transportation).
- Easy conveyance to the place of installation.
- Easy and quick packing of water heaters with soft insulation. All necessary openings in the casing are made beforehand, and the installer has only to find them and take them out.

The casing is fastened by a zipper at the assembly platform.

6. RECYCLING AND WASTE DISPOSAL

Submit all packaging material for recycling according to the local regulations and requirements.

At the end of life cycle of each product its components are due to be disposed of in conformity with regulatory prescriptions. According to Directive 2002/96/EC regarding electrical and electronic equipment waste, disposal thereof is required separately from the normal flow of solid household waste. Obsolete equipment shall be collected separately from other recyclable waste containing materials with adverse effect on health and environment.

Expired appliances must be collected separately from other recyclable waste containing substances hazardous to health and environment.

Both metal and non-metal parts are sold out to licensed organizations for recyclable metal or non-metal waste collection. In any case they should not be treated as household waste.



Pallet Dimensions	Capacity of Water tank, L			
	500	800	1000	1500
Without insulation, mm	700 x 810	800 x 950	800 X 950	1050 x 1160
With insulation, mm	700 x 810	800 x 950	800 X 950	1050 x 1160



SOLE S.A.
Λαϊκών Αγώνων & Λεύκτρων 13671, Αχαρναί, Αττική
GREECE

Sole
Solar Appliances Manufacturer

Collettore Solare D'aria

IT

www.eurostar-solar.com

AIRSOL

- Riscaldamento gratuito
- Non piu humidita

Sistema Solare Di Qualita

“AIRSOL” RISCALDATORE SOLARE è fatta da **SOLE S.A.** per il riscaldamento, deumidificazione e ventilazione degli edifici con aria calda.

Come funziona?

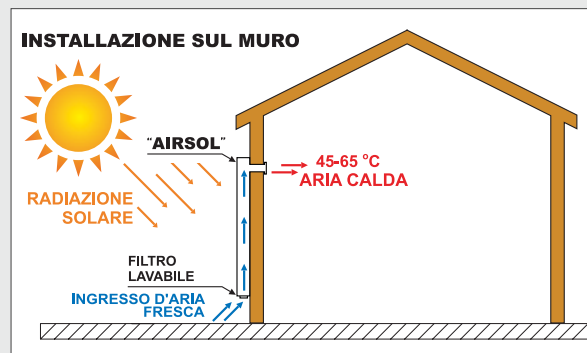
Il principio di base di questo sistema è il seguente:

La radiazione solare passa attraverso il vetro altamente trasmissivo e raggiunge l'assorbitore. L'assorbitore selettivo trasforma la radiazione in calore, che sta scaldando l'aria che passa attraverso. Il riscaldamento solare dell'aria viene trasferita nel palazzo, da un ventilatore, azionato da pannello fotovoltaico.

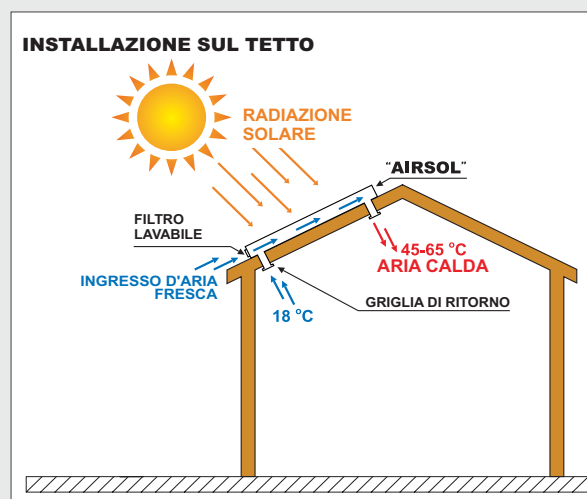
L' **aria fresca** entra nel dispositivo dopo essere **stata filtrata**, di essere libera da qualsiasi particelle e polvere.

Il ventilatore del collettore è messo in azione con energia fotovoltaica e assicura che il sistema funziona anche quando nessuno è al edificio, mantenendo gli edifici , **freschi e asciutti**, senza odori.

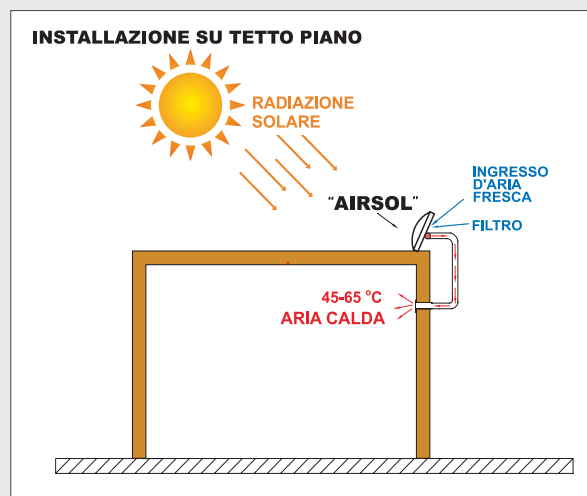
AIRSOL APPLICAZIONI CASA



Facilità d' installazione a sud, sud-est e sud ovest muri.



Installazione su **tetto inclinato** esposto a sud, sud-est.



In un edificio (casa) con **tetto piano** e condotti.

AIRSOL

COLLETTORE SOLARE D'ARIA PER RISCALDAMENTO

Vantaggi

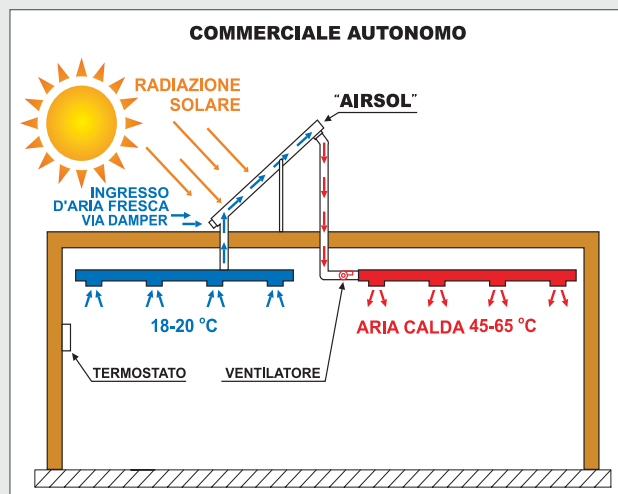
Riscaldamento diretto gratuitamente con l'energia solare:

- **Risparmio di carburante per riscaldamento da 50-80%** in case o edifici commerciali.
- **Ideale per le casette, mantenendole calde e fresche.** Non più l'umidità.
- **Ideale per luoghi che hanno bisogno di riscaldamento e ricambio dell'aria come ad esempio:**
 - scuole,
 - uffici,
 - fabbriche.
- **Ideale per ambienti chiusi come magazzini sotterranei, ecc.**
- **Installazioni molto semplici anche "fai da te"**

Riscaldamento gratuito con l'energia solare

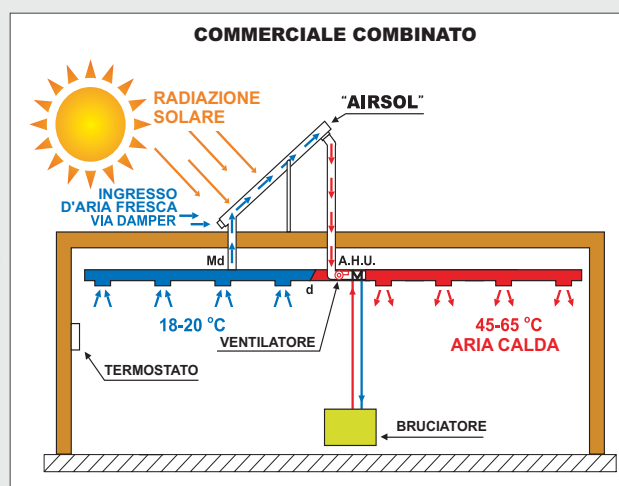


APPLICAZIONI COMMERCIALI CON COLLETTORI IN SERIE



Raccomandato per

- Industrie
- Super mercati
- Campi militari
- Alberghi
- Magazzini
- In generale, ovunque tu hai bisogno di riscaldamento, deumidificazione, d'aria fresca e filtrata
- Scuole
- Uffici
- Ospedali
- Palestre



Può essere utilizzato sia come l'unica derivazione di riscaldamento o come sistema ausiliario. Può essere combinato con olio o naturale caldaia a gas (bruciatori).

Dalla sua fondazione nel 1974, SOLE S.A. è dedicata alla protezione dell'ambiente e la riduzione delle emissioni di CO². SOLE SA dispone numerosi premi e riconoscimenti, contribuendo con i loro prodotti al miglioramento dell'ambiente nei 5 continenti.

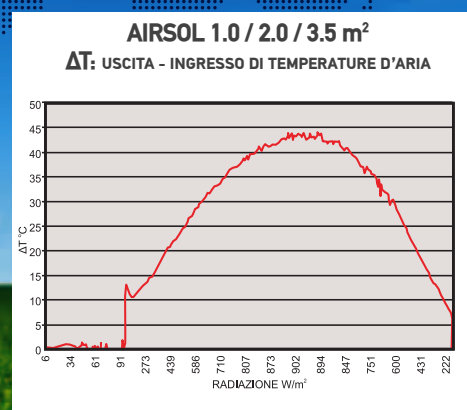
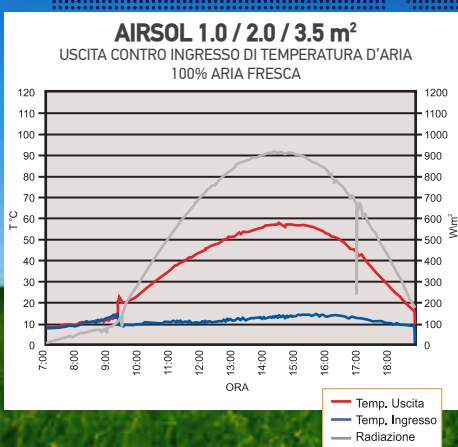
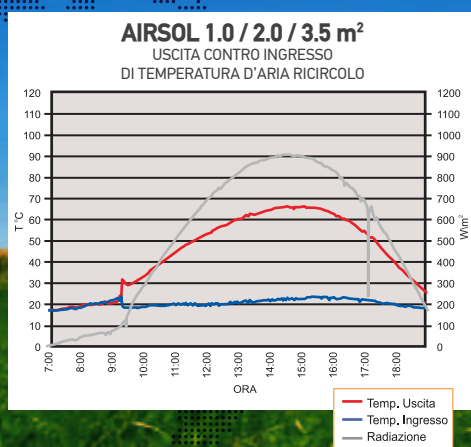
Il riscaldamento solare "AIRSOL" è prodotto in 3 dimensioni con "blu superficie selettiva" in fogli di alluminio selettivo pieno volto per la massima efficienza.

TIPO	DIMENSIONI (mm)	SUPERFICIE m ²	POTENZA NOMINALE**	RACCOMANDATI PER SPAZIO
AIRSOL 10	1492x658x170	0,98	700Wp	10 a 40 m ²
AIRSOL 20	2050x1040x195	2,13	1500Wp	20 a 60 m ²
AIRSOL 35	2830x1280x140	3,62	2700Wp	35 a 100 m ²

** valori calcolati con radiazione solare di 1000w / m²

Per la residenza permanente o locali di uso quotidiano basta selezionare il valore più basso dell'area spazio per migliorare le prestazioni e risparmio di carburante di oltre il 50%.

Per le case di campagna o di vacanza e altri luoghi con le esigenze di riscaldamento più bassi e soprattutto con la necessità di ventilazione e deumidificazione, selezionare il valore più alto della zona camera.



Sole S.A. – Lefktron & Laikon Agonon, 136 71 Acharnai - Atene - Grecia

TEL: (+30210) 2389500 | FAX: (+30210) 2389502 | e-mail: export@sole.gr | www.eurostar-solar.com



Certificate no. **PSK-002/2021**
Certificado nº

Name and address of the certificate holder:
Nome e morada do titular do certificado:

SOLE S. A.
Lefktron and Laikon Agonon,
Acharnai – 13671, Athens
Greece

Product:
Produto:

Thermal Solar System and components - Factory Made Systems
Instalação Solar Térmica prefabricada e seus componentes

Type references:
Referências:

120-1-T200; 150-1-T200; 150-1-T250; 150-1-T270; 200-1-T200; 200-1-T250; 200-1-T270; 200-2-T200; 300-2-T200; 300-2-T250; 300-2-T270

Trademark(s):
Marca(s) comercial(is):

EUROSTAR, AQUASOL, OLYMPUS, SUNLIT

Technical characteristics:
Características técnicas:

Summary of EN 12976 Test Results: Registration No. PSK-002/2019, (in annex)
Resumo dos resultados dos ensaios realizados segundo a norma EN 12976: Registo Nº PSK-002/2021 (em anexo)

This product is in conformity with:
Este produto está em conformidade com:

EN 12976-1:2017, EN 12976-2:2017

and with the Specific Keymark Scheme Rules for Solar Thermal Products
e com as Regras Particulares do CEN Keymark Scheme para Produtos Solares Térmicos.

Test report(s) no. / issued by:
Relatórios de ensaios nº(s) / emitidos por:

6117 DE1, 6118 DE1, 6118 F1 / DEMOKRITOS

Additional information (if any):
Informação adicional (se existir):

Type reference is always preceded by trademark
A referência é sempre precedida da marca comercial

This certificate is valid until:
Este certificado é válido até:
and supersedes certificate no:
e substitui o certificado nº:

2026-01-17

Date of issue:
Data de emissão:


2021-01-18



Francisco Barroca
General Manager / *Diretor Geral*



This Certificate includes one Annex with 12 (twelve) pages
Este Certificado é constituído por um Anexo com 12 (doze) páginas

Summary of		EN12976-2	SOLAR SYSTEM test results		Licence Number		PSK-002/2021					
Annex to Solar KEYMARK Certificate					Issued		2021-01-18					
Company		SOLE S.A.			Country		Greece					
Brand (optional)		BrandName			Website		www.sole.gr					
Street		Laikon Agonon & Lefktron			E-mail		export@sole.gr					
Postal Code		13671	Acharnes, Attica		Tel. / Fax		30	210 2389500				
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 specify:												
Solar+supplementary OR Solar-only / Solar pre-heat					Solar only / Solar preheat							
Collector(s)					Heat store(s)							
Company		SOLE S.A.			Company		SOLE S.A.					
Keymark lic.no. if available		PSK-001/2021			Keymark lic.no. if available		-					
Collector name		Per module			Store name		Total nominal volume	Gross height	Gross width	Gross depth	Auxiliary heated volume	Electrical aux. heating power
		Gross Area (Ag)	Gross length	Gross width								
		m ²	mm	mm								
CLIMASOL 2.00		1.91	1970	970	EUROSTAR 120		120	1080	500			
CLIMASOL 2.50		2.31	1970	1175	EUROSTAR 150		150	1320	500			
CLIMASOL 2.70		2.68	2146	1248	EUROSTAR 200		200	1320	530			
					EUROSTAR 300		300	2080	530			
Solar loop controller					Solar loop fluid							
Keymark lic.no. if available		-			Recommended/required		Required					
Company Name		-			Company Name		-					
Solar loop pump - power range		- W to - W			Freezing point		-15 °C					
System family overview												
Collector name		Number of collectors in each configuration for each store										
		Store name										
		EUROSTAR 120		EUROSTAR 150		EUROSTAR 200		EUROSTAR 300				
CLIMASOL 2.00		1		1		1	2	2				
CLIMASOL 2.50				1		1		2				
CLIMASOL 2.70				1		1		2				
Testing Laboratory					Solar & other Energy Systems Laboratory							
Website					www.solar.demokritos.gr							
Test report id. number					6117DE1, 6118DE1, 6118F1							
Date of test report					17/12/2020, 17/12/2020, 15/12/2020							
Comments of test lab												
					<p>N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 85033815 - Fax: +210 6844582 PO BOX 60037, 15310 Ag. Paraskevi, Greece</p> 							

Summary of	EN12976-2	test results	Certification No.	PSK-002/2021															
Annex to Solar KEYMARK Certificate			Issued	2021-01-18															
Company	SOLE S.A.		Country	Greece															
Brand (optional)	BrandName		Website	www.sole.gr															
Street	Laikon Agonon & Lefktron		E-mail	export@sole.gr															
Postal Code	13671	Acharnes, Attica	Tel. / Fax	30 210 2389500															
System family overview**																			
Collector name	For each storage and collector size, give number of collectors																		
	EUROSTAR 120				EUROSTAR 150				EUROSTAR 200				EUROSTAR 300						
CLIMASOL 2.00	1				1				1	2					2				
CLIMASOL 2.50					1				1						2				
CLIMASOL 2.70					1				1						2				
Name of system configuration			EUROSTAR 120-1-T200																
Collector name	CLIMASOL 2.00	No. Collectors	1		Storage name	EUROSTAR 120													
Calculated annual results for "solar-only / preheat system"																			
Location	Qd,sh	Daily drawoff 80 l					Daily drawoff 110 l					Daily drawoff 140 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	-	4478	2507	0	56	6150	3065	0	50	50	7821	3406	0	44	44				
Würzburg DE	-	4289	2532	0	59	5897	3132	0	53	53	7506	3595	0	48	48				
Davos CH	-	4857	3784	0	78	6654	4573	0	69	69	8483	5077	0	60	60				
Athens GR	-	3343	2964	0	89	4573	3816	0	83	83	5834	4478	0	77	77				
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														
	T_{a,ave}	7.5	9.0	3.2	18.5														
	T_{c,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°																	
T_{a,ave}	°C	Annual average outdoor air temperature																	
T_{c,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		250	kPa	Max. operating press. - tank side		1333	kPa												
Testing Laboratory		Solar & other Energy Systems Laboratory																	
Website		www.solar.demokritos.gr																	
Test report id. number		6117DE1, 6118DE1, 6118F1																	
Date of test report		17/12/2020, 17/12/2020, 15/12/2020																	
Test method		ISO 9459-5 (DST)																	
Comments of test lab																			
EXTRAPOLATED																			
N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 5544582 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece																			

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.	PSK-002/2021									
Annex to Solar KEYMARK Certificate			Issued	2021-01-18									
Company	SOLE S.A.		Country	Greece									
Brand (optional)	BrandName		Website	www.sole.gr									
Street	Laikon Agonon & Lefktron		E-mail	export@sole.gr									
Postal Code	13671	Acharnes, Attica	Tel. / Fax	30 210 2389500									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	EUROSTAR 120	EUROSTAR 150	EUROSTAR 200	EUROSTAR 300									
CLIMASOL 2.00	1	1	1 2	2									
CLIMASOL 2.50		1	1	2									
CLIMASOL 2.70		1	1	2									
Name of system configuration													
Collector name			EUROSTAR 150-1-T200										
Collector name		No. Collectors	Storage name	EUROSTAR 150									
CLIMASOL 2.00		1	EUROSTAR 150										
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh	Daily drawoff 110 				Daily drawoff 140 				Daily drawoff 170 			
		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	-	6150	3065	0	50	7821	3437	0	44	9492	3690	0	39
Würzburg DE	-	5897	3141	0	53	7506	3595	0	48	9114	3942	0	43
Davos CH	-	6654	4573	0	69	8483	5109	0	60	10281	5456	0	53
Athens GR	-	4573	3816	0	83	5834	4510	0	77	7064	5109	0	72
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								
	T_{a,ave}	7.5	9.0	3.2	18.5								
	T_{c,ave}	8.5	10.0	5.4	17.8								
	± ΔT_c	6.4	3.0	0.8	7.4								
G	kWh/m²	Annual irradiation South, 45°											
T_{a,ave}	°C	Annual average outdoor air temperature											
T_{c,ave}	°C	Annual average mains cold water temp.											
ΔT_c	K	Seasonal variation of T_c											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		250	kPa	Max. operating press. - tank side		1333	kPa						
Testing Laboratory		Solar & other Energy Systems Laboratory											
Website		www.solar.demokritos.gr											
Test report id. number		6117DE1, 6118DE1, 6118F1											
Date of test report		17/12/2020, 17/12/2020, 15/12/2020											
Test method		ISO 9459-5 (DST)											
Comments of test lab		EXTRAPOLATED											
		N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 6504502 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece											

Summary of	EN12976-2	test results	Certification No.	PSK-002/2021									
Annex to Solar KEYMARK Certificate			Issued	2021-01-18									
Company	SOLE S.A.		Country	Greece									
Brand (optional)	BrandName		Website	www.sole.gr									
Street	Laikon Agonon & Lefktron		E-mail	export@sole.gr									
Postal Code	13671	Acharnes, Attica	Tel. / Fax	30 210 2389500									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	EUROSTAR 120	EUROSTAR 150	EUROSTAR 200	EUROSTAR 300									
CLIMASOL 2.00	1	1	1 2	2									
CLIMASOL 2.50		1	1	2									
CLIMASOL 2.70		1	1	2									
Name of system configuration			EUROSTAR 150-1-T250										
Collector name	CLIMASOL 2.50	No. Collectors	1	Storage name									
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh MJ/y	Daily drawoff 110				Daily drawoff 140				Daily drawoff 170			
		Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %	Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %	Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %
Stockholm SE	-	6150	3311	0	54	7821	3784	0	48	9492	4100	0	43
Würzburg DE	-	5897	3374	0	57	7506	3910	0	52	9114	4352	0	48
Davos CH	-	6654	4983	0	75	8483	5708	0	67	10281	6181	0	60
Athens GR	-	4573	3974	0	87	5834	4793	0	82	7064	5456	0	77
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								
	T _{a,ave}	7.5	9.0	3.2	18.5								
	T _{c,ave}	8.5	10.0	5.4	17.8								
	± ΔT _c	6.4	3.0	0.8	7.4								
G	kWh/m ²	Annual irradiation South, 45°											
T _{a,ave}	°C	Annual average outdoor air temperature											
T _{c,ave}	°C	Annual average mains cold water temp.											
ΔT _c	K	Seasonal variation of T _c											
T _h	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		250	kPa	Max. operating press. - tank side		1333	kPa						
Testing Laboratory		Solar & other Energy Systems Laboratory											
Website		www.solar.demokritos.gr											
Test report id. number		6117DE1, 6118DE1, 6118F1											
Date of test report		17/12/2020, 17/12/2020, 15/12/2020											
Test method		ISO 9459-5 (DST)											
Comments of test lab		EXTRAPOLATED											
		N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 6644592 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece											

Summary of	EN12976-2	test results	Certification No.	PSK-002/2021									
Annex to Solar KEYMARK Certificate			Issued	2021-01-18									
Company	SOLE S.A.		Country	Greece									
Brand (optional)	BrandName		Website	www.sole.gr									
Street	Laikon Agonon & Lefktron		E-mail	export@sole.gr									
Postal Code	13671	Acharnes, Attica	Tel. / Fax	30 210 2389500									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	EUROSTAR 120	EUROSTAR 150	EUROSTAR 200	EUROSTAR 300									
CLIMASOL 2.00	1	1	1 2	2									
CLIMASOL 2.50		1	1	2									
CLIMASOL 2.70		1	1	2									
Name of system configuration			EUROSTAR 150-1-T270										
Collector name	CLIMASOL 2.70	No. Collectors	1	Storage name									
				EUROSTAR 150									
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh MJ/y	Daily drawoff 110				Daily drawoff 140				Daily drawoff 170			
		Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %	Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %	Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %
Stockholm SE	-	6150	3469	0	56	7821	4037	0	52	9492	4415	0	47
Würzburg DE	-	5897	3500	0	59	7506	4131	0	55	9114	4636	0	51
Davos CH	-	6654	5235	0	79	8483	6086	0	72	10281	6717	0	65
Athens GR	-	4573	4100	0	90	5834	4951	0	85	7064	5708	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								
	T _{a,ave}	7.5	9.0	3.2	18.5								
	T _{c,ave}	8.5	10.0	5.4	17.8								
	± ΔT _c	6.4	3.0	0.8	7.4								
G	kWh/m ²	Annual Irradiation South, 45°											
T _{a,ave}	°C	Annual average outdoor air temperature											
T _{c,ave}	°C	Annual average mains cold water temp.											
ΔT _c	K	Seasonal variation of T _c											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		250	kPa	Max. operating press. - tank side		1333	kPa						
Testing Laboratory		Solar & other Energy Systems Laboratory											
Website		www.solar.demokritos.gr											
Test report id. number		6117DE1, 6118DE1, 6118F1											
Date of test report		17/12/2020, 17/12/2020, 15/12/2020											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
EXTRAPOLATED													
N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6603815 - Fax: +210 5514582 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece													

Summary of	EN12976-2	test results	Certification No.	PSK-002/2021									
Annex to Solar KEYMARK Certificate			Issued	2021-01-18									
Company	SOLE S.A.		Country	Greece									
Brand (optional)	BrandName		Website	www.sole.gr									
Street	Laikon Agonon & Lefktron		E-mail	export@sole.gr									
Postal Code	13671	Acharnes, Attica	Tel. / Fax	30 210 2389500									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	EUROSTAR 120	EUROSTAR 150	EUROSTAR 200	EUROSTAR 300									
CLIMASOL 2.00	1	1	1 2	2									
CLIMASOL 2.50		1	1	2									
CLIMASOL 2.70		1	1	2									
Name of system configuration			EUROSTAR 200-1-T200										
Collector name	CLIMASOL 2.00	No. Collectors	1	Storage name									
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	-	9492	3753	0	40	11164	3974	0	36	13939	4163	0	30
Würzburg DE	-	9114	3974	0	44	10691	4226	0	40	13371	4510	0	34
Davos CH	-	10281	5519	0	54	12110	5803	0	48	15137	6150	0	41
Athens GR	-	7064	5140	0	73	8326	5645	0	68	10407	6276	0	60
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								
	T _{a,ave}	7.5	9.0	3.2	18.5								
	T _{c,ave}	8.5	10.0	5.4	17.8								
	± ΔT _c	6.4	3.0	0.8	7.4								
G	kWh/m ²	Annual irradiation South, 45°											
T _{a,ave}	°C	Annual average outdoor air temperature											
T _{c,ave}	°C	Annual average mains cold water temp.											
ΔT _c	K	Seasonal variation of T _c											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		250	kPa	Max. operating press. - tank side		1333	kPa						
Testing Laboratory		Solar & other Energy Systems Laboratory											
Website		www.solar.demokritos.gr											
Test report id. number		6117DE1, 6118DE1, 6118F1											
Date of test report		17/12/2020, 17/12/2020, 15/12/2020											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
EXTRAPOLATED													
N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 6644592 P.O. BOX 60037, 15316 Ag. Paraskevi, Greece													

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.		PSK-002/2021							
Annex to Solar KEYMARK Certificate						Issued		2021-01-18							
Company		SOLE S.A.				Country		Greece							
Brand (optional)		BrandName				Website		www.sole.gr							
Street		Laikon Agonon & Lefktron				E-mail		export@sole.gr							
Postal Code		13671		Acharnes, Attica		Tel. / Fax		30 210 2389500							
System family overview															
For each storage and collector size, give number of collectors															
Collector name		EUROSTAR 120		EUROSTAR 150		EUROSTAR 200		EUROSTAR 300							
CLIMASOL 2.00		1		1		1	2	2							
CLIMASOL 2.50				1		1		2							
CLIMASOL 2.70				1		1		2							
Name of system configuration						EUROSTAR 200-1-T250									
Collector name		CLIMASOL 2.50		No. Collectors		1		Storage name		EUROSTAR 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	%		
Stockholm SE		-	9492	4194	0	44	11164	4478	0	40	13939	4730	0	34	
WürzburgDE		-	9114	4415	0	48	10691	4762	0	45	13371	5140	0	38	
Davos CH		-	10281	6276	0	61	12110	6623	0	55	15137	7064	0	47	
Athens GR		-	7064	5519	0	78	8326	6118	0	73	10407	6906	0	66	
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					
		T_{a,ave}		7.5		9.0		3.2		18.5					
		T_{c,ave}		8.5		10.0		5.4		17.8					
		± ΔT_c		6.4		3.0		0.8		7.4					
G		kWh/m²		Annual irradiation South, 45°											
T_{a,ave}		°C		Annual average outdoor air temperature											
T_{c,ave}		°C		Annual average mains cold water temp.											
ΔT_c		K		Seasonal variation of T_c											
Th		45 °C		Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side				250		kPa		Max. operating press. - tank side				1333		kPa	
Testing Laboratory				Solar & other Energy Systems Laboratory											
Website				www.solar.demokritos.gr											
Test report id. number				6117DE1, 6118DE1, 6118F1											
Date of test report				17/12/2020, 17/12/2020, 15/12/2020											
Test method				ISO 9459-5 (DST)											
Comments of test lab										N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 684582 P.O. BOX 00037, 15310 Ag. Paraskevi, Greece					
EXTRAPOLATED															

Summary of		EN12976-2		test results		Certification No.		PSK-002/2021											
Annex to Solar KEYMARK Certificate						Issued		2021-01-18											
Company		SOLE S.A.				Country		Greece											
Brand (optional)		BrandName				Website		www.sole.gr											
Street		Laikon Agonon & Lefktron				E-mail		export@sole.gr											
Postal Code		13671		Acharnes, Attica		Tel. / Fax		30 210 2389500											
System family overview																			
For each storage and collector size, give number of collectors																			
Collector name		EUROSTAR 120		EUROSTAR 150		EUROSTAR 200		EUROSTAR 300											
CLIMASOL 2.00		1		1		1 2		2											
CLIMASOL 2.50				1		1		2											
CLIMASOL 2.70				1		1		2											
Name of system configuration																			
						EUROSTAR 200-1-T270													
Collector name		CLIMASOL 2.70		No. Collectors		1		Storage name		EUROSTAR 200									
Calculated annual results for "solar-only / preheat system"																			
Location		Qd,sh		Daily drawoff 170 l			Daily drawoff 200 l			Daily drawoff 250 l									
		MJ/y		Qd,hw MJ/y		QL MJ/y	Qpar MJ/y	f _{sol} %	Qd,hw MJ/y		QL MJ/y	Qpar MJ/y	f _{sol} %						
Stockholm SE		-		9492		4573	0	48	11164		4983	0	45	13939		5330	0	38	
Würzburg DE		-		9114		4793	0	53	10691		5267	0	49	13371		5771	0	43	
Davos CH		-		10281		6969	0	68	12110		7506	0	62	15137		8073	0	53	
Athens GR		-		7064		5834	0	83	8326		6528	0	78	10407		7506	0	72	
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													
		T _{a,ave}	7.5	9.0	3.2	18.5													
		T _{c,ave}	8.5	10.0	5.4	17.8													
		± ΔT _c	6.4	3.0	0.8	7.4													
G		kWh/m ²	Annual irradiation South, 45°																
T_{a,ave}		°C	Annual average outdoor air temperature																
T_{c,ave}		°C	Annual average mains cold water temp.																
ΔT_c		K	Seasonal variation of T_c																
Th		45 °C	Desired hot water temperature (mixing valve temperature).																
Max. operating press. - collector side				250		kPa		Max. operating press. - tank side				1333		kPa					
Testing Laboratory				Solar & other Energy Systems Laboratory															
Website				www.solar.demokritos.gr															
Test report id. number				6117DE1, 6118DE1, 6118F1															
Date of test report				17/12/2020, 17/12/2020, 15/12/2020															
Test method				ISO 9459-5 (DST)															
Comments of test lab								N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 6944502 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece											
TESTED																			

Summary of		EN12976-2		test results		Certification No.		PSK-002/2021							
Annex to Solar KEYMARK Certificate						Issued		2021-01-18							
Company		SOLE S.A.				Country		Greece							
Brand (optional)		BrandName				Website		www.sole.gr							
Street		Laikon Agonon & Lefktron				E-mail		export@sole.gr							
Postal Code		13671		Acharnes, Attica		Tel. / Fax		30 210 2389500							
System family overview															
For each storage and collector size, give number of collectors															
Collector name		EUROSTAR 120		EUROSTAR 150		EUROSTAR 200		EUROSTAR 300							
CLIMASOL 2.00		1		1		1 2		2							
CLIMASOL 2.50				1		1		2							
CLIMASOL 2.70				1		1		2							
Name of system configuration						EUROSTAR 200-2-T200									
Collector name		CLIMASOL 2.00		No. Collectors		2		Storage name		EUROSTAR 200					
Calculated annual results for "solar-only / preheat system"															
Location		Qd,sh		Daily drawoff 170 			Daily drawoff 200 			Daily drawoff 250 					
		MJ/y		Qd,hw		QL	Qpar	fsol	Qd,hw		QL	Qpar	fsol		
Stockholm SE		-		9492		5172	0	54	11164		5708	0	51		
Würzburg DE		-		9114		5298	0	58	10691		5897	0	55		
Davos CH		-		10281		7884	0	77	12110		8672	0	72		
Athens GR		-		7064		6213	0	88	8326		7064	0	85		
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									
		T _{a,ave}	7.5	9.0	3.2	18.5									
		T _{c,ave}	8.5	10.0	5.4	17.8									
		± ΔTc	6.4	3.0	0.8	7.4									
G		kWh/m ²	Annual irradiation South, 45°												
T _{a,ave}		°C	Annual average outdoor air temperature												
T _{c,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				250		kPa		Max. operating press. - tank side				1333		kPa	
Testing Laboratory						Solar & other Energy Systems Laboratory									
Website						www.solar.demokritos.gr									
Test report id. number						6117DE1, 6118DE1, 6118F1									
Date of test report						17/12/2020, 17/12/2020, 15/12/2020									
Test method						ISO 9459-5 (DST)									
Comments of test lab						N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 6944982 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece									
EXTRAPOLATED															

Summary of	EN12976-2	test results	Certification No.	PSK-002/2021									
Annex to Solar KEYMARK Certificate			Issued	2021-01-18									
Company	SOLE S.A.		Country	Greece									
Brand (optional)	BrandName		Website	www.sole.gr									
Street	Laikon Agonon & Lefktron		E-mail	export@sole.gr									
Postal Code	13671	Acharnes, Attica	Tel. / Fax	30 210 2389500									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	EUROSTAR 120	EUROSTAR 150	EUROSTAR 200	EUROSTAR 300									
CLIMASOL 2.00	1	1	1 2	2									
CLIMASOL 2.50		1	1	2									
CLIMASOL 2.70		1	1	2									
Name of system configuration			EUROSTAR 300-2-T200										
Collector name	CLIMASOL 2.00	No. Collectors	2	Storage name	EUROSTAR 300								
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh MJ/y	Daily drawoff 250 l				Daily drawoff 300 l				Daily drawoff 400 l			
		Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %	Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %	Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %
Stockholm SE	-	13939	6780	0	49	16746	7253	0	43	22327	8010	0	36
Würzburg DE	-	13371	7001	0	52	16052	7695	0	48	21413	8546	0	40
Davos CH	-	15137	10092	0	67	18165	10848	0	60	24220	11794	0	49
Athens GR	-	10407	8515	0	82	12488	9650	0	77	16651	11258	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								
	T _{a,ave}	7.5	9.0	3.2	18.5								
	T _{c,ave}	8.5	10.0	5.4	17.8								
	± ΔT _c	6.4	3.0	0.8	7.4								
G	kWh/m ²	Annual irradiation South, 45°											
T _{a,ave}	°C	Annual average outdoor air temperature											
T _{c,ave}	°C	Annual average mains cold water temp.											
ΔT _c	K	Seasonal variation of T _c											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		250	kPa	Max. operating press. - tank side		1333	kPa						
Testing Laboratory		Solar & other Energy Systems Laboratory											
Website		www.solar.demokritos.gr											
Test report id. number		6117DE1, 6118DE1, 6118F1											
Date of test report		17/12/2020, 17/12/2020, 15/12/2020											
Test method		ISO 9459-5 (DST)											
Comments of test lab		EXTRAPOLATED											
		N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 6545822 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece											

Summary of	EN12976-2	test results	Certification No.	PSK-002/2021									
Annex to Solar KEYMARK Certificate			Issued	2021-01-18									
Company	SOLE S.A.		Country	Greece									
Brand (optional)	BrandName		Website	www.sole.gr									
Street	Laikon Agonon & Lefktron		E-mail	export@sole.gr									
Postal Code	13671	Acharnes, Attica	Tel. / Fax	30 210 2389500									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	EUROSTAR 120	EUROSTAR 150	EUROSTAR 200	EUROSTAR 300									
CLIMASOL 2.00	1	1	1 2	2									
CLIMASOL 2.50		1	1	2									
CLIMASOL 2.70		1	1	2									
Name of system configuration													
			EUROSTAR 300-2-T250										
Collector name	CLIMASOL 2.50	No. Collectors	2	Storage name									
				EUROSTAR 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	-	13939	7348	0	53	16746	7979	0	48	22327	8988	0	40
Würzburg DE	-	13371	7506	0	56	16052	8357	0	52	21413	9524	0	44
Davos CH	-	15137	11006	0	73	18165	12110	0	67	24220	13340	0	55
Athens GR	-	10407	8925	0	86	12488	10218	0	82	16651	12141	0	73
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								
	T_{a,ave}	7.5	9.0	3.2	18.5								
	T_{c,ave}	8.5	10.0	5.4	17.8								
	± ΔT_c	6.4	3.0	0.8	7.4								
G	kWh/m²	Annual irradiation South, 45°											
T_{a,ave}	°C	Annual average outdoor air temperature											
T_{c,ave}	°C	Annual average mains cold water temp.											
ΔT_c	K	Seasonal variation of T_c											
Th	45 °C	Desired hot water temperature (mixing valve temperature).											
Max. operating press. - collector side		250	kPa	Max. operating press. - tank side		1333	kPa						
Testing Laboratory		Solar & other Energy Systems Laboratory											
Website		www.solar.demokritos.gr											
Test report id. number		6117DE1, 6118DE1, 6118F1											
Date of test report		17/12/2020, 17/12/2020, 15/12/2020											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
EXTRAPOLATED													
N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 6944500 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece													

Summary of	EN12976-2	test results	Certification No.	PSK-002/2021									
Annex to Solar KEYMARK Certificate			Issued	2021-01-18									
Company	SOLE S.A.		Country	Greece									
Brand (optional)	BrandName		Website	www.sole.gr									
Street	Laikon Agonon & Lefktron		E-mail	export@sole.gr									
Postal Code	13671	Acharnes, Attica	Tel. / Fax	30 210 2389500									
System family overview													
For each storage and collector size, give number of collectors													
Collector name	EUROSTAR 120	EUROSTAR 150	EUROSTAR 200	EUROSTAR 300									
CLIMASOL 2.00	1	1	1 2	2									
CLIMASOL 2.50		1	1	2									
CLIMASOL 2.70		1	1	2									
Name of system configuration													
EUROSTAR 300-2-T270													
Collector name	CLIMASOL 2.70	No. Collectors	2	Storage name									
EUROSTAR 300													
Calculated annual results for "solar-only / preheat system"													
Location	Qd,sh MJ/y	Daily drawoff 250 l				Daily drawoff 300 l				Daily drawoff 400 l			
		Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %	Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %	Qd,hw MJ/y	QL MJ/y	Qpar MJ/y	fsol %
Stockholm SE	-	13939	7726	0	55	16746	8515	0	51	22327	9745	0	44
Würzburg DE	-	13371	7852	0	59	16052	8830	0	55	21413	10249	0	48
Davos CH	-	15137	11668	0	77	18165	12961	0	71	24220	14570	0	60
Athens GR	-	10407	9209	0	88	12488	10565	0	85	16651	12772	0	77
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/m ²	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		250	kPa	Max. operating press. - tank side		1333	kPa						
Testing Laboratory		Solar & other Energy Systems Laboratory											
Website		www.solar.demokritos.gr											
Test report id. number		6117DE1, 6118DE1, 6118F1											
Date of test report		17/12/2020, 17/12/2020, 15/12/2020											
Test method		ISO 9459-5 (DST)											
Comments of test lab													
EXTRAPOLATED													
N.C.S.R. "DEMOKRITOS" SOLAR ENERGY LABORATORY Tel: +210 6503815 - Fax: +210 6504582 P.O. BOX 60037, 15310 Ag. Paraskevi, Greece													