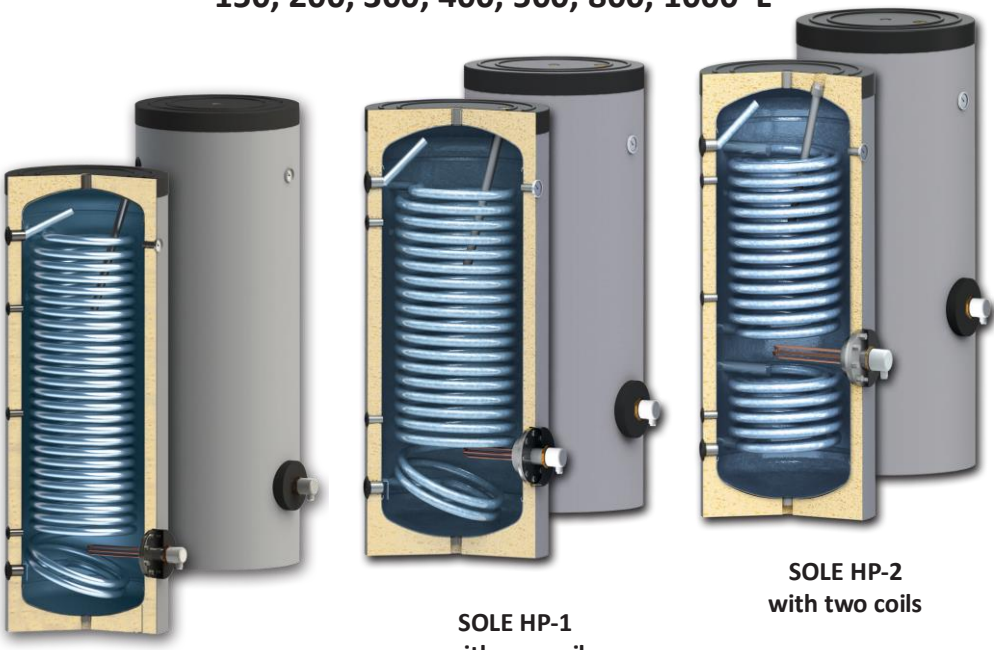
SOLE EUROSTAR

WATER HEATERS FOR HEAT PUMP SYSTEMS

serie SOLE HP

150, 200, 300, 400, 500, 800, 1000 L



SOLE HP-1
with one coil

SOLE HP-1
with one coil

SOLE HP-2
with two coils

INSTALLATION and OPERATION MANUAL

Version 0.1

TABLE OF CONTENTS

1. INSTRUCTIONS TO INSTALLER 4
1.1. Requirements to water tank installation room..... 4
1.2. Requirements for installation..... 4

2. DESCRIPTION ON SOLE HP 5

3. CONNECTING OF RELIEF VALVE TO WATER TANK..... 12

4. TECHNICAL PARAMETERS 14
4.1. **SOLE HP-1** - with one coil..... 14
4.2. **SOLE HP-2**- with two coils..... 16

5. TRANSPORT AND PACKAGING 18

6. RECYCLING..... 18

Dear Customers,

We strongly hope that the appliance you have bought from us will contribute to creating comfort at you 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.

The water heater can be used for producing of domestic hot water (DHW) only in the manner described in this manual.

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

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

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 theinstallation with safety devices.
- safety during installation - personal protective equipment

	Use only original parts.

1.1. Requirements to SOLE HP 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.

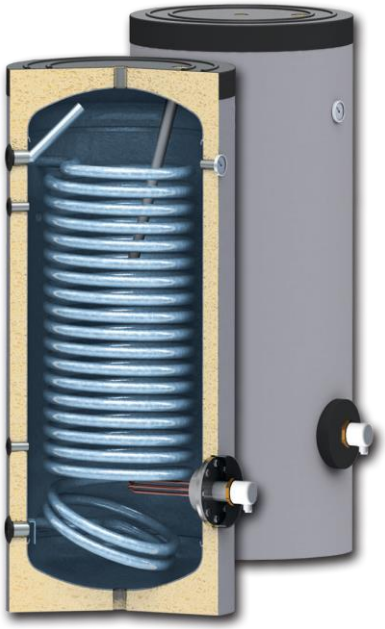
- Before connecting the water tank to the installation, check all screw connections (plug and etc.). In very rare cases - during transportation, loading and unloading operations - the screw connections may be loosen.

- Before commissioning, check the installation for leaks

- Do not exceed the working pressure of 8 bar.

- If there is a risk of freezing of water in the tank - drain the tank completely or let the water tank works continuously.

2. DESCRIPTON



Water heaters for heat pump systems **SOLE HP** series includes:
SSOLE HP-1one coil water heater
HP-1 one coil water heater
SOLE HP-2 double coil water heater

With extra-sized heat exchanger surface; suitable for solar water heating, space-heating, and heat pump
systems with large number of consumers

Product features:

- Floor standing
- Vertical modifications
- High efficiency insulation and outer casing of PVC
- Complex corrosion protection realized by means of titanium enamel and anode protection.
- All threads are internal.
- Convenient inspection opening.
- High efficiency heat exchanger coil/coils (SOLE HP-1/SOLE HP-2).

The height of HP-1 model is compensated by its smaller diameter; heat exchanger coil with increased surface.

- Easy installation.
- Suitable for solar water heating, space-heating, and heat pump

systems with large number of consumers

2.1. High efficiency 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 water heaters SWP series have a high efficiency insulation (DIN 4753, part 8) and outer casing of PVC with RAL 9006.

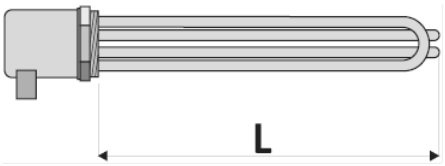
2.2. Water tank

Water tank is made of low-carbon steel S235JR, tightly covered with titanium enamel on the inside. It is then baked to produce a smooth and uniform deposition - free glazing. Thus the domestic hot water remains clean, and the water tank is protected against corrosion.
All threads are internal (see technical parameters).

2.3. Electric heating element (optional).

Outlet connection of electric heating element 1 ½" :
3000W/230V; 4500W/230V;
6000W/230V; 7500W/400V.

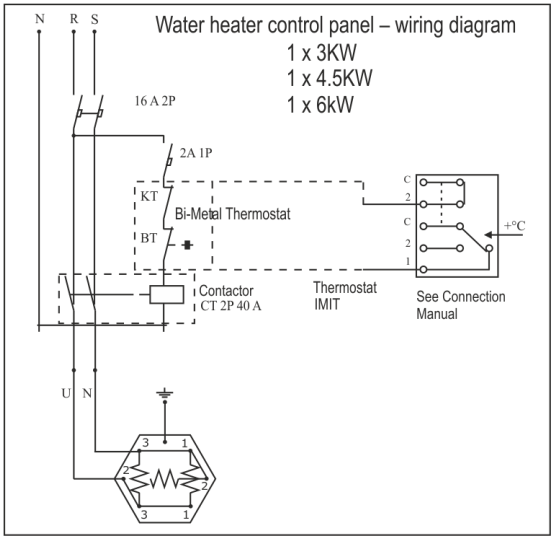
	The connection of the electric heating element to the electric power supply must be done by a qualified electricians. **When connect the heating element to the electric network, make sure that it is properly grounded.**

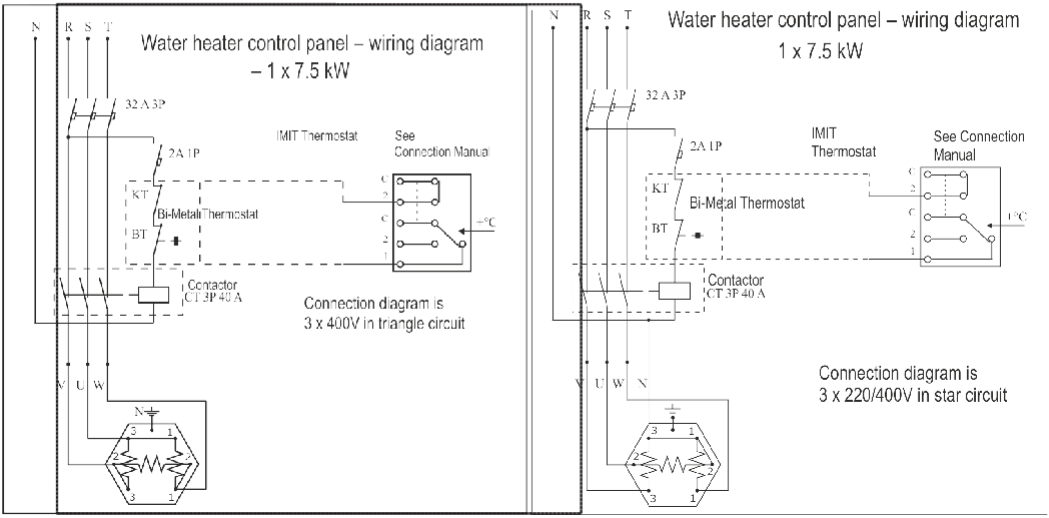


Water tank, L	Connection	Lenght L, mm	Current, W	Voltage, V
150	1 1/2"	210	3000	230
200	1 1/2"	210	3000	230
300	1 1/2"	320	4500	230
400	1 1/2"	410	6000	230
500	1 1/2"	590	7500	230/400

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

Wiring diagrams

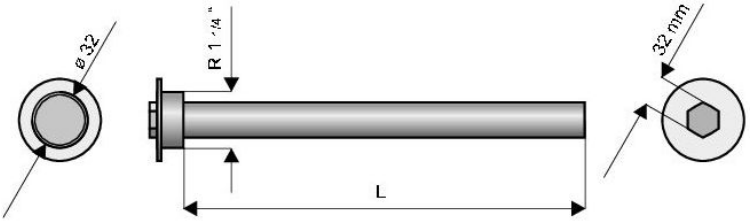




2.4. Thermometer

2.5. Cathodic Corrosion Protection of Enamelled Steel tanks for domestic hot water (DIN 4753, part 6)

Anode must be checked every two years.
Replace the anode when needed.



Magnesium anode - connection Size and Length:

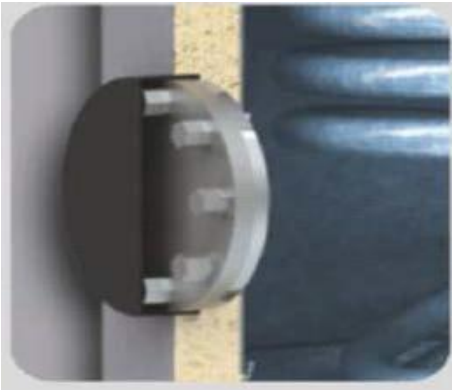
Water tank Capacity, L	Anode connection size, mm	Anode length, mm	Anode Pcs.
150	1 1/4"	230	1
200	1 1/4"	300	1
300	1 1/4"	400	1
400, 500	1 1/4"	600	1

2.6. Inspection opening

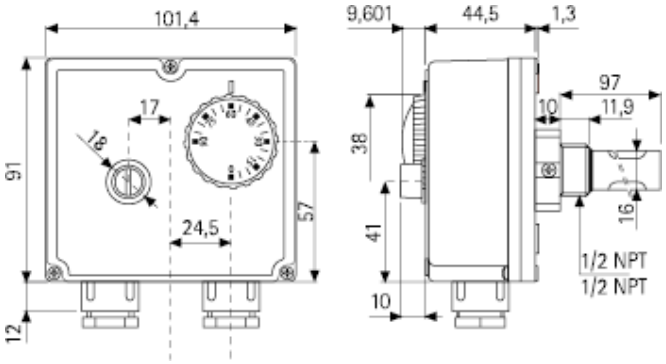
Large and convenient inspection opening located in the lower part of the tank gives access for maintenance and cleaning. The opening is closed by an enameled flange cover which may have a sleeve for fitting electric heater if necessary.

Do not reuse the gasket of flange. Replace the gasket at each inspection (opening).

Water tank Capacity, L	Flange diameter, mm	Opening diameter, mm
150÷500	180	110



2.7. Thermostat (optional).



sheme 1

The thermostat may be adjusted by the user within the range 30°C ÷ 80°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°C ÷ 90°C;
limit - 90°C ÷ 110°C;
Tolerance
Regulation ± 5k,
limit – 15 k; -6 k (depends on the type)

Temperature differential
Regulation 6 ± 2 k; 4 ± 1 k (depends on the type)
Limit 25 ± 8 k; 15 ± 8 k (depends on the type)

Automatic adjustment (TLSC/A) and manual adjustment (TLSC).
Degree of protection = IP 40
Insulation class = I.
Temperature change rate = <1K/min.
Maximal temperature point: 80°C
Maximal temperature for electric lamp: 125°C
Accumulation temperature: 15°C ÷ 55°C
Maximum pressure of the cartridge: 10 bar
Constant time: < 1“

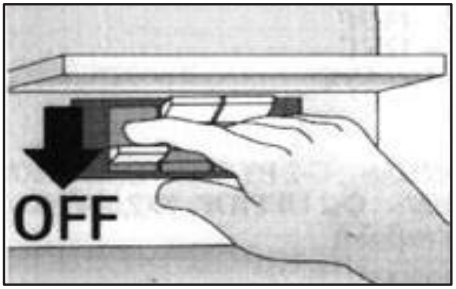
Electric connection:
C-1 ADJ.:10(2,5)A/250V°;
C-2 ADJ.:6(2,5)A/250V~;

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.

	WARNING ! **All installation operations, including manual adjustments, must be fulfilled by a qualified specialist following all safety conditions.**

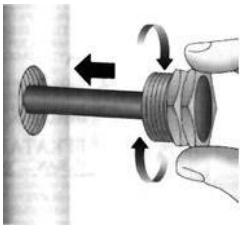
INSTALLATION AND CONNECTION .
Safety instructions:

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.



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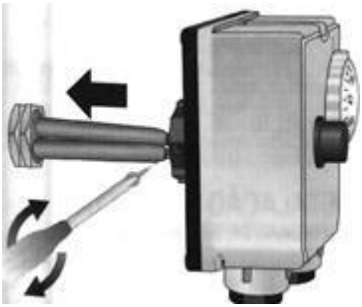
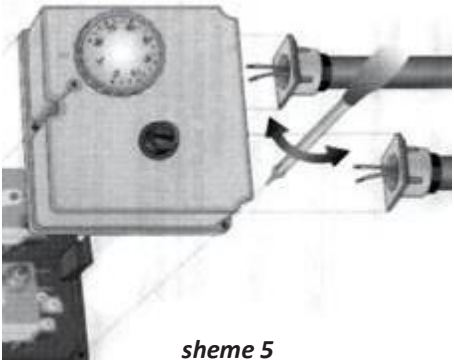
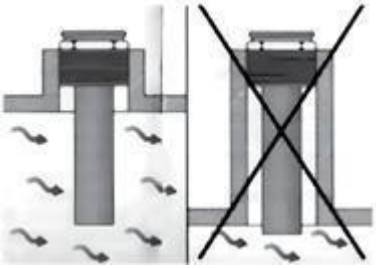


sheme 4

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.

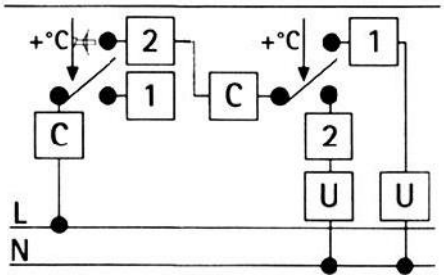
CONNECTION
(Scheme 7)

LIMITATION

TERMINAL 2 – opens the circuit when the temperature
rises.
TERMINAL C – common contact.

THERMOSTAT

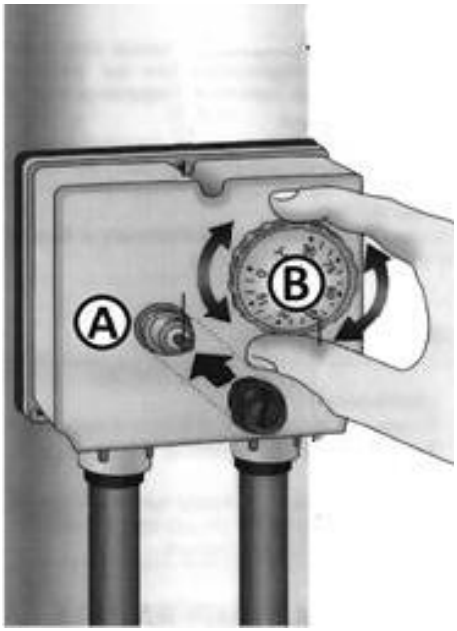
TERMINAL 1 – opens the circuit when the temperature rises.
TERMINAL 2 – closes the circuit when the temperature rises
TERMINAL C – common contact



sheme 7

TEMPERATURE ADJUSTMENT
(see Scheme 8)

A – Reset button (only for TLSC)
B – Knob for temperature adjustmentct

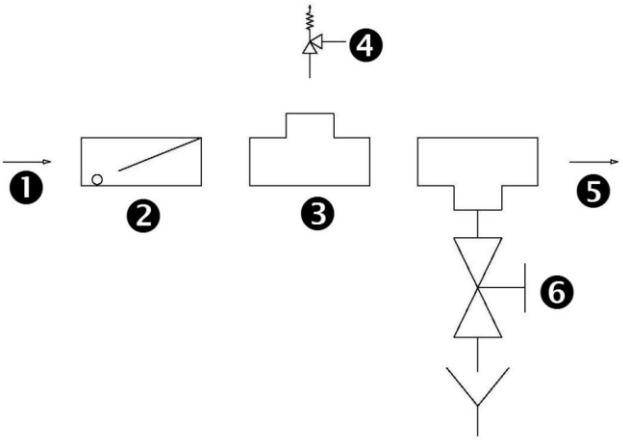


sheme 8

2.8. Screws with rubber head

Included at standard water tank package. Screws with rubber heads are mounted at the bottom of the vertical water tank / 150 to 500 l / - use to level the tank.

3. CONNECTING OF SAFETY RELIEF VALVE TO WATER TANK

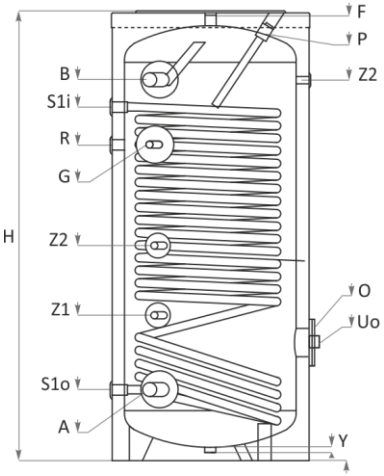


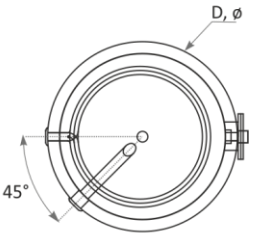
1	*Cold water inlet - water supply*
2	*Check (return) valve*
3	*Tee*
4	*Safety (relief) pressure valve*
5	*Cold water inlet - water tank*
6	*Stopcock (drainage)*

	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.

4. TECHNICAL PARAMETERS to serie SOLE HP

4.1. SOLE HP-1 - with one coil

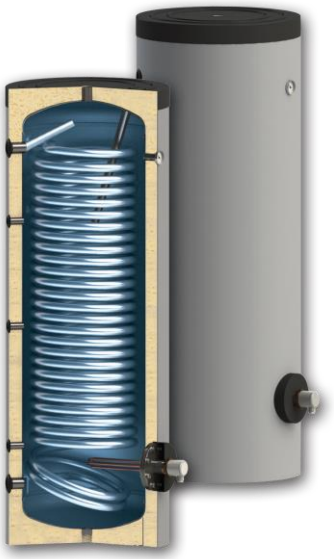


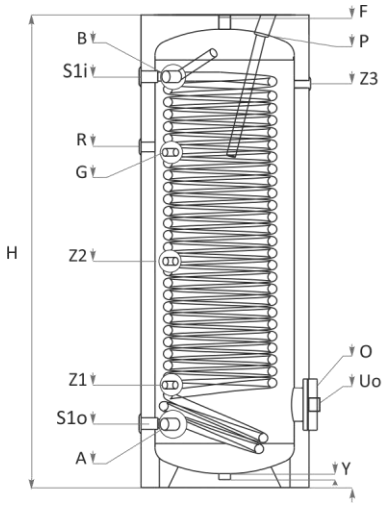


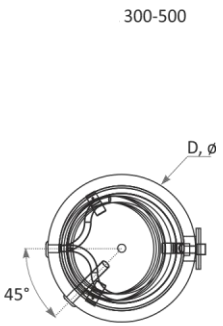
		SOLE HP-1 150	SOLE HP-1 200
Capacity	L	150	200
Height	mm	1070	1340
Diameter	D, mm	Ø 560	Ø 560
Insulation		50 mm rigid PU	
Operating pressure/Maximum temperature	bar/^{0}C	8/95	8/95
Test pressure	bar	13	13
Electric heating (optional)	кW	1 x (3)	1 x (3)
Weight	kg	70	90
Cold water inlet	A, mm	Rp1"/182	Rp1"/182
Hot water outlet	B, mm	Rp1"/895	Rp1"/1160
Recirculation	R, mm, Rp$^{3/4"}$	Rp$^{3/4"}$ /652	Rp$^{3/4"}$ /922
Operating pressure/ Maximum temperature coils S1	bar/^{0}C	16/110	16/110
Test pressure coils S1	bar	25	25
Coils capacity S1	L	8.6	11.7
Coils Heat exchange surface S1	m²	1.4	1.9
Inlet/Outlet Lower coi S1	S1i/ S1o, mm,Rp1"	872/182	1122/182
Prolonged power acc. to DIN 4708; 10°C/80°C/45°C, S1	kW (m3/h)	40.4(0.99)	51(1.25)
NL- power coefficient at 60°C, S1	NL 60°C	6	8
Pressure drop Δp, S1	Δp, mbar	120	150
Inspection opening / flange	O,Ø, mm	Ø110x180/ 309	Ø110x180/ 309
Sleeve for Electric element on inspection opening flange	Uo,mm, Rp1$^{1/2"}$	309	309
Drain sleeve	Y, mm, Rp1"	30	30
Anode	P, mm,Rp1$^{1/4"}$	1070	1340
Additional sensor sleeve	Z1/Z2/Z3, mm, Rp$^{1/2"}$	410/-/ 868	410/650/ 1138
Air vent sleeve	F, mm, Rp1"	1070	1340
Sensor sleeve for thermostat	G, mm, Rp1/2"	697	967

4. TECHNICAL PARAMETERS to serie SOLE HP

4.2. HP-1 - with one coil

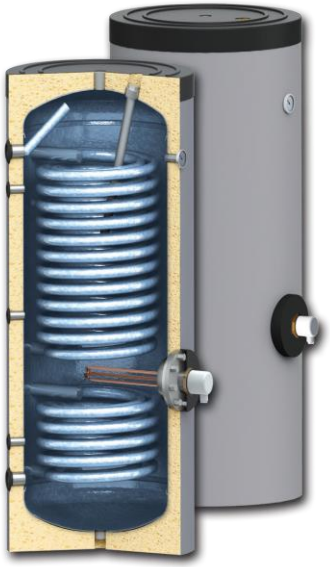


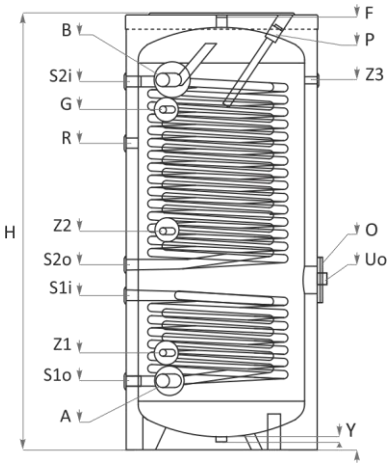


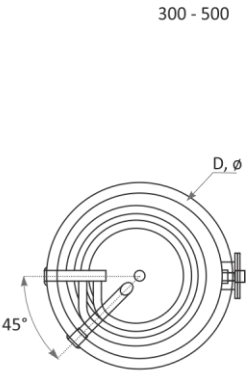


		HP-1 300	HP-1 400	HP-1 500
Capacity	L	300	400	500
Height	mm	1695	1669	1895
Diameter	D, mm	Ø 610	Ø 710	Ø 710
Insulation		50 mm rigid PU		
Operating pressure/Maximum temperature	bar/^{0}C	8/95	8/95	8/95
Test pressure	bar	13	13	13
Electric heating (optional)	kW	1 x (4.5)	1 x (6)	1 x (7.5)
Weight	kg	131	175	196
Cold water inlet	A, mm	Rp1"/228	Rp1$^{1/4}$"/260	Rp1$^{1/2}$" /250
Hot water outlet	B, mm	Rp1"/1476	Rp1$^{1/4}$"/1420	Rp1$^{1/2}$" /1643
Recirculation	R, mm, Rp$^{3/4}$"	Rp$^{3/4}$" /1224	Rp1"/1180	Rp1"/1392
Operating pressure/Maximum temperature coils S1	bar/^{0}C	16/110	16/110	16/110
Test pressure coils S1	bar	25	25	25
Coils capacity S1	L	20.4	23.6	28.3
Coils Heat exchange surface S1	m²	3.3	3.9	4.6
Inlet/Outlet Lower coi S1	S1i/ S1o, mm,Rp1"	1476/228	1390/260	1626/250
Prolonged power acc. to DIN 4708; 10°C/80°C/45°C, S1	kW (m3/h)	90(2.21)	115(2.70)	130(3.19)
NL- power coefficient at 60°C, S1	NL 60°C	11	14	18
Pressure drop Δp, S1	Δp, mbar	230	379	569
Inspection opening / flange	O,Ø, mm	Ø110x180/ 298	Ø110x180/ 345	Ø110x180/ 345
Sleeve for Electric element on inspection opening flange	Uo,mm, Rp1$^{1/2}$"	298	345	345
Drain sleeve	Y, mm, Rp1"	30	30	30
Anode	P, mm,Rp1$^{1/4}$"	1695	1524	1750
Additional sensor sleeve	Z1/Z2/Z3, mm, Rp$^{1/2}$"	368/812/1204	420/695/1100	433/966/1372
Air vent sleeve	F, mm, Rp1"	1695	1669	1895
Sensor sleeve for thermostat	G, mm, Rp1/2"	1220	1176	1298

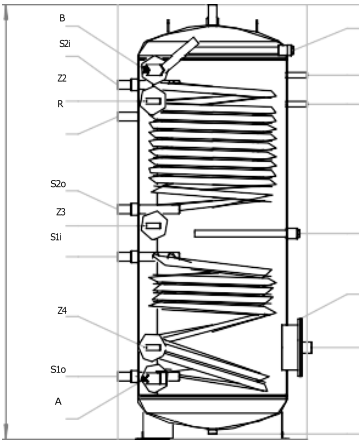
4.3. SOLE HP-2- with two coils



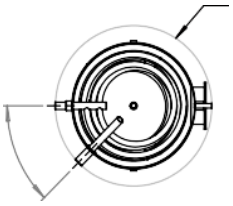




		SOLE HP-2 300	SOLE HP-2 400	SOLE HP-2 500
Capacity	L	300	400	500
Height	mm	1420	1490	1720
Diameter	D, mm	Ø 660	Ø 750	Ø 750
Insulation		50 mm rigid PU		
Operating pressure/Maximum temperature	bar/^{0}C	8/95	8/95	8/95
Test pressure	bar	13	13	13
Electric heating (optional)	κW	1 x (4.5)	1 x (6)	1 x (7.5)
Weight	kg	145	198	236
Cold water inlet	A, mm	Rp1"/215	Rp$^{1/4}$"/240	Rp1$^{1/2}$" /240
Hot water outlet	B, mm	Rp1"/1185	Rp$^{1/4}$"/1240	Rp1$^{1/2}$" /1475
Recirculation	R, mm, Rp$^{3/4}$"	Rp$^{3/4}$" /1007	Rp1"/1105	Rp1"/1206
Operating pressure/Maximum temperature coils S1/S2	bar/^{0}C	16/110	16/110	16/110
Test pressure coils S1/S2	bar	25	25	25
Coils capacity S1 /S2	L	6.5/16.1	10/18.9	11.8/26
Coils Heat exchange surface S1/S2	m²	1.2/2.7	1.5/3.2	1.8/4.36
Inlet/Outlet Lower coi S1	S1i/ S1o, mm,Rp1"	485/215	562/240	606/240
Inlet/Outlet Upper coi S2	S2i/ S2o, mm,Rp1"	1105/587	1195/665	1428/726
Prolonged power acc. to DIN 4708; 10°C/80°C/45°C, S1/S2	kW (m3/h)	53(1.30)/ 75(1.84)	62(1.52)/ 82(2.01)	72(1.77)/ 94(2.31)
NL- power coefficient at 60°C, S1/S2	NL 60°C	11/17	14/22	18/29
Pressure drop Δp, S1/S2	Δp, mbar	55/70	70/85	90/120
Inspection opening / flange	O,Ø, mm	Ø110x180/ 545	Ø110x180/ 620	Ø110x180/ 666
Sleeve for Electric element on inspection opening flange	Uo,mm, Rp1$^{1/2}$"	545	620	666
Drain sleeve	Y, mm, Rp1"	30	30	30
Anode	P,mm,Rp1$^{1/4}$"	1410	1318	1575
Additional sensor sleeve	Z1/Z2/Z3, mm, Rp1$^{1/2}$"	325/697/1170	380/755/1155	380/858/1455
Air vent sleeve	F, mm, Rp1"	1410	1480	1710
Sensor sleeve for thermostat	G, mm, Rp1/2"	1095	1145	1453



800 – 1000



		SOLE HP - 2 800	SOLE HP - 2 1000
Capacity	L	741	900
Height	mm	2107	2018
Diameter	D, mm	Ø 750/952	Ø 850/1052
Insulation		100 mm soft PU	
Operating pressure/Maximum temperature	bar/^{0}C	8/95	8/95
Test pressure	bar	13	13
Electric heating (optional)	κW	4 x (7.5)	4 x (7.5)
Weight	kg	345	378
Cold water inlet	A, mm	Rp1$^{1/2''}$/295	Rp1$^{1/2''}$/319
Hot water outlet	B, mm	Rp1$^{1/2''}$/1789	Rp1$^{1/2''}$/1699
Recirculation	R, mm	Rp1"/1564	Rp1"/1486
Operating pressure/Maximum temperature coils S1/S2	bar/^{0}C	16/110	16/110
Test pressure coils S1/S2	bar	25	25
Coils capacity S1 /S2	L	16.91/26.53	17.38/32.15
Coils Heat exchange surface S1/S2	m²	2.59/4.04	2.66/4.85
Inlet/Outlet Lower coi S1	S1i/ S1o, mm	Rp1" 885/305	Rp1" 875/338
Inlet/Outlet Upper coi S2	S2i/ S2o, mm	Rp1" 1718/1115	Rp1" 1659/1057
Power of the heat exchanger at flow rate and heat carrier temperature of 55°C, S1/S2	kW (m3/h)	14.6(2.01) / 21.5(2.01)	15.1(2.01) / 24.3(2.01)
Pressure drop Δp, S1/S2 (at a flow rate of 50 l)	Δp, mbar (m3/h)	164/181 (50)	80.3/106.2 (50)
Inspection opening / flange	O,Ø, mm	Ø200x280/ 445	Ø200x280/ 459
Sleeve for Electric element on inspection opening flange	Uo,mm	Rp1$^{1/2''}$/445	Rp1$^{1/2''}$/459
Drain sleeve	Y, mm,	Rp1" 30	Rp1" 30
Anode	P1/P2, mm	Rp1$^{1/4''}$ 1886/998	Rp1$^{1/4''}$ 1786/963
Additional sensor sleeve	Z1/Z2/Z3,Z4 mm, Rp1/2"	1625/1639/1035/445	1559/1499/1039/519
Air vent sleeve	F, mm	Rp1"/2107	Rp1"/2018
Sensor sleeve for thermostat	G, mm	Rp1/2"/1765	Rp1/2"/1698

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.

	Capacity of Water tank, L				
	150	200	300	400	500
Pallet Dimensions	600 x 600	600 x 600	700 x 700	800 x 800	800 x 800

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.

SOLE S.A.
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GREECE