

smartline

Installation, Operating and Servicing Instructions

SLME 120 / 200 / 300 / 400 / 600 / 800



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WARNINGS

WHO SHOULD READ THESE INSTRUCTIONS

These instructions should be read by:

- the specifying engineer
- the installer
- the user
- the service engineer

SYMBOLS

The following symbols are used in this manual:



Essential instruction for the correct operation of the installation.



Essential instruction for the safety of persons and the environment.



Danger of electrocution.



Danger of burns

RECOMMENDATIONS



- Please, read carefully this manual before installing and commissioning the tank.
- It is prohibited to carry out any modifications to the inside of the appliance without the manufacturer's prior and written agreement.
- The product must be installed and serviced by trained engineers, in compliance with current standards.
- The installation must comply with the instructions in this manual and with the codes and standards governing systems for the production of hot water.
- Any failure to follow instructions relating to tests and test procedures may result in personal injury or risks of pollution.
- To guarantee safe and correct operation of the appliance, it is important to have it serviced and maintained every year by an approved installer or maintenance company.
- In case of anomaly, please call your service engineer.
- The parts may only be replaced by genuine factory parts. You will find a list of the spare parts and their reference number ACV to the end of this document.



- It is important to switch the tank OFF before carrying out any work.
- There are no user accessible parts inside the tank casing.

APPLICABLE STANDARDS

The appliances carry the **CE** mark in accordance with the standards in force in the various countries.



WARNINGS

This documentation is part of the information delivered with the appliance and must be given to the user and stored in a safe place!

An approved installer must carry out the assembly, commissioning, maintenance and repair of the system, in accordance with current standards in force.

ACV shall not accept any responsibility for damage caused by non-compliant location of the system or by use of the parts or connections not approved by ACV for this application.



The manufacturer reserves the right to change the technical characteristics and specification of its products without notice.



The availability of some versions and their accessories is market dependant.

PACKING

Units are shipped ready to install, tested and packaged in a cardboard box.

Contents of the package

- One hot water tank.
- One multilingual technical instruction manual.

INTRODUCTION

DESCRIPTION OF FUNCTION

“Tank-in-Tank” system

“Tank-in-Tank” is a heat exchanger with a built-in accumulator, made up of two concentric tanks: the inner tank contains domestic water to be reheated (secondary) and the outer tank contains the heating fluid (primary) which circulates between the two tanks and transfers its heat to the domestic water.

Domestic Hot Water cylinder

The inner tank is the heart of the tank: it is subject to the aggressiveness of the supply water, to high pressures and to variations in temperature. This tank is made of solid chrome-nickel stainless steel (*stainless steel 304*), fully welded under argon protection using the Tungsten Inert Gas (T.I.G.) technique.

Before assembly, the convex bottoms are pickled and passivated in order to improve the tank's lifespan and in particular its resistance to corrosion. The shell is corrugated all the way up using an exclusive manufacturing process. This design gives considerable resistance to pressure and limits the adherence of lime scale by allowing the tank to expand and contract.

Coil technology

The carbon steel coil is integrated in the lower part of the tank. The large exchange surface, combined with a high pressure resistance enables the appliance to be used with multiple energy sources, such as district or centralized heating, solar energy and as a buffer-tank for wood/pellets boilers and heat-pumps.

Outer tank

The outer tank containing water from the primary circuit arriving from the boiler, is made of carbon steel STW 22.

Thermal Insulation

This is carried out using high density injected polyurethane foam, 50 mm containing no CFCs.

Lining

The tank is covered using polypropylene, a plastic material which offers a high resistance to shocks and which is also very pleasing to the eye.

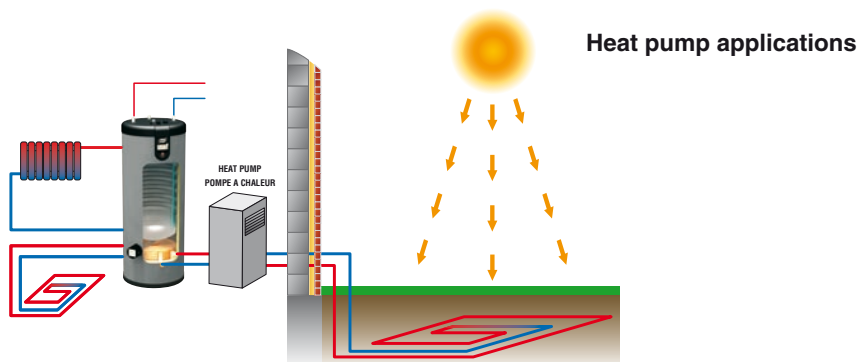
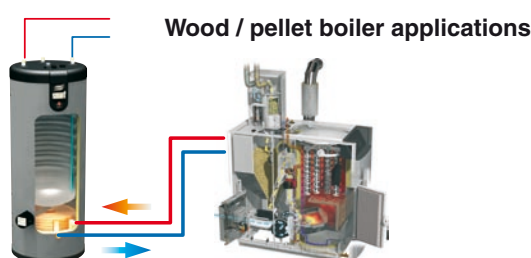
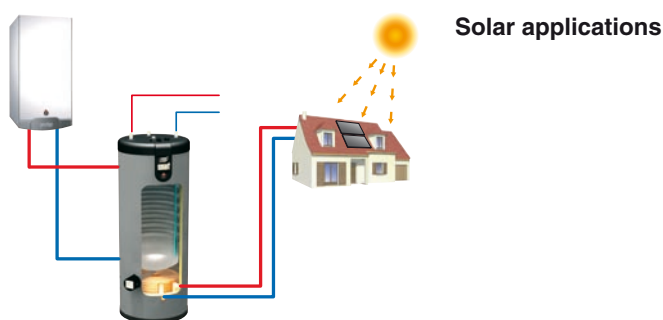
Optional heating element for SLME

The **SLME** tanks can be installed with a self-controlled heating element with built-in control and safety thermostats.

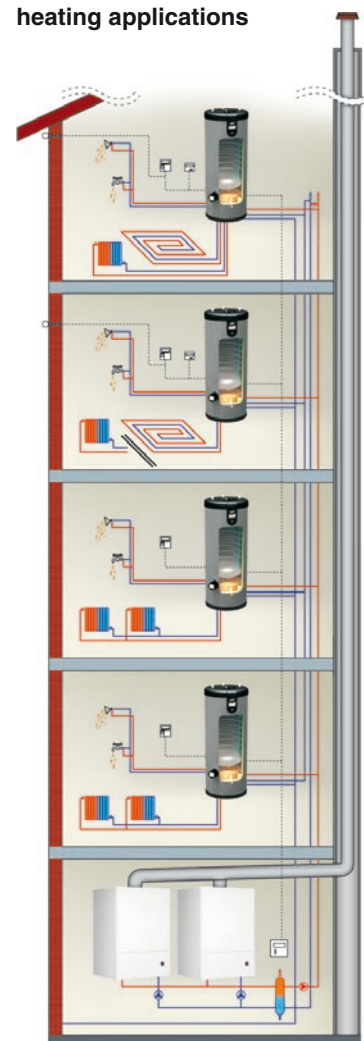
The control thermostat of the tank can not control the heating element.

Volt	Amp	Power	Code
1 x 230 V	13	3 kW	10800081
3 x 400 V + N	4.4	3 kW	10800082
1 x 230 V	26	6 kW	10800083
3 x 400 V + N	8.8	6 kW	10800084

APPLICATION EXAMPLES



District / centralised heating applications



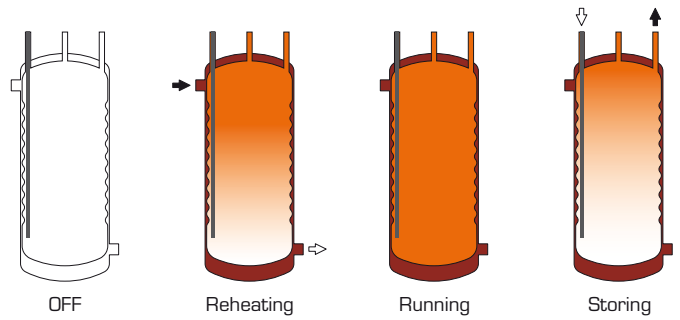
INTRODUCTION

DESCRIPTION OF OPERATION

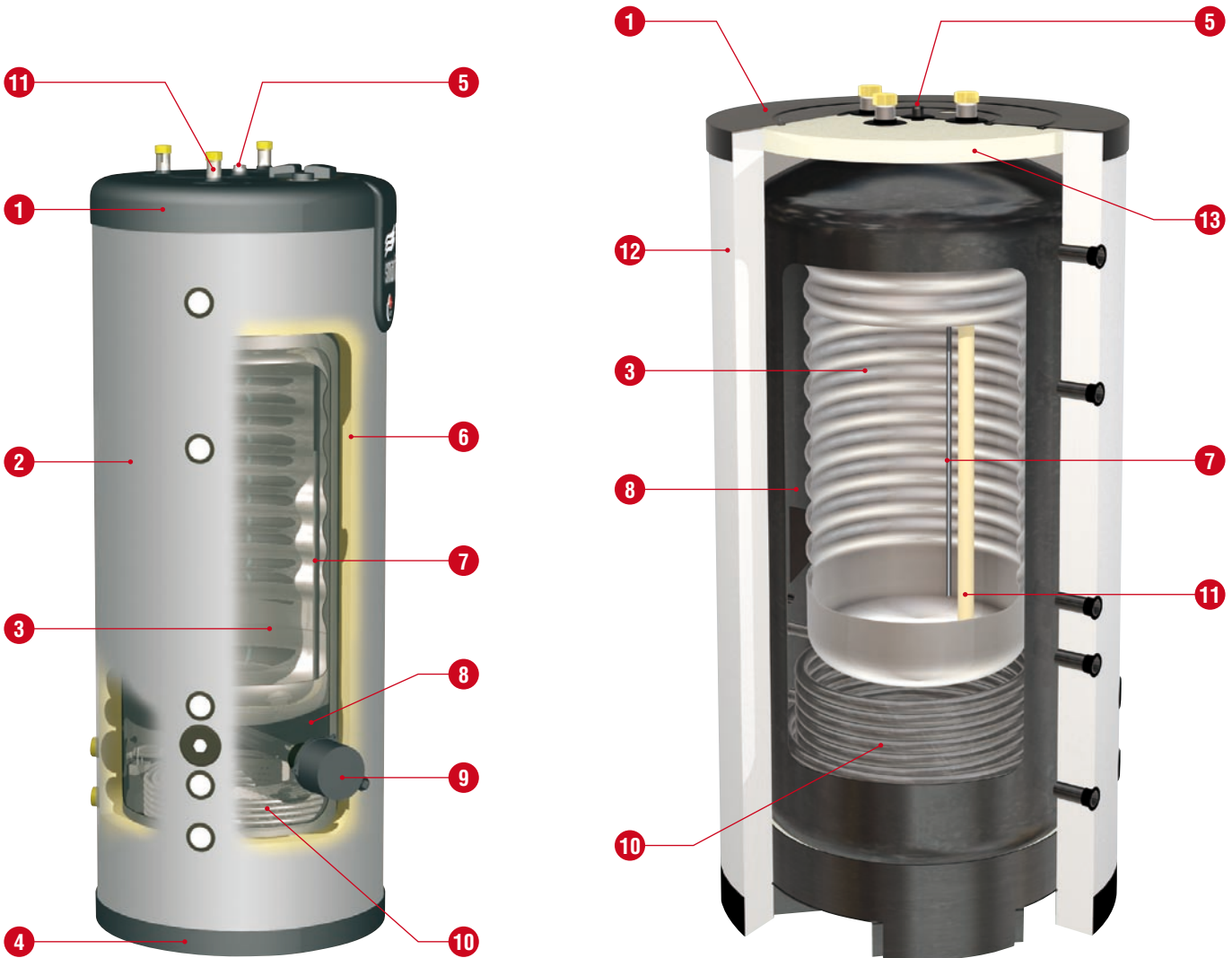
Operating cycle

The thermostat is triggered and starts up the pump which circulates the heating water. This water circulates around the inside tank and heats up the domestic water. When the required temperature is reached, the thermostat stops the primary circulating pump.

- Cold Water
- Domestic hot water
- Heating fluid



1. Polypropylene top lid
2. Polypropylene shell
3. Stainless steel tank (DHW)
4. Polypropylene bottom lid
5. Manual air purge
6. Polyurethane foam insulation
7. Dry well
8. Outer steel tank (primary circuit)
9. Electric heating element (in option)
10. Carbon steel coil
11. PVCC plunger
12. Polyurethane foam insulation
13. Bottom insulation



SLME 800

TECHNICAL CHARACTERISTICS

Tank characteristics		SLME 120	SLME 200	SLME 300	SLME 400	SLME 600	SLME 800
Total capacity	L	123	203	303	395	606	800
Primary capacity	L	46	95,7	165	219	365	517
Sanitary capacity	L	77	99	126	164	225	263
Coil Capacity	L	3	8,3	12	12	16	20
Primary fluid flow rate	L/h	2100	3000	3000	3000	3000	3000
Coil fluid flow rate	L/h	2300	3000	3000	3000	3000	3000
Primary pressure drop	mbar	32	40	42	45	48	50
Coil pressure drop	mbar	160	460	533	533	186	216
Tank heating surface	m ²	1,08	1,26	1,46	1,94	1,90	2,65
Coil heating surface	m ²	0,78	1,42	1,80	1,80	2,50	3,00
Maximum operating pressure heating circuit	bar	3	3	3	3	3	3
Maximum operating pressure DHW circuit	bar	10	10	10	10	10	10
Maximum operating pressure coil circuit	bar	10	10	10	10	10	10
Maximum operating temperature	°C	90	90	90	90	90	90
Weight empty [kg]	kg	65	68	99	120	180	220

DHW performances : heating source = coil		SLME 120	SLME 200	SLME 300	SLME 400	SLME 600	SLME 800
Peak flow at 40°C	L/10'	300	321	418	558	686	860
Peak flow at 45°C	L/10'	263	275	348	464	582	737
Peak flow at 60°C	L/10'	175	161	206	274	358	444
Peak flow at 40°C	L/60'	611	738	888	1184	1416	1691
Peak flow at 45°C	L/60'	513	609	732	976	1167	1450
Peak flow at 60°C	L/60'	304	333	402	536	661	808
Constant flow at 40°C	L/h	372	501	564	752	876	998
Constant flow at 45°C	L/h	300	401	460	614	702	855
Constant flow at 60°C	L/h	155	207	235	314	364	437
Pre-heating time	minutes	65	70	75	75	99	109
Maximum absorbed power coil at 45°C DHW	kW	12,2	16,3	19	25	29	35

DHW performances : heating source = external boiler connected to tank		SLME 120	SLME 200	SLME 300	SLME 400	SLME 600	SLME 800
Peak flow at 40°C	L/10'	300	321	418	558	686	922
Peak flow at 45°C	L/10'	242	275	348	464	582	790
Peak flow at 60°C	L/10'	146	161	206	274	358	504
Peak flow at 40°C	L/60'	938	1063	1225	1633	1872	2666
Peak flow at 45°C	L/60'	751	911	1003	1338	1559	2285
Peak flow at 60°C	L/60'	426	536	590	786	935	1368
Constant flow at 40°C	L/h	827	890	967	1289	1423	2093
Constant flow at 45°C	L/h	673	763	786	1048	1172	1794
Constant flow at 60°C	L/h	378	450	461	614	693	1037
Pre-heating time	minutes	27	29	45	45	60	53
Maximum absorbed power tank at 45°C DHW	kW	29	31	32	43	48	73

Running conditions: 85°C

Water intake T°: 10°C

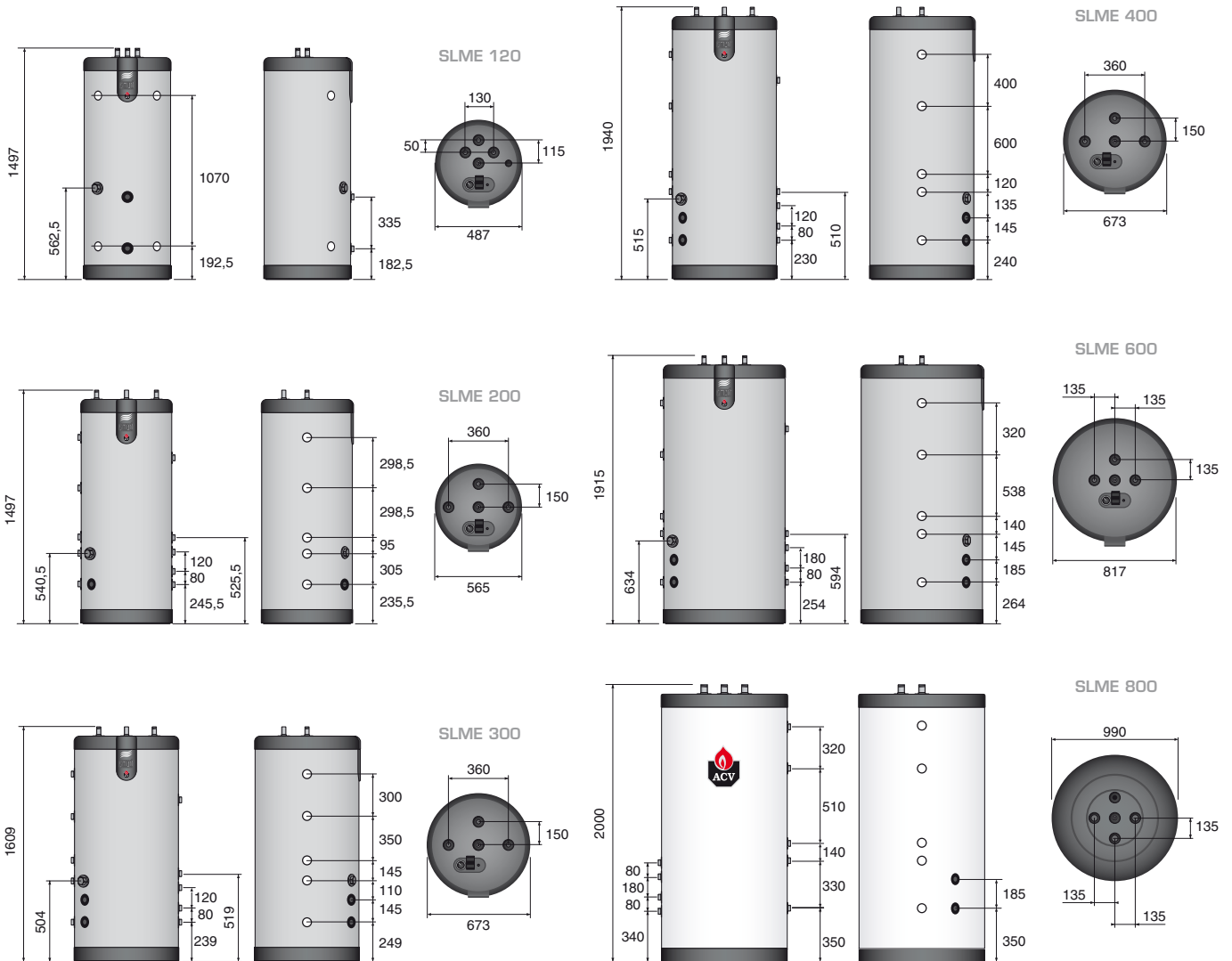
Water quality

• Chlorides: < 150 mg/L [304 Stainless steel]

• $6 \leq \text{ph} \leq 8$

INSTALLATION

DIMENSION



INSTALLATION RECOMMENDATION

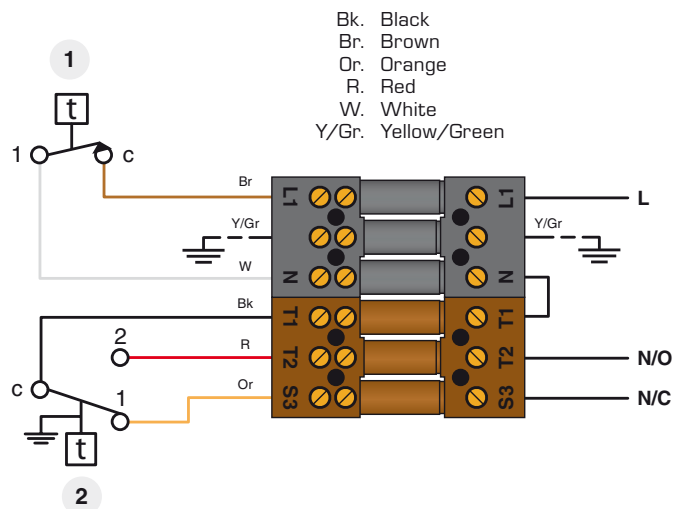
This hot water tank should not be installed where it will be exposed to outside weather conditions. Choose the most appropriate location according to the position of the boiler and the proximity of the domestic hot water distribution system, in order to reduce heat losses and minimise the pressure drops.

 Floor standing installation only.

WIRING DIAGRAM

[SLME 120 - 200 - 300 - 400 - 600]

1. Manual reset high limit thermostat [103°C max.]
2. Control thermostat [60/90°C]



INSTALLATION

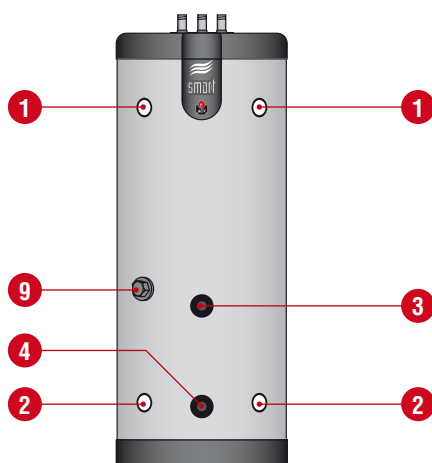
CENTRAL HEATING CONNECTIONS

PIPE DIMENSIONS

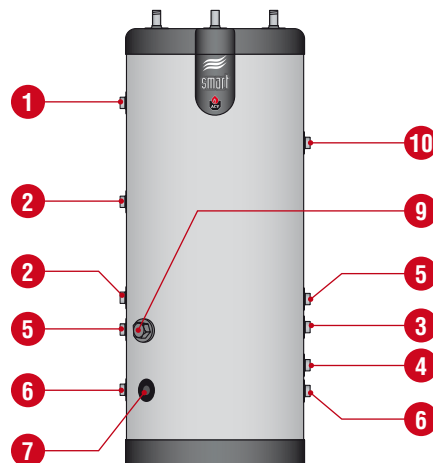
Models	Ø Heating connection	Ø Coil connection	Ø optional electrical heating element connection
SLME 120	Ø 3/4" [F]	Ø 3/4" [F]	Ø 1"1/2 [F]
SLME 200	Ø 1" [F]	Ø 1" [M]	Ø 1"1/2 [F]
SLME 300	Ø 1" [F]	Ø 1" [M]	Ø 1"1/2 [F]
SLME 400	Ø 1" [F]	Ø 1" [M]	Ø 1"1/2 [F]
SLME 600	Ø 1" [F]	Ø 1" [M]	Ø 1"1/2 [F]
SLME 800	Ø 1" [M]	Ø 1" [M]	—

1. Post heating flow connection
2. Post heating return connection
3. Coil flow connection
4. Coil return connection
5. Heating flow connection
6. Heating return connection
7. Sensor pocket (coil)
8. Sensor pocket (lowest temperature tank)
9. Optional electrical heating element connection
10. Fixation point for hydraulic kit

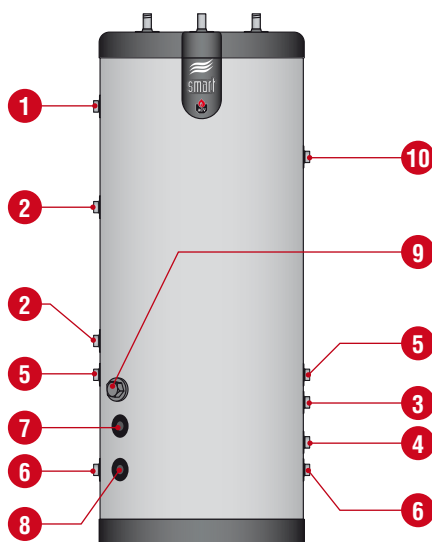
SLME 120



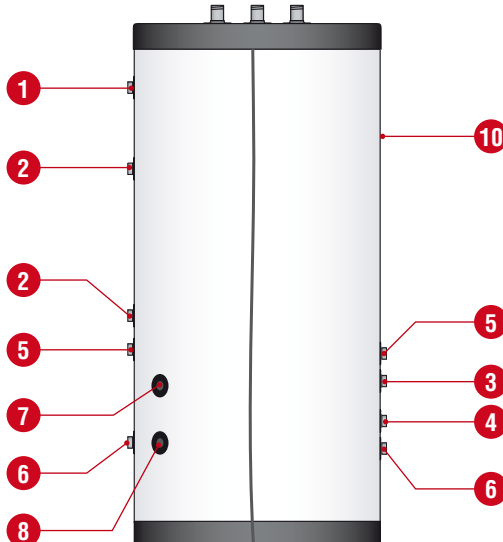
SLME 200



SLME 300 / 400 / 600



SLME 800



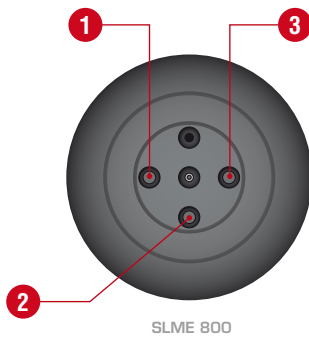
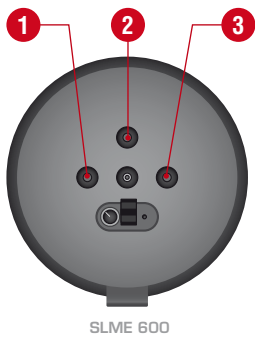
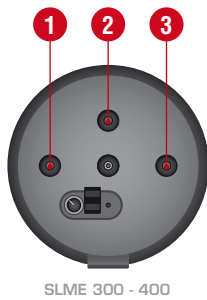
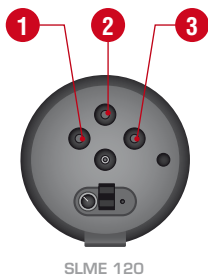
INSTALLATION

DOMESTIC HOT WATER CONNECTIONS

PIPE DIMENSIONS

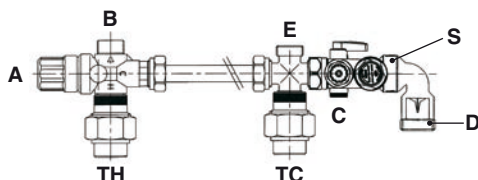
Models	Cold / hot water connections	Auxiliary connexion
SLME 120	Ø 3/4" [M]	Ø 3/4" [M]
SLME 200	Ø 3/4" [M]	Ø 3/4" [F]
SLME 300	Ø 3/4" [M]	Ø 3/4" [F]
SLME 400	Ø 3/4" [M]	Ø 3/4" [F]
SLME 600	Ø 3/4" [M]	Ø 3/4" [F]
SLME 800	Ø 1"1/2 [M]	Ø 1"1/2 [M]

1. Cold water inlet connection
2. Auxiliary connection DHW
3. Hot water connection

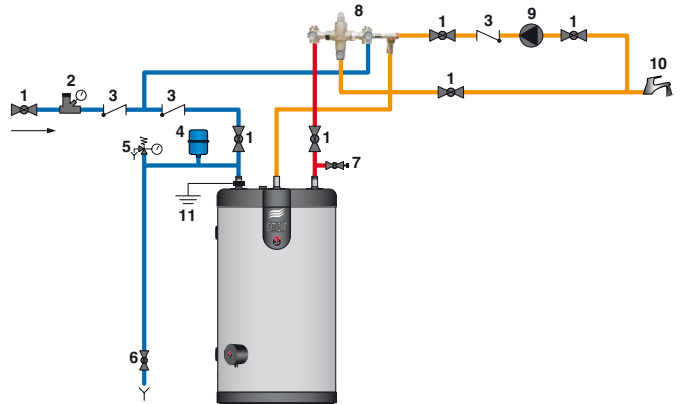


Domestic hot water kit

- A. Thermostatic mixing valve
- B. Mixed water outlet
- C. Cold water inlet
- D. Drainage connection
- E. Expansion vessel connection
- S. Safety unit
- TH. Outlet hot water tank
- TC. Inlet cold water tank



1. Isolating valve
2. Pressure reducer
3. Non-return valve
4. Expansion tank
5. Safety valve
6. Drain cock
7. Air vent
8. Thermostatic mixing valve
9. Circulation pump
10. Drawoff point
11. Earth connection



The installation of a domestic safety unit is compulsory. In order to avoid water dripping on the tank, the domestic safety unit should not be placed directly above the tank.

The third domestic water outlet can be used as a return from the domestic hot water circulation loop.

Mains water kits could be in some countries due to approval regulations.

To avoid all risk of corrosion connect the sanitary tank directly in the earth.



If there is a risk of low pressure in the hot water circuit (installation of Smart Line SLME on the roof of a building), it is essential to install a vacuum breaker device onto the cold water supply.

Recommendations

- The pipe feeding the tank with cold water must be fitted with a safety unit comprising at least the following:
 - An isolating valve [1]
 - a non-return valve [3]
 - a safety valve [5]: (set to < 10 bar)
 - a sanitary expansion vessel of appropriate dimensions.
- When the operating pressure exceeds 6 bar a pressure reducer [2] must be installed before the safety unit.
- Union fittings are recommended for easy removal of the connections. Ideally the "dielectric" version is preferable in order to protect the connections against corrosion in the presence of dissimilar metals such as copper and galvanised steel.
- The installation of an expansion vessel avoids safety valve runoff (loss of water).
- Domestic hot water expansion vessel capacity:

- 8 Litres: for the following models: 120 / 200 / 300
- 12 Litres: for the following models: 400
- 18 Litres: for the following models: 600 / 800



Please see the technical instruction manual of the expansion vessel's manufacturer for further details.

COMMISSIONING



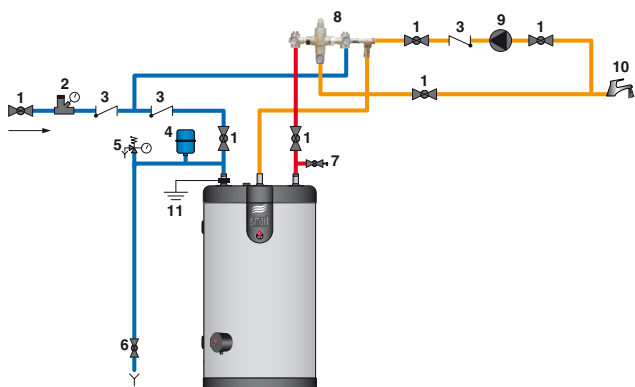
Before pressurising the central heating tank (primary) you should first pressurise the domestic hot water tank (secondary).

Both the domestic hot water tank and the central heating tank must be filled before using the tank.

FILLING THE TANK

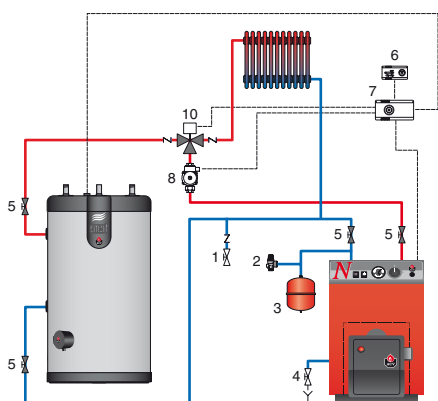
Domestic hot water tank

1. Close the drain cock [6] of the DHW circuit.
2. Open the isolating valve [1] of the DHW circuit for the filling.
3. Bleed the air in the circuit by turning on a nearby hot water tap [10]. Fill the tank until the flow rate stabilises.
4. Turn off the hot water tap [10].



Central heating tank

1. Close the drain cock [4] on the tank's primary circuit.
2. Open the isolation valves [5] on the central heating circuit connected to the boiler.
3. Bleed the air in the circuit by opening the air vent located on the upper part of the tank.
4. Follow the instructions supplied with the boiler for filling.
5. When the tank is full and the air has been removed, the bleed valve should be closed.



Ensure that the bleed valve is properly sealed.

6. If any antifreeze is needed in the primary circuit it must be compatible with Public hygiene rules and not be toxic. A food-type Propylene Glycol is recommended. Consult the manufacturer to ensure that the antifreeze is compatible with the tank's construction materials.



Never use car antifreeze or undiluted antifreeze. This can cause serious injury, death or damage to the premises.

WHAT TO CHECK START-UP?

- Safety valves (domestic hot water) and (central heating) correctly installed and discharge connected to the drains.
- Domestic hot water tank and primary circuit filled with water.
- Air bleed correctly carried out on both circuits.
- Air valve sealed.
- Both hot and cold water pipes correctly connected to the tank's hot water circuit.
- Heating feed and return correctly connected to the tank.
- The electrical cabling is correct.
- The tank's thermostat is set according to the instructions shown in § "Setting the thermostat".
- Connections checked and free of leaks.

SETTING THE THERMOSTAT

Factory settings

The thermostat of the tank is factory preset to the minimum recommended by the standards, over a range of settings from 60 to 90°C.

To increase the temperature: turn the button clockwise.
To reduce the temperature: turn the button anticlockwise.

When adjusting the tank's thermostat, make sure that the boiler temperature is set to a value at least 10°C higher than tank's thermostat.

Recommendations



There is a risk that bacteria including "Legionella pneumophila" may develop if a minimum temperature of 60°C is not maintained both in storage and in the hot water distribution network.



There is a risk of scalding from hot water!
ACV recommends the use of a thermostatic mixing valve set to provide water at 60 °C or less.

- The water heated to wash clothes, dishes and for other purposes can burn and cause serious injury.
- Children, the elderly, the sick or the disabled are the most at risk from burns due to very hot water. Never leave them on their own in a bath or under the shower. Never allow young children to turn on hot water taps or fill their own baths.
- Set the water temperature appropriately according to the intended use and plumbing codes.



When repeatedly drawing small amounts of hot water, a "stratification" effect may develop in the tank. The upper layer of hot water may then reach very high temperatures. A thermostatic mixing valve will stop water at excessively high temperatures reaching the outlets.

PERIODICAL CHECKS BY THE USER

- Check the pressure of the boiler's pressure gauge: it should be between 0.5 and 1.5 bar.
- Carry out a monthly visual inspection of the valves, connections and accessories in order to detect any leaks or malfunctions.
- Periodically check the air valve located on the upper part of the tank to make sure that it is not leaking.
- If you notice anything unusual, contact a technician or your heating engineer.

ANNUAL SERVICE

The annual service, carried out by a technician, must include the following:

- Checking the air valve:
The air bleed can lead to water being added to the system. Check the pressure on the boiler's pressure gauge.
- Manually activate the domestic hot water safety valve once a year. This operation will lead to a discharge of hot water.



Before drawing any hot water through the safety unit, make sure that the discharge goes directly to the drain in order to avoid any risk of burning or damage.

- The discharge pipe should be open to the atmosphere.
- If the safety unit occasionally "drips" this may be due to an expansion problem or to clogging of the valve.
- Follow the circulator's maintenance instructions.
- Check that the valves, cocks, controllers and any electrical accessories installed are working properly (see the manufacturer's instructions if necessary).

DRAINING

Recommendations



Empty the tank if it is to be switched off for the winter and there is a risk of frost conditions exposure.

If the central heating water (primary circuit) contains any antifreeze, only the domestic hot water should be drained.

Before draining off the domestic hot water, insulate the tank to bring the central heating pressure (primary circuit) down to 1 bar, in order to protect the tank against a risk of collapsing.

If the central heating circuit does not contain any antifreeze, both the central heating and hot water circuits should be drained.

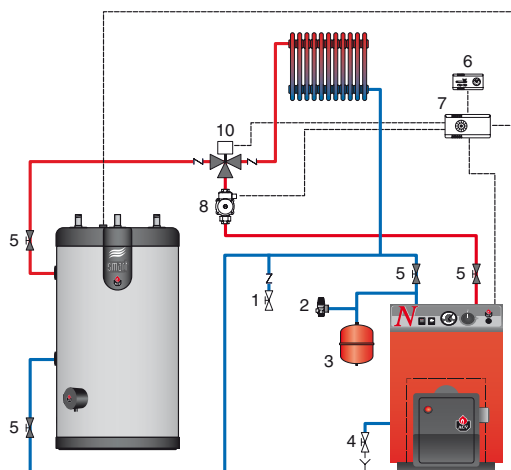


BE CAREFUL!
Risk of scalding while emptying the tank.

Central heating tank

To empty off the primary circuit:

1. Switch off the electrical power supply to the tank.
2. Connect a hose to the drain valve [4].
3. Open the drain valve [4] and drain the hot water off.
4. To speed up the process, open the air vent located on the upper part of the tank.
5. When the emptying is finished, close the drain cock again then screw the air valve up again.



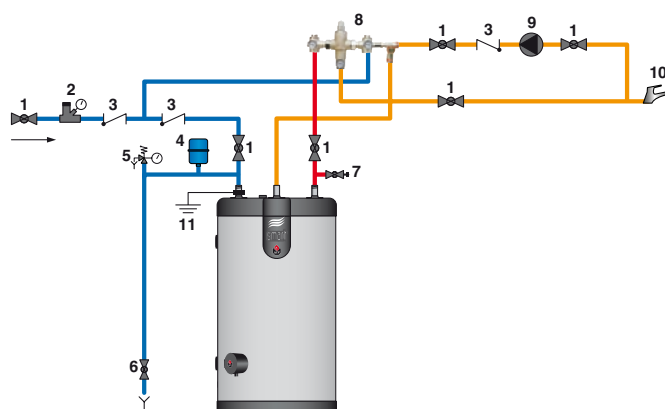
Domestic hot water tank

To empty the domestic hot water tank:

1. Please, read carefully the recommendations of drain.
2. Switch off the electrical power supply to the tank.
3. Close the isolation valve [1].
4. Open the drain cock [6] and the air vent [7].
5. Allow the water to flow out into the drain.
6. After emptying, return the valves to their initial positions.



In order to allow emptying the valve [6] must be located at the lowest point on the tank.

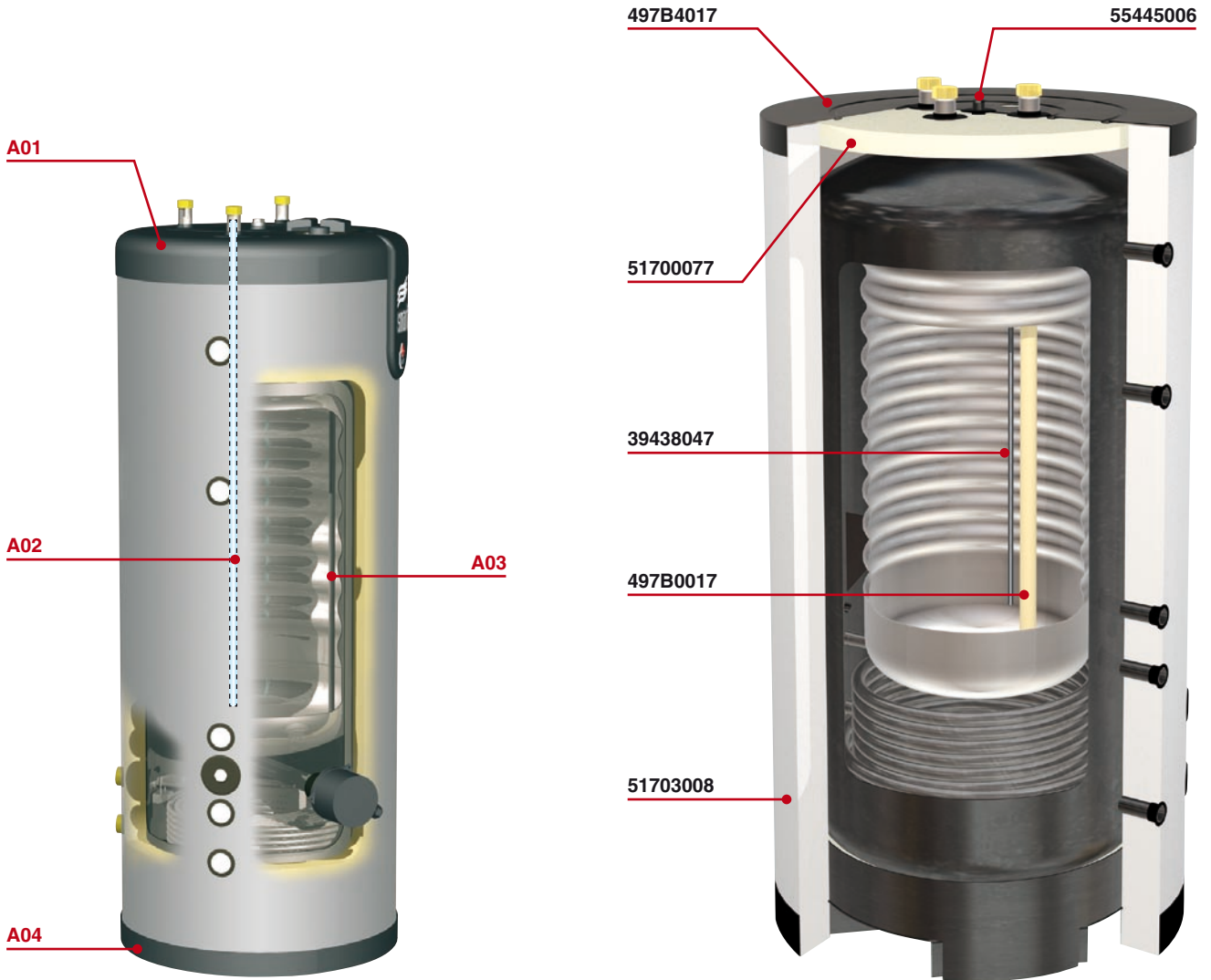




SLME

SLME 800

120 - 200 - 300 - 400 - 600



N°	SLME 120	SLME 200	SLME 300	SLME 400	SLME 600
A01	497B5004	497B5010	497B5012	497B5012	497B5007
A02	497B0005	497B0005	497B0006	497B0027	497B0007
A03	39438039	39438027	39438027	39438047	39438046
A04	497B5016	497B5015	497B5000	497B5000	497B5006

