

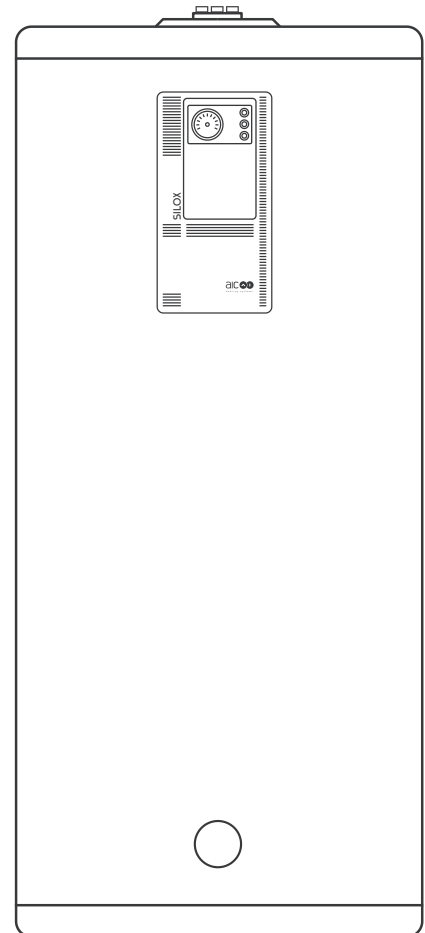
# installation and maintenance manual

FOR THE INSTALLER AND THE USER

## SILOX

140·180·215·260·400·600·1000 L

DOMESTIC HOT WATER STAINLESS STEEL TANKS





### **CERTIFIED PRODUCT**

All our models are compliant with:

- European Directive 2014-68-UE - Pressure Equipment.

Models that can operate with an electric heating element:

- European Standard EN 60335 - Safety of Household and Similar Electrical Appliances.
- European Directive 2014-35-UE - Low Voltage Directive.
- European Directive 2014-30-CE - Electromagnetic Compatibility.

This implies that our products are marked with CE, that qualifies them to be marketed in any country of the EU with all security guarantees.

*The quality of our products is essential to us, and we aim therefore at improving them continually. To this end, we reserve the right to change the technical characteristics and features of our products without prior notice. Please check for the latest revision of the manual on our website ([www.myaic.eu](http://www.myaic.eu)).*

*The manufacturer shall not be held liable for any malfunction of the product resulting from:*

- *The failure to comply with the safety and installation instructions provided herein,*
- *The failure to comply with the safety and operation instructions and recommendations provided herein,*
- *The failure to have the appliance maintained regularly,*
- *A modification of the appliance that is not approved by the manufacturer,*
- *The use the product for any other purpose than its intended use,*
- *The use of components and accessories that are not approved by the manufacturer.*

### **Installer's Responsibility**

*The installer is responsible for the correct installation and commissioning of the appliance according to:*

- *The instructions and recommendations provided herein,*
- *The applicable regulations and standards.*

*The installer shall provide the end-user with:*

- *Any relevant explanation about the operation of the appliance and the hydraulic system as well as the safety devices that are provided,*
- *Any instruction regarding periodic checks to be performed and possible anomaly to be reported,*
- *All the documentation delivered with the appliance and installed accessories.*

*The installer shall also inform the end-user of the necessity to have the appliance checked and maintained regularly by a qualified professional.*

### **End-user's Responsibility**

*To ensure the best performances and safety of the appliance, the end-user shall:*

- *Make sure that the appliance is installed, and commissioned by a qualified professional,*
- *Make sure that the appliance is checked and maintained regularly by a qualified professional,*
- *Comply with all the instructions and recommendations provided in the appliance documentation,*
- *Make sure to receive from the installer all the necessary explanations related to the operation of the appliance and the safety devices,*
- *Make sure to receive from the installer all the appliance and accessories documentation,*
- *Keep all the appliance documentation in a safe place for future use.*

*The end-user shall use the product for its intended use.*



- **Should the installer or the end user not comply with the instructions and requirements stated in this manual, the warranty will be void.**
- **For more information on the warranty terms and conditions, please connect to our website: [www.myaic.eu](http://www.myaic.eu).**

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About This Manual

*This documentation is part of the product. It will be handed over to the end-user who will keep it, with all the other applicable documents, in a safe place and readily available for use.*

*Before installing, operating or maintaining the appliance, please carefully read this manual and all the applicable documents provided with the components and accessories. They contain essential safety information.*

Symbols used in this Manual



Indicates an essential instruction which, if not followed, can result in a hazardous situation that can cause serious damage to equipment and/or injuries or death.



Indicates an essential instruction in relation with the presence of electrical power and a danger of electrical shock.



Indicates an important instruction which, if not followed, could result in a hazardous situation that could cause damage to equipment and/or injuries.



*Indicates an important piece of information.*



The electrical supply to the appliance must be activated/deactivated through the external circuit breaker or the power supply cable must be connected/disconnected.



The primary and DHW circuits of the appliance must be full of water/empty.



Primary circuit supply connection.



Primary circuit return connection.



Domestic Hot Water outlet connection.



Cold water inlet connection.

## General Safety Instructions



- › This appliance must be installed according to the applicable local regulations and standards by a qualified professional.
- › Electrical connections must be carried out according to applicable local regulations and standards by a qualified professional.
- › This appliance can be used by children who are at least 8 years old and by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, provided that they are under supervision or have been given instructions concerning the use of the appliance in a safe way and that they understand the hazards involved.
- › Cleaning and user maintenance shall not be performed by children without supervision. Children shall not play with the appliance.
- › Any modification to the appliance and its components is strictly forbidden without the prior written consent of the manufacturer.
- › If components need to be replaced, only genuine factory parts or components approved by the manufacturer must be used.



- › When the appliance is connected to the electrical network, it must be earthed.
- › Make sure that a fuse or circuit breaker of the recommended rating is installed outside the appliance, so as to be able to shut the power down.
- › Before performing any operation on the electrical circuit, isolate the electrical supply of the appliance through the external power-cutting device (fuse, circuit-breaker, etc.).



When working on the appliance and the system, make sure to use the appropriate tools to avoid damaging the pipes and components.



- › *When unpacking the appliance, check the integrity and condition of the packaging and that all the components and accessories described in the packing list are present. Contact your supplier in case of problem.*
- › *When discarding the packaging, do not contaminate the environment. Dispose of it according to the applicable local regulations on recycling.*

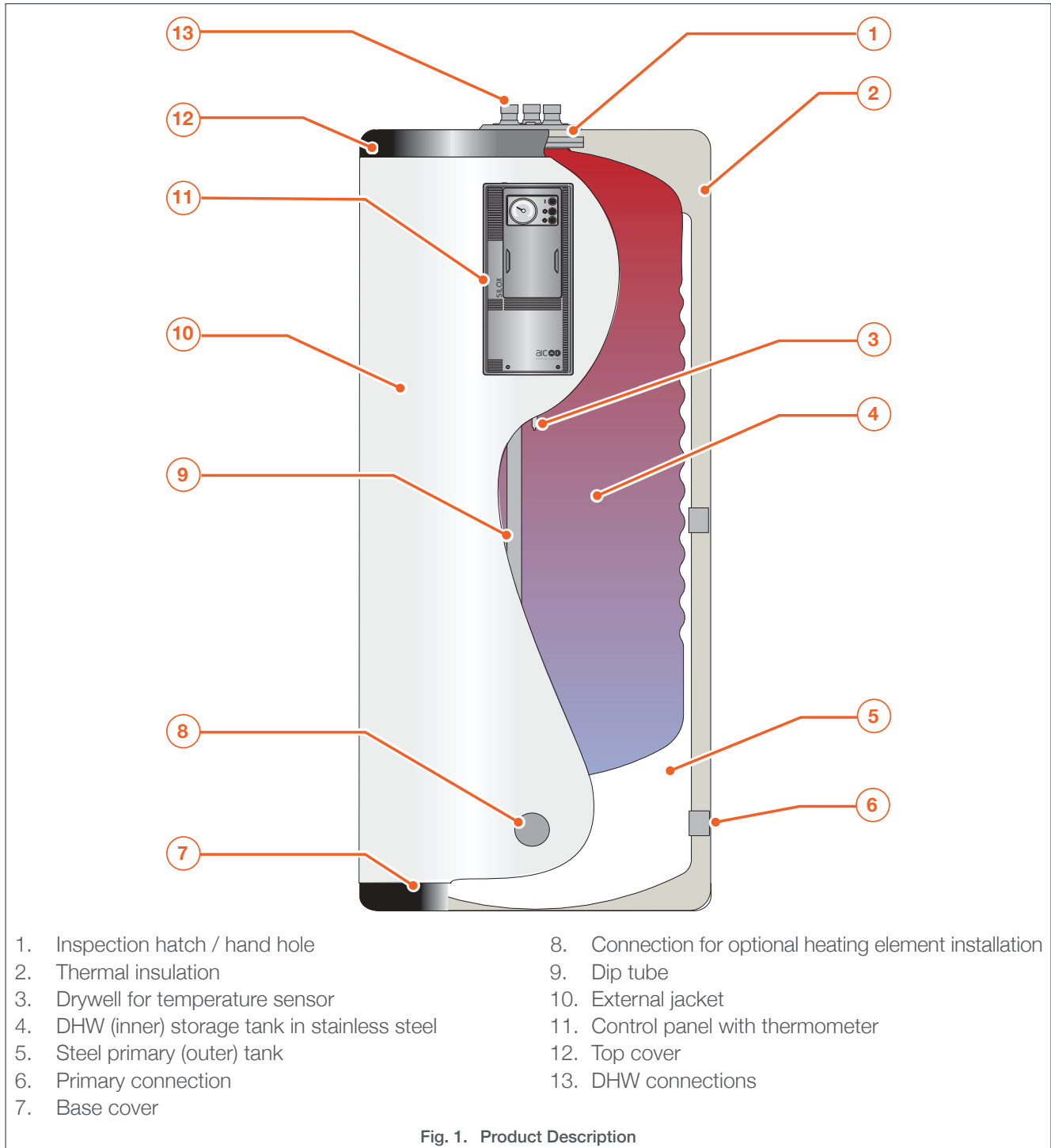
# PRODUCT DESCRIPTION

## SILOX Tanks

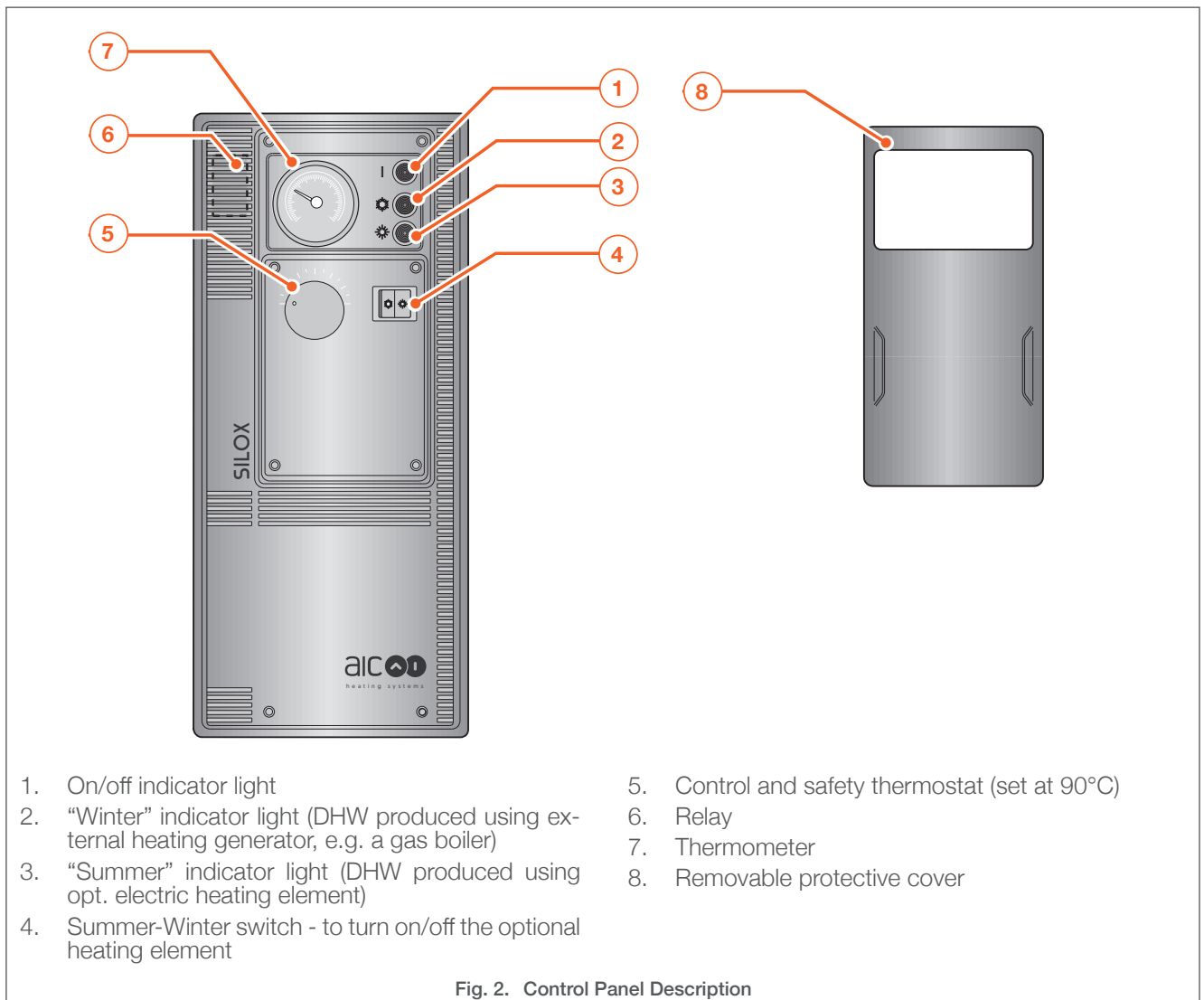
AIC's SILOX water heaters are twin-wall tanks that are designed for the production and storage of Domestic Hot Water. They consist of a steel outer tank (primary) and a built-in stainless steel DHW tank. At each draw-off of DHW and heating cycle, the inner tank expands and contracts, which prevents the adhesion and build-up of sediments.

The tanks are installed vertically on the floor and can be connected to various heating sources : boiler, heat pump, solar panels, etc.

They can also be equipped with an optional electric heating element, whose power varies according to the model. Larger models equipped with an optional heating element can operate on Tri-phase electrical power. Please contact your AIC representative to know which immersion heaters are available for your appliance.



## Control Panel



## Optional Accessories

### Immersed Electric Heating Element

Your SILOX DHW tank can be equipped with an optional 3, 6, 9 or 12 kW immersion heater (immersed length of 400 mm).



Refer to **"Heating Element Specifications"** on page 9 for a detail of maximum length per tank model.

Please contact your AIC representative for more information.

The control panel contains the required items to control the operation of the optional heating element when it is installed, provided that the electrical installation is carried out according to the wiring diagrams. Refer to **"Wiring Diagram"** on page 15.

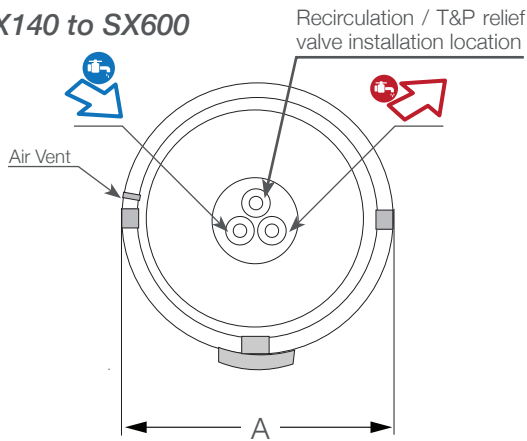
### DHW Hydraulic Kit

The DHW circuit needs to be equipped with a hydraulic kit that is provided as an accessory. Please refer to **"Hydraulic Kit Characteristics"** on page 14 for the characteristics and contact your AIC representative for more information.

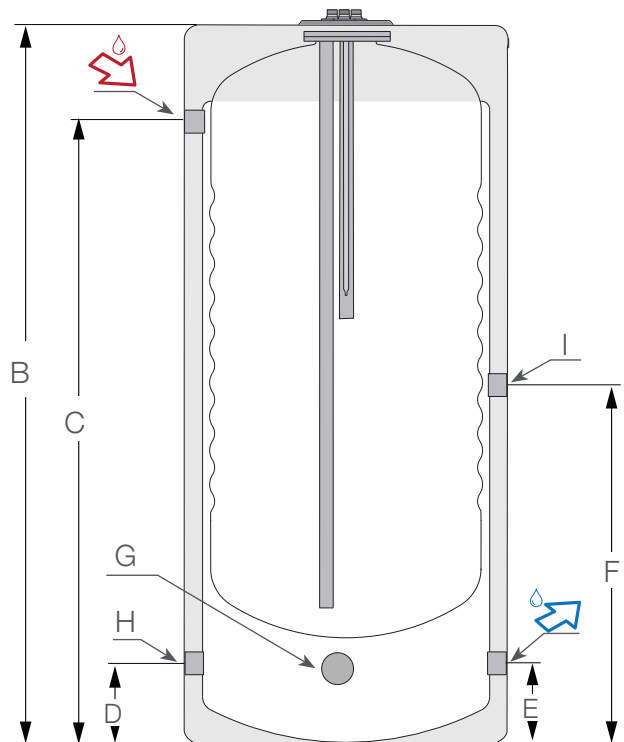
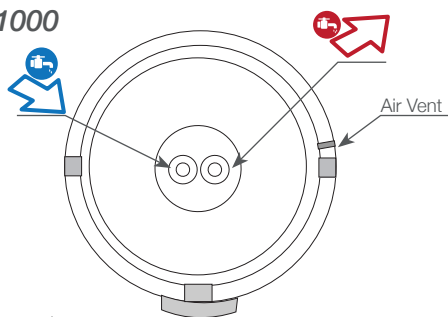
# TECHNICAL SPECIFICATIONS

## Dimensions

### SX140 to SX600



### SX1000



### Dimensions (mm)

	SX140	SX180	SX215	SX260	SX400	SX600	SX1000
A	560	560	560	560	620	770	950
B	1029	1279	1529	1767	1722	1728	2250
C	834	1084	1334	1574	1510	1491	1926
D	214	214	214	214	180	190	336
E	214	214	214	214	180	190	336
F	—	649	775	895	845	835	—

### Connections (Ø - in.)

	SX140	SX180	SX215	SX260	SX400	SX600	SX1000
Cold water inlet ( ) [M]	G 3/4	G 3/4	G 3/4	G 1	G 1	G 1	G 1 1/4
DHW outlet ( ) [M]	G 3/4	G 3/4	G 3/4	G 1	G 1	G 1	G 1 1/4
DHW recirculation [M]	G 3/4	G 3/4	G 3/4	G 1	G 1	G 1	—
Air vent connection [F]	G 1/8	G 1/8	G 1/8	G 1/8	G 1/8	G 1/8	G 1/2
Primary circuit supply ( ) [F]	G 1	G 1	G 1	G 1	G 1 1/2	G 1 1/2	G 1 1/2
Primary circuit return ( ) [F]	G 1	G 1	G 1	G 1	G 1 1/2	G 1 1/2	G 1 1/2
G - Optional immersion heater connection	G 2	G 2	G 2	G 2	G 2	G 2	G 2
H - Outer tank side connection	G 1	G 1	G 1	G 1	G 1 1/2	G 1 1/2	G 1 1/2
I - Outer tank side connection	—	G 1	G 1	G 1	G 1 1/2	G 1 1/2	—



Product Data		SX140	SX180	SX215	SX260	SX400	SX600	SX1000
Total water capacity	l	138	176	214	252	355	574	955
DHW capacity	l	92	127	161	196	265	433	712
Outer (primary) tank capacity	l	46	49	53	56	90	141	243
Heat transfer area	m <sup>2</sup>	0,9	1,2	1,6	1,9	2,2	2,8	4,0
Max. DHW temperature	°C				90			
Max. primary temperature	°C				110			
Operating primary temp.	°C				85			
T&P valve temperature setting	°C				90 - 95			
Max. operating DHW pressure	bar				8			
Max. operating primary pressure	bar				3			
Approx. empty weight	Kg	49	59	70	80	90	133	239
Standing heat loss	W	49	53	56	61	99	103	113
Energy efficiency class		B	B	B	B	C	C	C

Hydraulic Performance*		SX140	SX180	SX215	SX260	SX400	SX600	SX1000	
Peak Flow 45°C	L/10'	312	389	484	569	847	1229	2040	
Peak Flow 60°C	L/10'	199	249	309	363	536	791	1314	
Peak Flow 45°C	L/60'	989	1112	1545	1806	2411	2994	4902	
Peak Flow 60°C	L/60'	466	634	874	1022	1368	1731	2837	
Continuous Flow 45°C	L/h	826	882	1293	1508	1793	2161	3490	
Continuous Flow 60°C	L/h	489	517	773	881	1041	1283	2070	
Heating time (10°C to 60°C)	Min.	23	23	21	21	23	32	36	
Recovery time (with heating element)	3 kW	Min.	161	205	250	294	414	670	1114
	6 kW	Min.	81	103	125	147	207	335	557
	9 kW	Min.	54	68	83	98	138	223	371
	12 kW	Min.	40	51	62	74	104	167	279
Primary flow rate	m <sup>3</sup> /h	2,9	3,1	4,6	5,2	6,3	7,6	12,2	

\* Primary flow water at 85°C - cold water from mains at 10°C

Heating Element Specifications		SX140	SX180	SX215	SX260	SX400	SX600	SX1000
Max. length	mm		445			535	685	780

# TECHNICAL SPECIFICATIONS

## Recommendations for the Quality of Water

To prevent the formation of scale and sludge in a closed heating circuit through the penetration of oxygen and carbonates, follow the recommendations below:

- ▶ Before filling the system, clean it according to standard EN14336. Chemical cleaning agents can be used.
- ▶ If the circuit is in bad condition, or the cleaning operation was not efficient, or there is a large volume of water in the system (e.g. cascade), it is recommended to separate the appliance from the heating circuit using a plate heat exchanger or an equivalent accessory. In that case, it is recommended to install a hydroclone or magnetic filter on the system side.
- ▶ Limit the fill operations. To control the quantity of water added into the system, install a water meter on the filling line of the primary circuit. No more than 5% of the total content of the system is allowed annually.
- ▶ Automatic filling systems are not recommended unless the fill frequency is checked and the levels of scale and corrosion inhibitor are maintained at an appropriate level.
- ▶ If the system needs to be refilled frequently, check for leaks in the primary circuit.
- ▶ Inhibitors may be used according to standard EN 14868.
- ▶ An air separator (on the appliance supply circuit) combined with a dirt separator (upstream of the appliance) must be installed according to the manufacturer's instructions.
- ▶ Additives can be used to keep the oxygen in solution in the water.
- ▶ Use the additives in accordance with the instructions of the manufacturer of the water treatment product.

## Water Hardness

- ▶ If the hardness of the fill water is higher than 20° fH (11,2° dH), soften it. At commissioning, the water should be soft.
- ▶ Check regularly the water hardness and enter the values in the maintenance log sheet (provided at the end of the manual).

Water hardness	°fH	°dH	mmolCa(HCO <sub>3</sub> ) <sub>2</sub> / l
Very soft	0 - 7	0 - 3.9	0 - 0.7
Soft	7 - 15	3.9 - 8.4	0.7 - 1.5
Fairly hard	15 - 25	8.4 - 14	1.5 - 2.5
Hard	25 - 42	14 - 23.5	2.5 - 4.2
Very hard	> 42	> 23.5	> 4.2

## Water Parameters

- ▶ In addition to the oxygen and the water hardness, other parameters of the water must be checked. Treat the water if the measured values are outside the range of the table below.

Water Parameters	Range
Acidity	8.2 < pH < 9.0
Conductivity	< 400 µS/cm (at 25°C)
Chlorides	< 125 mg/l
Iron	< 0,5 mg/l
Copper	< 0,1 mg/l

- ▶ AIC recommends to have the DHW circuit operating at more than 60°C to prevent the development of bacteria in the DHW circuit.

## G3 Requirements in the UK

### G3 Requirements (UK only)

#### Discharge pipe from safety valves

The Building Regulation G3 requires that any discharge from an unvented system is conveyed to where it is visible, but will not cause danger to persons in or about the building.

The tundish and discharge pipes should be fitted in accordance with the requirements and guidance notes of Building Regulation G3. The G3 Requirements and Guidance sections 3.50 - 3.63 are detailed below.

For discharge pipe arrangements not covered by G3 Guidance advice should be sought from your local Building Control Officer.

#### Main characteristics :

- ▶ Any discharge pipe connected to the pressure relief devices (Expansion Valve and Temperature/Pressure Relief Valve) must be installed in a continuously downward direction and in a frost-free environment.
- ▶ Water may drip from the discharge pipe of the pressure relief device.
- ▶ This pipe must be left open to the atmosphere.
- ▶ The pressure relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.
- ▶ A typical discharge pipe arrangement is shown on next page.



▶ *Discharge pipe-work D2 can now be a plastic pipe but only pipes that have been tested to a minimum 110°C must be used.*

- ▶ *Discharge pipe D2 can now be plumbed into the soil stack but only soil stacks that can handle temperatures of 99°C or greater should be used.*

#### Extract from “The Building Regulation G3” :

#### Discharge pipe D1

3.50 Safety devices such as temperature relief valves or combined temperature and pressure and pressure relief valves should discharge either directly or by way of a manifold via a short length of metal pipe (D1) to a tundish.

3.51 The diameter of discharge pipe (D1) should be not less than the nominal outlet size of the temperature relief valve.

3.52 Where a manifold is used it should be sized to accept and discharge the total discharge from the discharge pipes connected to it.

3.53 Where valves other than the temperature and pressure relief valve from a single unvented hot water system discharge by way of the same manifold that is used by the safety devices, the manifold should be factory fitted as part of the hot water storage system unit or package.

#### Tundish

3.54 The tundish should be vertical, located in the same space as the unvented hot water storage system and be fitted as close as possible to, and lower than, the valve, with no more than 600mm of pipe between the valve outlet and the tundish.



*To comply with the Water Supply (Water Fittings) Regulations, the tundish should incorporate a suitable air gap.*

3.55 Any discharge should be visible at the tundish. In addition, where discharges from safety devices may not be apparent, e.g. in dwellings occupied by people with impaired vision or mobility, consideration should be given to the installation of a suitable safety device to warn when discharge takes place, e.g. electronically operated.

#### Discharge pipe D2

3.56 The discharge pipe (D2) from the tundish should:

- a. have a vertical section of pipe at least 300mm long below the tundish before any elbows or bends in the pipework; and
- b. be installed with a continuous fall thereafter of at least 1 in 200.

3.57 The discharge pipe (D2) should be made of:

- a. metal; or
- b. other material that has been demonstrated to be capable of safely withstanding temperatures of the water discharged and is clearly and permanently marked to identify the product and performance standard (e.g. as specified in the relevant part of BS 7291)

3.58 The discharge pipe (D2) should be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9m long, i.e. for discharge pipes between 9m and 18m the equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device; between 18 and 27m at least 3 sizes larger, and so on; bends must be taken into account in calculating the flow resistance. See figure, table and the example.

3.59 Where a single common discharge pipe serves more than one system, it should be at least one pipe size larger than the largest individual discharge pipe (D2) to be connected.

3.60 The discharge pipe should not be connected to a soil discharge stack unless it can be demonstrated that that the soil discharge stack is capable of safely withstanding temperatures of the water discharged, in which case, it should:

- a. contain a mechanical seal, not incorporating a water trap, which allows water into the branch pipe without allowing foul air from the drain to be ventilated through the tundish;
- b. be a separate branch pipe with no sanitary appliances connected to it;
- c. if plastic pipes are used as branch pipes carrying discharge from a safety device they should be either polybutylene (PB) to Class S of BS 7291-2:2006 or cross linked polyethylene (PE-X) to Class S of BS 7291-3:2006; and (d) be continuously marked with a warning that no sanitary appliances should be connected to the pipe.



- › *Plastic pipes should be joined and assembled with fittings appropriate to the circumstances in which they are used as set out in BS EN ISO 1043-1.*
- › *Where pipes cannot be connected to the stack it may be possible to route a dedicated pipe alongside or in close proximity to the discharge stack.*

## Termination of discharge pipe

3.61 The discharge pipe (D2) from the tundish should terminate in a safe place where there is no risk to persons in the vicinity of the discharge.

3.62 Examples of acceptable discharge arrangements are:

- a. to a trapped gully with the end of the pipe below a fixed grating and above the water seal;
- b. downward discharges at low level; i.e. up to 100mm above external surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that a wire cage or similar guard is positioned to prevent contact, whilst maintaining visibility; and
- c. discharges at high level: e.g. into a metal hopper and metal downpipe with the end of the discharge pipe clearly visible or onto a roof capable of withstanding high temperature discharges of water and 3m from any plastic guttering system that would collect such discharges.

3.63 The discharge would consist of high temperature water and steam. Asphalt, roofing felt and non-metallic rainwater goods may be damaged by such discharges.



- **The temperature/pressure relief valve should only be replaced by a qualified professional.**
- **Do not tamper with control or safety valves or use them for any other purpose than what they are intended for.**
- **Make sure that the discharge pipe is not blocked or used for any other purpose than what is intended for.**
- **Do not locate the tundish close to any electrical components.**

UK only

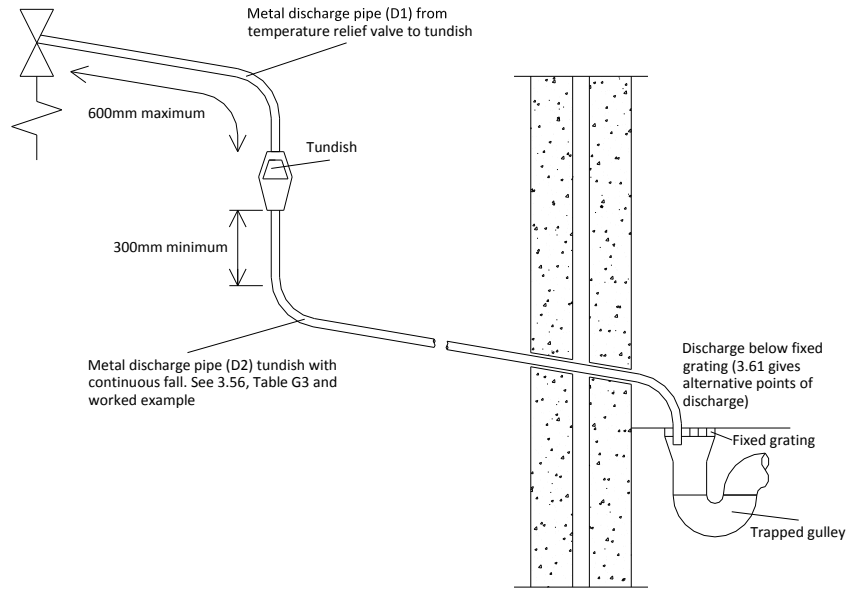


Figure G3: Typical discharge pipe arrangement

Valve outlet size	Minimum size of discharge pipe D1	Minimum size of discharge pipe D2 from tundish	Maximum resistance allowed, expressed as a length of straight pipe (i.e. no elbows or bends)	Resistance created by each elbow or bend.
G $\frac{1}{2}$	15mm	22mm	Up to 9m	0.8m
		28mm	Up to 8m	1.0m
		35mm	Up to 27m	1.4m
G $\frac{3}{4}$	22mm	28mm	Up to 9m	1.0m
		35mm	Up to 8m	1.4m
		42mm	Up to 27m	1.7m
G1	28mm	35mm	Up to 9m	1.4m
		42mm	Up to 8m	1.7m
		54mm	Up to 27m	2.3m

Table G3 – Sizing of copper discharge pipe 'D2' for common temperature relief valve outlet sizes

**Example of discharge pipe sizing**

Figure on previous page shows a G1/2 temperature relief valve with a discharge pipe (D2) having 4 No. 22mm elbows and length of 7m from the tundish to the point of discharge.

From Table:

Maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G1/2 temperature relief valve is 9.0m.

- ▶ Subtract the resistance for 4 No. 22mm elbows at 0.8m each = 3.2m
- ▶ Therefore the permitted length equates to: 5.8m
- ▶ 5.8m is less than the actual length of 7m therefore calculates the next largest size.

Maximum resistance allowed for a straight length of 28mm pipe (D2) from a G1/2 temperature relief valves equates to 18m.

- ▶ Subtract the resistance of 4 No. 28mm elbows at 1.0m each = 4.0m
- ▶ Therefore the maximum permitted length equates to: 14m
- ▶ As the actual length is 7m, a 28mm (D2) copper pipe will be satisfactory.

**!** *The system must be equipped with a hydraulic kit (optional - to be ordered separately), having the following characteristics.*

**Hydraulic Kit Characteristics**

	SX140	SX180	SX215	SX260	SX400	SX600	SX1000
Max. water supply pressure to Pressure reducing valve	bar			16			
Operating pressure	bar			3,5			
DHW expansion vessel charge pressure	bar			3,5			
Expansion valve setting	bar			6			

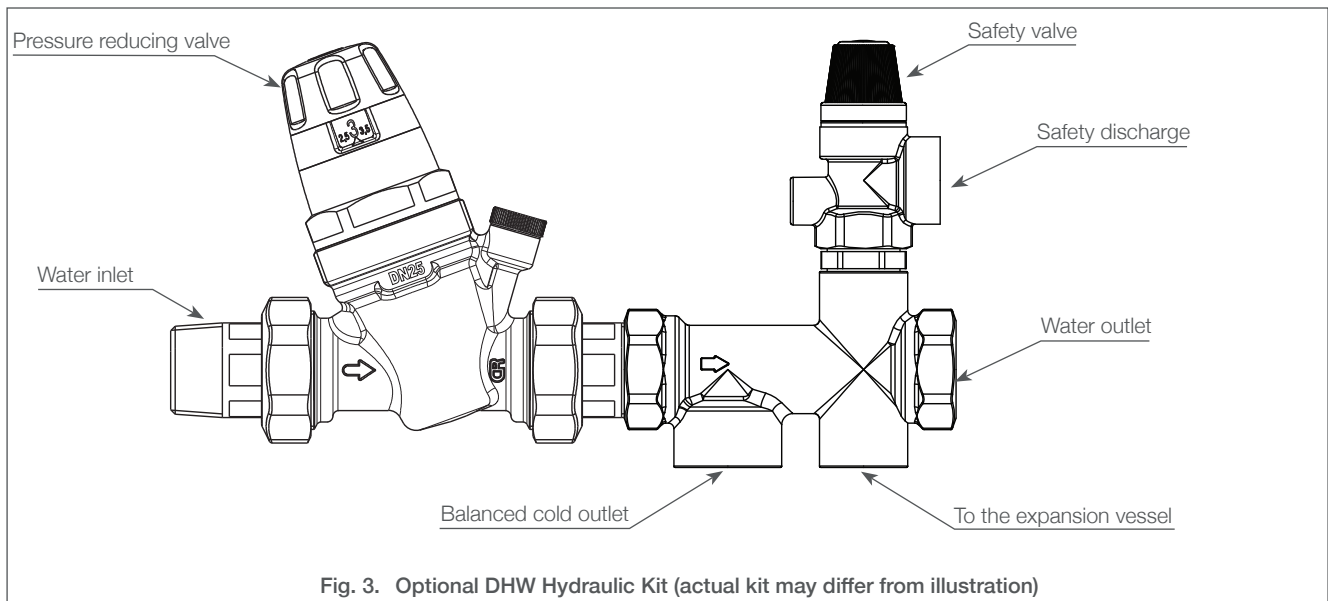
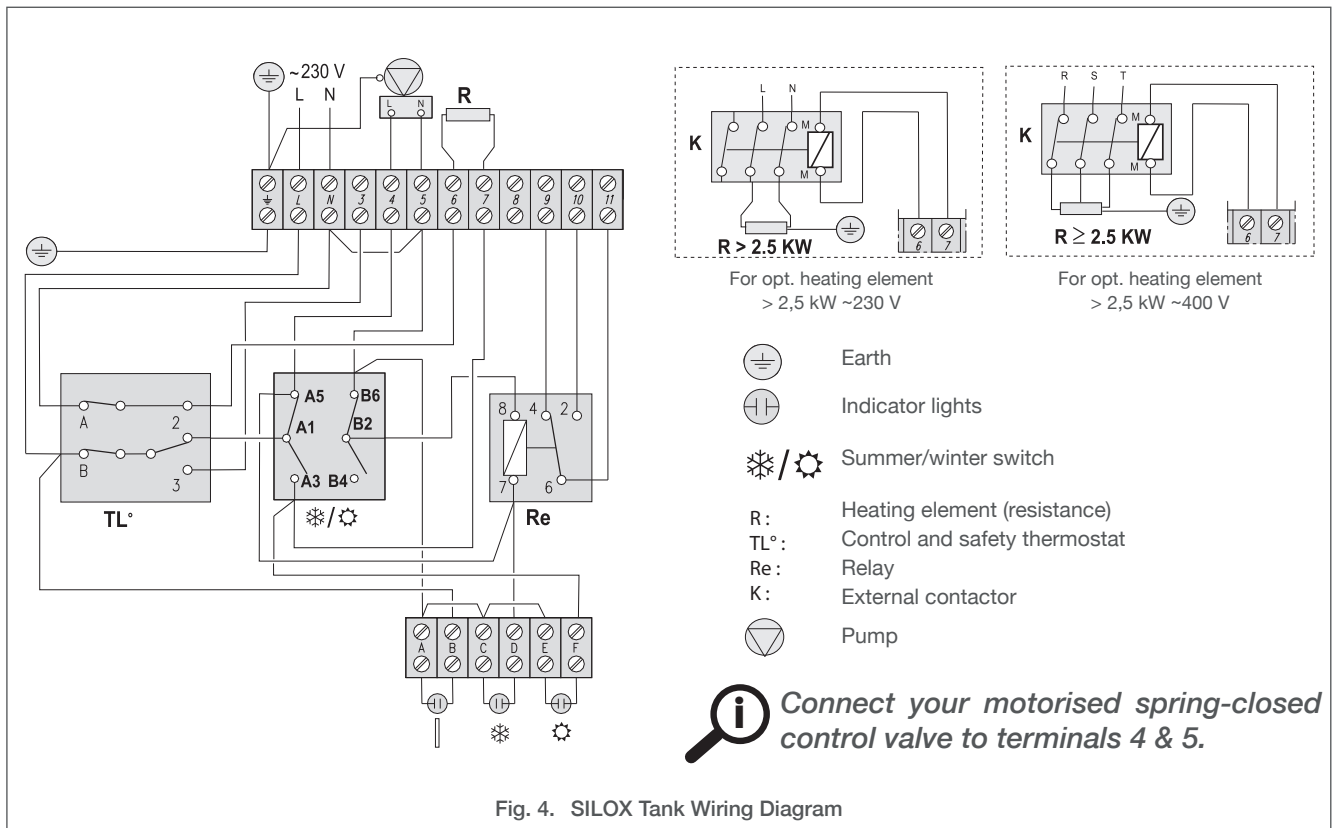


Fig. 3. Optional DHW Hydraulic Kit (actual kit may differ from illustration)

Wiring Diagram



Optional Heating Element



- Please refer to your AIC representative for the correct component.
- Also see connection detail in Fig. 4 above or wire the back-up immersion directly to a fused spur.
- Electrical connections must be sized correctly and be carried out in accordance with current standards.



## Safety Instructions for the Installation



- ▶ All connections must be carried out in accordance with current standards and regulations in force.



- ▶ When the appliance is connected to the electrical network, it must be earthed.
- ▶ Make sure that a fuse or circuit breaker of the recommended rating is installed outside the appliance, so as to be able to shut the power down.
- ▶ Before performing any operation on the electrical circuit, isolate the electrical supply of the appliance through the external power-cutting device (fuse, circuit breaker, etc.)



- ▶ The appliance must be installed in a dry and protected area, with an ambient temperature comprised between 0 and 45°C.
- ▶ Make sure to protect the appliance and hydraulic system against freezing.
- ▶ The appliance must be installed to ensure easy access at all times.
- ▶ Make sure to use the appropriate tools to avoid damaging the pipes and components.
- ▶ Install all pipes and ducts without stress to prevent any leaks from occurring.

## Package Contents

- ▶ A SILOX twin-wall tank
- ▶ An Installation and Maintenance manual
- ▶ **SX1000 only:** a T&P relief valve to be installed (UK only)

## Optional Accessories (to be purchased separately)

- ▶ A safety group, comprised of:
  - Pressure reducing valve (6 bar)
  - Safety & check valve assembly,
  - Tundish
  - Expansion vessel
- ▶ Electric heating element

## Unpacking the Product

1. Carefully remove the packaging and protections.
2. Discard packaging according to applicable local regulations.

## Installing and Preparing the Tank

- ▶ If a heating element needs to be installed in the tank, refer to **“Optional Accessories” on page 7** and **“Optional Heating Element” on page 15** for the characteristics, and **“Optional Heating Element Installation” on page 17**.
- ▶ Carry out hydraulic connections according to **“Hydraulic Connections” on page 19**.



## Optional Heating Element Installation

**Conditions:**  

Outer tank drained as required. Refer to **“Draining the Tank”** on page 24.

### Tools and material:

- ▶ Immersion heating element and accessories

### Procedure:



*Make sure that the electrical power supply is deactivated.*



*Ensure that mains voltage corresponds to the voltage rating of the heater as shown on the rating label on the terminal cover.*

1. Remove plug from front connection.
2. Install the heating element into the hole.



*Please refer to the heating element installation procedure provided with the accessory.*

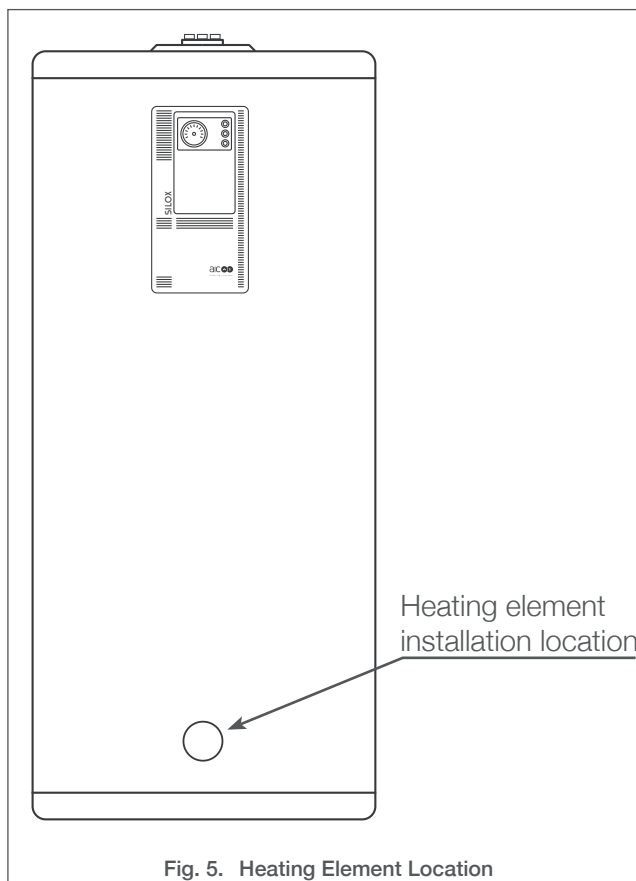


Fig. 5. Heating Element Location

3. Tighten.
4. Fill with water:
  - ▶ If the outer tank was emptied for heating element installation, fill the outer tank, refer to **“Filling the Tank”** on page 21.
  - ▶ If the heating element was installed before commissioning, fill inner and outer tanks. Refer to **“Filling the Tank”** on page 21.



- ▶ It is essential that water fully covers the heating element to a depth of at least 100mm.
  - ▶ Under no circumstances must the heater be permitted to run dry – serious damage may result to the heater in addition to danger of personal injury and damage to property.
5. Check there is no leak.
  6. Carry out the connection of the wires in accordance with the wiring diagrams provided in **“Wiring Diagram”** on page 15, and with the instructions provided with the heating element.



- ▶ Make sure that the heating element is earthed.
- ▶ Ensure that all connections are securely made.
- ▶ Do not use excessive force when tightening.

### Follow-on task(s) :



- ▶ Under no circumstances can the immersion heating element be switched on before the primary (outer) tank is filled. Serious damage may result to the heater in addition to danger of personal injury and damage to property if heater is switched on when dry.
- ▶ Make sure that the inner and outer tanks are full of water before turning appliance on.

Safety Instructions and Recommendations for the Hydraulic Circuits



Make sure that the DHW circuit is provided with a safety group and an expansion vessel that are appropriate for the appliance power and the system size, and the increase in temperature and pressure.



- ▶ Always fill and pressurise the inner tank (DHW) before filling the outer (primary) tank. Failure to comply may damage the inner tank.
- ▶ If the supply pressure from the water network is higher than 8 bar, make sure to install a pressure reducing valve.
- ▶ Verify the water quality of the network according to the requirements defined in this manual.
- ▶ In case inhibitors are used in the system, consult your AIC representative for the product suitability.
- ▶ Any antifreeze used in the primary circuit must comply with Public Hygiene Regulations and must be non-toxic. A food-grade Propylene Glycol formulated with a corrosion inhibitor is recommended.
- ▶ Consult your AIC representative to determine the compatibility of the antifreeze and additive products with the appliance materials.

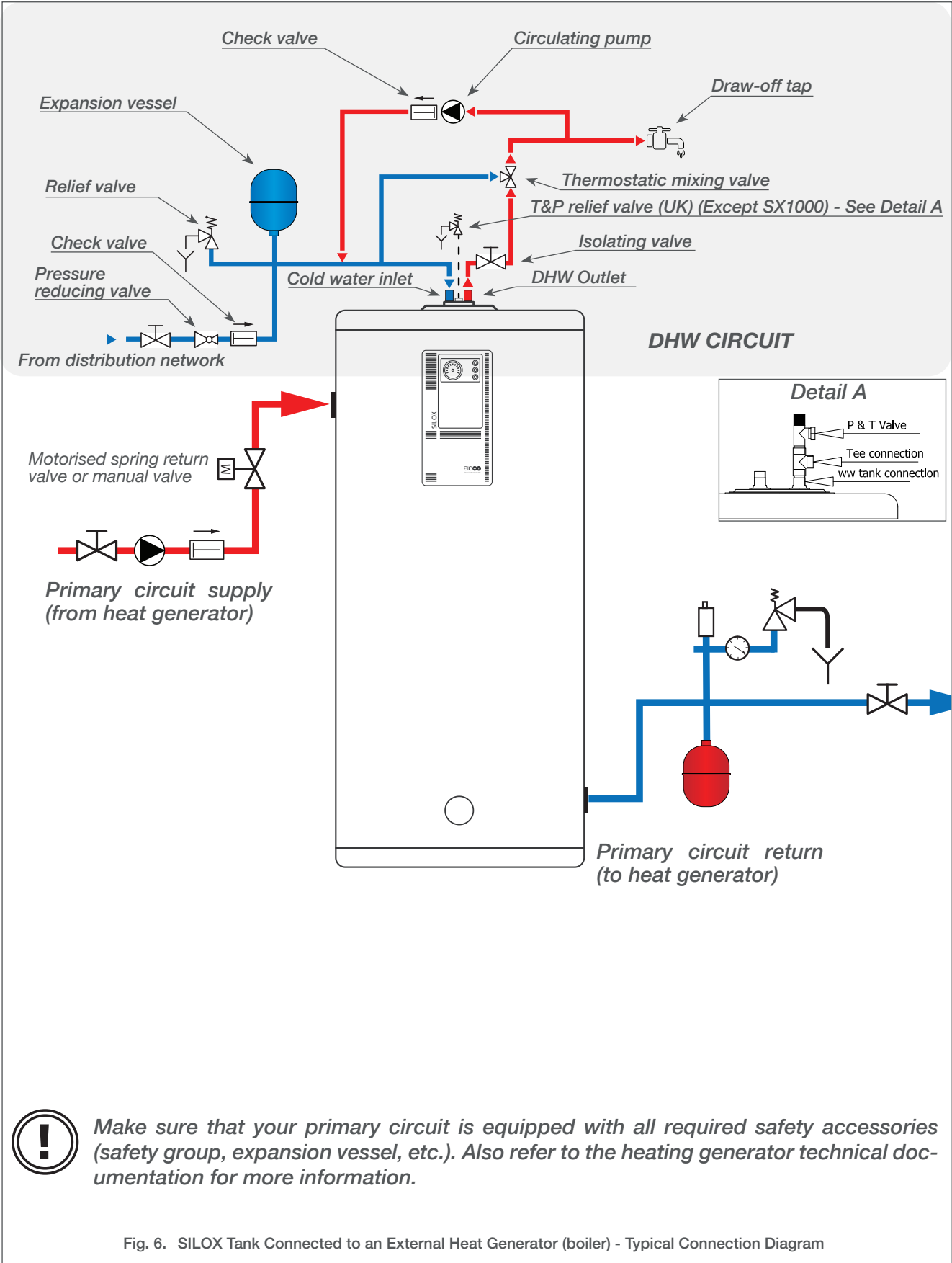


- ▶ The heating circuit is made of carbon steel. Therefore, re-oxygenation of the CLOSED primary circuit is not permitted.
- ▶ It is recommended to install the following devices in the system to prevent primary circuit contamination and the production of scale :
  - Plate heat exchanger, combined with a micro-pollutant separator, which will protect the appliance from any contaminants present in an old heating system, where fittings and pipes can be corroded. This is also mandatory for open systems where oxygen can penetrate the system and cause corrosion.
- ▶ In DHW circuits, there is a risk of bacteria Legionella development if temperature is too low. Make sure that DHW circuit is brought regularly to a temperature higher than 60°C.



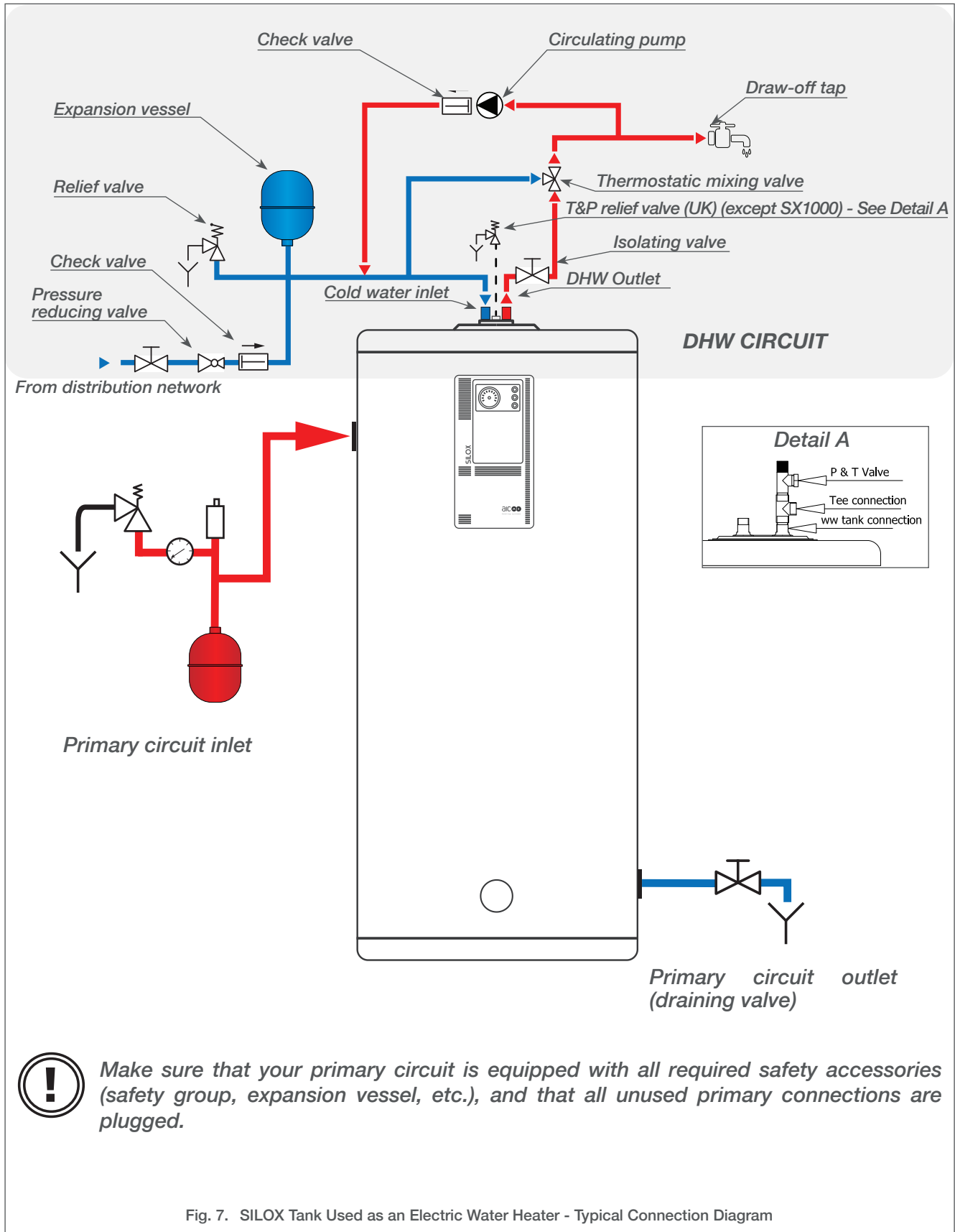
- ▶ *Using antifreeze in the primary circuit will reduce the heating performance. The higher the concentration of antifreeze in the circuit, the lower the performance.*
- ▶ *The circuit diagrams are theoretical representations that do not necessarily include all the required safety devices. Make sure to plan correctly your system according to the applicable local regulations and state-of-the-art practices.*

Hydraulic Connections



**!** Make sure that your primary circuit is equipped with all required safety accessories (safety group, expansion vessel, etc.). Also refer to the heating generator technical documentation for more information.

Fig. 6. SILOX Tank Connected to an External Heat Generator (boiler) - Typical Connection Diagram



## Filling the Tank

**Condition(s):** 

Tank flushed with fresh water.

### Filling procedure:



**Always fill and pressurise the inner tank (DHW) before filling the outer (primary) tank. Failure to comply may damage the inner tank.**

### DHW Tank:

1. Connect the cold water circuit to the distribution network outlet.
2. Make sure that the isolating valve of the circuit is open
3. Open a hot water draw-off tap at a high point in the system
4. Once the air is purged and the flow has stabilised at the tap, close the tap.



### Primary tank:

1. Fill the primary circuit through the primary circuit supply connection (inlet).
2. Bleed the air from the primary tank and repeat water filling until you reach 1,0 bar to 1,5 bar. Take care not to exceed 1,5 bar.

### Follow-on Task(s):

- ▶ Check that there are no leaks
- ▶ Start the boiler as required. Refer to the **Start-up** procedure opposite.

## Starting Up

**Condition(s):**  

### Start-up procedure:

1. Switch on and check that the indicator light illuminates.
2. Put Summer/Winter switch to the required position for operation with an external heat generator (Winter) or the optional heating element (Summer).
3. Allow the tank to heat up and reach set temperature.
4. Run water from a hot draw-off tap and adjust DHW thermostatic mixing valve to a suitable temperature (Minimum flow temperature 60° on systems with a pumped return).

### Follow-on Task(s):

Check that there are no leaks.



**When the tank is connected to a boiler, the DHW demand will be generated through the boiler controller. Please refer to the boiler technical manual for the correct start-up procedure.**

Safety Instructions and Recommendations



- › Water flowing out of the drain valve can be extremely hot. Use extreme caution when draining a hot appliance.
- › Once the inspection and maintenance tasks are complete, ensure that all removed components are reinstalled and all connections are tight and secured.



Before performing any maintenance operation, shut down the appliance using the appliance on/off switch and isolate the electrical supply of the appliance through the external power-cutting device (fuse, circuit-breaker, etc.), unless power is required for the procedure (it will then be indicated in the procedure).



- › Inspection and maintenance tasks should be carried out every 12 months.
- › AIC recommends that the maintenance of the appliance and its components is carried out by a qualified professional.
- › Defective parts and components may only be replaced by genuine factory parts or parts approved by the manufacturer.
- › Replace any gaskets or seals present on the removed components before reinstallation, unless otherwise specified in the procedures.
- › Operate manually the safety valves at least once a year.
- › If the primary circuit needs to be topped up, allow the appliance to cool down and only add small quantities of water at a time. Adding a large quantity of cold water in a hot appliance can damage the appliance permanently.
- › If the primary circuit needs to be topped up regularly, check that there is no leak.

Periodic Checks and Maintenance Tasks



Checks 1 and 2 below should be carried out by the end-user, who should then call a qualified professional if any action is required.

Item	Action	Frequency (times/year)
1. On the pressure gauge, check the operating pressure of the primary circuit is between 1,0 and 1,5 bar	If pressure is too low, top up the circuit and bleed the air.	3 or 4
2. Check the absence of water on the floor	If there is water on the floor: <ul style="list-style-type: none"> <li>› Look for leaks in the circuit and repair them, or</li> <li>› Correct condition if water seems to be discharged regularly by the safety valve(s).</li> </ul>	3 or 4

<i>Item</i>	<i>Action</i>	<i>Frequency (times/year)</i>
3. Manual operation of safety valves (T&P relief valve and expansion vessel relief valve)	<ul style="list-style-type: none"> <li>› Allow tank to cool.</li> <li>› Slowly twist open the relief valve.</li> <li>› Check that water flows freely.</li> <li>› Check that the valve reseats correctly when released.</li> </ul>	1
4. Check the strainer of the pressure reducing valve	<ul style="list-style-type: none"> <li>› Isolate the cold water inlet to the tank.</li> <li>› Open the lowest hot tap to remove the pressure from the system.</li> <li>› Using a suitable spanner, unscrew the brass retaining nut surrounding the black plastic PRV cartridge from the brass valve body.</li> <li>› Pull the cartridge, with the strainer, out of the valve body.</li> <li>› Remove the strainer from the cartridge and clean under running water if necessary.</li> <li>› Reinstall strainer and push cartridge into valve body, taking care not to damage the threads when screwing in the brass retaining nut. Do not over tighten.</li> <li>› Close hot tap and slowly open the cold water isolating valve to the tank.</li> <li>› Check for any leaks.</li> </ul>	1
5. Chemical Descaling	<ul style="list-style-type: none"> <li>› Isolate the tank from the DHW circuit.</li> <li>› Fit a de-scaling pump across the inlet and outlet.</li> <li>› Prime and run the pump, check that the circuit is sound.</li> <li>› Gradually introduce the descaling agent until the correct amount is added for the volume of water.</li> <li>› Run the pump and monitor the pH value, the process is complete when the pH stabilises at less than 0,8 for 20 minutes.</li> <li>› Neutralise the de-scaling agent with soda (NaOH) to obtain a pH of 7.</li> <li>› Rinse the tank with fresh water.</li> <li>› After rinsing treat with a neutralising agent (having a pH of approximately 9).</li> <li>› Rinse again.</li> </ul>	As required

Draining the Tank



Always depressurise and/or empty the outer (primary) tank before depressurising and emptying the inner tank (DHW). Failure to comply may damage the inner tank.

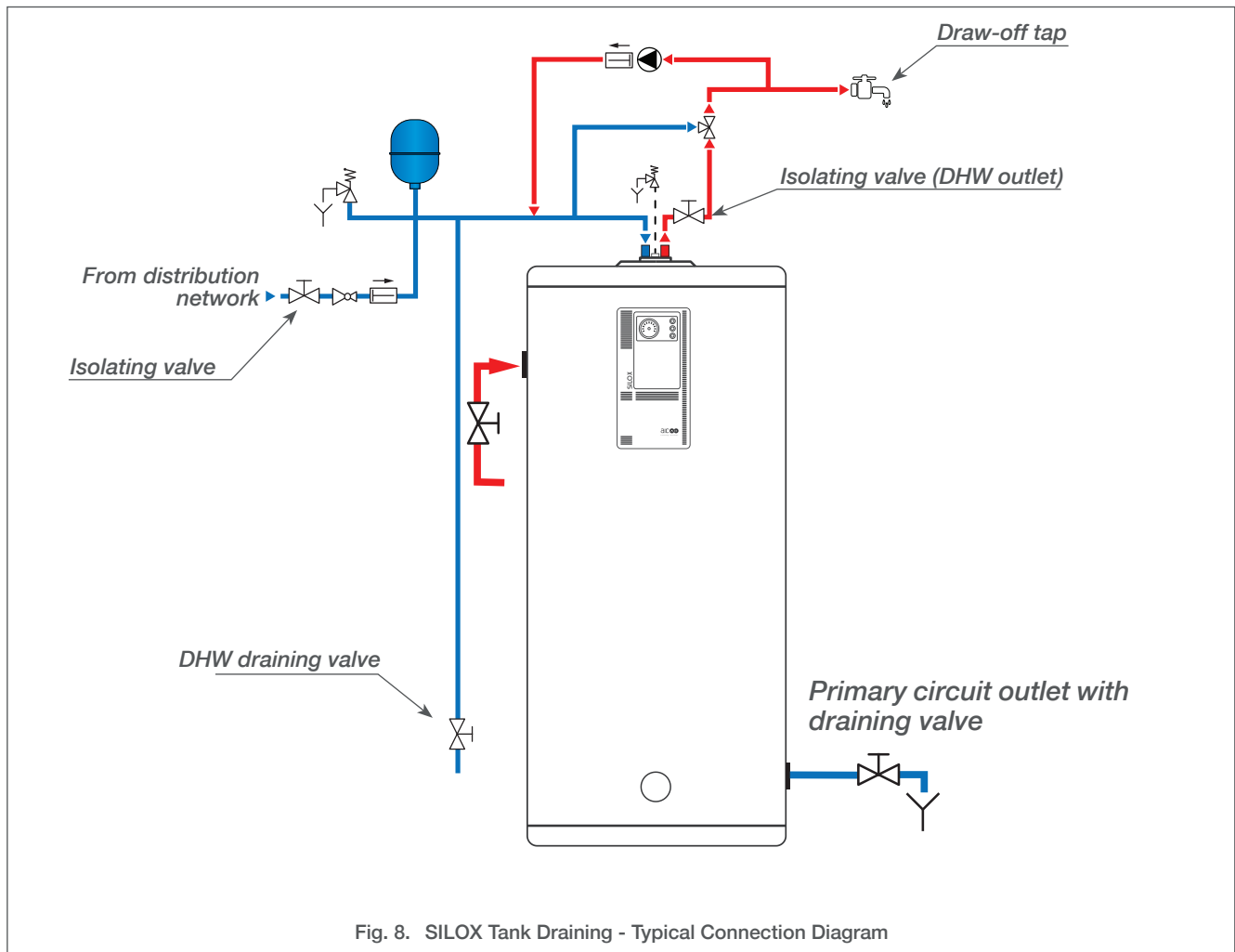


Fig. 8. SILOX Tank Draining - Typical Connection Diagram

Condition(s):



Water flowing out of the drain valve can be extremely hot. Use extreme care when draining a hot appliance.

Allow water in the appliance to cool down before draining.

**Draining procedure:**

**Primary tank:**

1. Isolate the supply circuit.
2. Open the air vent located on the top of the tank.
3. Connect draining valve to the drain.
4. Open draining valve located at the primary circuit outlet.

**DHW Tank:**

1. Close the filling connection to the water distribution network.
2. Close the isolating valve of the DHW outlet.
3. Open a hot water draw-off tap in the system.
4. Connect the DHW draining valve to the drain.
5. Open the isolating valve of the drain connection.

**Follow-on Task(s):**

- ▶ Close all valves and tap, as required



Problem	Cause(s)	Solution(s)
The tank does not produce hot water	No power supply	<ol style="list-style-type: none"> <li>1. Make sure the power supply cable is connected to the mains.</li> <li>2. Check the external power supply box and reset it as required.</li> </ol>
	Primary circuit from external heat generator is cold	<ol style="list-style-type: none"> <li>1. Check that the Summer/Winter switch is on Winter position and indicator light is On.</li> <li>2. Check that heat generator (e.g. boiler) is operating properly (refer to the heat generator manual).</li> <li>3. Bleed the air from the primary circuit/tank.</li> </ol>
	Control and safety thermostat	<ol style="list-style-type: none"> <li>1. Perform manual reset of control and safety thermostat (see below).</li> </ol>
	Heating element	<ol style="list-style-type: none"> <li>1. Check electrical connections and continuity.</li> <li>2. Replace as required.</li> </ol>
The indicator lights do not illuminate	No power supply	<ol style="list-style-type: none"> <li>1. Make sure the power supply cable is connected to the mains.</li> <li>2. Check the external power supply box and reset it as required.</li> <li>3. Check electrical connections and continuity.</li> </ol>

### Manual Reset of Control and Safety Thermostat

**Condition(s):** 



**Make sure that the electrical power supply is deactivated.**

#### **Removal of Control and Safety Thermostat:**

1. Remove control panel by releasing the four corner screws that secure it to the tank. Retain the screws for reinstallation.
2. Remove the front cover of the control panel.
3. Remove the temperature setting dial by pushing it out.
4. Release the two screws on the part left uncovered by the dial. Retain for reinstallation.
5. Turn the thermostat round from the back side of the control panel (no need to disconnect any wires).
6. On the back side of the thermostat, there is a compartment marked with an "S". Press the tab inside the compartment with a thin object (e.g. pin) to reset the thermostat.

#### **Installation of Control and Safety Thermostat:**

1. Put the thermostat back in position, making sure that wires are securely connected.
2. Install two retained screws.
3. Push the dial back in position.
4. Install the control panel in position and secure with four retained screws.
5. Install the front cover on the control panel.

#### **Follow-on task(s):**

Restart the appliance and check the correct operation.



**Product Fiche AIC SILOX**  
 Referring to Commission Delegated Regulation No 812/2013

<b>Model</b>	<b>Energy efficiency class</b>	<b>Standing loss</b>	<b>Volume</b>
SX140	B	49 W	138 l
SX180	B	53 W	176 l
SX215	B	56 W	214 l
SX260	B	61 W	252 l
SX400	C	99 W	355 l
SX600	C	103 W	574 l
SX1000	C	113 W	955 l

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