

## OPERATING AND MAINTENANCE INSTRUCTIONS FOR THE USER

## 6. WARNINGS

## 6.1 Initial start-up



**WARNING!** The installation and initial start-up of the appliance must be performed by qualified personnel in compliance with the national regulations in force regarding installation, and in conformity with any regulations issued by local authorities and public health bodies.  
In all cases, the company performing the work must carry out checks to verify the safety and correct operation of the entire system.

Before starting the water heater, check that the installer has completed all of his operations. Make sure you fully understand the installer's explanations on operation of the water heater and correct performance of the appliance's main operations.

## 6.2 Recommendations

In the event of a malfunction and/or faulty operation, turn the appliance off and do not attempt any repairs, but contact qualified personnel. Only original spare parts must be used and any repairs must be carried out exclusively by qualified personnel. Failure to comply with the above-mentioned recommendations may jeopardise the appliance's safety and void the manufacturer's liability. In the event of prolonged inactivity of the water heater make sure to carry out the following:

Disconnect the appliance from the power supply or, if a switch is mounted upstream from the appliance, turn the switch itself to the "OFF" position.

- Close all taps of the domestic water supply system.
- Empty the product as shown par. 8.1

**WARNING!** Hot water at temperatures above 50°C running from taps may immediately cause serious burns. Children, the disabled and the elderly run a greater risk in this regard. Therefore, it is advisable to use a thermostatic mixing valve connected to the appliance's water outlet pipe.

**CAUTION** If the display shows the icon to the side, it means that the water temperature has reached a temperature more than 6°C above the temperature set.












It is mandatory to have a mixing valve in the SYS and TWIN SYS models.

**CAUTION!** (only for SYS and TWIN SYS versions) Ensure that the temperature detected by the S2, S3 and S4 sensors of the auxiliary source's control unit, inside the water heater, do not exceed 75°C. fig.15.

## 6.3 Safety regulations

Refer to paragraph 1.1 for the description of the symbols used in the table below.

Ref.	Warning	Type of risk	Symbol
1	Do not perform operations that involve removing the appliance from its housing.	Electrocution due to exposure to live components.	
		Flooding caused by water leaking from disconnected piping.	
2	Do not leave objects lying on the appliance.	Personal injury caused by the object falling off the appliance as a result of vibrations.	
		Damage to the appliance or any underlying items caused by the object falling off as a result of vibrations.	
3	Do not climb onto the appliance.	Personal injury caused by the appliance falling down.	
		Damage to the appliance or any underlying objects caused by the appliance detaching from its fixing brackets and falling.	

4	<b>Do not perform any operations that involve opening the appliance.</b>	Electrocution due to exposure to live components. Personal injury caused by burns due to overheated components, or wounds caused by sharp edges or protrusions.	
5	<b>Do not damage the power supply cable.</b>	Electrocution from non-insulated live wires.	
6	<b>Do not climb onto chairs, stools, ladders or unstable supports to clean the appliance.</b>	Personal injury caused by falling from a height or cuts (stepladders shutting accidentally).	
7	<b>Do not attempt to clean the appliance without first switching it off, removing the plug or turning the external switch to the OFF position.</b>	Electrocution due to exposure to live components.	
8	<b>Do not use the appliance for any purpose other than normal household operation.</b>	Damage to the appliance caused by operation overload. Damage to objects caused by improper use.	
9	<b>Do not allow children or inexperienced persons to operate the appliance.</b>	Damage to the appliance caused by improper use.	
10	<b>Do not use insecticides, solvents or aggressive detergents to clean the appliance.</b>	Damage to plastic or painted parts.	
11	<b>Avoid placing any objects and/or appliance beneath the water heater</b>	Damage due to possible water leakage.	
12	<b>Do not drink the water of condensation</b>	Injury from positioning	

#### 6.4 Recommendations for prevention of Legionella growth (based on European standard CEN/TR 16355)

##### Informative

Legionella are small rod shaped bacteria which are a natural constituent of all fresh waters.

Legionaries' disease is a serious pneumonia infection caused by inhaling the bacteria Legionella pneumophila or other Legionella species. This bacterium is frequently found in domestic, hotel and other water systems and in water used for air conditioning or air cooling system. Hence the main intervention against the condition is prevention, through control of the organism in water systems.

The European standard CEN/TR 16355 gives recommendations for good practice concerning the prevention of Legionella growth in drinking water installations but existing national regulations remain in force.

##### General recommendations

"Conditions for Legionella growth". The following conditions encourage Legionella growth:

- water temperature between 25 °C and 50 °C. To restrict the growth of Legionella bacteria, the water temperature shall be in a range that the bacteria will not grow or have minimum growth, wherever possible. Otherwise, it is necessary to disinfect a drinking water installation by means of a thermal treatment;
- stagnation of the water. To avoid long periods of stagnation, the water in every part of the drinking water installation should be used or flushed at least weekly;
- nutrients, biofilm and sediment within the installation including water heaters, etc. Sediment can support the growth of Legionella bacteria and it should be removed on a regular basis from e.g. storage systems, water heaters, non-flown through expansion vessels (e.g. once a year).

Regarding to this storage water heater, if

1) the product is switched-off for a period of time [months] or

2) the water temperature is constantly maintained between 25°C and 50°C,

the Legionella bacteria could grow inside the tank. In these cases, to restrict the Legionella growth, it is necessary to perform the so called "thermal disinfection cycle".

This storage water heater is sold with a software that, if it is enabled, carry out a "thermal disinfection cycle" to restrict the Legionella growth inside the tank.

This cycle complies with the hot water installations and relevant recommendations for Legionella prevention specified in the following Table 2 of the CEN/TR 16355.

**Table 2 - Types of hot water installation**

	Hot and cold water separately				Mixed hot and cold water					
	No storage		Storage		No storage upstream of mixing valves		Storage upstream of mixing valves		No storage upstream of mixing valves	
	No circulation of hot water	With circulation of hot water	No circulation of hot water	With circulation of hot water	No circulation of hot water	With circulation of hot water	No circulation of mixed water	With circulation of mixed water	No circulation of mixed water	With circulation of mixed water
Rif. In Allegato C	C.1	C.2	C.3	C.4	C.5	C.6	C.7	C.8	C.9	C.10
Temp.	-	$\geq 50^{\circ}\text{C}^{\text{a}}$	In the storage water heater <sup>a</sup>	$\geq 50^{\circ}\text{C}^{\text{a}}$	Thermal disinfection <sup>d</sup>	Thermal disinfection <sup>d</sup>	In the storage water heater <sup>a</sup>	$\geq 50^{\circ}\text{C}^{\text{a}}$ Thermal disinfection <sup>d</sup>	Thermal disinfection <sup>d</sup>	Thermal disinfection <sup>d</sup>
Ristagno	-	$\leq 3^{\circ}\text{I}^{\text{b}}$	-	$\leq 3^{\circ}\text{I}^{\text{b}}$	-	$\leq 3^{\circ}\text{I}^{\text{b}}$	-	$\leq 3^{\circ}\text{I}^{\text{b}}$	-	$\leq 3^{\circ}\text{I}^{\text{b}}$
Sedimento	-	-	Remove <sup>c</sup>	Remove <sup>c</sup>	-	-	Remove <sup>c</sup>	Remove <sup>c</sup>	-	-
a. Temperature $\geq 55^{\circ}\text{C}$ the whole day or at least 1h per day $\geq 60^{\circ}\text{C}$ . b. The volume of water contained in the pipework between the circulation system and the tap which has the greatest distance to the system. c. Remove the sediment from the storage water heater in accordance with the local conditions but at least once a year. d. Thermal disinfection for 20 min at a temperature of $60^{\circ}\text{C}$ , for 10 min at $65^{\circ}\text{C}$ or for 5 min at $70^{\circ}\text{C}$ at every draw-off point at least once a week. e. The water in the circulation loop shall be not less than $50^{\circ}\text{C}$ . - No requirement.										

This electronic storage water heater is sold with a thermal disinfection cycle function not enabled for default; as a consequence, if, for any reason, one of the above said "Conditions for Legionella growth" could occur; it's hardly recommended to enable such function by following the instructions mentioned in this booklet [see par. 7.7]. However, this thermal disinfection cycle is not able to destroy any Legionella bacteria in the storage tank; so, if this function is then disenabled, Legionella bacteria growth might re-take place again.

**Note:** when this software carries out the thermal disinfection treatment, the energy consumption of the storage water heater is expected to increase.

**Warning:** when this software has been carrying out the thermal disinfection treatment, water temperature can cause severe burns instantly. Children, disabled and elderly are at highest risk of being scalded. Feel water before bathing or showering.

## 7. INSTRUCTIONS FOR USE

### 7.1 Control panel description

Refer to Fig 1.

1	Batteries support	4	Knob/set button
2	Display	5	Led
3	ON/OFF	6	MODE

The control panel, constructed in a simple and rational way, comprises two buttons and a central knob.

In the upper section, a DISPLAY shows the set temperature or the detected temperature, while in bottom section other specific indications such as the operation mode signal, fault codes, settings and information of the product's condition.

## 7.2 Turning the water heater on/off

**Turning the appliance on:** simply press the ON/OFF button to turn the water heater on.

The DISPLAY visualises the “set” temperature and operation mode, while the HP symbol and/or heating element symbol indicate the operation of the heat pump and/or heating element respectively.



**Turning the appliance off:** simply press the ON/OFF button to turn the water heater off, only “OFF” appears on the display. The protection against corrosion is still ensured (in case HC-HP contact works, insert rechargeable batteries, see figure 1 and par. 5), while the product will automatically ensure that the temperature of the water in the tank does not fall below 5°C.

## 7.3 Setting the temperature

The desired temperature for the hot water (T SET POINT) can be set by turning the knob clockwise or anti-clockwise (the visualised temperature will flash temporarily).

To visualise the current temperature of the water in the tank, press and release the knob; the relative value will appear for 8 seconds then the set temperature will reappear once again.

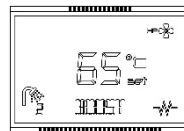
**The temperatures that can be obtained in the heat pump mode** vary between 50°C and 55°C, by factory default setting, and 40°C-55°C, by varying the setting on the installer menu (P13).

**The maximum temperature that can be obtained with the heating element** is 65°C, by factory default setting where expeted, and 75°C, by varying the setting on the installer menu (P11).

## 7.4 Mode of operation

In normal operating conditions, the “mode” button can be used to vary the operating mode through which the water heater reaches the set temperature. The selected mode will be visualised on the line below the temperature.

If the heat pump is active, the following symbol will appear:	
If the heating element or integration (P8=3) are active, the following symbol will appear:	



- **GREEN:** the water heater uses only the heat pump to ensure maximum energy saving. This function is recommended for air temperatures higher than 0°C during heating and for normal operation. The maximum temperature that can be reached depends on the value of the P13 parameter (51°C-62°C) – refer to Paragraph 7.7. For air conditions outside the pump's operating range, the integration is enabled (except for P8=2). The integration is always enabled in case of anti-Legionella and antifreeze.
- **AUTO:** this default function is disabled, for activation set the P8=1 or P8=3 and select “Auto” with mode button. The water heater learns how to reach the desired temperature in a limited number of hours, with rational use of the heat pump and, only if necessary, of the integration. The maximum number of hours used depends on the P14 parameter - TIME\_W (See paragraph 7.7), that is set by default at 8 hours. The integration is always enabled in case of anti-Legionella and antifreeze.
- **BOOST:** by enabling this mode the water heater simultaneously uses the heat pump and the integration to reach the desired temperature in the least time possible. Once the temperature has been reached, operation returns to the previous mode. This mode is not selectable when the P8 parameter value is 2.
- **BOOST2 (P5 can be enabled on the installer's menu):** this default function is disabled, to make it selectable set the P8 parameter value to 1 or 3. By enabling this mode the water heater simultaneously uses the heat pump and the integration to reach the desired temperature in the least time possible. Compared to Boost, the Boost2 mode is always enabled, even after reaching the set temperature. The integration is always enabled in case of anti-Legionella and antifreeze.
- **VOYAGE (to be activated through the installer menu P3):** studied for situations in which users are absent from the appliance's operating location; this mode allows for programming the number of days of absence, during which the water heater will remain turned off. The appliance will activate only to supply hot water on the day of arrival; protection against corrosion will continue to be guaranteed while the product will automatically ensure that the temperature of the water in the tank does not fall below 5°C. Press the “mode” button until selecting the VOYAGE mode, turn the knob to set the number of days (“days”) then press the knob to confirm. The display will

only visualise the number of days that remain until the product's reactivation. Once this time has elapsed, the unit will switch back to the previous mode. In the event of an electric connection with a day/night contactor or with HC-HP signal, the number of nights of absence must be specified, taking into account that the product only operates during the night. If, for example, you leave home on Saturday morning and return on Sunday of the following week, on Saturday morning you should set the device to 8 days of absence in order to have hot water ready for your return on Sunday.

- **PROGRAM (P4 can be enabled on the installer's menu):** two programs are available, P1 and P2, that can be enabled individually or combined together throughout the day (P1+P2). The appliance can enable the heating phase to reach the chosen temperature at the pre-set hour, giving priority to the heating with the heat pump and, only if necessary, with the integration according to the following combinations:

For P8=0 the integration is enabled only when the conditions are outside the heat pump's operating range.

For P8=1 and 3 the integration is enabled simultaneously with the heat pump when requested.

For P8=2 the integration is never enabled.

The integration is always enabled in case of anti-Legionella and antifreeze.

Press "mode" to select the desired Program mode (P1/P2/P1+P2), turn the knob to set the desired temperature, press the knob to confirm, turn the knob to set the desired time and press to confirm; in P1+P2 mode the information for both of the programs can be set.

For electrical connection with HC/HP signal dual power supply you can program heating of the water at any time of the day.

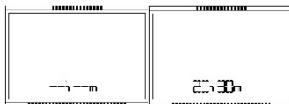
This function requires you to set the current time, see following paragraph.

Warning: to ensure comfort for operation in P1+P2 mode with times that are very close together, it is possible that the water temperature is higher than the temperature set.

	Factory settings
TEMPERATURA IMPOSTATA PROGRAMMA P1	55°C
ORARIO IMPOSTATO PROGRAMMA P1	06:00
TEMPERATURA IMPOSTATA PROGRAMMA P2	55°C
ORARIO IMPOSTATO PROGRAMMA P2	18:00

## 7.5 Time setting

Setting the time is required if the PROGRAM mode is enabled. Once it is enabled, turn the knob to the current time and press to confirm. It can also be set with the L0 parameter by selecting it and setting the current time by turning the knob (the P4 function must be ON).



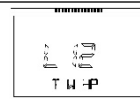
## 7.6 Information menu

The information menu allows for visualising data for monitoring the product.

**To enter the menu, press the relative knob and hold for 5 seconds.**



Turn the knob to select the parameters L0, L2, L3 ... L27



Upon reaching the desired parameter, press the knob to visualise its value. Press the knob or "MODE" button to return to the parameter selection area once again.



**To exit the information menu, press the “mode” button  
(the appliance will ensure that the menu is automatically exited after the latter has been idle for 10 minutes).**

Parameter	Name	Parameter description
L0	TIME	Time of the day (visible only if P4 is ON)
L1	SW MB	Mainboard Software Version
L2	SW HMI	Display Software Version
L3	ENERGY	Energy consumption in kWh (*) (**)
L4	ANTI_B	Displays whether the anti-Legionella function is enabled
L5	HC-HP	Displays whether the HC-HP function is enabled
L6	HE_SET	Displays the HE_SET status
L7	SILENT	Displays whether the silent function is enabled
L8	PV MODE	Displays which PV function is enabled
L9	SG MODE	Displays whether the SG function is enabled
L10	T W PV	Displays the temperature to be reached with the PV function
L11	T_A_HP	Air temperature below which the heat pump does not work
L12	T W HP	Temperature that will be reached with only the heat pump
L13	T W 1	Heating element unit sensor 1 temperature detected
L14	T W 2	Heating element unit sensor 2 temperature detected
L15	T W 3	Intermediate sensor temperature detected
L16	T W 4	Dome sensor temperature detected
L17	T AIR	Environmental air sensor temperature detected
L18	T EVAP	Evaporator sensor temperature detected
L19	T ASP	Displays the intake temperature
L20	P ASP	Displays the intake pressure
L21	T SH	Overheating temperature
L22	HP HYST	Compressor hysteresis temperature
L23	HP h	Heat pump operating times (**)
L24	HE h	Heating element operating times (**)
L25	HP ON	Number of compressor start-up cycles (**)
L26	TIME_W	Number of accepted power supply times
L27	T AB	Displays the anti-Legionella set-point temperature

\* The values shown may differ from actual values based on mains power supply voltage and frequency.

\*\* The values are updated either every 24 hours or when switching to battery operation or when an error occurs.

## 7.7 Installer menu



**CAUTION: THE FOLLOWING PARAMETERS MUST BE ADJUSTED BY QUALIFIED PERSONNEL.**

Some product settings can be modified on the installer's menu. The key symbol is displayed.

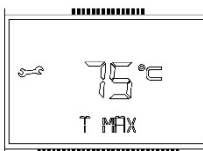
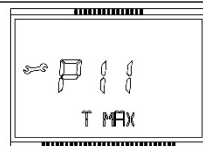
**To enter the menu, keep the knob pressed for 5 seconds then scroll the parameters of the “L – INFO” menu until reaching “P0 CODE”.**

After entering the code (illustrated in the table that follows), turn the knob to select the parameters P0, P2, P3 ... P20.

Upon reaching the parameter to be modified, press the knob to visualise the parameter's value then turn the knob to set the desired value.

To return to the parameter selection area, press the knob to store the entered parameter or press “mode” (or wait 10 seconds) to exit without storing the entered value.

**To exit the installer menu, press the “mode” button (the appliance will ensure that the menu is automatically exited after the latter has been idle for 10 minutes).**

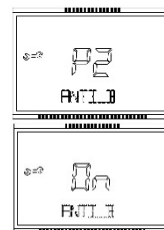


Parameter	Name	Parameter description	Range		Factory settings
			Min	Max	
P0	CODE	Code entering to access the installer menu. The number 222 appears on the display: turn the knob until reaching number 234 then press the knob. It will then be possible to access the installer menu.	0	299	222
P1	RESET	Re-set the factory parameters.	0	1	OFF
P2	ANTI_B	Anti-Legionella protection.	OFF	ON	OFF
P3	VOYAGE	See chap. 7.4.	OFF	ON	OFF
P4	PROG	See chap. 7.4.	OFF	ON	OFF
P5	BOOST2	See chap. 7.4.	OFF	ON	OFF
P6	SILENT	Set silent mode.	OFF	ON	OFF
P7	HC-HP	Operation with dual power supply.	OFF	ON	OFF
P8	HE_SET	Manage the operating modes.	0	3	0
P9	PV MODE	Modify the operating modes based on the presence of the PV signal.	0	3	0
P10	T W PV	It is the desired temperature when PV is in production.	55	75	62
P11	T MAX	Adjustment of the maximum temperature reachable A value set higher allows you to take advantage of the larger quantity of hot water.	65	75	65
P12	T MIN	Adjustment of the minimum temperature reachable A value set lower allows you more operating economy if you have economical hot water consumption.	40	50	50
P13	T W HP	It is the achievable temperature with only the heat pump.	51	62	55
P14	TIME_W	Number of accepted power supply times.	5	24	8
P15	HP HYST	Compressor hysteresis temperature.	4	15	8
P16	T_A_HP	Air temperature below which the compressor does not work.	-7	20	-7
P17	TANK_LT	Product capacity ( <b>do not modify</b> ).	-	-	-
P18	SG MODE	Operation with SG signal.	0	1	0
P19	ERRORS	Faults history (read-only value).	-	-	-
P20	T AB	Anti-Legionella set-point temperature	60	75	60

### P2 parameter – Anti legionnaire's disease protection

If enabled, the water heater automatically performs the anti-Legionella protection function. The water temperature must remain higher or equal to 55°C all day or higher or equal to 60°C for at least 1 hour. These temperatures can cause burns, so we recommend you use a thermostatic mixer. The anti-Legionella function is enabled via this parameter; the temperature to be reached is settable via the P20 parameter and the hysteresis via the P15 parameter. Suggesting to set the P20 parameter at 60°C and the P15 parameter at 4°C. During the cycle of antilegionella will be displayed "ANTI\_B" alternately to the mode of operation, once the cycle is done the set temperature remains the original one.

In the event that is enabled the two-tier rate signal HC-HP, the function will take place during the economic tariff. To stop press "on/off".



### P6 parameter - Silent

This function reduces the sound level (performance can vary from those declared). It can be enabled via the P6 parameter on the installer's menu. When enabled, the image to the right appears on the display.



**P7 parameter – Operation with two-tier electricity rate**

To be able to operate also on appliances with a two-tier rate system, the control logic calculates the number of average hours a day during which the power supply is available in the economy mode (HC). For activating this function turn on P7 parameter.

A self-learning function ensures that the appliance reaches the pre-set temperature in the time range during which the economy rate applies; the maximum limit of hours is determined by the P14 TIME\_W parameter; after the initial start-up (or after switching off the hardware), the default setting is 8 hours. In order to optimize the self-learning function it is advisable to set AUTO mode.

**P8 parameter (for details see paragraph 7.4)**

The P8 parameter allows you to manage the product's different operating modes. It can have values of 0, 1, 2, 3.

STANDARD (value 0 - default): only the GREEN, BOOST, VOYAGE (if enabled with P3) and PROGRAM (if enabled with P4) modes can be selected with the "mode" button; the integration is by the electric heating element that operates according to the mode selected.

HE\_ON (value 1): the GREEN, AUTO, BOOST, BOOST2, VOYAGE (if enabled with P3) and PROGRAM (if enabled with P4) modes, i.e. all available modes, can be selected with the "mode" button; the integration is by the electric heating element that operates according to the mode selected.

COMBI (value 2): only the GREEN, VOYAGE (if enabled with P3) and PROGRAM (if enabled with P4) modes can be selected with the "mode" button. Integration to the heat pump is not provided; the electric heating element always operates in the event of anti-Legionella and antifreeze. It is advised to perform a pre-heating of inlet water to combi boiler made by the heat pump (see fig. 16).

SYSTEM (value 3): the GREEN, AUTO, BOOST, BOOST2, VOYAGE (if enabled with P3) and PROGRAM (if enabled with P4) modes, all available modes can be selected with the "mode" button; the integration is by the external auxiliary heat generator where it is correctly connected both hydraulically (see fig. 15 – B or C) and electronically (see paragraph 4.5 and fig. 12) to the product. It is advised when it is available auxiliary heat generator which is able to replace the electrical resistance for integration function (only for SYS and TWIN SYS models).

**P9 parameter - Photovoltaic function**

If you have a photovoltaic system, you can set the product to optimise use of the electricity produced. After having done the electrical connections as described in paragraph 4.5 fig. 12 and set the P9 parameter to other than 0, when the SIG2 signal is detected, the current operating mode is automatically modified as follows:

STANDARD (value 0 - default): the operating mode of the previously described procedures is not modified.

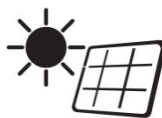
PV GREEN (value 1): the PV icon is displayed (see figure to the side). When the signal from the inverter is present, the name of the selected mode alternates with the text PV GREEN. The product will reach the set temperature (the most between T SET POINT and T W PV), with only the heat pump (max 62°C).

PV HE (value 2): the PV icon is displayed (see figure to the side). When the signal from the inverter is present, the name of the selected mode alternates with the text PV HE. The product will reach the set temperature (the highest between T SET POINT and T W PV), operating with only the heat pump up to 62°C and subsequently with the heating element (1500 W).

PV BOOST (value 3): the PV icon is displayed (see figure to the side). When the signal from the inverter is present, the name of the selected mode alternates with the text PV BOOST. The product will reach the set temperature (the highest between T SET POINT and T W PV), operating both with only the heat pump and the heating element (1000 W) up to 62°C and subsequently with only the heating element (1500 W).

There must be the SIG2 signal for at least 5 minutes to enable the photovoltaic function (once the product starts a cycle, it will operate for at least 30 minutes).

If parameter P18 is active, function P18 is automatically deactivated when the photovoltaic function is activated.

**P18 parameter - SG function**

If you have an SG signal, you can connect the signal cable as described in chapter 4.5 fig. 12 and when the P18 function is enabled the SG icon will be displayed. Once you have received the SIG2 signal for at least 5 minutes (once the product starts a cycle, it will operate for at least 30 minutes), the name of the selected mode alternates with the text SG ON and the current operating mode is automatically modified by thermostating the product to the temperature set (the highest between T SET POINT and T W PV), operating with only the heat pump (max 62°C).

If parameter P9 is active, function P9 is automatically deactivated when the SG function is activated.





### P19 parameter - Errors

This is a read-only parameter that shows the history of the last 10 errors; it is accessible only by the technical assistance. The number (3 digits) indicates the occurred error code whilst the error number is represented in the lower string in chronological order (max 10 errors - the number 10 indicates the most recent occurred error).

### 7.8 Anti-frost function

When the product is supplied with power and there is no hot water demand, if the water temperature in the tank goes below 5°C, the heater coil (1000 W) is activated automatically to heat the water to 16°C. With P8=3 the function is performed by the integrated circuit.

### 7.9 Defrost

The defrost function is activated when the heat pump has been working for at least 20 minutes, the detected air temperature is below 15°C and the evaporator temperature is decreasing rapidly. When the defrost cycle is running, the icon to the side is displayed.



### 7.10 Number of showers available

The icon to the side shows the estimated number of showers remaining, based on hot water availability. One shower is calculated as: 40 L at 40°C. Press the knob to view the value.



### 7.11 Errors diagnostics

As soon as a fault occurs, the appliance enters into the fault mode while the display emits flashing signals and visualises the error code. The water heater will continue supplying hot water provided the fault affects only one of two the heating units, by activating the heat pump or heating element.

If the fault involves the heat pump, the symbol "HP" will flash on the screen, while the heating element symbol will flash if the fault involves this component. If both components are affected, both symbols will flash.

**If the product shows an error signal, switch the appliance off and then on with the ON/OFF button (without batteries); if the error signal persists, contact the technical assistance.**



**CAUTION:** Before intervening on the product by following the indications below, check the correct electrical connection of the components to the mainboard and the correct position of the NTC sensors in their seats.

<b>Before any maintenance operation: read carefully the checking procedures explained in the Technical Manual</b>				
Error code	Cause	Heating element operation	Heat pump operation	What to do
Encoding of heat pump circuit codes				
110	Air/Evaporator/Compressor Inlet Temperature sensors; short circuit or open circuit	ON	OFF	Check and eventually correct the assembly of sensors' connector on the main board. Control the proper functioning of the sensors.
111	Air/Evaporator sensor: decalibration	ON	OFF	Control the proper functioning of Air and Evaporator sensors
121	Gas issue	ON	OFF	Control the proper functioning of the compressor inlet temperature sensor. If the error persists, recover the residual gas, find the leak in the cooling circuit and repair it; empty the cooling circuit and recharge with 1300 grams of coolant
131	Problem on compressor start-up capacitor	ON	OFF	Check and eventually correct the wirings between: main board and compressor start-up capacitor, start-up capacitor and compressor, main board and compressor. Then control the voltage on the start-up capacitor and on the compressor power connector on the main board.
141	Fan issue	ON	OFF	Control power voltage on the fan connector. Control the proper functioning of the compressor inlet temperature sensor
142	Evaporator filter: obstruction	ON	OFF	Clean the evaporator filter and the air ducts. Control the proper functioning of the compressor inlet temperature sensor. If the error persists, check compliance of the air duct specifications
143	High pressure drop in air	ON	OFF	Check compliance of the air duct specifications. Control the

	ducts			proper functioning of the compressor inlet temperature sensor. If the error persists, clean the evaporator filter and the air ducts
151	High pressure issue	OFF	OFF	Recover the refrigerant, make the vacuum and charge 1300g of R134a. If the error persists, replace the pressure switch.
171	Pressure transducer: open or short circuit	ON	OFF	Check and eventually correct the assembly of the pressure transducer connector on the main board. Check the proper functioning of the pressure transducer
181	Electronic expansion valve (EEV) problem	ON	OFF	Check and eventually correct the assembly of the EEV coil connector on the main board. Check and eventually correct the positioning of EEV coil on the EEV.
Encoding of domestic water circuit codes				
210	High NTC sensor (hot water): short circuit or open circuit	ON	OFF	Check the correct assembly of the wirings on the sensor connector and on the main board. Control the proper functioning of the sensor.
220	Medium NTC sensor: short circuit or open circuit	ON	ON	
230	Low NTC sensor (heating element zone): short circuit or open circuit	OFF	OFF	
231	Low NTC sensor (heating element zone): safety intervention (1st level)	OFF	OFF	
232	Low NTC sensor (heating element zone): safety intervention (2nd level)	OFF	OFF	Control the proper functioning of the sensor
240	Impressed current anode: short circuit	OFF	OFF	Control the proper functioning of the component. If the error persists, replace the main board
241	Impressed current anode: open circuit	OFF	OFF	Check the presence of water inside the product. If the error persists, replace the main board
Encoding of electronic circuit codes				
310	ON/OFF repeated	OFF	OFF	Wait 15 minutes before unblocking the product with the ON/OFF button
321	Mainboard issue	OFF	OFF	Reset the product by pushing the ON/OFF button twice. If the error persists, replace the component.
331	Mainboard-display wiring: no communication	OFF	OFF	Reset the product by pushing the ON/OFF button twice. If the error persists, replace the mainboard-display communication wiring

## 8. MAINTENANCE (for authorized personnel)



**WARNING! Observe the general warnings and safety instructions listed in the previous paragraphs and strictly adhere to the indications therein contained.**

**All maintenance operations and interventions should be performed by qualified personnel (i.e. with the necessary requirements as outlined in the applicable norms in force).**

After routine or extraordinary maintenance, we recommend filling the appliance's tank with water and draining it completely to remove any residual impurities.

### 8.1 Draining the appliance

The appliance must be drained if left inactive in a room subject to frost and/or in the event of prolonged inactivity. When necessary, empty the appliance as follows:

- Permanently disconnect the appliance from the mains electricity.
- Close the shut-off valve, if installed, or the central tap of the domestic water supply network.
- Open the hot water tap (washbasin or bathtub).
- Open the cock on the safety device (in countries which acknowledge EN 1487) or the special cock installed on the "T" fitting, as described in paragraph 4.4.

## 8.2 Routine maintenance

Partial obstruction of the evaporator filter causes a reduction in product performance. We therefore recommend cleaning the filter to remove any dust or obstructions at least once a year. The filter can be extracted using the appropriate clip above the casings (fig. 17). Clean the filter with water and mild soap.

Verify that the external terminal of the air exhaust duct, and the duct itself, are not obstructed or have not deteriorated. Ensure that the condensate water runs out in a suitable drain and make sure the discharge is made without hindrance.

Check and clean canalizations and grills.

## 8.3 Troubleshooting

Problem	Possible reason	What to do
<b>Water comes out cold or insufficiently warm</b>	Low temperature set	Increase the temperature set for the outlet water.
	Device functioning errors	Check for errors on the display and act in the way specified on the chart "Faults".
	No electrical connection, disconnected or damaged wirings	Check the voltage at the supply terminals, verify the integrity and connections of the cables.
	Absence of HC/HP signal (if the product is installed with the HC/HP signal cable)	Try to put the product in "Boost" mode, if is ok in this way, check the connection of the meter, check the integrity of the HC/HP cable.
	Malfunctioning of the timer for two-tier rate (if the product is installed in this configuration)	Check the operation of the contactor day / night and that the set time is enough to heat water.
	Insufficient air flow to the evaporator.	Clean the grilles and ducts regularly.
	Product off	Check availability of electricity, turn on the product.
	Usage of a large amount of hot water when the product is heating up phase.	
<b>The water is boiling (with the possible presence of steam from the taps)</b>	Probe error	Control the presence, even if occasional E5.
	High level of scaling of the boiler and components	Turn off the power, drain the unit, remove the sheath of the resistance and remove lime scale inside the boiler, be careful not to damage the enamel of the boiler and the sheath resistance. Repackage the product as in the original configuration, it is recommended to replace the flange gasket.
<b>Reduced functioning of the heat pump, semi-permanent operation of the electrical resistance</b>	Probe error	Control the presence, even if occasional E5.
	Air temperature out of range	Depending from the climatic conditions.
	"Time W" value too low	Set a parameter for lower temperature or a longer unit of "Time W".
	Installation done not in accordance with electric voltage (too low)	Provide a proper Electric voltage.
	Evaporator clogged or frozen	Check the cleaning of the evaporator.
	Problems with the heat pump circuit	Make sure that there are no errors on the display.
	Are not yet past 8 days by: -First Time installation. -Change of the parameter Time-W. -No power from mains in absence of batteries or exhausted batteries.	
<b>Insufficient flow of hot water</b>	Leaks or obstructions by the water circuit	Verify that there are no leaks along the circuit, check the integrity of the the deflector pipe, the integrity of incoming cold water pipe and hot water pipe.
<b>Overflowing water by the the safety valve</b>	A drip of water by the device should be considered normal during the heating	If you want to avoid the drip, install an expansion vessel on the plant supply. If leakage continues during the period of no heating, check the calibration of the device and the pressure of the water network. Caution: Do not obstruct the hole for evacuation of the device!
<b>Increase of the noise</b>	Presence of obstructive elements inside	Check the components in movement, clean the fan and the other parts who can generate noise or vibrations.
	Components vibration	Check the components fixed with screws, be sure that the screws are tight.
<b>Problems of visualization or display off</b>	Damage or disconnection of the wiring connecting electronic board and interface board	Check the integrity of the connection, check the operation of electronic boards.

	No power from mains in absence of batteries or exhausted batteries.	Check if there is electric mains supply and check the conditions of the batteries.
<b>Bad odor coming from the the product</b>	Absence of a siphon or siphon empty	Provide a siphon, with the proper quantity of water.
<b>Abnormal or excessive consumption than expected</b>	Loss or partial obstructions of the refrigerant circuit	Start your product in heat pump mode, use a leak detector for R134a to verify that there are no leaks.
	Bad environmental conditions or improper installation	
	Partially clogged evaporator	Check the cleanliness of the evaporator grid and ducts.
	Incorrect installation	
<b>Other</b>		Contact the technical support.

#### 8.4 Routine maintenance performed by users

It is advisable to rinse out the appliance after each routine or extraordinary maintenance intervention.

**The pressure safety device must be operated regularly to verify that it is not clogged and to remove any limescale deposits.**

Check that the condensate drainage pipe is not obstructed.

Check the perfect cleaning of grids and ducts.

In case of using, the batteries must be replaced every year or in case of losses. Make sure that they are correctly disposed of and exclusively replace them with **4 NiMh, AA-type, rechargeable batteries, minimum 2100 mAh, minimum 1000 recharge cycles, minimum working temperature of 65°C (it is recommend use batteries supplied from the manufacturer's catalogue)** observe the polarities as illustrated in the battery housing (see fig. 1).

The appliance should be unplugged when you remove the batteries.

#### 8.5 Water heater disposal

The appliance contains R134a-type refrigerant gas which must not be released into the atmosphere. In case of permanent decommissioning of the water heater, ensure that disposal procedures are carried out by qualified personnel only.



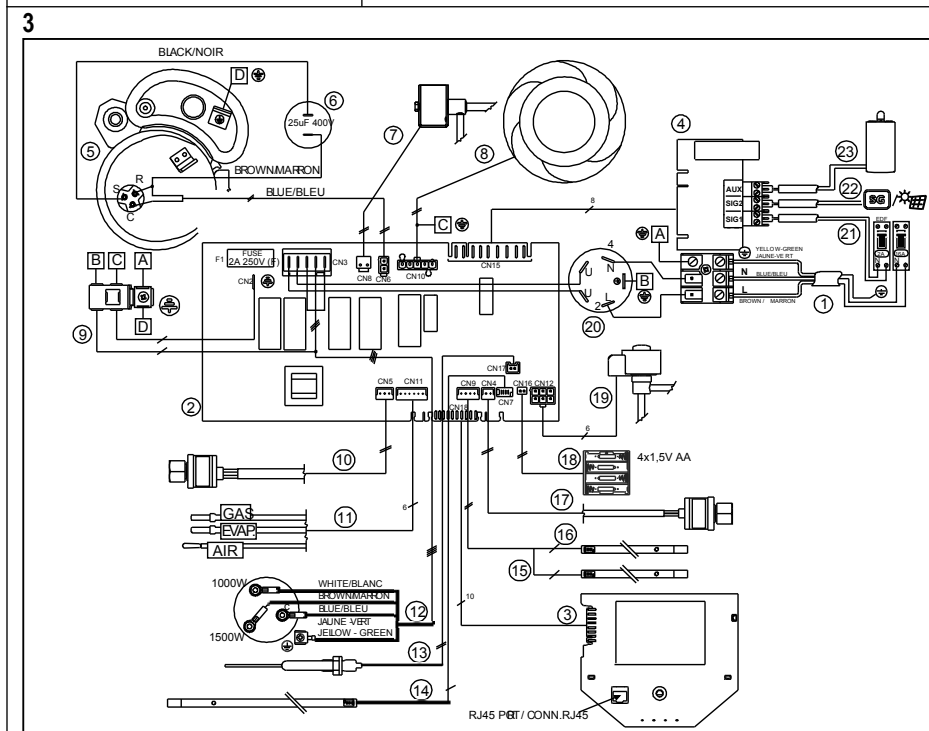
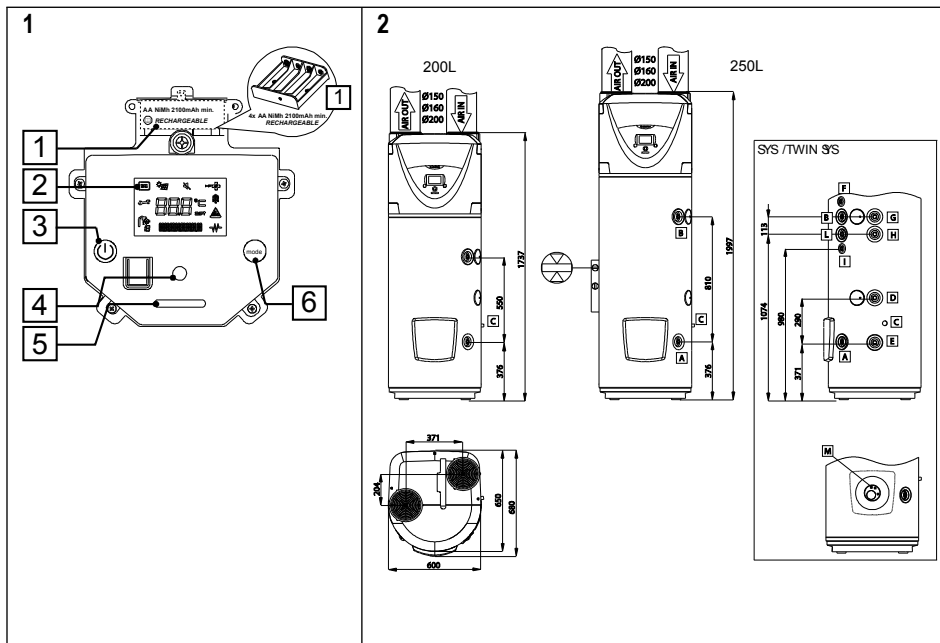
##### **This product conforms to Directive WEEE 2012/19/EU.**

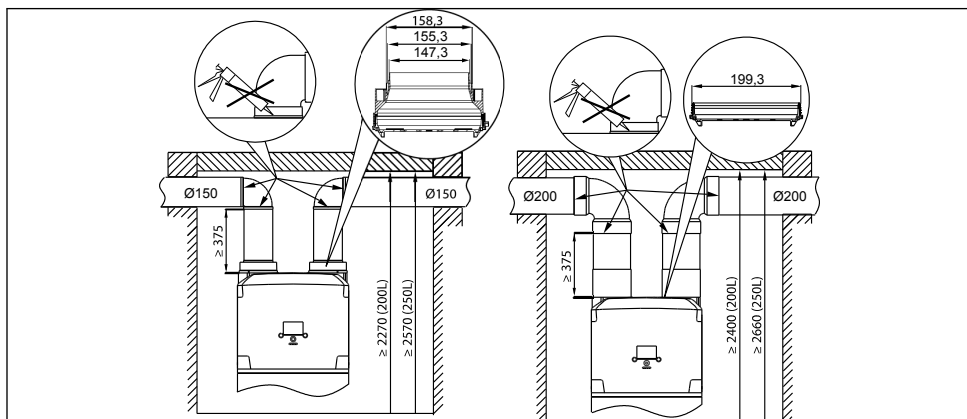
The barred bin symbol on the appliance and its packaging indicates that the product must be scrapped separately from other waste at the end of its service life. The user must therefore hand the equipment over to a sorted waste disposal facility for electro-technical and electronic equipment at the end of its service life. Alternatively, the equipment may be returned to the retailer at the time of purchase of a new equivalent type of appliance. Electronic equipment of size less

than 25 cm can be handed over to any electronics equipment retailer whose sales area is at least 400 m<sup>2</sup> for disposal free of charge and without any obligation to purchase new product.

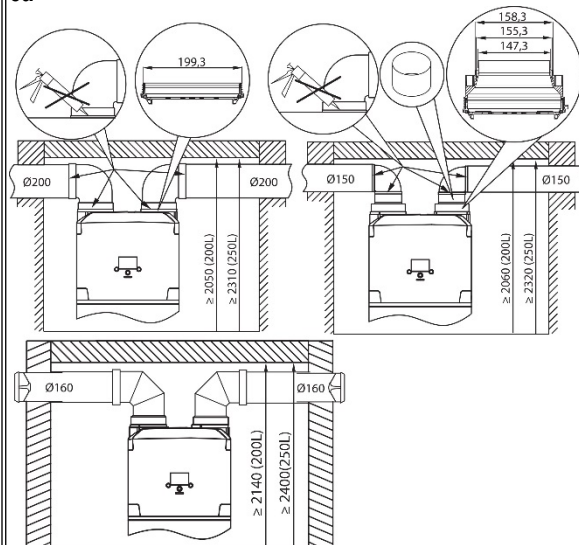
Sorted waste collection for recycling, treatment and environmentally compatible scrapping contributes to the prevention of damage to the environment and promotes reuse/recycling. For more detailed information on the collection systems available, contact the local waste disposal service or the shop where the product was purchased.

The appliance is not provided with rechargeable batteries, but if you use them they must be removed and put into a specific container before disposing of the appliance. The batteries seat is behind the front frame.

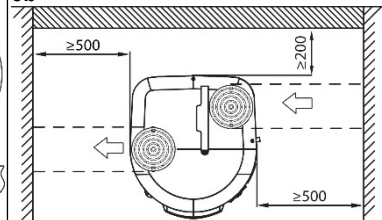




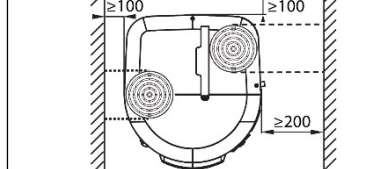
5a



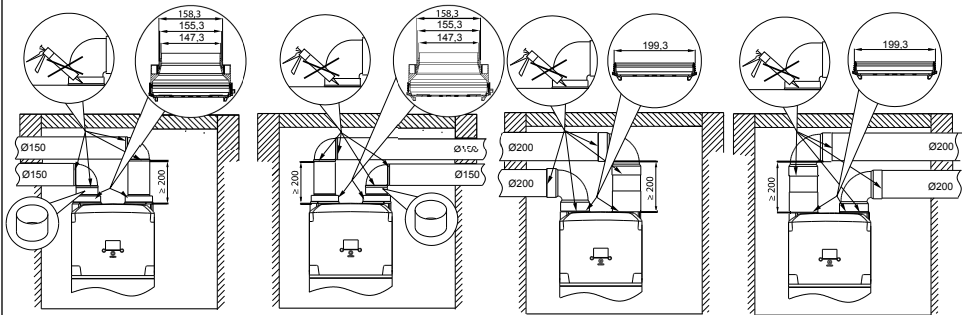
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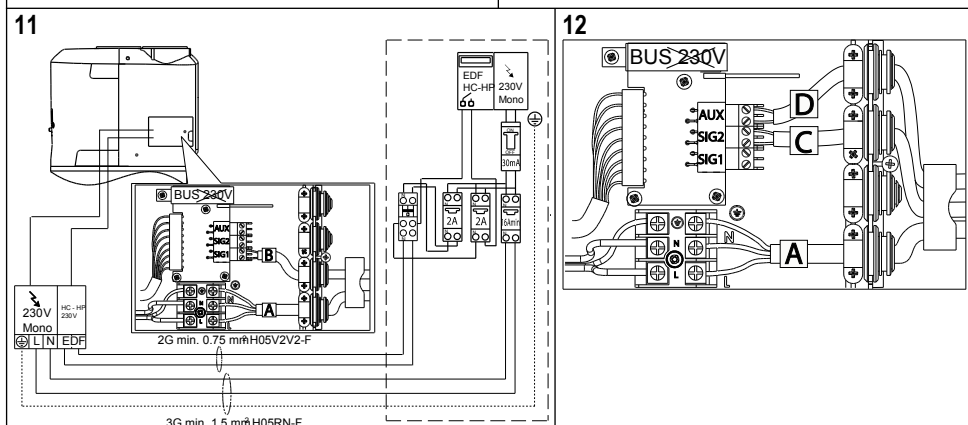
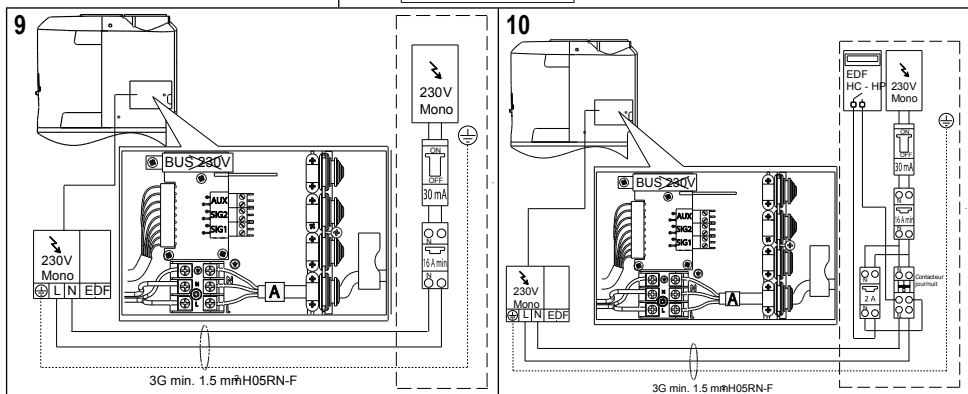
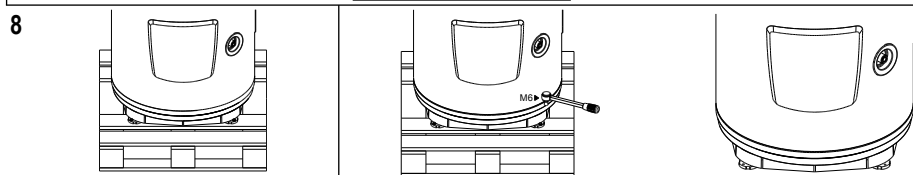
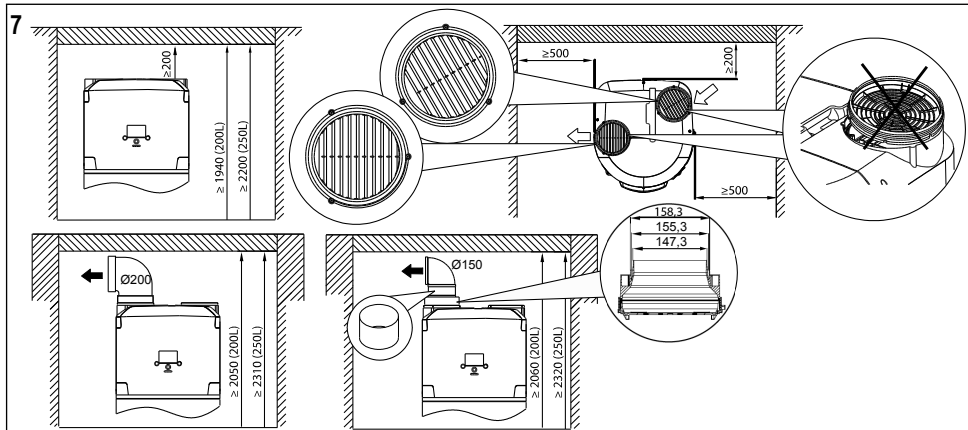


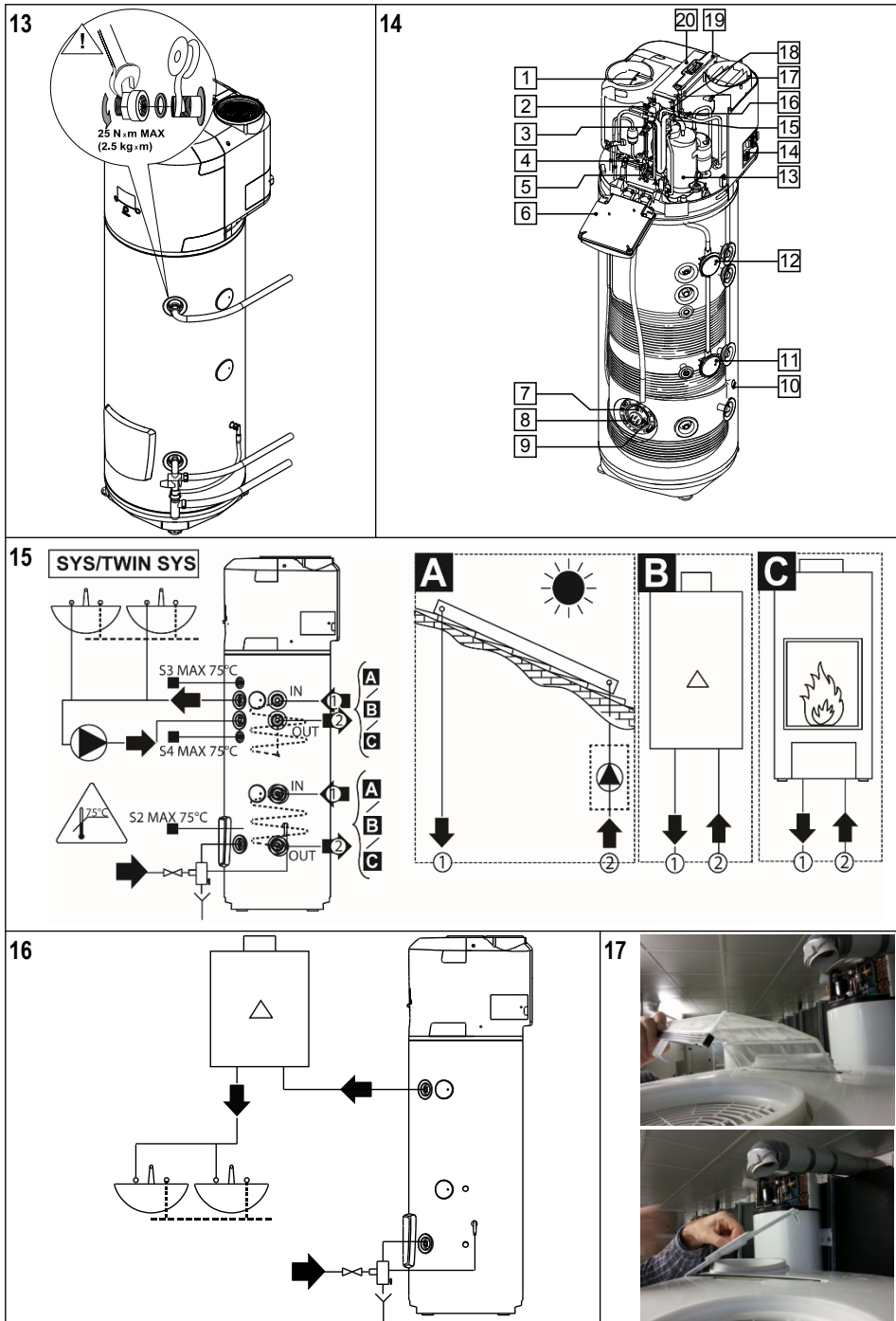
5c



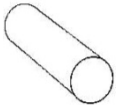




6









		Ø150		Ø200		Pa MAX: 126
		Pa	m <sub>equivalent</sub>	Pa	m <sub>equivalent</sub>	
1m PVC		9	1	3	1	
1m Al		17	1,9	5	1,7	
Grille <sup>A</sup>		18	2	10	3,3	
90° PVC		27	3	9	3	
90° Al		19	2,1	10	3,3	

(<sup>A</sup>) Recommandé grille, gerwijd raster, dedicated grid, Luftgitter.