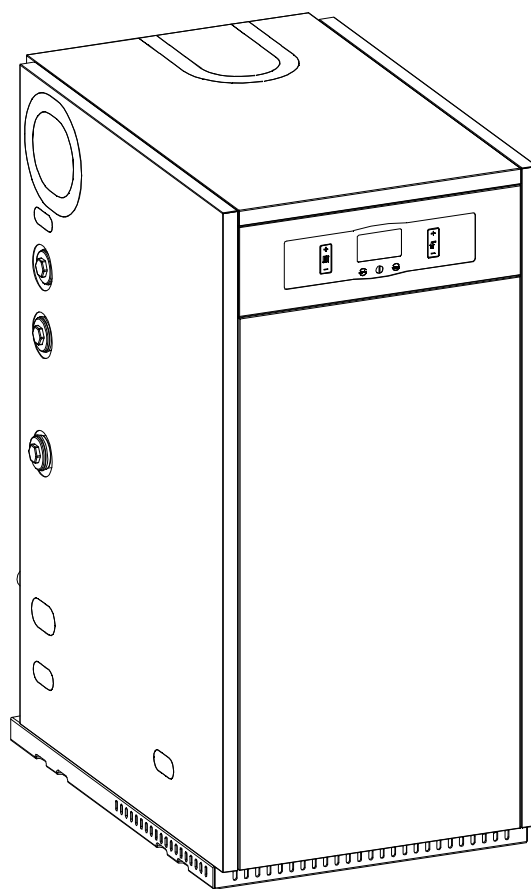




TRIANCO

INSTALLATION AND OPERATING INSTRUCTIONS

**TRO EVOLUTION KITCHEN SYSTEM
TRO EVOLUTION KITCHEN HEAT ONLY**



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1.- INTRODUCTION

Thank you for choosing a **TRIANCO** heating boiler. The TRO Evolution Kitchen is a high efficiency condensing appliance running on oil providing high levels of comfort and generating low emissions.

This manual forms an essential part of the product and it must be carefully kept by the end user for future reference. Read the warnings and recommendations in the manual carefully, as they contain important information on safe installation, use and maintenance.

Installation and maintenance must be carried out by professionally qualified personnel, according to current regulations and the manufacturer's instructions.

Incorrect installation or poor maintenance could cause damage or physical injury. The manufacturer declines any responsibility for damage caused by errors in installation and use or by failure to follow the manufacturers' instructions.

Initial start up and commissioning must only be carried out by suitably qualified personnel.

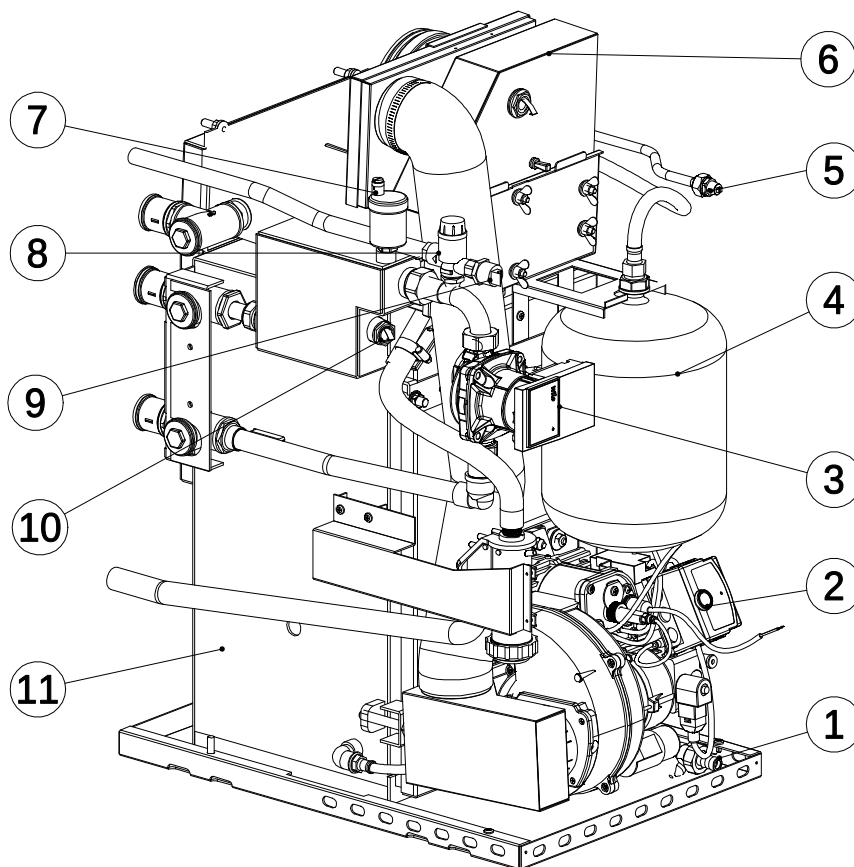
Whilst every effort is taken to ensure the accuracy of the information contained within these instructions, the details are offered in good faith and the manufacturer accepts no liability for matters arising as a result of errors and/or omissions.

TRIANCO informs all parties concerned that the unit and its accessories, at the end of its useful life, must be disposed of appropriately, in conformity with the current regulations.

Due to the Manufacturers continuous product research and development, the details contained in this manual may not truly reflect the actual product.

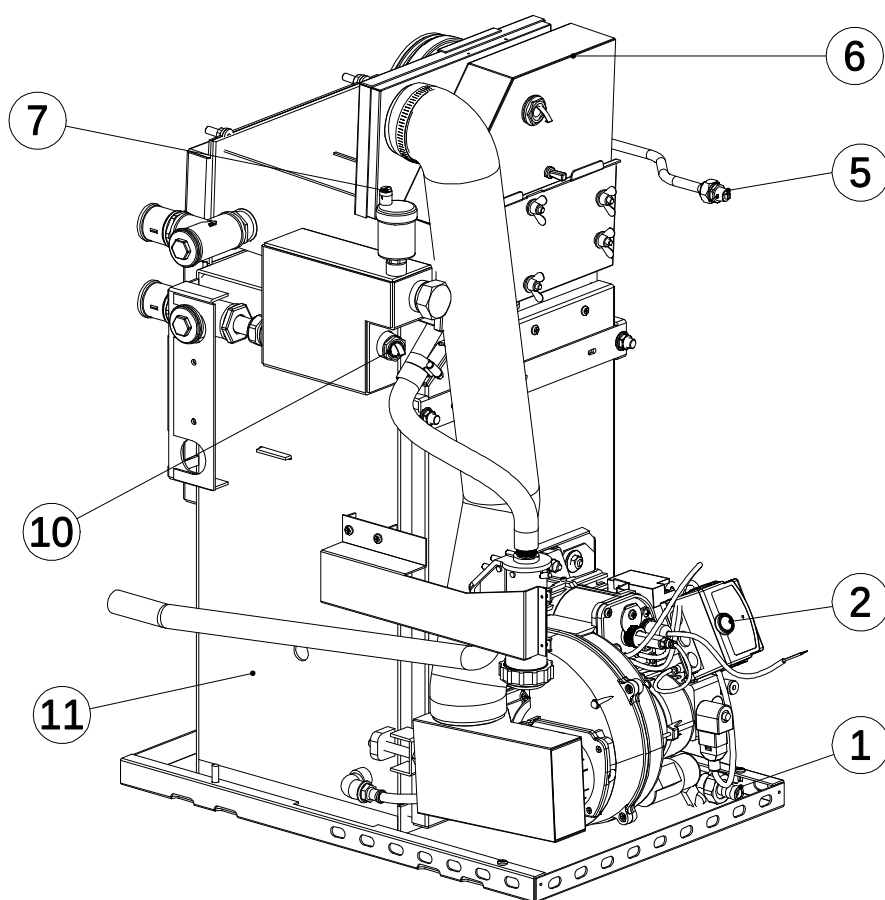
2.- DESCRIPTION OF COMPONENTS

2.1.- Tro Evolution Kitchen System



- | | |
|--------------------------------|------------------------|
| 1.Drain valve. | 7.Automatic air vent. |
| 2.Domestic, sealed oil burner. | 8.Safety valve |
| 3.Heating circulating pump | 9.Pressure sensor |
| 4.Expansion vessel | 10. Thermostat pocket. |
| 5.Manual air vent | 11. steel body. |
| 6.Stainless steel condenser | |

2.2.- Tro Evolution Kitchen Heat Only



1.Drain valve.

2.Domestic, sealed oil burner.

5.Manual air vent

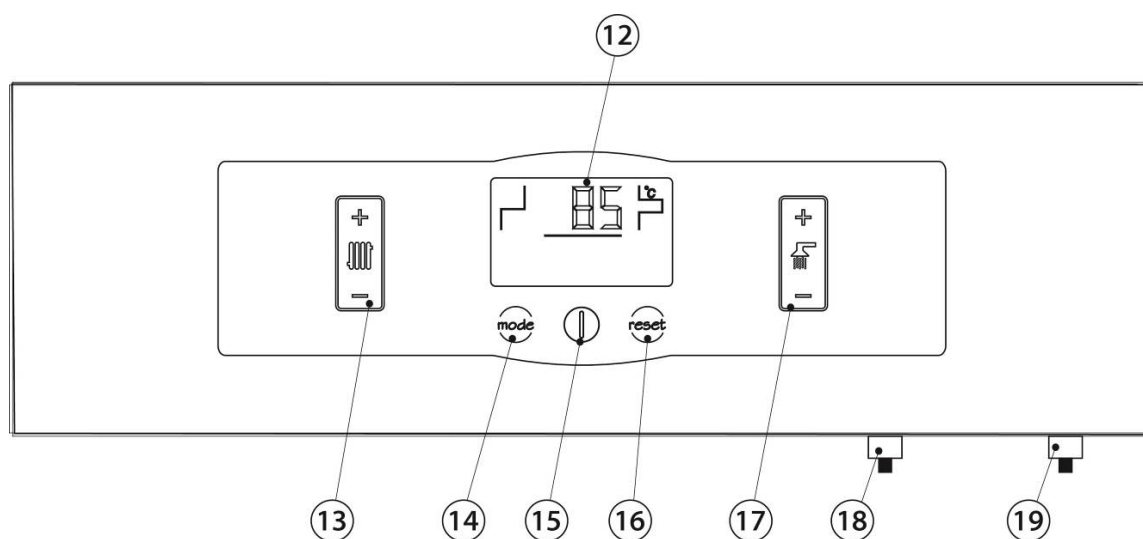
6.Stainless steel condenser

7.Automatic air vent.

10. Thermostat pocket.

11. steel body.

3.- CONTROLS



12. Digital display:

This is the boiler functioning display, on which all the operating information, settings and values appear. In standard operating mode (default display), the actual boiler temperature is shown. If any malfunctioning should occur, the corresponding alarm code will appear on the digital display.

13. Boiler temperature touch button:

This is used to select the boiler setpoint temperature. If **OFF** is selected, the heating function is disabled. To select the desired temperature, simply place your finger on the "+" or "-" symbols on the touch button to increase or decrease the desired boiler temperature.

14. MODE touch button:

When this button is touched the different boiler temperatures appear on the digital display.

15. ON touch button:

If you place your finger on this button for 1 second the boiler will switch on or off.

16. RESET touch button:

If the boiler is in lock-out mode as the alarm has been triggered, touch the RESET button to reset the lock-out and restore functioning. If you are modifying any of the settings or browsing the user menu, you may touch the RESET button to exit the menu **WITHOUT SAVING** and return to the previous menu level.

17. DHW temperature touch button:

This button can be used to select the desired domestic hot water temperature (only if a DHW tank is connected to the boiler). If **OFF** is selected, the DHW function will be disabled. To select the desired temperature, simply place your finger on the "+" or "-" symbols on the touch button to increase or decrease the desired DHW temperature.

18. Boiler safety thermostat:

This is a high temperature cut-out safety mechanism should the boiler temperature exceed 110°C.

19. Fume safety thermostat:

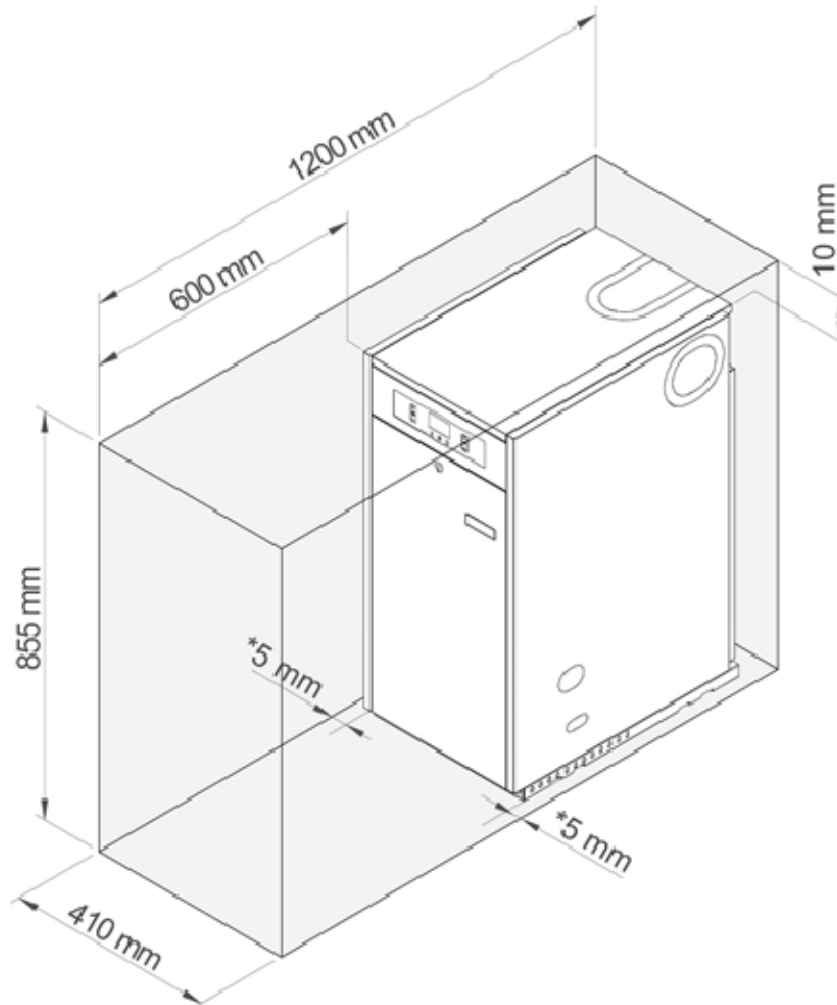
This safety thermostat operates when the temperature of the combustion products exceeds 110°C, in order to protect the polypropylene duct.

4.- INSTALLATION INSTRUCTIONS

The boiler must be installed by personnel authorised in accordance with the applicable regulations and standards in force. However, the following recommendations must be complied with when installing the boiler:

4.1.- Location

The boiler must be installed in a sufficiently ventilated site. **Do not obstruct the ventilation holes at the front of the base of the boiler.** The figure shows the minimum distances for maintenance operations. These minimum distances must be respected.



The boiler is suitable to be installed under a worktop, taking into account the minimum distances provided for maintenance operations. It should be ensured that said worktop is removable in order to carry out technical assistance and repair operations.

NOTE: * * If this distance is less than 50 mm, open the pre-punched holes arranged in the panels to ensure sufficient ventilation in partially sealed installations.

4.2.- Hydraulic Installation

The boiler **must** only be installed by qualified personnel, in compliance with **all** the instructions given in this technical manual, the provisions of current law, the requirements of technical standards (BS) and any local regulations and the rules of proper workmanship. The following recommendations shall also be taken into account:

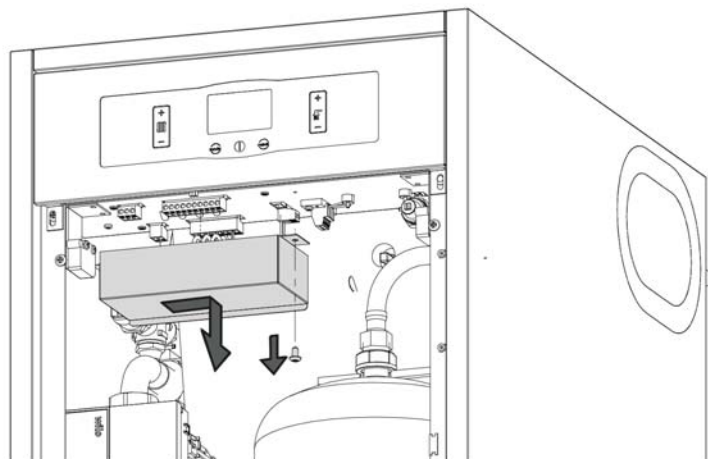
- The heating system should be flushed thoroughly in accordance with BS7593 to remove any residuals or impurities that could affect the proper operation of the unit.
- Isolation valves should be fitted between the boiler and heating system.
- Fill the condense siphon with water before starting up the unit, to prevent fumes escaping.
- **The condensate pipe should lead to a drain outlet**, as the Tro Evolution Kitchen boiler is a condensing boiler and a large amount of water may be generated. This connection should be made to an appropriate drain or soakaway.
- If the system flow and return pipes follow a path where air pockets could form in certain places, it is advisable to fit vent valves at these points. Also install drain cocks at the lowest point in the system to allow for complete emptying.
- For **Tro Evolution Sitem Heat Only** models, it is essential to install in the hydraulic circuit a pressure gauge, a 3 bar pressure relief valve and an expansion vessel of sufficient capacity for the whole installation.

IMPORTANT: The boiler SHOULD NOT be allowed to operate with a return temperature below 30°C.

4.3.- Electrical Connection

The boiler is equipped for connection at 230 V~, 50 Hz to terminals **1** and **2** of terminal strip **J1** (see “*Electrical Connection Diagram*”). **Remember to earth the appliance.**

The boiler has two terminal strips, **TA₁** (J5) and **TA₂** (J7) for connecting room thermostats or room chronothermostats (see “*Electrical Connection Diagram*”) for remote control of heating circuits 1 and 2 respectively. To correctly connect the room thermostats, firstly remove the bridge joining the terminals of terminal strip **TA₁**. For connection to **TA₂**, simply connect the thermostat to the terminal strip.



4.4.- Oil installation

The **TRO Evolution KITCHEN** boiler is supplied with a **Domestic** gas-oil burner **(2)** (see model in Technical Characteristics). To install the oil line, proceed in accordance with the burner instructions enclosed with this manual (see Burner section). The oil line installation and start-up of the burner must be carried out by qualified, authorised personnel.

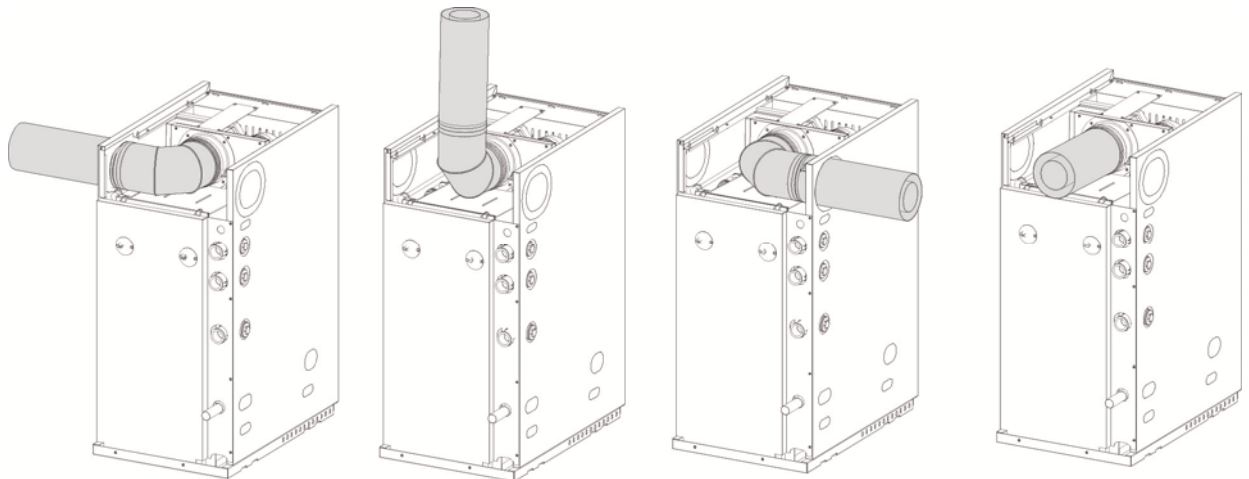
4.5.- Combustion products exhaustion

The installation of the flue should only be carried out by qualified personnel. The current standards and local regulations must be observed.

The **TRO Evolution Kitchen** boilers are balanced flue oil boilers, so that the combustion products exhaustion is carried out by means of an outlet duct and an air intake from outside. It can also work with the air intake of the premises. for this method, the room should be sufficiently ventilated.

- Do not obstruct or block any ventilation opening.

NOTE: The boiler is suitable for the connection of the smoke exhaust ducts on the back, right side, left side and top, with Ø80/125 coaxial ducts or Ø80 simple ducts.



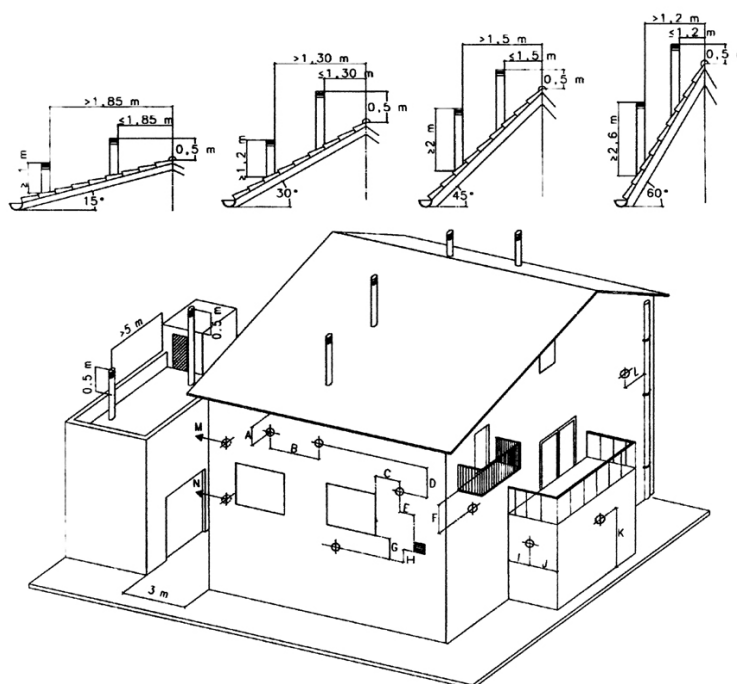
It is recommended that the position at the exhaust duct exterior portion should be in accordance with the data of the following figures and table:

Position of the exhaust duct	Minimum distance mm
A under a cornice	300
B between two horizontally-arranged ducts	1000
C from a next window	400
D between two vertically-arranged ducts	1500
E from a next venting grid	600
F under a balcony (*)	300
G under a window	600
H under a venting grid	600
I from a break back of a building	300
J from an angle of a building	300
K from the floor level	2500
L from a vertically/horizontally-arranged outlet or pipe (**)	300
M from a front surface at a distance of 3 metres from the exhaust gas outlet	2000
N like the previous one, but with opening	3000

(*) In so far the balcony width does not exceed 2000 mm.

(**) If the pipe constructive materials were sensitive to the action from the flue gases, this distance should be longer than 500 mm.

ATTENTION: All flues, air intakes and accessories should only be those supplied by TRIANCO



4.6.- Installing a DHW storage tank (Optional)

The procedure for suitably connecting a DHW tank to the **TRO Evolution Kitchen** boiler is as follows:

- **Unplug the boiler from the mains.**
- Connect a DHW temperature sensor (supplied optionally) to sensor terminal strip **J3** (terminals 16 and 17), first removing the resistance (**Ra**) supplied by default (see "Electrical Connection Diagram").
- Insert the temperature sensor bulb in the bulb-holder sheath provided on the hot water tank.
- Connect the hot water tank feed pump to the supply terminal strip **J2** (BV; terminals N and 5) see "Electrical Connection Diagram").

For correct hydraulic installation, carefully follow the assembly and connection instructions enclosed with the hot water tank.

4.7.- Anti-legionella function (with hot water tank only)

The **TRO Evolution Kitchen** boiler allows the activation of the legionella prevention function for The **TRO Evolution Kitchen** boiler with a hot water tank installed has a legionella prevention function that can be enabled for the domestic hot water in the tank.

This function must be activated by sufficiently qualified personnel. The function is enabled by changing the boiler model selectors on the display card inside the control panel.

Before carrying out any work on the inside of the boiler, **unplug it from the mains**. To activate the anti-legionella function, remove the top cover of the boiler then remove the lid of the control panel box using a screwdriver to remove the two screws holding it in place. When this cover has been removed, the electronic circuit board of the display, containing the programming switches, can be accessed.

Select the anti-legionella function by turning **selector 4** to **ON** (see "Electrical Diagram").

4.8.- Heating circuit 2 (Optional)

All the models in the **TRO Evolution Kitchen** range of boilers are supplied with a circulation pump connected to heating circuit 1 (BC1). In addition to this circuit, all the models are designed to control a second heating circulation pump in a second heating circuit (circuit 2, BC2).

The hydraulic installation of heating circuit 2 should be made using the **optional flow circuit (IC')** on the rear of the boiler (see "Diagrams and Measurements").

The circulation pump installed in heating circuit 2 must be electrically connected between terminals N and 6 on the supply connector block **J2** (see "Electrical Connection Diagram").

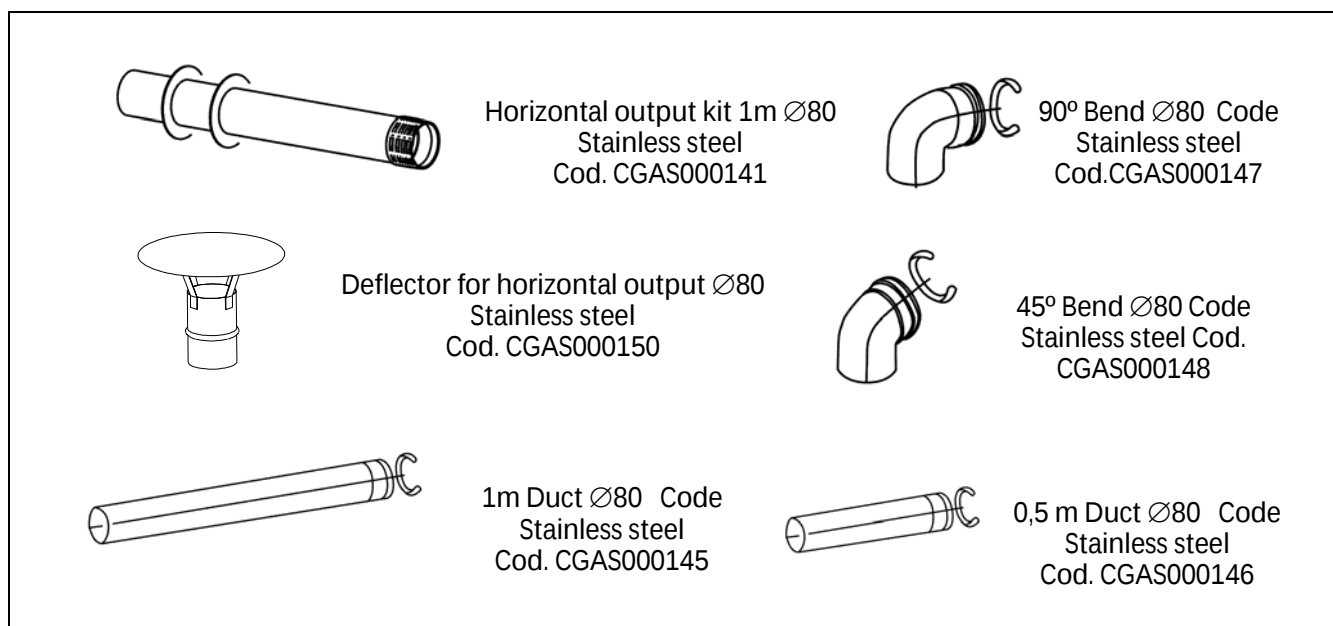
5.- COMBUSTION PRODUCTS EXHAUSTION

5.1.- Combustion product exhaust (with air intake from the premises)

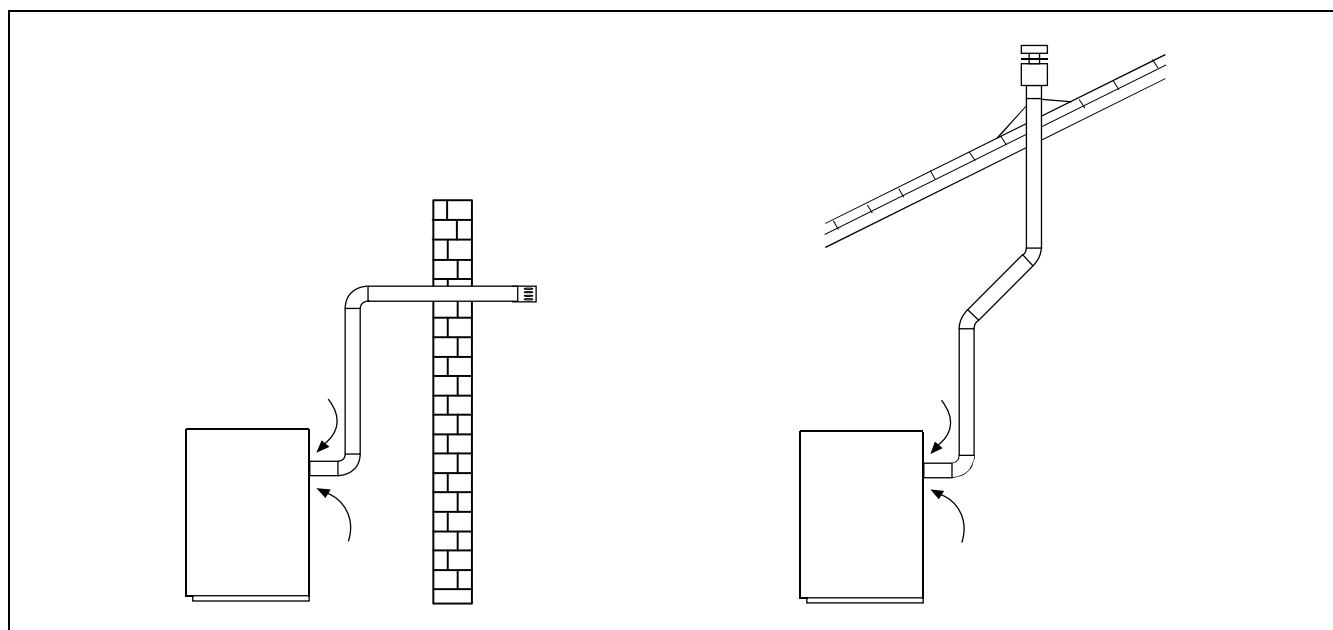
In this type of exhaust of the combustion products, the air intake is carried out from the place where the boiler is installed.

The maximum duct length that can be installed is 12 meters in the Tro Evolution 20 Kitchen model and 10 meters in the Tro Evolution 30 Kitchen model. For each horizontal meter, the available length is reduced by 2 meters and, for each 90° elbow, or two 45° elbows, it is reduced by 1 m.

It is recommended that the flue gases outlet pipe be fitted slightly upwardly-inclined 2° to 3° thus preventing water and condensate projections from being ejected outside.



Examples of installation:

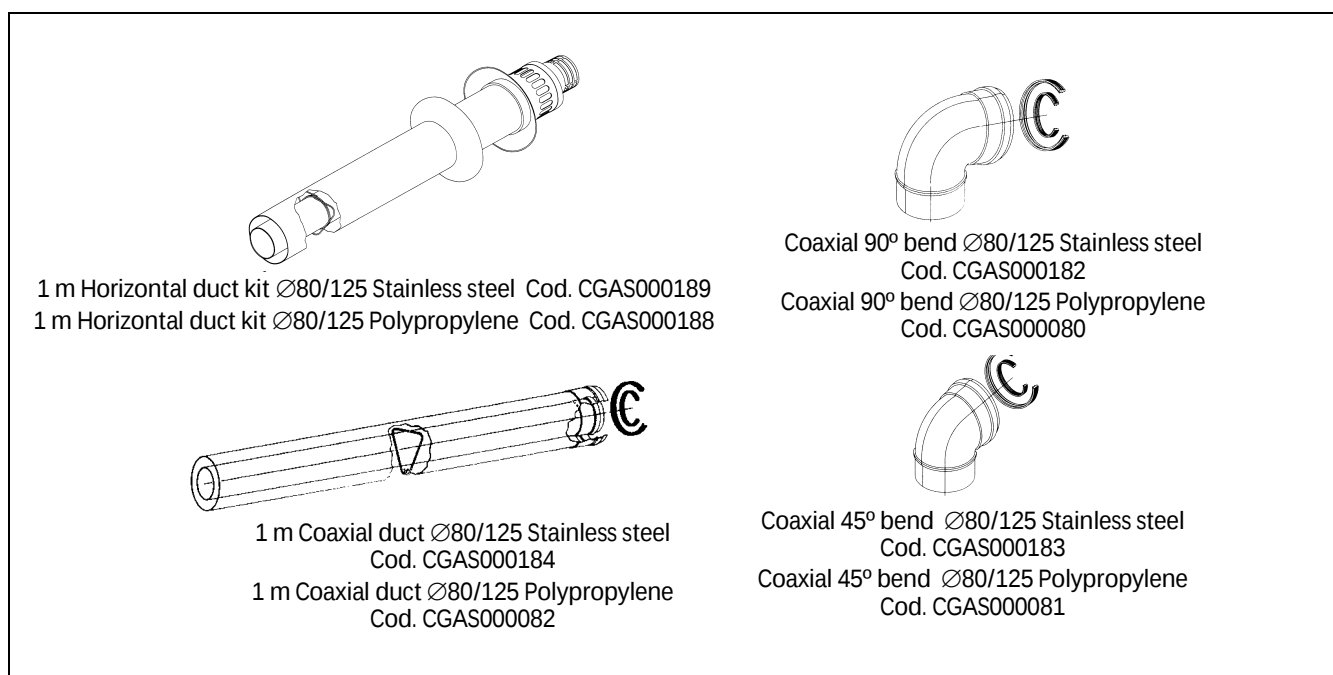


5.2.- Combustion products exhaustion and air intake horizontally-arranged coaxial device Ø80-125 (type C13)

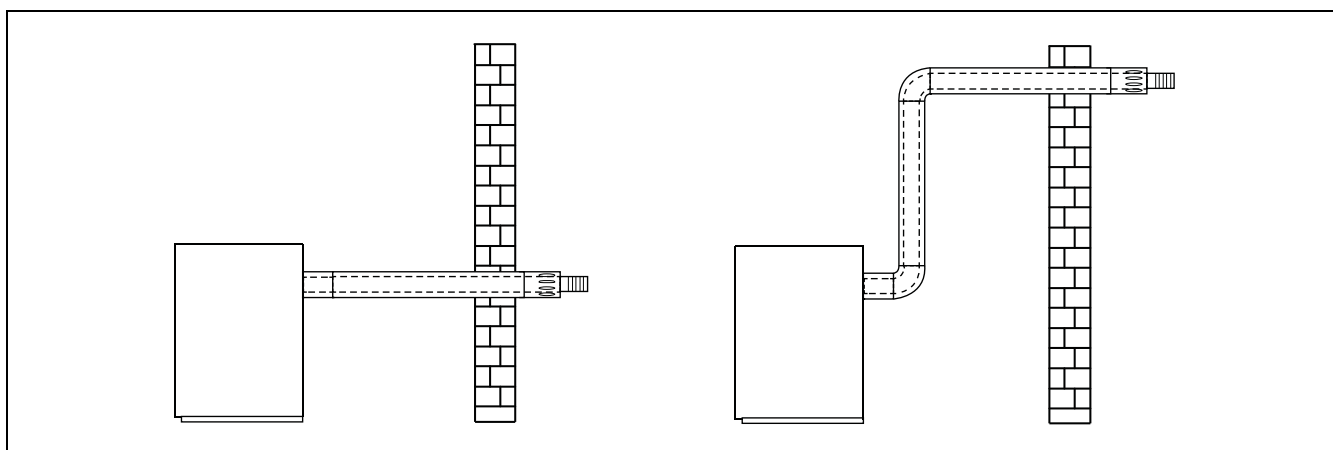
The combustion products exhaustion and air intake can be carried out through concentric pipes of Ø80 mm. for the combustion products exhaustion and Ø125 mm. for the air intake.

The **maximum horizontal length** counted from the boiler, including the kit end, is 7 metres TRO Evolution 30 Kitchen and 8 metres TRO Evolution 20 Kitchen. Each elbow of 90°, or two of 45°, reduces the available length by 1 metre, and 1 metre of horizontal pipe represents 2 metres of vertical pipe.

It is recommended that the flue gases outlet pipe be fitted slightly upwardly-inclined 2° to 3° thus preventing water and condensate projections from being ejected outside.



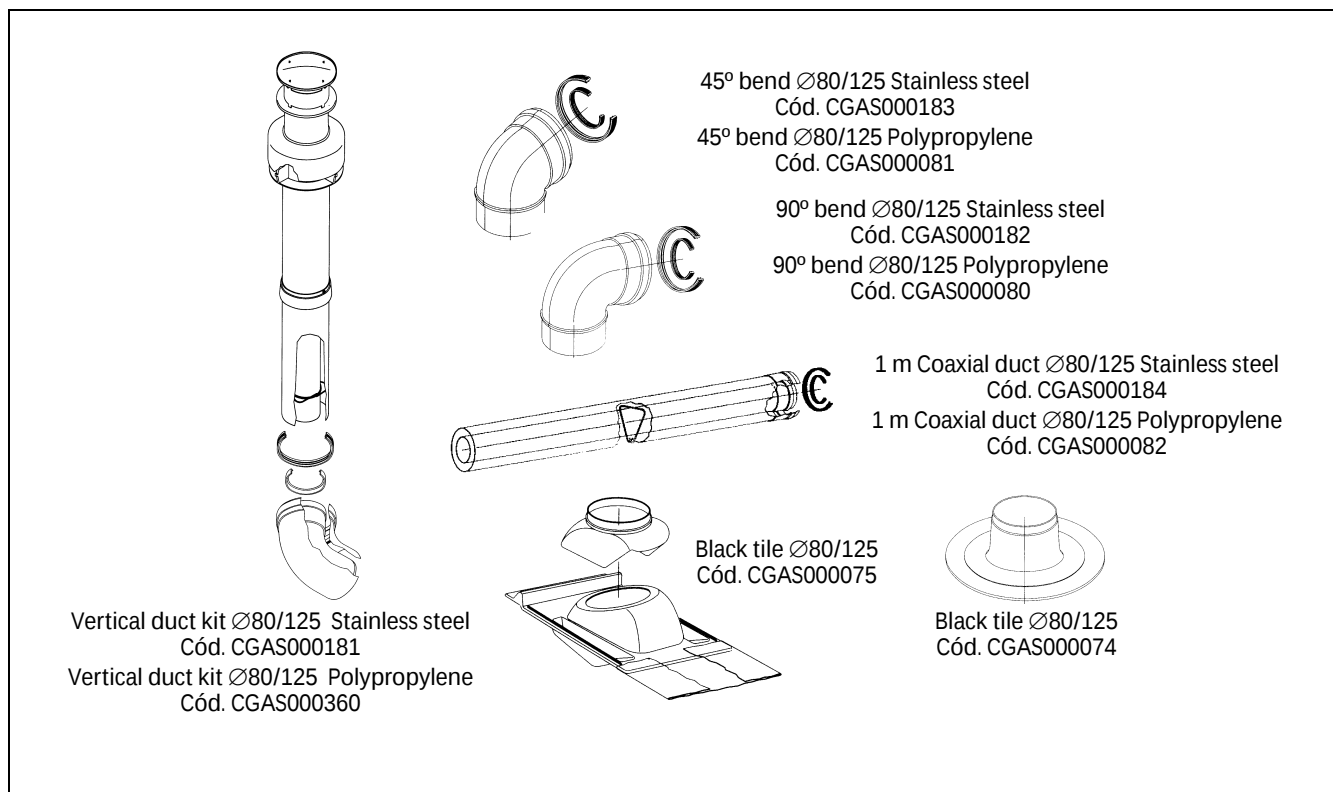
Examples of installation:



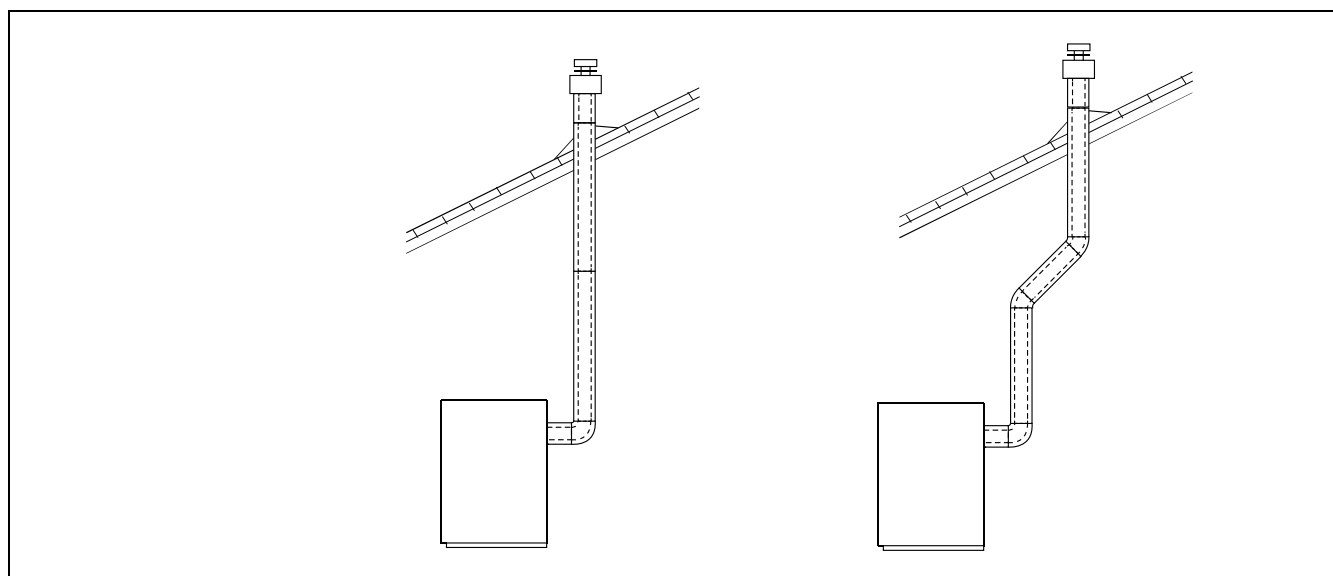
5.3.- Combustion products exhaust and air intake vertically-arranged coaxial device Ø80-125 (type C33)

The combustion products exhaust and air intake can be carried out through concentric pipes of Ø80 mm. for the combustion products exhaust and Ø125 mm. for the air intake, by means of the vertically-arranged outlet Kit Ø80-125 code CGAS000231.

The **maximum vertical length** counted from the boiler, including the kit end, is 7 metres TRO Evolution 30 Kitchen and 10 metres TRO Evolution 20 Kitchen. Each elbow of 90°, or two of 45°, reduces the available length by 1 metre.



Examples of installation:



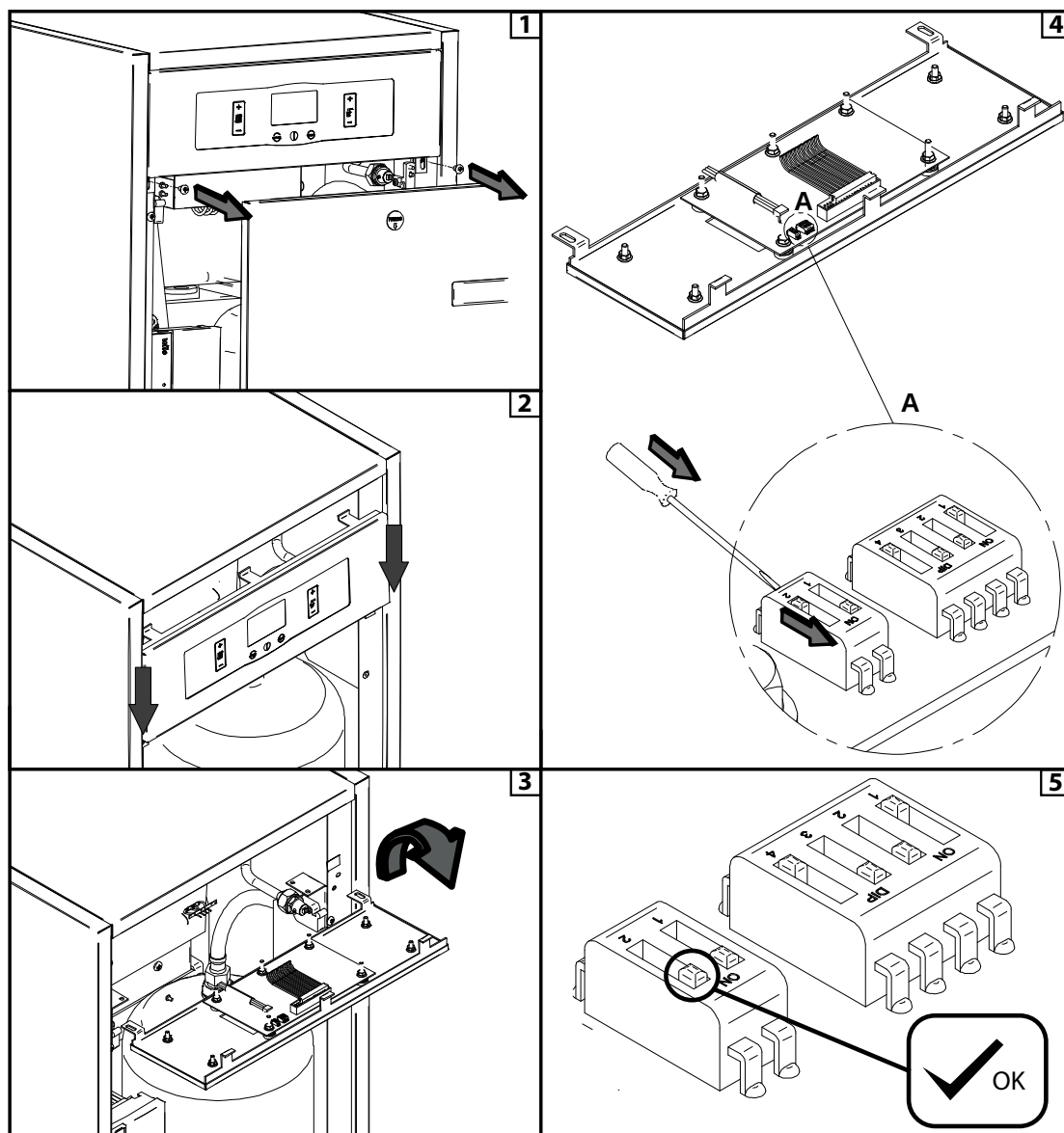
6.- FILLING THE INSTALLATION

To fill the installation, it should be provided with a fill valve, which can be used to fill the installation until a pressure of 1 - 1.5 bars appears on the “*boiler pressure*” setting on the display. The circuit should be filled slowly and with the automatic air bleed valve cap **(7)** loose, to let the air out of the installation. Additionally, open the manual purge bolt **(5)** of the condenser. After purging, close it again. The air should also be bled from the rest of the installation using the air bleed valves provided. When the installation has been filled, close the fill valve.

TRO Evolution Kitchen System boilers have a pressure sensor **(9)** for controlling the pressure of the installation. If the installation pressure drops below a minimum of 0.5 bar, the boiler will not switch on and a low pressure alarm will appear on the display (“**AP**”). There is the possibility of deactivating this pressure sensor.

NOTE: Switching on the boiler with no water inside could result in serious damage.

6.1.- Deactivation of the water pressure sensor (For Tro Evolution Sistem Heat Only models)



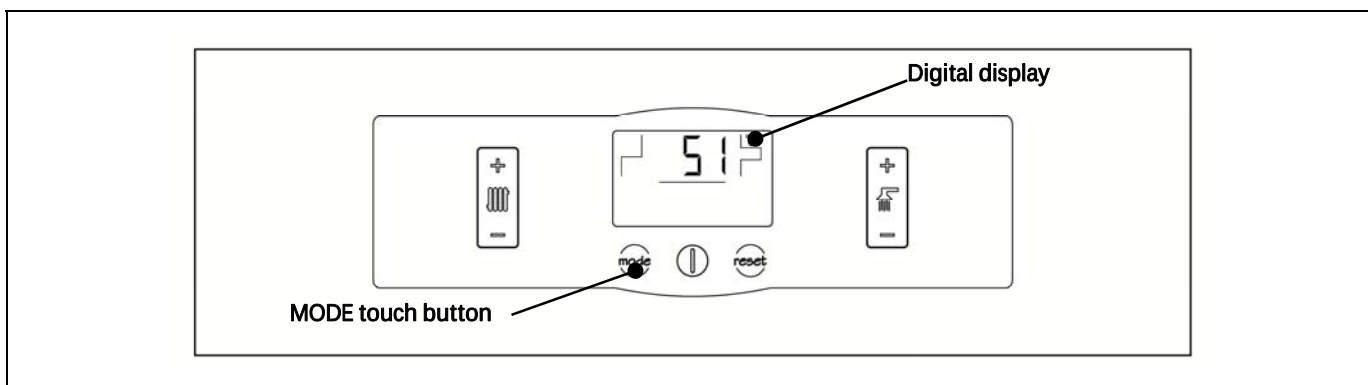
To completely deactivate the operation of the water pressure sensor, proceed as follows:

- 1.- Unplug the boiler from the main power supply network. Remove the front of the controls by releasing the two screws located below it.
- 2.- Slide the electric front down.
- 3.- Access to control card SW1 switch selectors, located on the back of the front panel.
- 4.- Move position of switch2: from position "off" to position "on", as indicated in the picture.
- 5.- The correct position is the one indicated in figure 5.
- 6.- Put back the front panel using the two screws. Reconnect the boiler into the main power supply network.

This way, the boiler will not take the water pressure into account for its operation. The pressure will be eliminated from the display and the operation blockage due to lack of pressure "AP" will disappear.

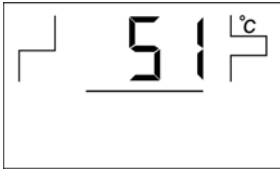
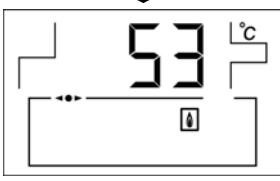
7.- DIGITAL DISPLAY

The **TRO Evolution Kitchen** boiler is electronic and includes a digital display **(12)** showing the actual temperatures, the setpoint temperatures and the pressure of the installation. In standby mode, the actual boiler temperature in °C is shown on the display. The rest of the available display options can be browsed by touching the MODE button below the display, as follows:



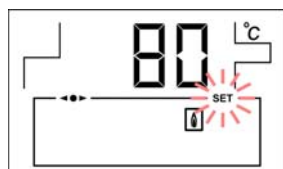
Repeatedly place your finger on the MODE touch button to select the different display options. When the desired option has been selected, it will return to standby after 20 seconds have elapsed.

The following table shows the different display options:

	Standby. The actual boiler temperature is shown.
	Actual boiler temperature.



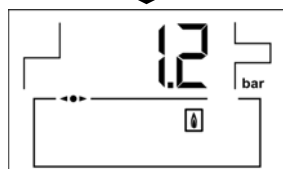
Actual domestic hot water temperature (with hot water tank).



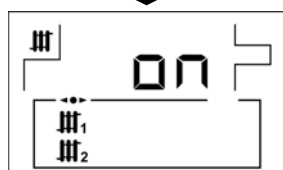
Boiler setpoint temperature selected using the corresponding touch button **(12)**.



DHW setpoint temperature selected using the corresponding touch button **(16)** (with hot water tank).



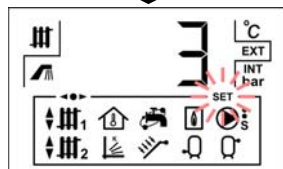
Actual boiler pressure, measured by the Pressure Sensor **(6)** (only for System model).



Indication of the heating demand status of each circuit connected to the boiler.



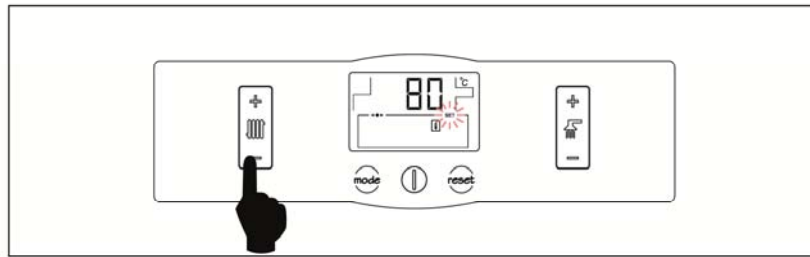
Setpoint of the heating pump speed **BC₁**.



The desired display contrast can be adjusted using the touch button on the right of the display **(16)**.

8.- TEMPERATURE SELECTION

8.1.- Selecting the boiler set point temperature



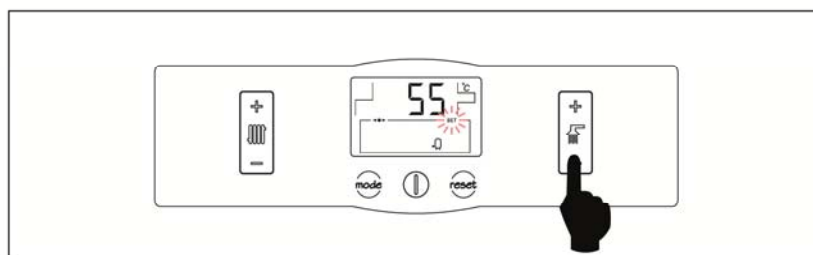
The desired boiler operating temperature is selected using the touch button, as shown in the figure. To select the desired temperature, touch the "+" or "-" symbols to increase or decrease the temperature respectively. When the temperature has been selected, the display will return to standby mode after a few seconds.

The boiler setpoint temperature can also be selected by using the MODE touch button to browse to the "*boiler setpoint temperature*" display option. When the display shows this option, touch the "+ /-" symbols to select the desired temperature.

If you wish to totally disable the boiler heating function (**Summer** mode), select the setpoint value "**OFF**" by touching the "-" symbol until this value appears on the display.

The permitted boiler setpoint temperature range is OFF and 30 - 85 °C. **TRO Evolution Kitchen** model boilers are condensing boilers. In order to obtain maximum boiler performance and energy savings, it is therefore recommended to select a setpoint temperature of 55-70 °C, providing this is permitted by the heating system installed and the insulation conditions of your home.

8.2.- Selecting the DHW setpoint temperature (with hot water tank only)



The desired DHW temperature is selected using the touch button, as shown in the figure. To select the desired temperature, touch the "+" or "-" symbols to increase or decrease the temperature respectively. When the temperature has been selected, the display will return to standby mode after a few seconds. The DHW setpoint temperature range permitted is OFF and 15 - 65 °C.

The DHW setpoint temperature can also be selected by using the MODE touch button to browse to the "*DHW setpoint temperature*" display option. When this option appears on the display, touch the "+ /-" symbols to select the desired temperature.

If you wish to totally disable the boiler's DHW production function, select the setpoint value "**OFF**" by touching the "-" symbol until this value appears on the display.

9.- OPERATION

The **TRO Evolution Kitchen System** boiler is supplied in “heating only” mode by default, designed only to heat up a heating installation (heating circuit 1). Optionally, a Domestic Hot Water tank and/or a second heating circuit, heating circuit 2, may be connected to the installation to improve its performance.

9.1.- Functioning in “Heating Only” mode

In this mode, select the desired boiler setpoint temperature (see “*Selecting the boiler setpoint temperature*”) and the temperature of room thermostat 1 (**TA1**) or remote control **E20** (if the boiler is equipped with these). The burner and the heating pump of circuit 1 (**BC₁**) will begin to function until the installation reaches the selected boiler setpoint temperature (or the temperature on room thermostat, if the unit has one). When the temperature of the installation drops below the selected boiler temperature, the burner will start up again, running the heating cycle.

The boiler heating function can be totally disabled (**Summer** mode) by selecting “**OFF**” as the boiler setpoint value. In this operating mode, only the DHW production function will remain enabled, providing there is a DHW tank connected to the boiler.

NOTE: When the heating function is disabled, circuit 2 will also be disabled if it is connected.

9.2.- Functioning with a domestic hot water tank

The **TRO Evolution Kitchen** boiler may be installed together with a hot water tank, to obtain domestic hot water. For correct installation of the tank, carefully follow the instructions given in the “Installation Instructions” section of this manual.

In this mode, select the desired DHW setpoint temperature (see “*Selecting the DHW setpoint temperature*”). The burner and the DHW pump will switch on. When the hot water tank reaches the selected DHW setpoint temperature, it is ready to heat up the heating installation if it is enabled, starting up the heating pump and switching off the DHW pump. The burner will shut down when the boiler reaches its selected setpoint temperature. The heating pump will stop when the room temperature reaches or exceeds the temperature set on the installation’s room thermostat (if it has one).

If you wish, you may totally disable the domestic hot water production function by selecting “**OFF**” as the DHW setpoint temperature.

9.3.- Heating circuit 2 functioning (Optional)

All the models in the **TRO Evolution Kitchen** range of boilers have the option of controlling a second heating circuit. This requires the installation of a second circulation pump on the boiler. To correctly install this pump, carefully follow the instructions given in the “Installing heating circuit 2” section of this manual.

Heating circuit 2 will work with the selected boiler setpoint temperature (see “*Selecting the boiler setpoint temperature*”) and the temperature of room thermostat 2 (**TA2**) (if the boiler has one). The burner and the heating pump of circuit 2 (**BC₂**) will begin to function until the installation reaches the selected boiler setpoint temperature (or the temperature on room thermostat 2, if the unit has one). When the temperature of the installation drops below the selected boiler temperature, the burner will start up again, running the heating cycle.

NOTE: When the heating function is disabled, if OFF is selected circuit 2 will also be disabled.

10.- ADDITIONAL FUNCTIONS

10.1.- Pump anti-block function

This function prevents the boiler circulation pumps from seizing up if they have been out of use for a long period. This system remains enabled while the boiler is plugged into the mains.

10.2.- Anti-frost function

This function protects the boiler from freezing up during cold weather. If the boiler temperature drops to below 6 °C, the heating circulation pump will start up. If the boiler temperature continues to drop and reaches 4 °C, the burner will start up, heating the installation. When this function has been activated, it will continue working until the boiler reaches 8°C. This system remains on standby while the boiler is plugged into the mains.

10.3.- Boiler pressure sensor function (only for System model).

This function prevents boiler failure caused by a low water level or excess pressure in the boiler. The pressure is detected by a pressure sensor **(6)**, and its value appears on the control panel display (see "*Digital display*"). If the pressure drops below 0.5 bar, the electronic control blocks boiler functioning and triggers the "**AP**" alarm on the display. If boiler pressure exceeds 2.5 bar, the "**HI**" warning will flash on the display to warn of the excess pressure. If this should occur we recommend calling the nearest **Technical Assistance Service**, and slightly draining the boiler.

10.4.- Telephone relay connection

The **TRO Evolution Kitchen** boiler is designed to enable a phone relay to be connected for switching the boiler on and off. This feature allows the boiler to be switched on and off remotely, from any location, by means of a phone call. The relay is connected to the boiler via terminal strip **J6** (see "*Electrical Connection Diagram*"). When the telephone relay contact closes the boiler switches on. When the contact opens, the boiler switches off and remains in anti-frost protection and pump anti-block mode.

10.5.- Room thermostat connection

The boiler has two terminal strips, **TA₁** and **TA₂**, for connecting room thermostats or room chronothermostats (J5 and J7, see "*Electrical Connection Diagram*"). This allows the heating mode for each circuit installed to be switched off according to the room temperature. To suitably connect them, first remove the bridge joining the terminals of terminal strip **TA₁**, and to connect **TA₂**, simply connect the thermostat to the terminal strip.

Installing a room thermostat will optimise the installation's performance, adapting the heating to the requirements of your home and obtaining enhanced comfort. Also, if the thermostat allows the hours of functioning to be programmed (chronothermostat), it can adapt the heating system to the hours of use of the installation.

10.6.- Anti-legionella function (optional) (with hot water tank only)

This optional function prevents the bacteria causing legionnaire's disease from proliferating in the hot water accumulated in the tank. Every 7 days, the temperature of the water in the tank is raised to 70 °C to kill any such bacteria. This function will only run if the boiler is left switched on.

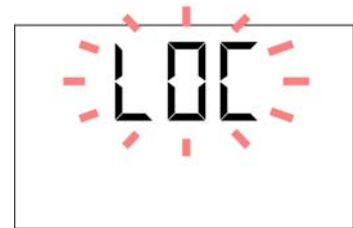
The boiler is supplied with this function disabled. To enable it, carefully read the "*Installation Instructions*" section. We recommend that the operation for enabling this function is carried out by qualified personnel.

10.7.- Keypad block function

This function protects the control panel from being accidentally or erroneously pressed while it is being cleaned, by children or by unauthorised persons. When this function is enabled, the electronic control will not react when any of the symbols or touch buttons on the control panel are pressed.

To lock the keypad, keep your finger on the RESET touch button for 5 seconds. The word "LOC" will flash on the display until the control panel is unlocked again.

To unlock the keypad, place your finger on the RESET touch button again for 5 seconds. The display will then return to its normal status.



11.- E20 REMOTE CONTROL (OPTIONAL)

A remote control (E20) may optionally be supplied together with the **TRO Evolution Kitchen** boiler. This remote control can be used to fully operate the boiler from any room in the home it is installed in. The E20 remote control governs the settings of heating circuit N°1 and the installation's domestic hot water production (where the case may be).

This remote control allows the hours of home comfort to be programmed for heating circuit N°1, adjusting the installation to the particular requirements of the home by measuring the room temperature and consequently adapting the installation temperature. The remote control can also be used to adjust the DHW and heating setpoint temperatures at any time, and for viewing the different boiler operation settings. It also warns of any functioning anomalies affecting the boiler.

The E20 remote control may optionally be connected to an external sensor, for measuring the outside temperature. When this option is installed, the remote control can adjust the home comfort level (circuit 1) according to the weather conditions at each particular time, optimising fuel consumption and heating comfort in the home.

The E20 remote control takes over the control of the boiler when it is connected to it. The different selectable boiler temperatures must be modified using the remote control. It is easy to install, only requiring 2 wires for communication between the boiler and the E20 control. It is connected to the boiler by connecting the two wires on terminal strip **J4** (see "Electrical Connection Diagram"). For correct installation and functioning, carefully read the instructions enclosed with the remote control.

The following sections contain a general explanation of the E20 remote control's different operating modes and options.

11.1.- Functioning without an outdoor sensor

Conventional heating installation (direct circuit)

The maximum temperature for heating circuit N°1, the scheduled heating times and the desired room temperatures can be selected on the remote control. The E20 remote control will calculate the boiler temperature required at each particular time, depending on the temperature of the room, and it will activate or disable the heating mode of circuit 1 depending on the heating times and room temperatures programmed.

11.2.- Functioning with an external sensor (Optional)

If the E20 remote control is fitted with an outdoor temperature sensor, it can calculate the heating temperature of heating circuit 1 according to the outside weather conditions at each particular time, with optimum adjustment of the heating installation conditions for improved comfort in the home and energy savings.

Conventional heating installation (direct circuit)

The maximum temperature, an operating curve for heating circuit N°1 (see instructions enclosed with the E20 remote control) and the desired heating times and room temperatures can all be selected on the remote control. The E20 remote control calculates the required boiler temperature at each particular time, depending on the temperature inside the home and the outside weather conditions, in accordance with the operating curve selected (setting HEATSLOPE 1 on the E20), switching the heating on and off in accordance with the heating times and the room temperatures programmed.

11.3.- Functioning with a DHW tank (Optional)

When the boiler is installed with a DHW production tank connected, the E20 remote control can be used to select up to two DHW temperatures and the desired DHW production times. The E20 remote control regulates the DHW tank temperature at each particular time, and enables or disables the DHW function according to the times scheduled.

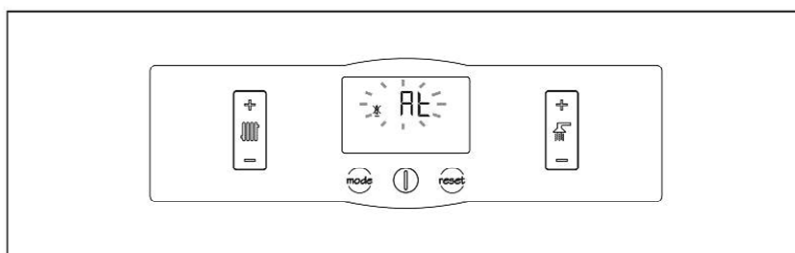
The E20 remote control also has an option for enabling a function to protect against legionella bacteria (see instructions enclosed with the E20 remote control).

11.4.- Telephone relay function

The E20 remote control is designed for connection to an external telephone relay. If a telephone relay is connected to the E20 remote control, the heating mode of heating circuit N°1 and the DHW mode can be switched on and off from anywhere in the world, simply by making a telephone call (see instructions enclosed with the E20 remote control).

12.- BOILER SECURITY SYSTEMS

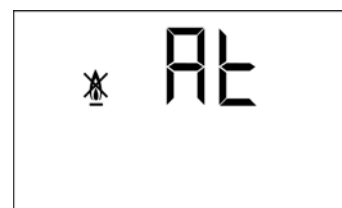
The boiler's electronic control system may activate the following safety cut-outs to stop the boiler functioning. When one of these safety cut-outs occurs, the boiler will stop functioning, a cut-out code will flash on the display and the red alarm warning pilot light will flash on the control panel.



If any of the safety cut-outs described below should occur repeatedly, switch off the boiler and call your nearest official technical assistance service.

12.1.- Temperature safety cut-out

When this cut-out occurs, the alarm code “**At**” (temperature alarm) will begin to flash on the digital display **(12)**. The burner will switch off and stop heating the installation.



This occurs when the boiler exceeds a temperature of 110 °C. To unblock it, wait until the boiler drops to below 100°C and press the button on the safety thermostat, located inside the boiler on the underside of the electrical box, after first having removed the button cover.

12.2.- Burner cut-out

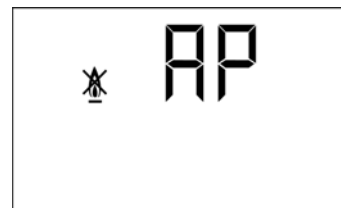
When this cut-out occurs, the alarm code “**AQ**” (burner alarm) will begin to flash on the digital display **(11)**. The burner will switch off and stop heating the installation.



This occurs as a result of an anomaly in the burner **(2)** or in the fuel installation. To unblock it, press the illuminated button that lights up on the burner.

12.3.- Low pressure cut-out (only for System model)

When this cut-out occurs, the alarm code “AP” (pressure alarm) will begin to flash on the digital display **(12)**. The burner and the boiler circulation pumps will switch off, cutting off the heating and water flow to the installation.



This occurs when the boiler pressure drops to below 0.5 bar, preventing the boiler from functioning when the water is drained from the installation, due to either leakage or maintenance operations. To unlock it, fill the installation again until a pressure of 1 - 1.5 bar appears on the “*boiler pressure*” setting on the display**(12)** .

13.- DRAINING THE BOILER

The water is drained from the boiler by opening the air drain valve **(1)** inside the boiler (on the lower right hand side on opening the door). Connect a flexible tube to this valve and run it to a drain. After draining the boiler, close the valve again and remove the flexible tube.

14.- SWITCHING OFF THE BOILER

To switch off the boiler, place your finger on the power touch button **(15)** for 1 second. In **Off mode**, while the boiler is plugged into the mains and connected to the fuel installation, its heating and DHW functions will be switched off but the anti-frost protection and pump anti-block functions will remain activated.

To shut down the boiler functioning completely, unplug it from the mains and cut off the fuel supply.

15.- FIRST START-UP

For the **guarantee to be valid**, the boiler must be started up for the first time by an **official TRIANCO Technical Assistance Service**. Before beginning start-up, the following must be complied with:

- The boiler must be electrically connected to the mains.
- The installation must be filled with water (1 - 1.5 bar must be indicated on the digital display).
- Fuel must be reaching the burner at a pressure of no more than 0.4 bar.

16.- INSTALLATION DELIVERY

After the initial start-up, the Technical Assistance Service will explain to the user how the boiler functions, making any observations they consider relevant.

The installer is responsible for clearly explaining to the user the functioning of any control or regulation device forming part of the installation but not supplied with the boiler.

17.- BOILER MAINTENANCE

To maintain the boiler in perfect working order, a yearly overhaul should be performed by TRIANCO's authorised personnel.

17.1.- Cleaning the boiler

To keep the boiler in perfect working order, we recommend cleaning the boiler chamber, exhaustion ducts and condenser on a yearly basis. A cleaning brush of a suitable size for cleaning the inside of the exhaustion ducts is supplied with the boiler. This brush is located inside the boiler.

The combustion chamber and exhaustion ducts should not be cleaned using chemical products or hard steel brushes. After any cleaning operation has been carried out, it is important to run several ignition cycles to check all the elements are functioning correctly.

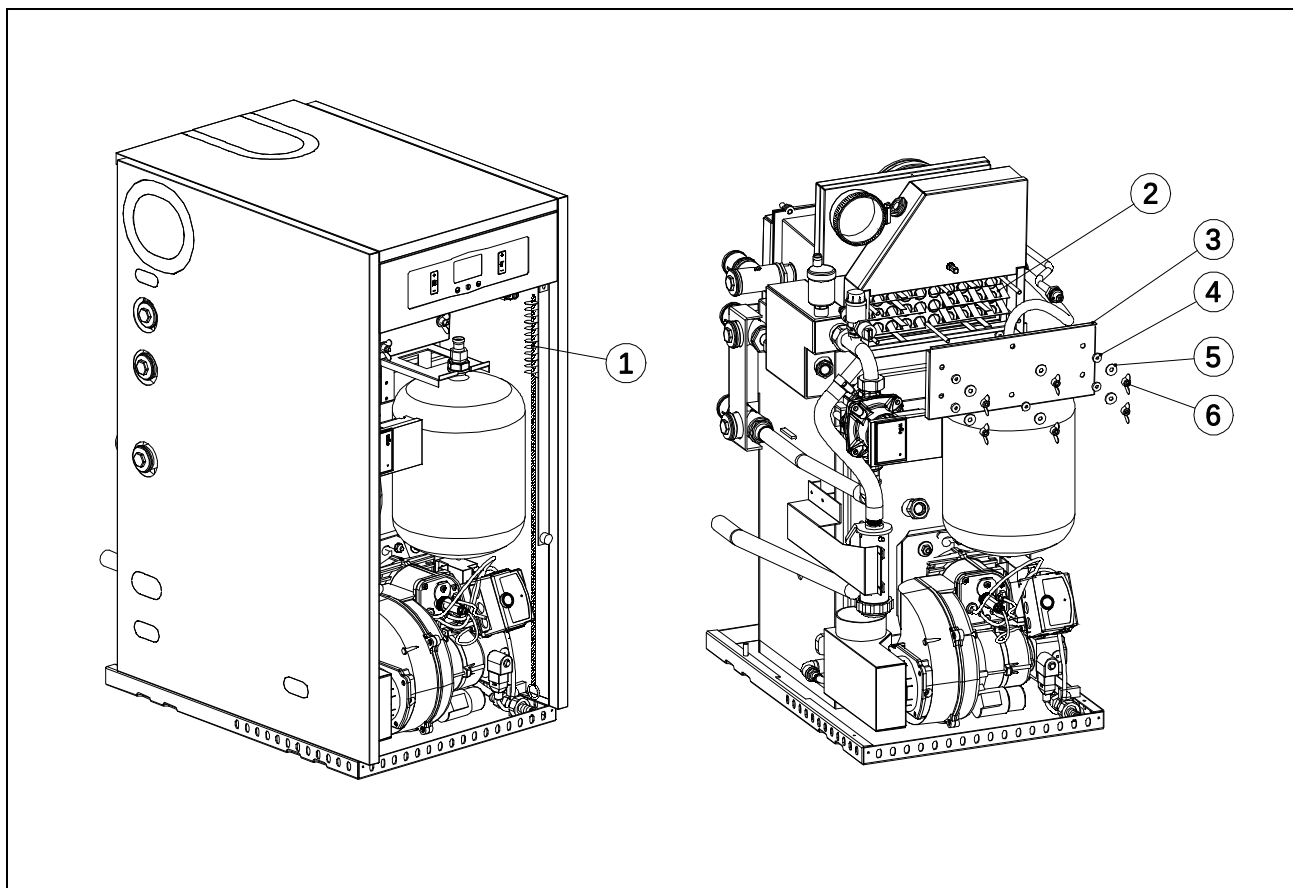
For correct cleaning, the following recommendations should be carefully observed:

Cleaning the boiler body

- Open and remove the outer door of the boiler.
- Remove the burner **(2)**, by unscrewing the fixing nut on the top of the burner.
- Remove the combustion chamber door and the exhaustion duct cover, unscrewing the four fixing nuts beside them.
- Clean the exhaustion ducts, using the cleaning brush supplied with the boiler.
- Clean the boiler combustion chamber. We recommend using a soft brush for scraping the combustion chamber surfaces, and a blower to remove scale.
- After cleaning, replace the combustion chamber door, the exhaustion duct cover, the burner and the outer door of the boiler.

Cleaning the condenser

- Open the boiler door to access the condenser, located in the upper part of the boiler body.
- Open the boiler door to access the condenser, located in the upper part of the boiler body.
- Open the front cover of the condenser **(3)** to access the flues.
- Extract the smoke deflectors **(2)** located inside the flues.
- Clean the flue pipes using the cleaning brush **(1)** supplied with the boiler.
- Replace the components as they were and tighten the nuts **(6)** of the front cover of the condenser **(3)**.
- Place the cleaning brush **(1)** in its initial position inside the boiler.
- The condensation siphon should be cleaned once a year. To do this, remove it and wash it in soapy water. Replace the siphon after cleaning.



17.2.- Anti-frost protection

The **TRO Evolution Kitchen** boiler has a function for preventing frost damage to the installation. This will function as long as the appliance remains plugged into the mains. Despite this function, and particularly in areas with very cold weather, we recommend taking precautions in order to prevent damage to the boiler. It is advisable to add anti-freeze to the water in the heating circuit. If the boiler is to be out of use for long periods of time, we recommend **draining all the water and leaving it empty**.

17.3.- Boiler water characteristics

In areas with water hardness of over 25-30°F, treated water must be used in the heating installation to avoid any scale deposits on the boiler.

It should be noted that even a few millimetres of scale will greatly reduce the boiler's heat conductivity, causing a major drop in performance.

Treated water must be used in the heating circuit in the following cases:

- Very large circuits (containing a large amount of water).
- Frequent filling of the installation.

If repeated partial or total draining of the installation is necessary, we recommend filling it with treated water.

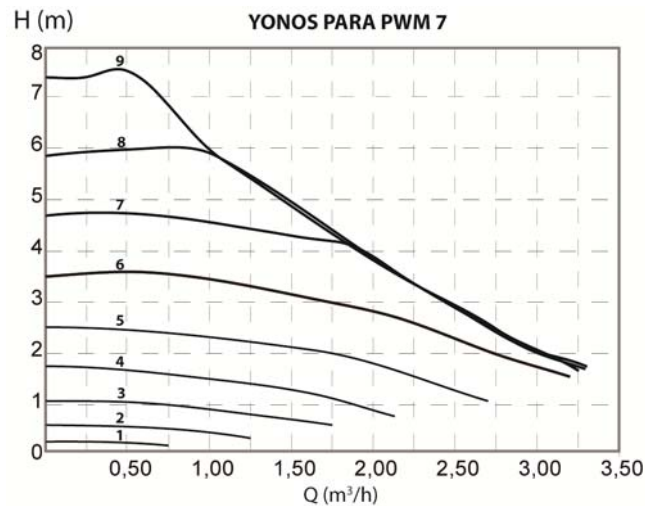
18.- TECHNICAL DATA

TRO EVOLUTION KITCHEN SYSTEM/ HEAT ONLY			20	30
Boiler type	-		Condensation	
			Heating only	
Rated heat output	P_{rated}	kW	20	30
Useful heat output	P_4	kW	20,8	30,1
Useful heat output (30%)	P_1	kW	5,4	9,7
Seasonal space heating energy efficiency	η_s	%	90	91,7
Useful efficiency	η_4	% (PCI)	97,2	97,0
		% (PCS)	91,7	91,5
Useful efficiency (30%)	η_1	% (PCI)	103,3	103,7
		% (PCS)	97,4	97,8
Auxiliary electricity consumption at full load	e_{lmax}	kW	0,217	
Auxiliary electricity consumption at part load	e_{lmin}	kW	0,077	
Auxiliary electricity consumption in standby mode	PSB	kW	0,002	
Standby heat loss	P_{stby}	kW	0,1	
Emissions of nitrogen oxides	NOx	mg/kWh	110	
Heating temperature adjustment	°C		OFF, 30-85	
Maximum safety temperature	°C		110	
Maximum pressure for heating mode	bar		3	
Heating expansion vessel capacity	Lts		8	8
Heating water volume	Lts		24	24
Water pressure drop	mbar		88	176
Fume temperature	°C		82	84
Volume on fume side	m ³		0,032	0,032
Maximum fume flow	Kg/s		0,0085	0,0132
Fume pressure drop	mbar		0,21	0,21
Combustion chamber length	mm		240	240
Combustion chamber type	-		Wet, with two flue runs	
Burner adjustment type	-		ON/OFF	
Electrical supply	-		~220-230 V - 50 Hz - 200 W	
Gross weight	Kg		130	130

19.- CIRCULATING PUMP FLOW CURVES

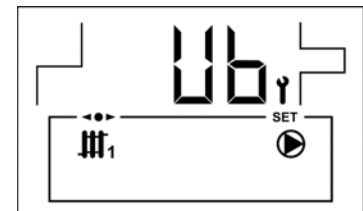
The hydrodriving pressure available in the installation at the boiler output can be deduced from the following graphs, having taken the boiler pressure drop into account.

19.1.- Characteristic curves of the pump



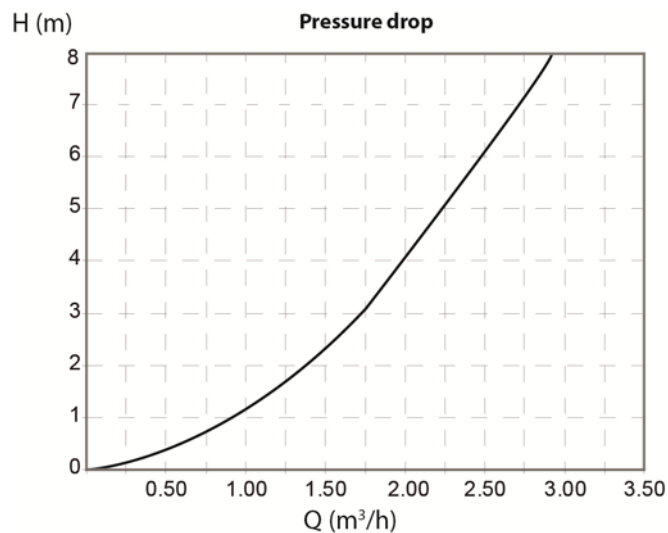
19.2.- Regulation of the circulation pump

To regulate the speed of the circulation pump BC1 you should navigate to the "UB" parameter by touching MODE button and touch ON button (15) to access it. Once inside the setting, using the jog dial on the right side of the display (17) the value changes. After selecting the desired speed, touch the ON touch button to record the value and exit the parameter "UB".



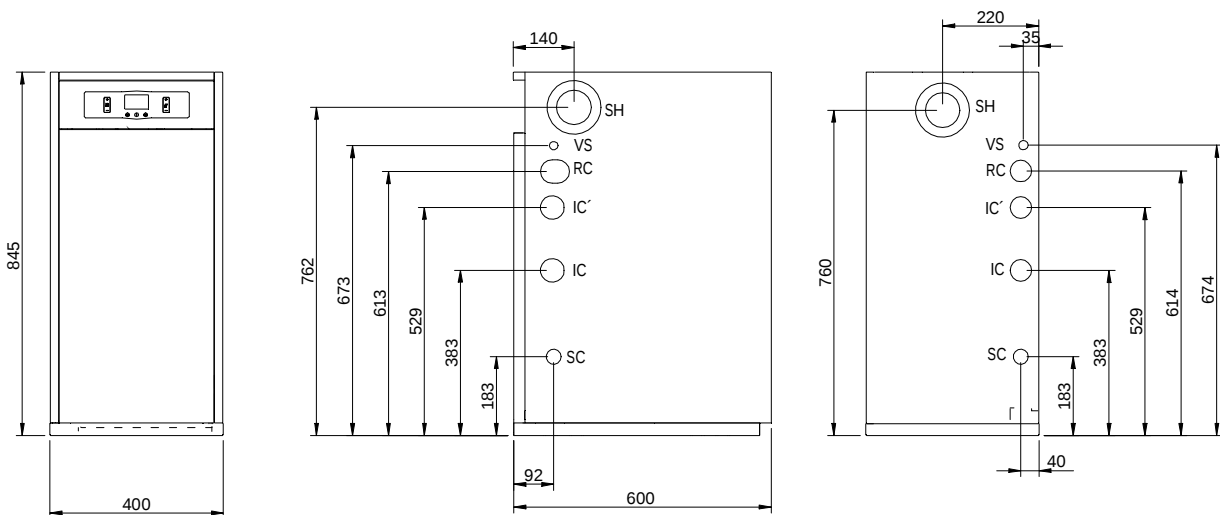
WARNING: Any interference in the operation and installation of the heating circuit must be done by authorised personnel, always respecting current legislation and installation safety standards, both national and local level.

19.3.- Pressure drop



20.- DIAGRAMS AND MEASUREMENTS

20.1.- Tro Evolution Kitchen System



IC: Heating outlet 1" H.

IC': Optional heating outlet 1" H.

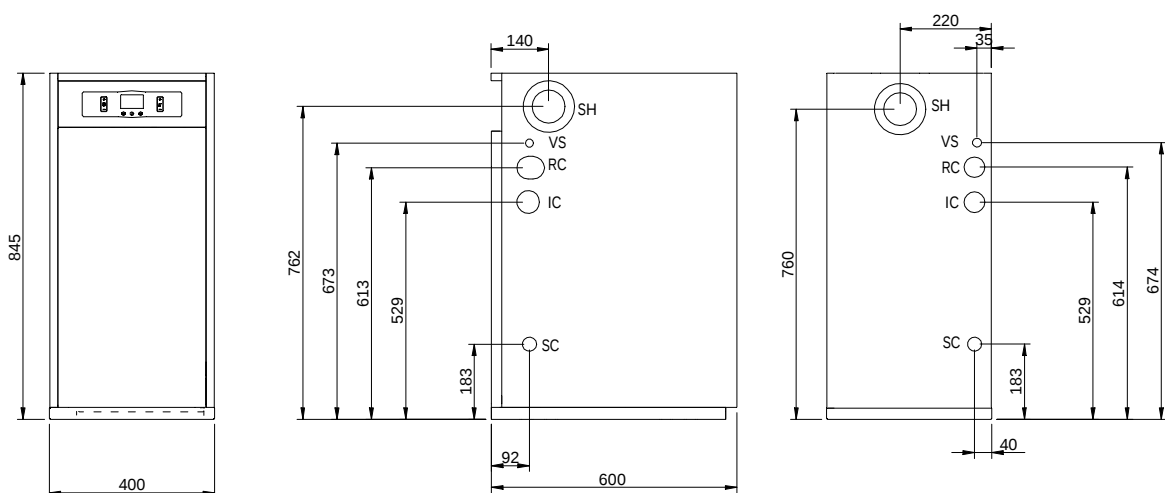
RC: Heating return 1 H"

VS: Safety valve.

SC: Condensation water outlet.

SH: Fume exhaust duct. Ø80/ Ø125.

20.2.- Tro Evolution Kitchen Heat Only



IC: Heating outlet 1" H.

RC: Heating return 1 H"

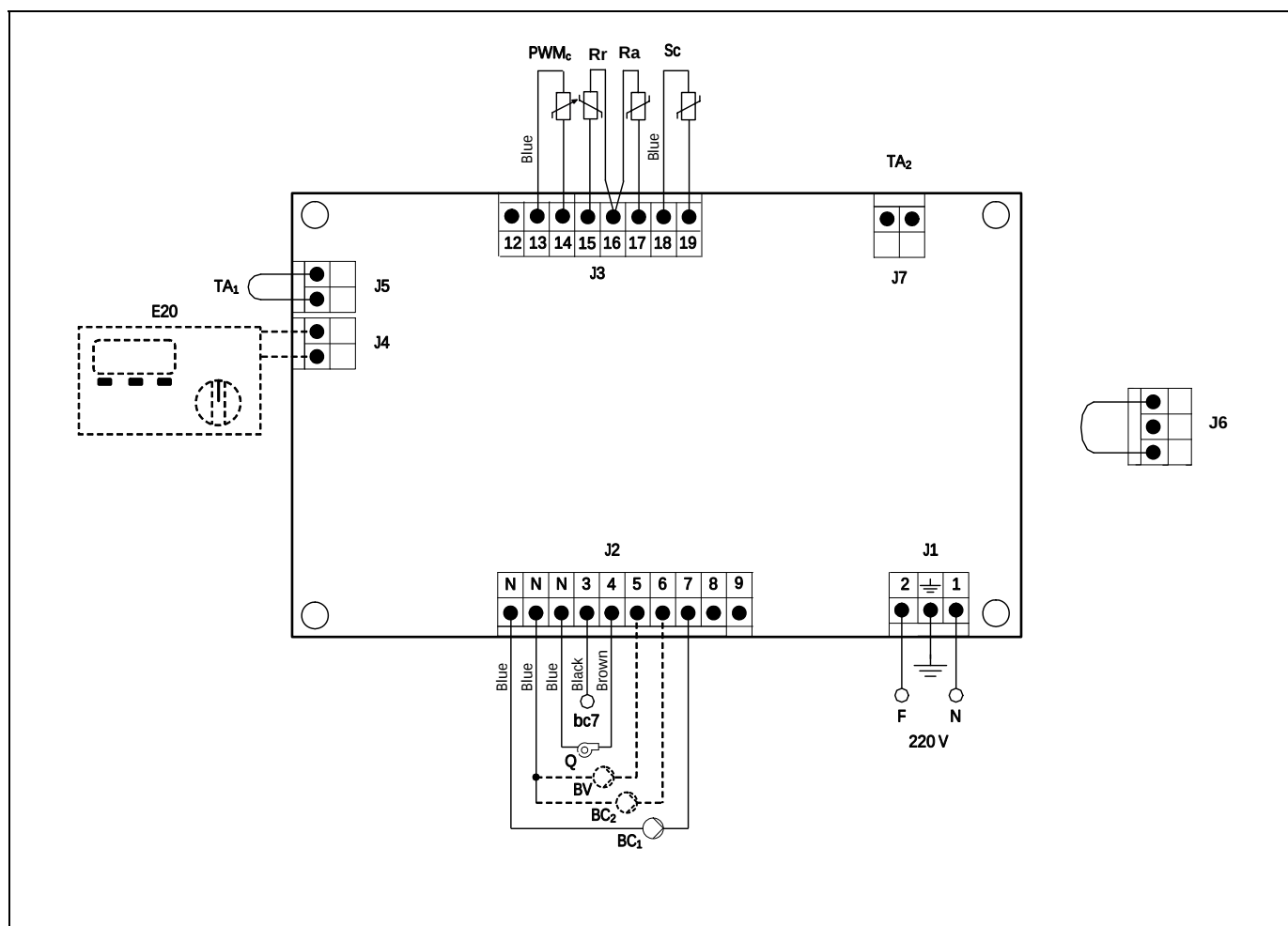
VS: Safety valve.

SC: Condensation water outlet.

SH: Fume exhaust duct. Ø80/ Ø125.

21.- ELECTRICAL CONNECTION DIAGRAM

There are a series of removable connectors located on the rear of the control panel, for connecting the various options and components for this model. For correct connection, carefully follow the indications shown below:



Ph:Phase.

N:Neutral.

bc7:Burner terminal n. 7.

Q:Burner.

BV:DHW charge pump.

BC1:Heating circuit N. 1 circulating pump.

BC2:Heating circuit N. 2 circulating pump.

E20:Remote control E20 (optional).

TA1:Heating circuit N. 1 room thermostat.

TA2:Heating circuit N. 1 room thermostat.

PWMc: Heating PWM cable.

Rr: resistance 4k7.

Ra:Storage tank option resistance.

Sc:Boiler temperature sensor.

J1:Power supply connector.

J2:Components connector.

J3:Sensor connector.

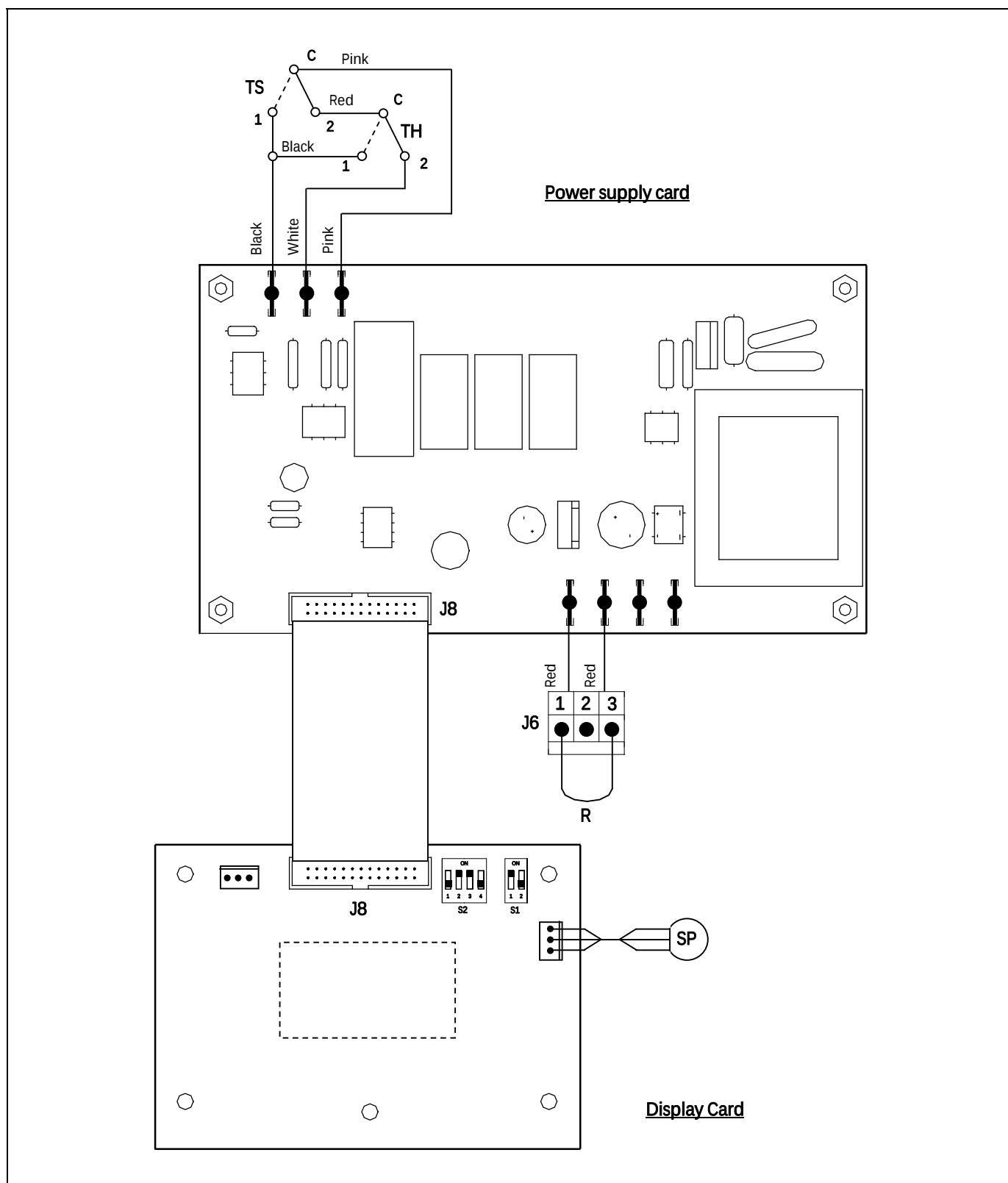
J4:Remote control connector.

J5:Room thermostat N. 1 connector.

J6:Telephone relay connector.

J7:Room thermostat N. 2 connector.

22.- ELECTRICAL DIAGRAM



TS:Security thermostat.

TH:Fumes thermostat.

SP:Pressure sensor (**only for System model**)

R:Phone relay.

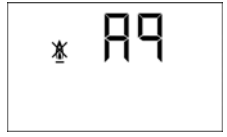
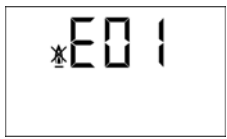
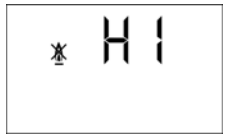
J6:Phone relay connector

J8:PCB's connector.

S1, S2:Boiler model selection switches.

23.- ALARM CODES

The **TRO Evolution Kitchen** boiler has an electronic circuit which performs continuous self-testing to detect any operating failures in the boiler. When the electronic control detects an operating error, it indicates this by showing an alarm code on the display. The following list describes the possible alarm codes:

CODE	ALARM	DESCRIPTION
	Pressure	The pressure in the installation has dropped to below 0.5 bar. The boiler will cut out. To unblock it, fill the installation at a pressure of 1 - 1.5 bar. This alarm may be set off due to the water having been drained from the boiler or leakage in the installation. If this alarm occurs repeatedly, you should contact the nearest official technical assistance service (only for System model).
	Temperature	The boiler has exceeded the safety temperature of 110 °C. The boiler will cut out. To unblock it, press the safety thermostat button when the temperature has dropped. If this alarm occurs repeatedly, you should contact the nearest official technical assistance service.
	Burner	The burner has cut out. To unblock it, press the illuminated button on the burner (2) . This alarm is set off when there is a functioning anomaly in the burner or the fuel installation. If this alarm occurs repeatedly, you should contact the nearest official technical assistance service.
	Boiler sensor	The boiler sensor (4) is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.
	DHW sensor. (with hot water tank only)	The tank DHW sensor is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced.
	Resistance Rr	The resistance Rr damaged or disconnected. Reconnect it correctly in terminals 16 and 17 of the terminal strip (J3)
	Pressure sensor	The pressure sensor (6) is damaged or disconnected. Contact your nearest official technical assistance service to have it replaced (only for System model).
	Overpressure	This indicates that the water pressure in the boiler is over 2.5 bar, warning that the installation is in overpressure status. Boiler functioning will NOT cut out. To restore normal boiler functioning, drain the boiler until it reaches a pressure of 1 – 1.5 bar. If this warning occurs repeatedly, you should contact the nearest official technical assistance service. (only for System model).

NOTE: It will be very useful for the technical assistance service if you can inform them of the alarm code that has appeared on call-out.

24.- BURNER

24.1.- Assembly

Fix the burner support to the boiler, then fix the burner to the support. This will allow the correct tilt of the flame tube towards the combustion chamber. Fit the intake and return tubes, inserting the oil filter in the intake tube.

IMPORTANT: When the burner is removed, make sure that the gasket between the burner and the mounting flange closes and is correctly mounted to prevent combustion gases from escaping into the room.

24.2.- Oil installation

The "Domestic" burner is equipped with a self-extracting pump, enabling fuel intake from a tank installed at a lower level than the burner, provided the pressure difference measured with the vacuum gauge at the pump does not exceed 0.4 bar (30 cmHg).

IMPORTANT: A 20-µm oil filter should be installed to protect the pump and prevent the burner nozzle from clogging. Perform the maintenance of the filter annually.

24.3.- Burner start-up

Ensure there is fuel in the tank, that the oil valves are open and that there is an electric connection to the burner. Turn on the master switch. Unscrew the air bleed screw (manometer point). Then, when the valve opens, remove the photocell sensor and move it towards a light source until fuel comes out. Disconnect the burner and screw the bleed screw back in.

24.4.- Adjusting the combustion conditions

As each particular installation has a different combustion circuit, it is essential to adjust the combustion conditions of each boiler. For the **guarantee to be valid**, the burner must be adjusted by an **official TRIANCO Technical Assistance Service**.

Observe the flame. If there is insufficient combustion air, it will be dark in colour and will produce smoke, obstructing the flue outlet.

On the contrary, if there is an excess of combustion air, the flame will be pale or bluish in colour. This will reduce the performance of the boiler and it will fail to comply with anti-pollution standards, and the excess air may also hinder the ignition process.

The flame should be orange in colour.

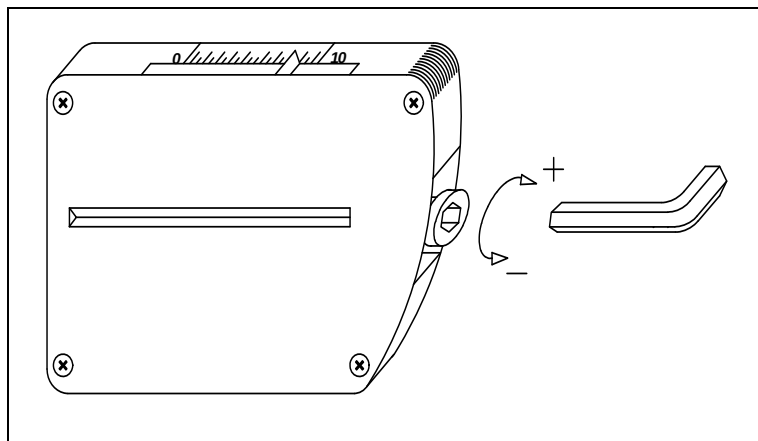
If the shape of the boiler makes it difficult or impossible to observe the flame, the combustion air flow can be regulated by observing the smoke coming out of the flue. If the smoke is dark in colour, more air will need to be provided to the burner, and if it is very white, the air in the burner will need to be decreased until no smoke at all is observed.

If you have a device for determining the composition of the combustion gases, this will be the best guide for flame adjustment. If not, simply follow the above indications.

To adjust the air and burner line conditions, carefully follow the instructions given below.

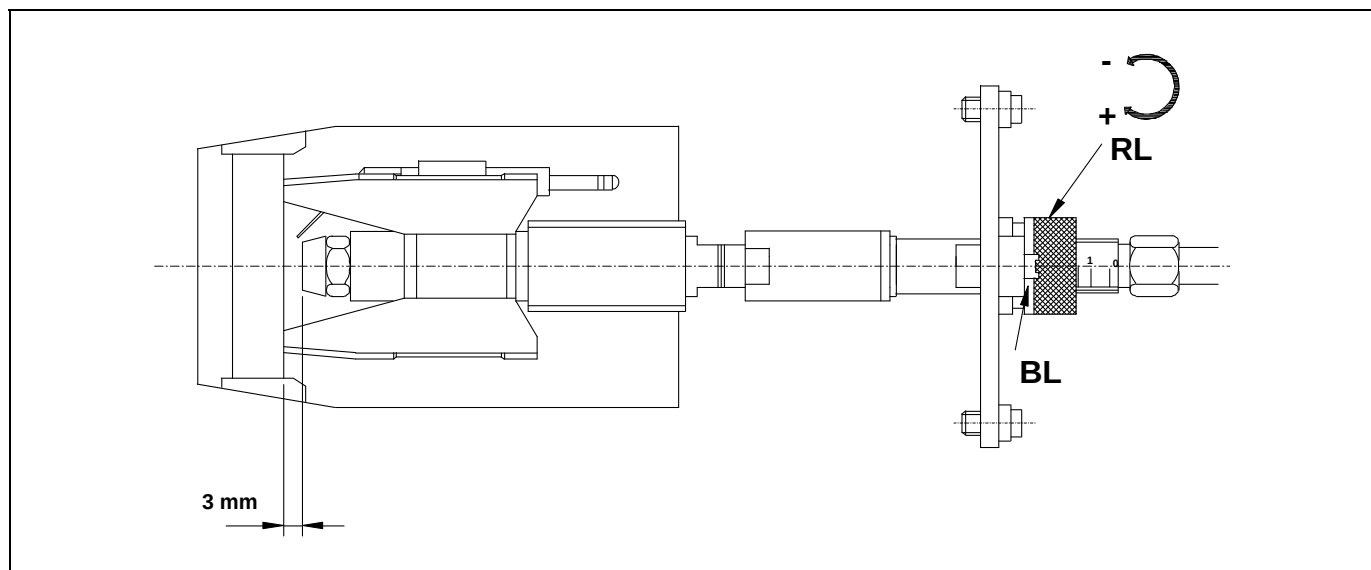
24.5.- Primary air adjustment

To adjust the primary combustion air, turn the screw using a 6 mm. Allen key, as shown in the diagram. Turn it clockwise to increase the airflow, and anticlockwise to decrease it.



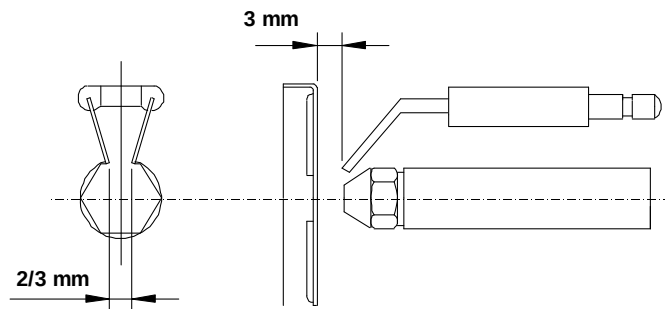
24.6.- Combustion line adjustment

To adjust the combustion line, loosen the combustion line blocking screw "BL". Turn the line regulator "RL" clockwise to increase the airflow and anticlockwise to decrease it. After adjustment, tighten the combustion line blocking screw "BL".



24.7.- Correct position of electrodes

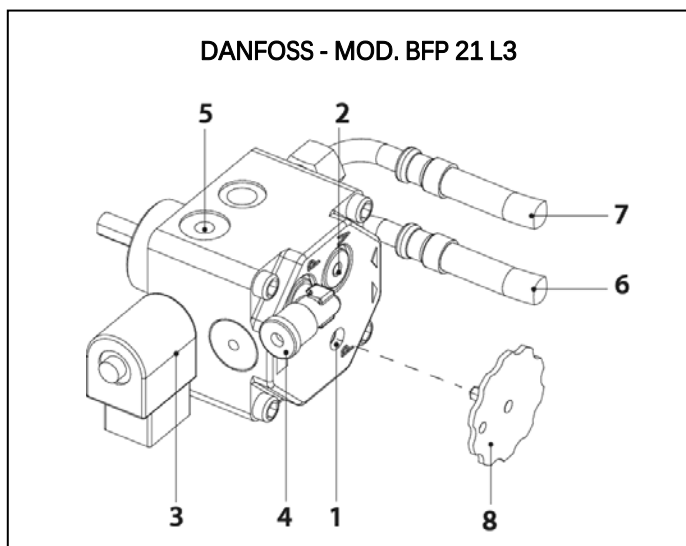
To ensure correct ignition of the "Domestic" burner, the measurements shown in the diagram must be observed. Also ensure the electrode fixing screws have been screwed in place before replacing the flame tube.



24.8.- Oil pressure adjustment

To adjust the oil pump pressure, turn the screw **(1)** clockwise to increase the pressure, and anticlockwise to decrease it.

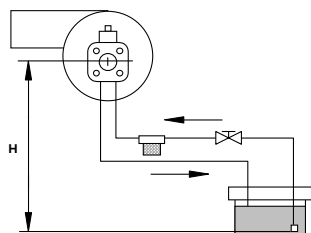
- 1 - Pressure adjustment.
- 2 - Vacuum gauge point.
- 3 - Valve.
- 4 - Manometer point.
- 5 - Nozzle outlet.
- 6 - Return.
- 7 - Intake.
- 8 - Pressure regulation.



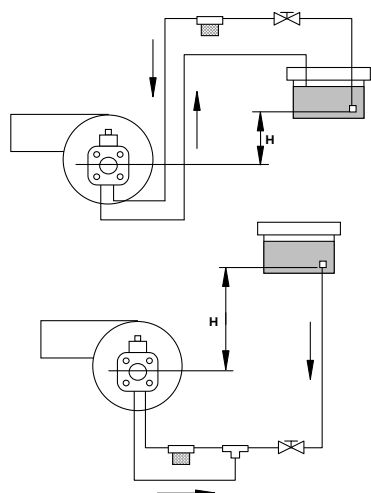
24.9.- Oil supply piping diagrams

The diagrams and tables below correspond to installations without reductions and with a perfect hydraulic seal. It is recommended to use copper pipes. A pressure drop of 0.4 bar (30 cmHg) must not be exceeded.

Intake installation



Charging installation



Intake installation

H (m)	Pipe length	
	int.Ø 8 mm.	int.Ø 10 mm.
0.0	25	60
0.5	21	50
1.0	18	44
1.5	15	38
2.0	12	26
2.5	10	26
3.0	8	20
3.5	6	16

Charging installation

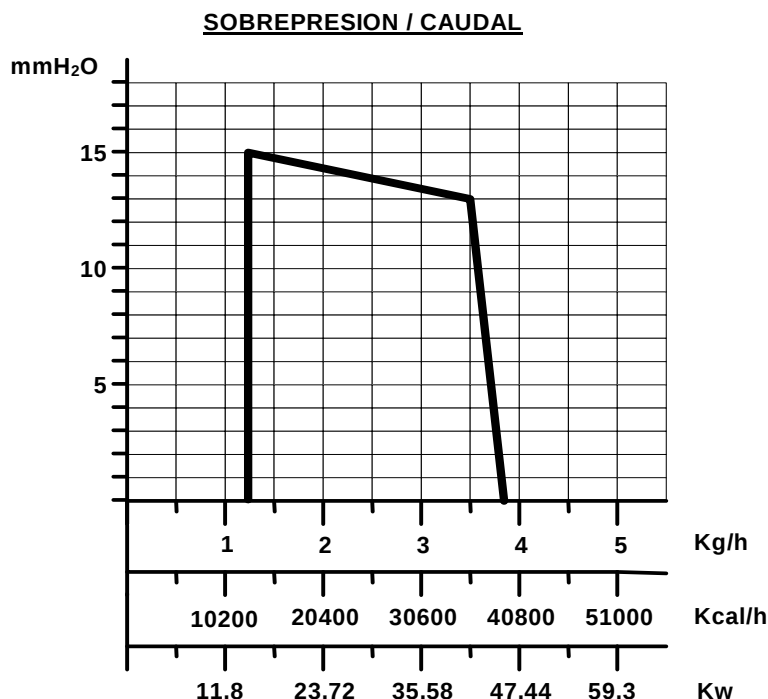
H (m)	Pipe length	
	int.Ø 8 mm.	int.Ø 10 mm.
0.5	10	20
1,0	20	40
1.5	40	80
2.0	60	100

WARNING: Check periodically the flexible pipes conditions. Using kerosene, they have to be replaced at least every 2 years.

24.10.- Technical specifications

Minimum consumption	Kg/h	1.5
Maximum consumption	Kg/h	3
Minimum power	kW	17.7
Maximum power	kW	35.5
Fuel	Gas oil 35 Sec max. Viscosity 6 mm ² /s at 20°C Kerosene 28 Sec	
Motor power at 2800 r.p.m.	W	200
Adjustment type	On/Off	
Electric current	220 V - 50 Hz	
Weight	Kg	12.5
Preheater	YES	

24.11.- Operating curves



24.12.- Nozzles

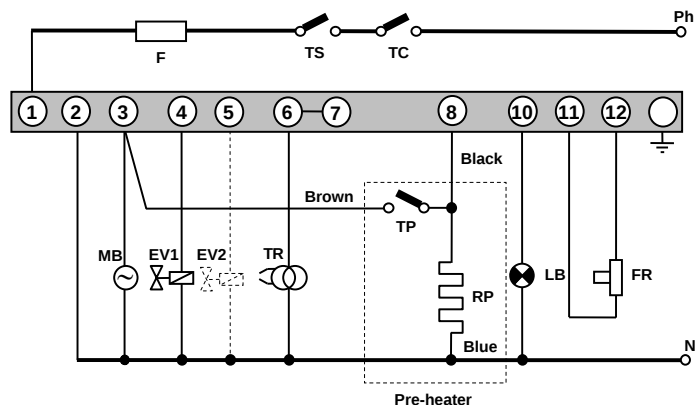
TRO Evolution Kitchen boilers are supplied with the burner fitted, together with its corresponding nozzle and a standard pre-adjustment. The following table shows the nozzles and adjustments for each particular model:

MODEL	Range Kw.	Nozzle	Pump pressure (bar)	Approx. air setting	Line adjustment
TRO Evolution 20 Kitchen	14	0,40-80°H	10	2	1
	20,3	0,55-80°H	9	4,5	1
TRO Evolution 30 Kitchen	25	0,65-60°H	8	2,5	1
	29,8	0,75-60°H	10,5	4,5	1

24.13.- Oil flow versus nozzle and pump pressure

Nozzle GPH	Oil Kg/h		Kerosene Kg/h	
	9 bar	10 bar	9 bar	10 bar
0,45	1,58	1,67	1,4	1,5
0,65	2,29	2,42	2,02	2,17
1,00	3,53	3,72	3,12	3,35

24.14.- Electrical connection diagram



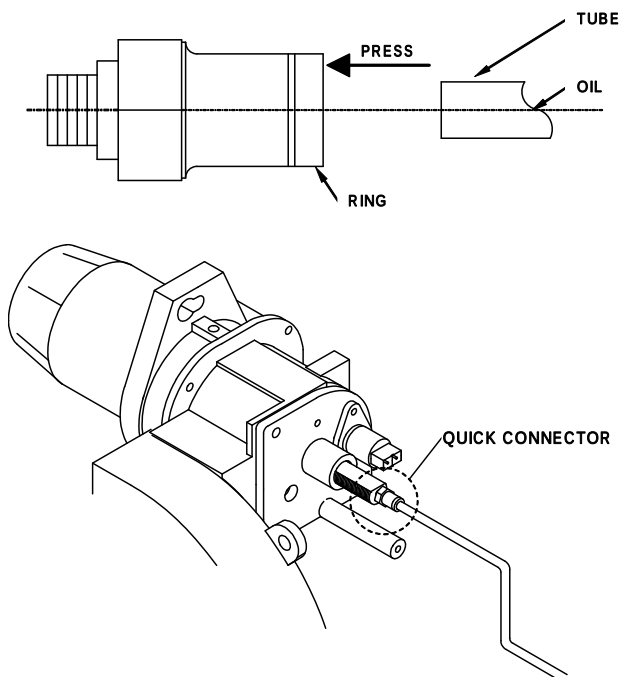
TC: Boiler Thermostat.
TS: Safety Thermostat.
F: Fuse.
LB: Cut-off Light.
FR: Photocell.
TR: Transformer.

MB: Oil Pump Motor.
EV: Valve.
RP: Pre-heater resistance
Ph: Phase.
N: Neutral.
TP: Pre-heater thermostat

24.15.- Quick connector

To connect and disconnect the red oil intake tube to the nozzle, proceed as follows:

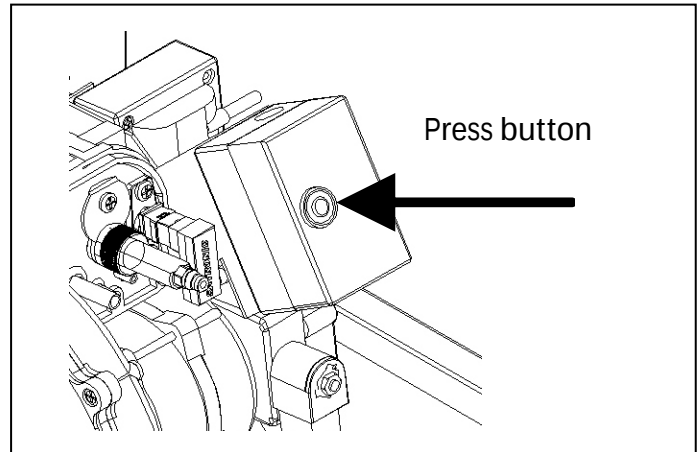
- Press the connector ring in the direction of the arrow, pulling on the red tube at the same time.



24.16.- Burner control operating sequence

The burner's LMO control box has a reset button which is the key element for resetting the burner control and activating/deactivating the diagnosis functions.

The multi-colour LED on the reset button is the indicator for visual diagnosis. The button and the LED are located under the transparent cover of the reset button. During normal functioning, the various operating statuses are indicated in the form of colour codes (see the colour code table below). During ignition, the indication is as shown in the following table:



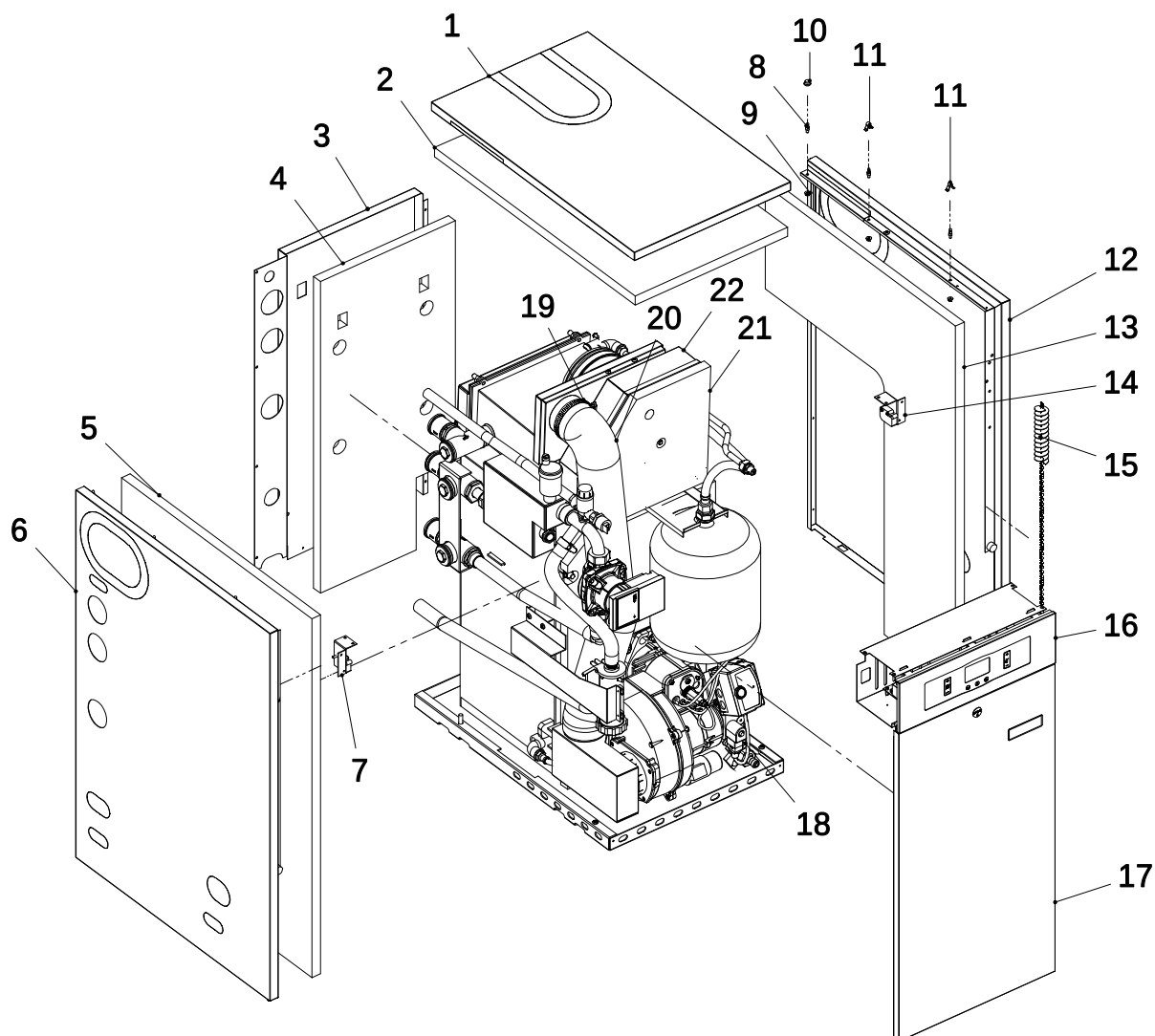
Colour code table for multi-colour indicator lights (LEDs)		
Status	Colour code	Colour
Wait time "tw", other stanby statues	○	Off
Fuel pre-heater on	●	Yellow
Ignition phase, controlled ignition	● ○ ● ○ ● ○ ● ○ ● ○	Flashing yellow
Functioning, flame Ok	□	Green
Functioning, flame not OK	□ ○ □ ○ □ ○ □ ○ □ ○	Flashing green
External light during burner ignition	□ ▲ □ ▲ □ ▲ □ ▲ □ ▲	Red/green
Undervoltage	● ▲ ● ▲ ● ▲ ● ▲ ● ▲	Yellow/red
Failure, alarm	▲	Red
Error code output (see "Error code table")	▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○	Flashing red
Interface diagnosis	▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	Flashing red light

..... Steady light
○ Off

▲ Red
● Yellow
□ Green

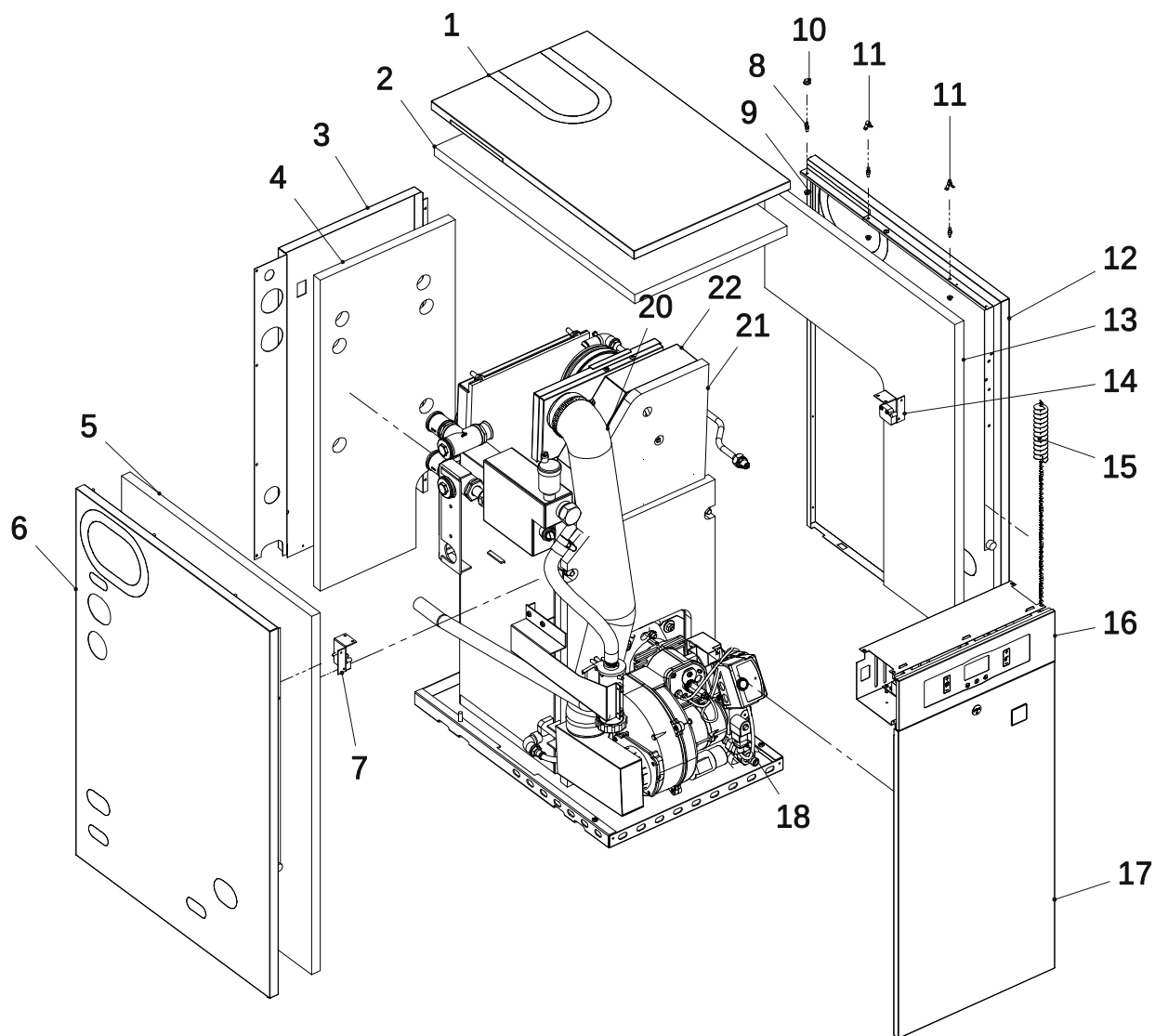
25.- SPARE PARTS LIST

Boiler - Tro Evolution Kitchen System



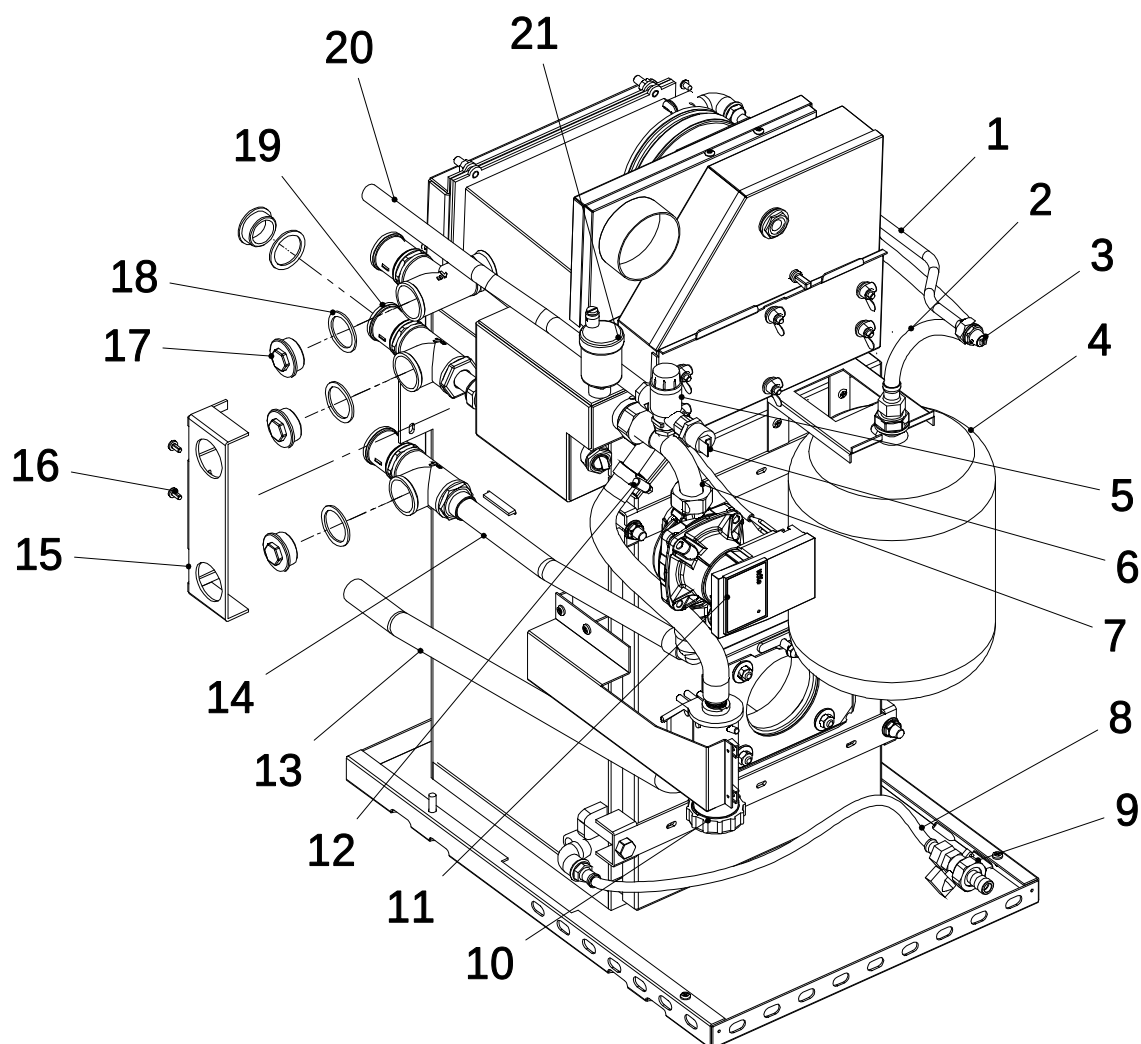
<u>Pos.</u>	<u>Code</u>	<u>Name</u>	<u>Pos.</u>	<u>Code</u>	<u>Name</u>
1	SEXT000238	Top panel	13	SAIS000215	Right panel insulation
2	SAIS000213	Top panel insulation	14	SEXT000304	Right locking
3	SEPO002850	Rear panel	15	CFER000058	Condensing pot cleaning brush
4	SAIS000212	Rear panel insulation	16	SELEMIN000	Electrical main board
5	SAIS000214	Left panel insulation	17	SEXT000314	Door
6	SEXT000240	Left panel	18	SQUETRI013	Burner 20
7	SEXT000343	Left locking		SQUETRI014	Burner 30
8	CTOE000355	Pivot	19	CFER000252	Clamp
9	CTOR000089	M4 nut	20	STUR000060	Air intake tube
10	CFER000002	Pivot cover	21	SAIS000218	Condensing pot insulation
11	CFER000261	Spring lock	22	SCON001702	Condensing pot
12	SEXT000241	Right panel			

Boiler - Tro Evolution Kitchen Heat Only



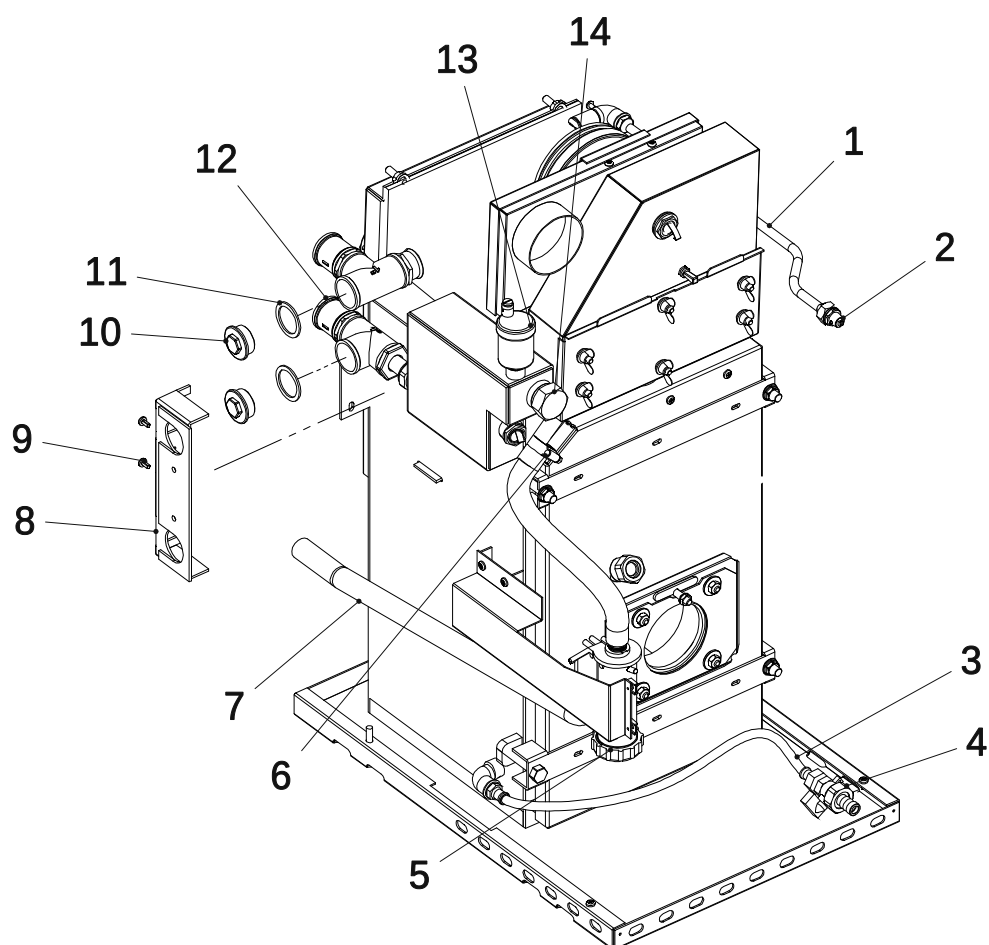
<u>Pos.</u>	<u>Code</u>	<u>Name</u>	<u>Pos.</u>	<u>Code</u>	<u>Name</u>
1	SEXT000238	Top panel	13	SAIS000215	Right panel insulation
2	SAIS000213	Top panel insulation	14	SEXT000304	Right locking
3	SEPO002982	Rear panel	15	CFER000058	Condensing pot cleaning brush
4	SAIS000212	Rear panel insulation	16	SELEMIN000	Electrical main board
5	SAIS000214	Left panel insulation	17	SEXT000314	Door
6	SEXT000408	Left panel	18	RQUETRI013	Burner 20
7	SEXT000343	Left locking		RQUETRI014	Burner 30
8	CTOE000355	Pivot	19	CFER000252	Clamp
9	CTOR000089	M4 nut	20	STUR000060	Air intake tube
10	CFER000002	Pivot cover	21	SAIS000218	Condensing pot insulation
11	CFER000261	Spring lock	22	SCON001702	Condensing pot
12	SEXT000241	Right panel			

Plumbing - Tro Evolution Kitchen System



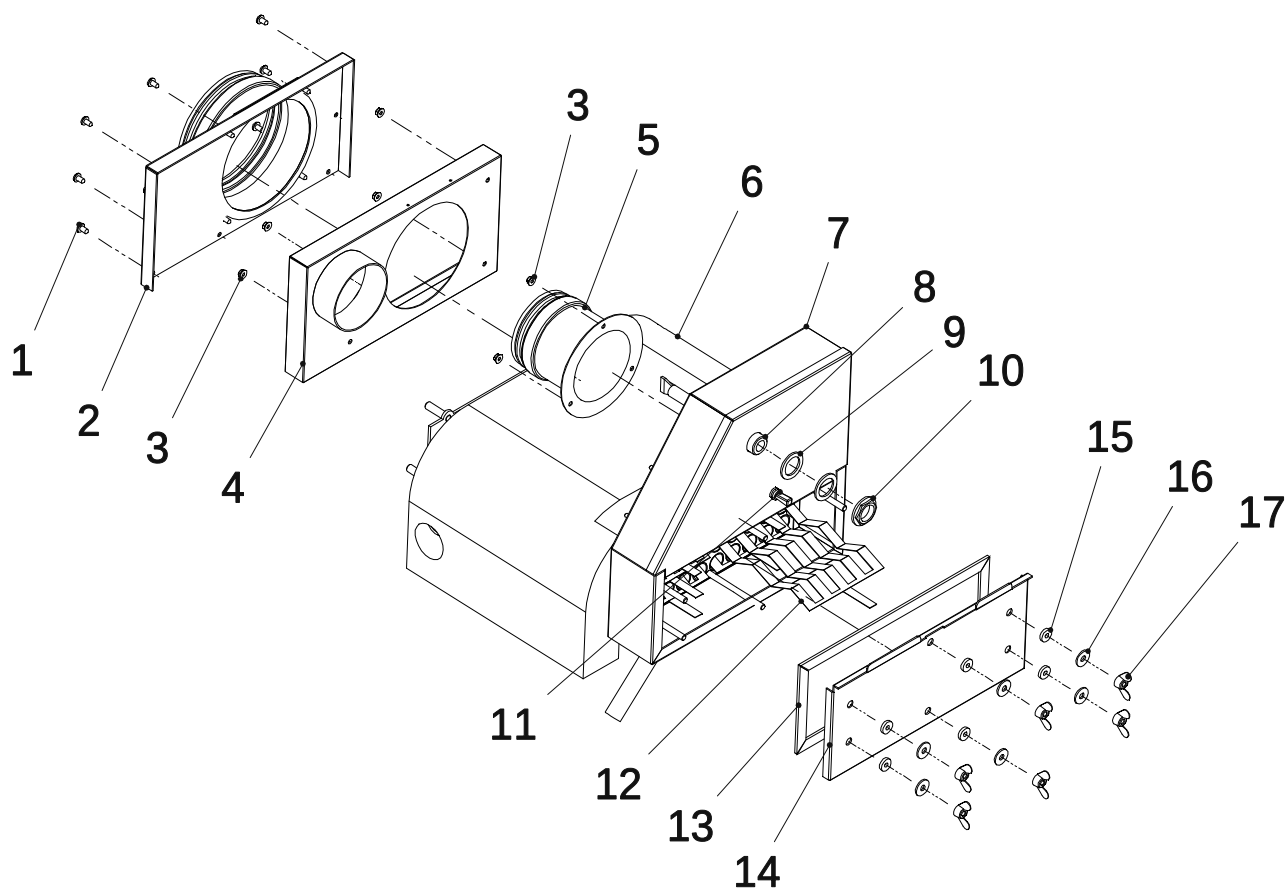
<u>Pos.</u>	<u>Code</u>	<u>Name</u>	<u>Pos.</u>	<u>Code</u>	<u>Name</u>
1	SCOB012843	Air vent pipe	12	CFER000313	Clamp
2	CFOV000185	Hose	13	CFER000311	Siphon hose
3	CFOV000034	Manual air vent	14	SCOB012838	Heating pipe
4	SCON001705	Expansion vessel 8L	15	SPIN000008	Bracket
5	CVAL000004	Safety valve	16	CTOR000198	M5 nut
6	CELC000252	Pressure sensor	17	CFOL000114	1" cap
7	SCOB012839	Pump pipe	18	CFOV000182	1" Joint
8	CFOV000008	Hose	19	SCOB012845	Heating pipe
9	CVAL000034	Drainage valve	20	STUR000102	Safety valve hose
10	CFOV000184	Siphon	21	SCON001275	Automatic air vent
11	CFOV000148	Heating circulating pump			

Plumbing - Tro Evolution Kitchen Heat Only



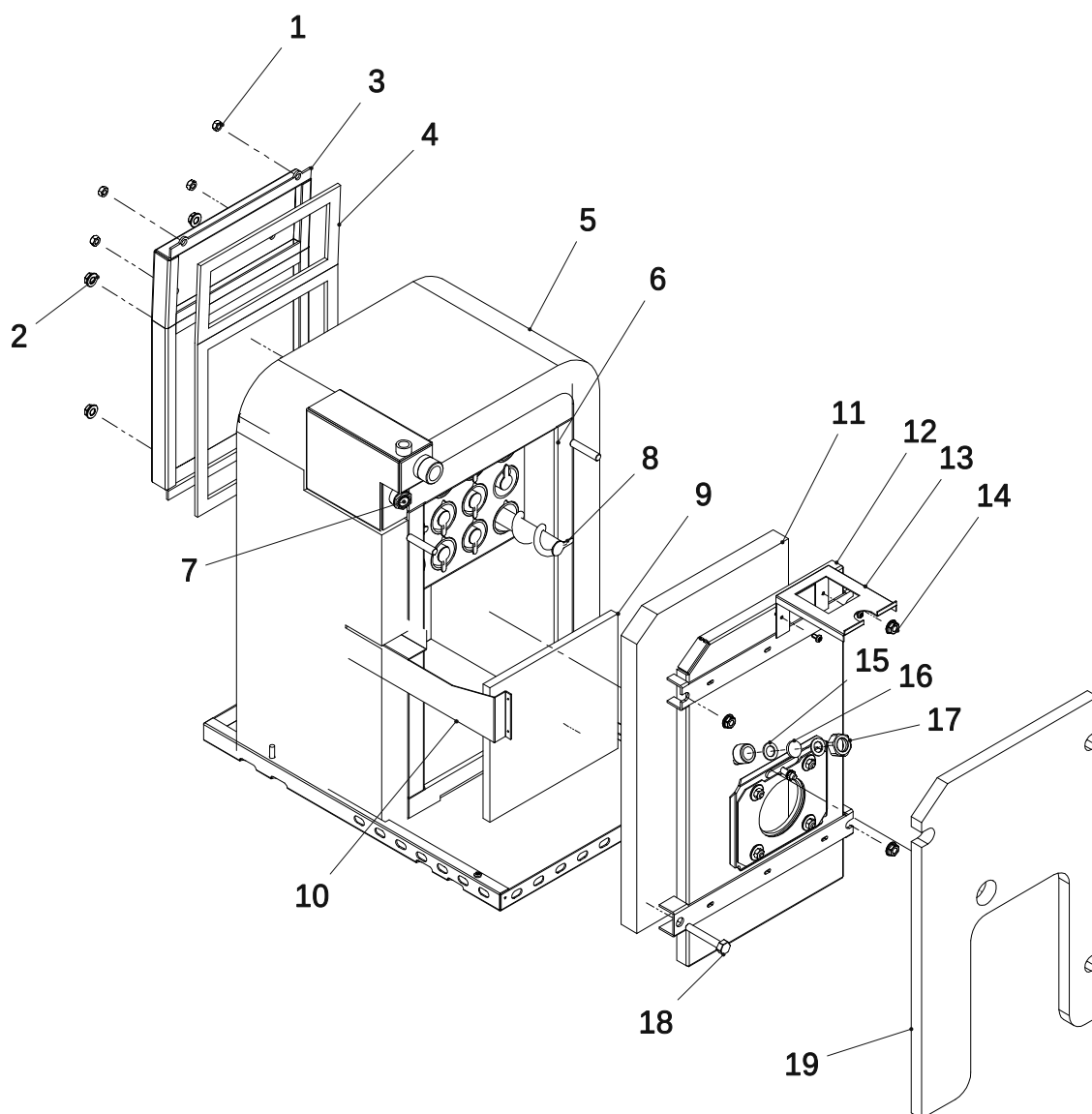
<u>Pos.</u>	<u>Code</u>	<u>Name</u>	<u>Pos.</u>	<u>Code</u>	<u>Name</u>
1	SCOB012843	Air vent pipe	8	SPIN000008	Bracket
2	CFOV000034	Manual air vent	9	CTOR000198	M5 nut
3	CFOV000008	Hose	10	CFOL000114	1" cap
4	CVAL000034	Drainage valve	11	CFOV000182	1" Joint
5	CFOV000184	Siphon	12	SCOB012845	Heating pipe
6	CFER000313	Clamp	13	SCON001275	Automatic air vent
7	CFER000311	Siphon hose	14	CFOL000041	1" cap

Condensing pot



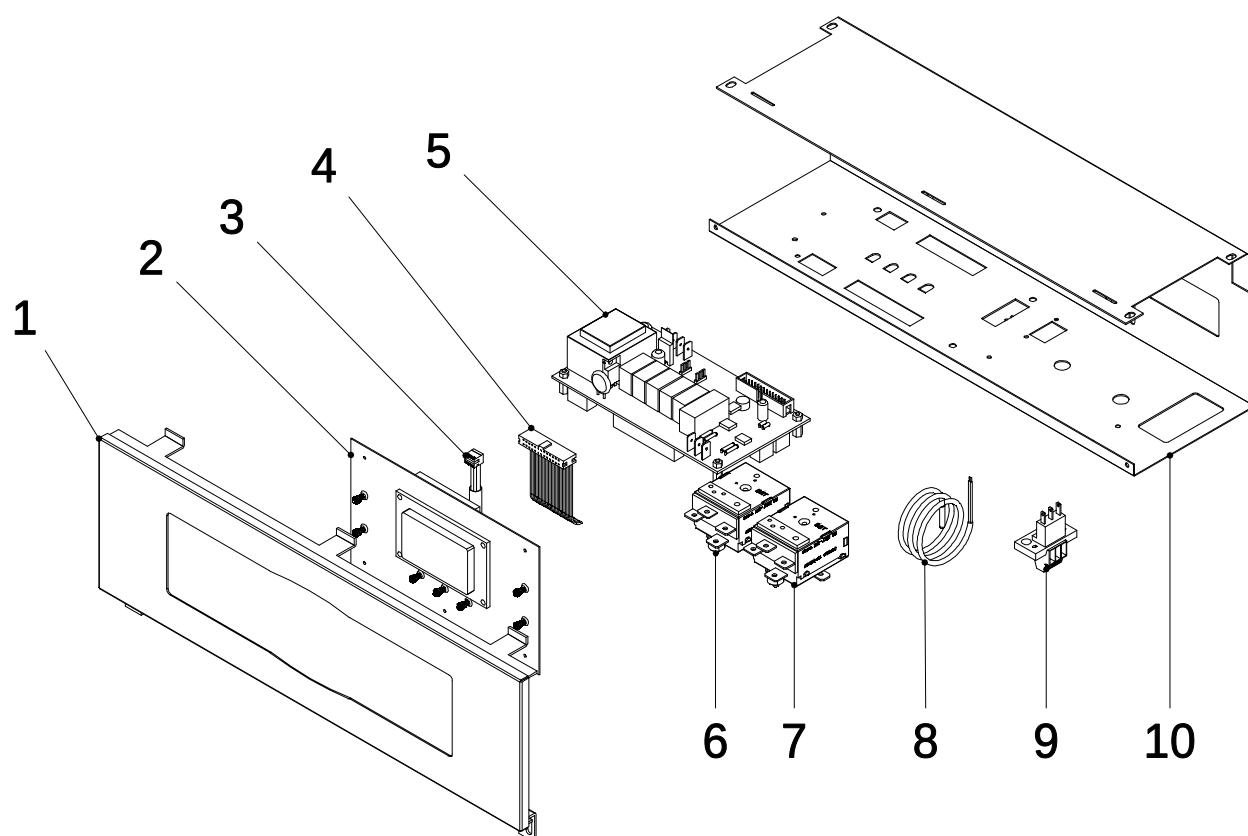
<u>Pos.</u>	<u>Code</u>	<u>Name</u>	<u>Pos.</u>	<u>Code</u>	<u>Name</u>
1	CTOR000073	Screw	10	CFOL000031	1/2" nut
2	SCON001704	Aix box cover	11	CFER000305	Ø10 cap
3	CTOR000089	M4 nut	12	SCHA012163	Baffle (1 unit)
4	SEPO002918	Air box		RCHAMIN000	Baffle (8 units)
5	CGAS000372	Gas exhaust Ø80	13	CAIS000019	Condensing pot cover gasket
6	SAIS000210	Condensing pot insulation	14	SCHA012139	Condensing pot cover
7	SCON001524	Condensing pot	15	CAIS000022	Silicon joint
8	SCON000065	Thermosthat sheath	16	CTOR00122	M6 washer
9	MAIS000063	Sheath joint	17	CTOR000227	M6 nut

Body



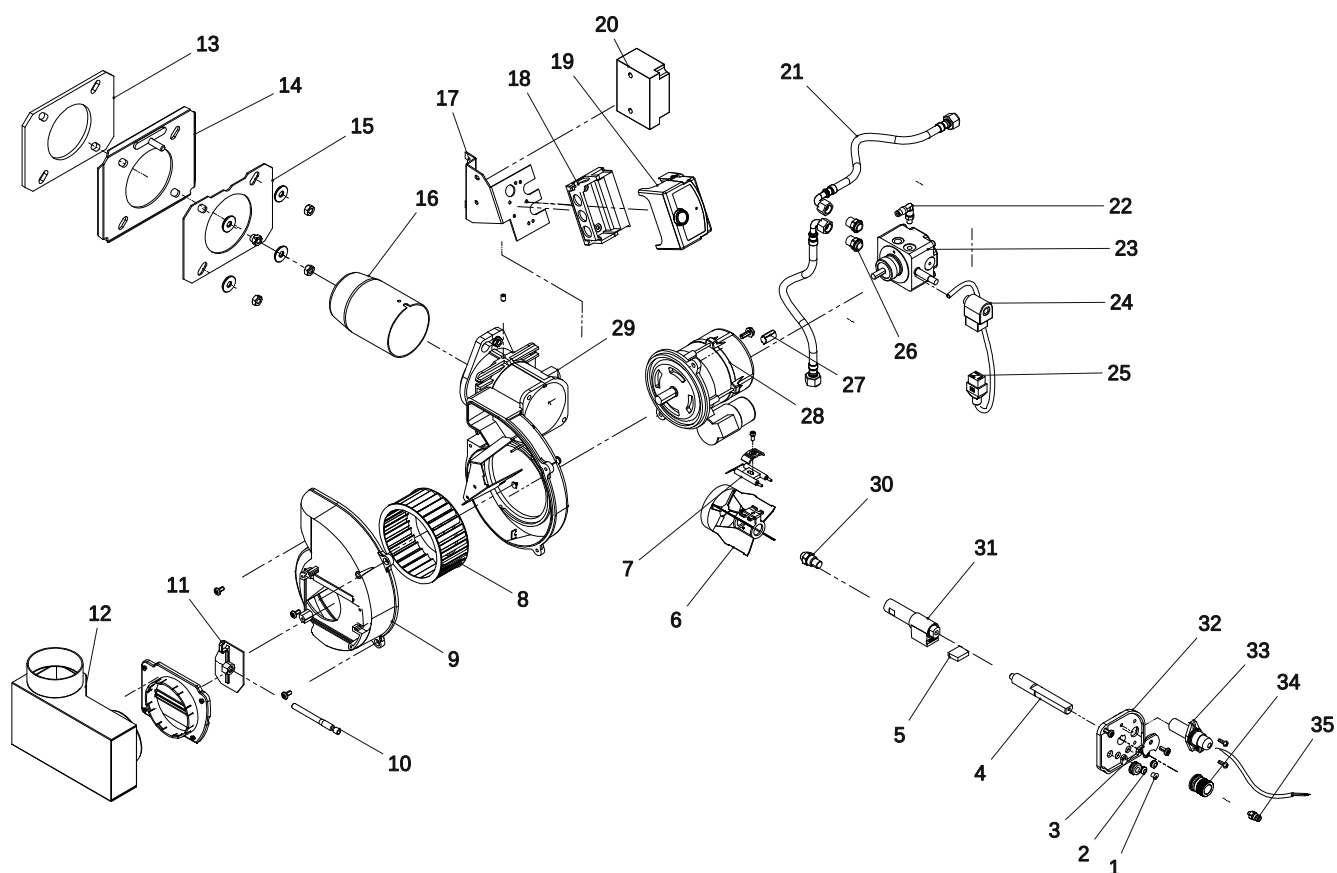
<u>Pos.</u>	<u>Code</u>	<u>Name</u>	<u>Pos.</u>	<u>Code</u>	<u>Name</u>
1	CTOR000092	M8 nut	11	CAIS000020	Door insulation
2	CTOR000039	M10 nut	12	SCON001776	Comb. Chamber door
3	SCON001777	Comb. gas manifold	13	SCHA011901	Expansion vessel support
4	SAIS000217	Manifold gasket	14	CTOR000039	M10 nut
5	SAIS000209	Body insulation	15	CFOV000158	3/4" Joint
6	RCHAMIN001	Boiler body	16	COTR000010	Viewport glass
7	SCOB012844	Sensor holder sheath	17	CFOL000002	3/4" nut
8	SCON000894	Baffle	18	CTOR000119	M10 screw
9	CAIS000024	Bottom insulation	19	SAIS000211	Front insulation
10	SCHA011924	Siphon support			

Electrical main board



<u>Pos.</u>	<u>Code</u>	<u>Name</u>
1	RTRI000000	Electrical board cover and glass
2	CELC000360	Electric display board
3	CELC000255	Pressure transducer connection cable
4	CELC000298	Communication cable
5	CELC000358	Electric main board
6	CELC000022	Safety thermostat 110°
7	CELC000022	Safety thermostat 110°
8	CELC000234	PTC Sensor
9	CELC000036	Weidmuller 3 pole connector
10	SCHA011946	Drawer

Burner



<u>Pos</u>	<u>Code</u>	<u>Name</u>
1	CFER000074	Cable gland
2	CFER000187	Cable gland
3	SCHA002156	Line fastener bracket
4	CTOE000063	Burner short line
5	CQUE000027	Preheater cable
6	CQUE000155	Turbulator disc
7	CQUE000019	Ignition electrodes
8	CQUE000044	Burner fan
9	SEPO001255	Air adjustment support
10	CTOE000064	Air adjustment screw
11	CQUE000151	Air inlet cover
12	SEPO002903	Air intake box
13	CQUE000033	Bracket-Boiler gasket
14	SOPE000085	Burner bracket
15	CQUE000158	Burner-Bracket gasket
16	SCON001667	Burner pipe (20)
17	CQUE000154	Burner pipe (30)
18	CQUE000165	Transformer-control box bracket
19	CQUE000129	Control box base
20	CQUE000169	Control box

<u>Pos.</u>	<u>Code</u>	<u>Name</u>
20	CQUE000159	Transformer
21	CQUE000213	Oil hose
22	CTOR000007	Elbow link
23	CQUE000088	Oil pump
24	CQUE000089	Electrovalve coil
25	CQUE000124	Electrovalve cable
26	CTOE000065	Counter thread interior stoop
27	CQUE000004	Coupling between motor and
28	CQUE000102	Motor
29	SEPO001254	Motor support
30	CQUE000212	Nozzle OD-H 0,55-80°
31	CQUE000081	Nozzle OD-H 0,75-60°
32	CQUE000061	Preheater
33	SEPO001256	Line cover
34	CQUE000050	Photocell
35	CTOE000054	Line regulation screw
36	CTOR000006	Right link

26.- FAILURES

This section provides a list of the most common burner and boiler failures.

Burner error code

We have already mentioned that the burner is equipped with a cut-out system, indicated by the reset button light. It may cut out accidentally, and in this case the steady red light on this button will come on. You may unblock it by pressing the button for approx. 1 second. When the burner is blocked and the steady red light is on, visual failure diagnosis may be activated, in accordance with the error code table. To enter visual failure diagnosis mode, hold down the reset button for at least three seconds.

Error code table		
Red flashing LED code	"AL" on term. 10	Possible cause
Flashes 2 times	On	No flame established when ignition safety time ends. - Fuel valves defective or dirty - Flame detector defective or dirty - Burner maladjustment, no fuel - Ignition unit defective
Flashes 4 times	On	External light during burner ignition
Flashes 7 times	On	Excessive flame loss during functioning (limited number of repetitions) - Fuel valves defective or dirty - Flame detector defective or dirty - Burner maladjustment
Flashes 8 times	On	Supervision of fuel pre-heater time
Flashes 10 times	On	Cabling fault or internal failure, output contacts, other failures

During the failure diagnosis time, the control outputs are disabled and the burner remains off. To exit failure diagnosis and activate the burner again, reset the burner control. Hold down the reset button for approx. 1 second (<3 s).

Boiler failures:

FAILURE	CAUSE	SOLUTION
RADIATOR DOES NOT HEAT UP	- The pump is not turning - Air in hydraulic circuit	Unblock the pump Drain the installation and the boiler (the automatic air drain valve cap must always be loose)
EXCESSIVE NOISE	- Burner badly adjusted - Flue not correctly sealed - Flame unstable - Flue not insulated	Adjust it correctly Eliminate any leaks Examine the burner Suitably insulate it

Circulating pump alarms

The high efficiency pumps include a Led (light) which displays their status.

PUMP LIGHT	DESCRIPTION	STATUS	CAUSE	SOLUTION
It is lit green	The pump is functioning	The pump operates according to its setting	Standard functioning	
It flashes green	Standby mode (PWM version)	The pump is in standby mode		
It flashes red/green	The is ready for service but is not functioning	The pump will start up again automatically once the error has been solved	1. Low voltage $U < 160 \text{ V}$ or Excess voltage $U > 253 \text{ V}$	1. Check the power supply $195 \text{ V} < U < 253 \text{ V}$
			2. Excess temperature of the module: the temperature of the motor is too high	2. Check the room temperature and that of the fluid
Flashes red	The pump is out of order	The pump is stopped (blocked)	The pump does not start up automatically.	Change the pump. Please contact your nearest official technical assistance service to have it replaced
Light off	There is no power supply	The electrical system is not receiving power supply	1. The pump is not connected to the power supply	1. Check the connection of the cable
			2. The LED is faulty	2. Check if the pump works
			3. The electrical system is faulty	3. Change the Pump. Change the pump. Please contact your nearest official technical assistance service to have it replaced

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