BAXI

Wall-mounted condensing boilers

PRIME HT

Installer's and User's Instructions

CE 0085

GB

CSQ
CERTIFICAZIONE DEI SISTEMI QUALITA' DELLE AZIENDE
UNI EN ISO 9001

BAXI S.p.A. is a leading European manufacturer of central heating and domestic hot water appliances (wall mounted gas boilers, floor standing boilers, electric water heaters) and has been certified by CSQ as conforming to UNI EN ISO 9001. This certification confirms that the Quality System of **BAXI S.p.A.** in Bassano del Grappa, where this boiler was manufactured, satisfies the strict UNI EN ISO 9001 standard covering all aspects of company organisation, manufacturing and distribution.

Dear Customer,

We are sure your new boiler will comply with all your requirements.

Purchasing one of the **BAXI** products satisfies your expectations: good functioning, simplicity and ease of use.

Do not dispose of this booklet without reading it: you can find here some very useful information, which will help you to run your boiler correctly and efficiently.

Do not leave any parts of the packaging (plastic bags, polystyrene, etc.) within children's reach as they are a potential source of danger.

BAXI boilers bear the CE mark in compliance with the basic requirements as laid down in the following Directives:
- Gas Directive 90/396/CEE
- Performance Directive 92/42/CEE
- Electromagnetic Compatibility Directive 89/336/CEE
- Low Voltage Directive 73/23/CEE

CE

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INSTRUCTIONS PERTAINING TO THE USER

INSTRUCTIONS PERTAINING TO THE INSTALLER

1. INSTRUCTIONS PRIOR TO INSTALLATION

This boiler is designed to heat water at a lower than boiling temperature at atmospheric pressure. The boiler must be connected to a central heating system and to a domestic hot water supply system in compliance with its performances and output power.
Have the boiler installed by a Qualified Service Engineer and ensure the following operations are accomplished:

This boiler is designed to heat water at a lower than boiling temperature at atmospheric pressure. The boiler must be connected to a central heating system and to a domestic hot water supply system in compliance with its performances and output power.
Have the boiler installed by a Qualified Service Engineer and ensure the following operations are accomplished:

a) careful checking that the boiler is fit for operation with the type of gas available. For more details see the notice on the packaging and the label on the appliance itself.

b) careful checking that the flue terminal draft is appropriate; that the terminal is not obstructed and that no other appliance exhaust gases are expelled through the same flue duct, unless the flue is especially designed to collect the exhaust gas coming from more than one appliance, in conformity with the laws and regulations in force.

c) careful checking that, in case the flue has been connected to pre-existing flue ducts, thorough cleaning has been carried out in that residual combustion products may come off during operation of the boiler and obstruct the flue duct.

d) to ensure correct operation of the appliance and avoid invalidating the guarantee, observe the following precautions:

1. Hot water circuit:

1.1. If the water hardness is greater than 20 °F (1 °F = 10 mg calcium carbonate per litre of water) a polyphosphate or comparable treatment system responding to current regulations.

1.2. Domestic Hot Water circuit must be thoroughly flushed after the installation of the appliance and before its use.

2. Heating circuit

2.1. new system

Before proceeding with installation of the boiler, the system must be cleaned and flushed out thoroughly to eliminate residual thread-cutting swarf, solder and solvents if any, using suitable proprietary products.
To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non alkaline. The recommended products for cleaning are:
SENTINEL X300 or X400 and FERNOX heating circuit restore. To use this product proceeding strictly in accordance with the maker's directions.

2.2. existing system

Before proceeding with installation of the boiler, the system must be cleaned and flushed out to remove sludge and contaminants, using suitable proprietary products as described in section 2.1.
To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non-alkaline such as SENTINEL X100 and FERNOX heating circuit protective. To use this product proceeding strictly in accordance with the maker's directions.
Remember that the presence of foreign matter in the heating system can adversely affect the operation of the boiler (e.g. overheating and noisy operation of the heat exchanger).

Failure to observe the above will render the guarantee null and void.

2. INSTRUCTIONS PRIOR TO COMMISSIONING

Initial lighting of the boiler must be carried out by a licensed technician. Ensure the following operations are carried out:
a) compliance of boiler parameters with (electricity, water, gas) supply systems settings.
b) compliance of installation with the laws and regulations in force.
c) appropriate connection to the power supply and grounding of the appliance.
The names of authorized Service Centres are listed on the accompanying sheet.
Failure to observe the above will render the guarantee null and void.
Prior to commissioning remove the protective plastic coating from the unit. Do not use any tools or abrasive detergents as you may spoil the painted surfaces.

3. COMMISSIONING OF THE BOILER

To correctly light the burner proceed as follows:
1) provide power supply to the boiler;
2) open the gas cock;
3) follow the directions given below regarding the adjustments to be made at the boiler control panel.

Legend:

1 Summer-Winter-Reset selector
2 Central heating function indicator
3 Domestic hot water (DHW) function indicator
4 Flame indicator
5 Display
6 Central heating temperature control knob
7 Domestic hot water temperature control knob
8 Pressure gauge

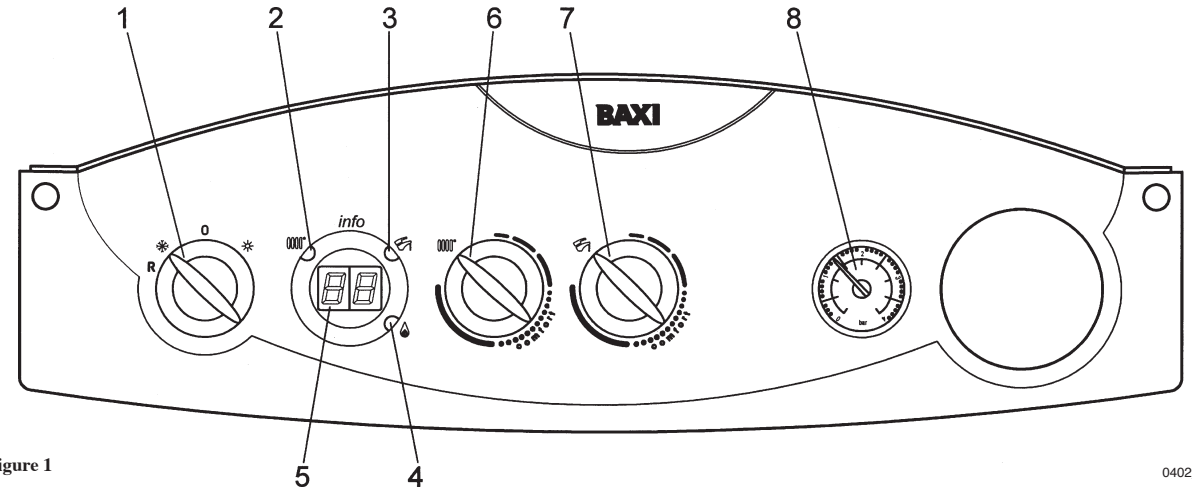


Figure 1

0402_2501

The central heating system is disabled when the selector (1) is turned to Summer position (☼). All boiler safety systems (the anti-freeze system and the pump and three way valve anti-blockage systems) and the domestic hot water system remain active.

Important: When you first switch the boiler on, the burner may fail to light and the boiler may block until all the air is expelled from the gas supply pipe.
If this happens, simply turn the selector (1) to (R) for at least 1 second, then repeat the burner lighting process until pure gas reaches the burner and it lights.

3.1 ADJUSTING ROOM TEMPERATURE

The central heating system must be equipped with a thermostat to control room temperature.
If no room temperature thermostat is installed when the boiler is first started up, room temperature can be controlled using the control knob (6).
Simply turn the control knob clockwise to increase room temperature or anti-clockwise to decrease it. The electronic flame modulation system adapts the gas flow to the burner to suit varying heat exchange requirements as the boiler achieves the set temperature.

3.2 ADJUSTING DOMESTIC HOT WATER TEMPERATURE

The boiler electronically modulates the burner flame according to the setting of the hot water temperature control knob (7) and the water flow.
The system therefore guarantees that water temperature from the boiler remains constant even when only a small flow is being drawn off.
To save energy, keep the domestic hot water temperature control knob turned to "**--comfort--**" (figure 2).
In the winter it will probably be necessary to increase the temperature of the hot water to suit conditions.

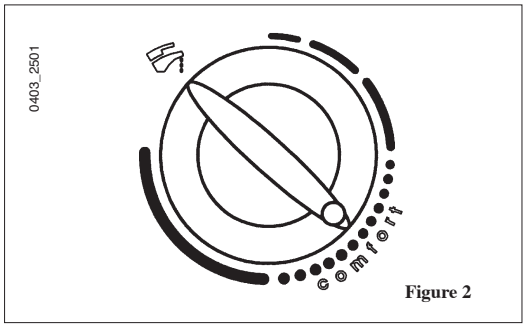


Figure 2

3.3 ERROR MESSAGES AND RESETTING THE BOILER

If a fault occurs, the display reads out an error message identifying it.

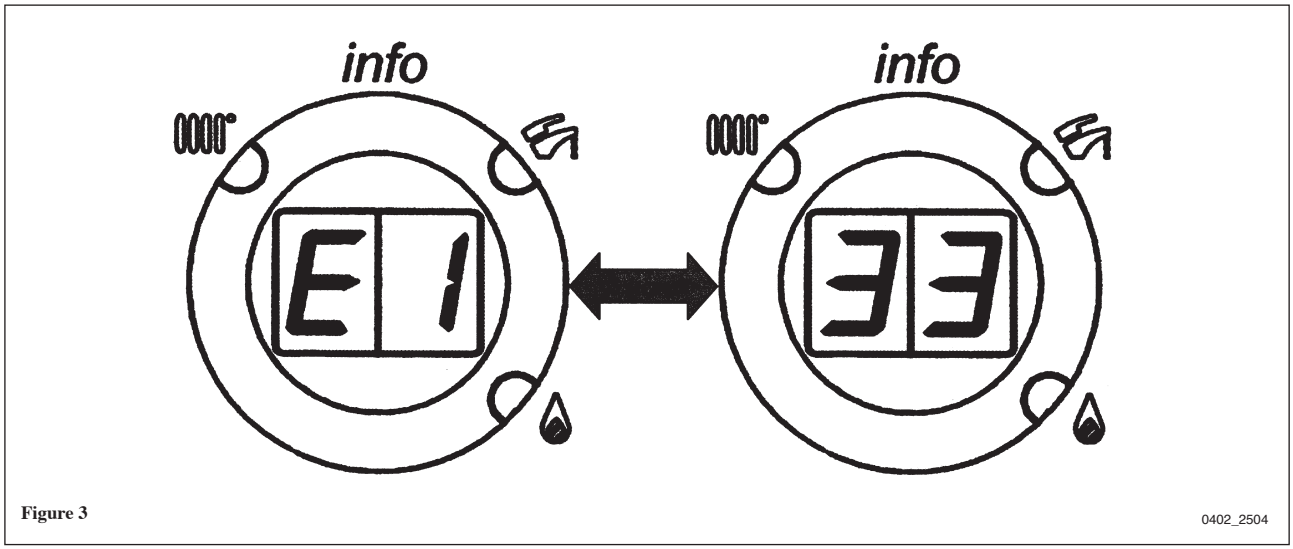


Figure 3

Note: *If the error message contains more than 2 digits (e.g. E133), the display reads out the first two digits "E1" followed, by the last two digits "33", as shown in figure 3.*

3.3.1 TABLE OF FAULTS AND ERROR MESSAGES

Error code	Description of fault	Corrective action
E10	Outdoor temperature sensor fault	Call an authorised service centre.
E20	Central heating NTC sensor fault	Call an authorised service centre.
E28	Flue NTC sensor fault	Call an authorised service centre.
E50	Domestic hot water NTC sensor fault	Call an authorised service centre.
E110	Safety thermostat or fume sensor tripped	Turn selector (1) (figure 1) to “R” for at least 1 second. If this fault persists, call an authorised service centre.
E119	No signal from water pressure switch	Check that the pressure in the system is as specified. See the section on filling the system. If this fault persists, call an authorised service centre.
E125	Boiler max temperature exceeded (probable pump jammed)	Call an authorised service centre.
E130	NTC flue sensor has cut out for overheat	Turn selector (1) (figure 1) to “R” for at least 1 second. If this fault persists, call an authorised service centre.
E131	It was cut off power supply without resetting the gas boiler after the error code E125 or E130.	Turn selector (1) (figure 1) to “R” for at least persists, call an authorised service centre.
E133	Gas supply fault	Turn selector (1) (figure 1) to “R” for at least 1 second. If this fault persists, call an authorised service centre.
E151	Boiler control card fault	Call an authorised service centre.Check the position of the ignition electrodes (section 19).
E160	Fan has not reached threshold speed	Call an authorised service centre.

All the faults are displayed in order of importance; if several faults occur simultaneously, the first to be displayed is the one with highest priority. After the cause of the first fault has been removed, the second one will be displayed, and so on.
If any given fault occurs frequently, contact the authorised Service Centre.

4. FILLING THE SYSTEM

Important: Regularly check that the pressure gauge (8 - figure 1) reads out a pressure of 1 - 1.5 bar when the central heating system is cold. Open the boiler drain cock to reduce pressure if it is too high. Open the boiler filling cock (figure 4a or 4b) to increase pressure if it too low.

Always open the filling cock very slowly to allow any air to bleed off.
If the pressure in the system drops frequently, contact an authorised service centre to have the system checked.

PRIME HT 240 - HT 280 - HT 330

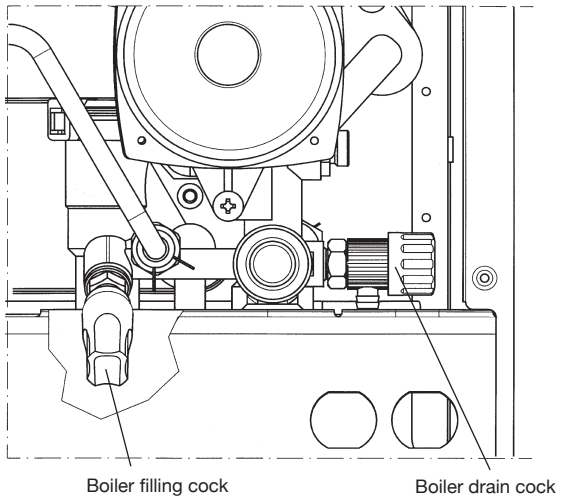


Figure 4a

PRIME HT 1.120 - HT 1.240 - HT 1.280

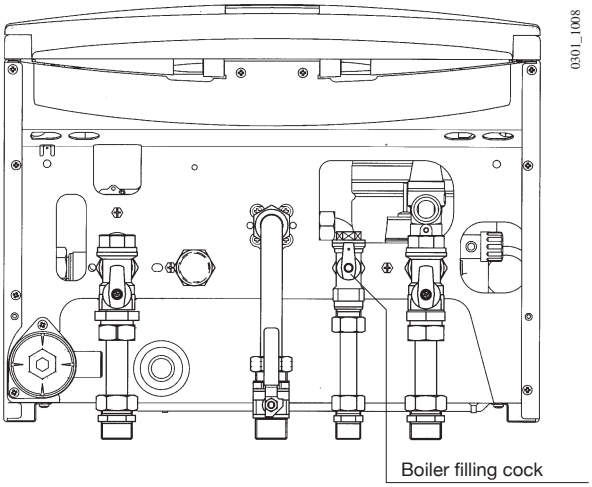


Figure 4b

The boiler is equipped with a water pressure switch that prevents the boiler from starting up if there is no water in the system.

5. SWITCHING THE BOILER OFF

To switch the boiler off, simply turn the selector “1” to the “0” position. This switches off the electricity supply to the appliance.

6. PROLONGED STANDSTILL OF THE SYSTEM. FROST PROTECTION

We recommend you avoid draining the whole system as water replacements engender purposeless and harmful limestone deposits inside the boiler and on the heating elements.
In case the boiler is not operated during wintertime and is therefore exposed to danger of frost we suggest you add some specific-purpose anti-freeze to the water contained in the system (e.g.: propylene glycole coupled with corrosion and scaling inhibitors).
The electronic management of boilers includes a “frost protection” function in the central heating system which operates the burner to reach a heating flow temperature of 30° C when the system heating flow temperature drops below 5°C.

The frost protection function is enabled if:
* electrical supply to the boiler is on;
* the gas service cock is open;
* the system pressure is as required;
* the boiler is not blocked.

7. GAS CHANGE

These boilers produced for natural gas can be converted to work with LPG.
Any gas change must be effected by a Qualified Service Engineer.

8. SERVICING INSTRUCTIONS

To maintain efficient and safe operation of your boiler have it checked by a Qualified Service Engineer at the end of every operating period.
Careful servicing will ensure economical operation of the system.
Do not clean the outer casing of the appliance with abrasive, aggressive and/or easily flammable cleaners (i.e.: gasoline, alcohol, and so on). Always isolate the electrical supply to the appliance before cleaning it (see section 5 Turning off the boiler).

9. GENERAL INFORMATION

The following remarks and instructions are addressed to Service Engineers to help them carry out a faultless installation. Instructions regarding lighting and operation of the boiler are contained in the 'Instructions pertaining to the user' section. Note that installation, maintenance and operation of the domestic gas appliances must be performed exclusively by qualified personnel in compliance with current standards.
Please note the following:

* This boiler can be connected to any type of double- or single feeding pipe convector plates, radiators, thermoconvectors. Design the system sections as usual though taking into account the available output / pump head performances, as shown in chapter 22.
* Do not leave any packaging components (plastic bags, polystyrene, etc.) within children's reach as they are a potential source of danger.
* Initial lighting of the boiler must be effected by a Qualified Service Engineer.

Note: Failure to observe the above will render the guarantee null and void.

10. INSTRUCTIONS PRIOR TO INSTALLATION

This boiler is designed to heat water at a lower than boiling temperature at atmospheric pressure. The boiler must be connected to a central heating system and to a domestic hot water supply system in compliance with its performances and output power.
Have the boiler installed by a Qualified Service Engineer and ensure the following operations are accomplished:

a) careful checking that the boiler is fit for operation with the type of gas available. For more details see the notice on the packaging and the label on the appliance itself.

b) careful checking that the flue terminal draft is appropriate; that the terminal is not obstructed and that no other appliance exhaust gases are expelled through the same flue duct, unless the flue is especially designed to collect the exhaust gas coming from more than one appliance, in conformity with the laws and regulations in force.

c) careful checking that, in case the flue has been connected to pre-existing flue ducts, thorough cleaning has been carried out in that residual combustion products may come off during operation of the boiler and obstruct the flue duct.

To ensure correct operation of the appliance and avoid invalidating the guarantee, observe the following precautions:

1. **Hot water circuit:**

1.1. If the water hardness is greater than 20 °F (1 °F = 10 mg calcium carbonate per litre of water) a polyphosphate or comparable treatment system responding to current regulations.

1.2. Domestic Hot Water circuit must be thoroughly flushed after the installation of the appliance and before its use.

2. **Heating circuit**

2.1. new system
Before proceeding with installation of the boiler, the system must be cleaned and flushed out thoroughly to eliminate residual thread-cutting swarf, solder and solvents if any, using suitable proprietary products.
To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non alkaline. The recommended products for cleaning are:
SENTINEL X300 or X400 and FERNOX heating circuit restore. To use this product proceeding strictly in accordance with the maker's directions.

2.2. existing system
Before proceeding with installation of the boiler, the system must be cleaned and flushed out to remove sludge and contaminants, using suitable proprietary products as described in section 2.1.
To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non-alkaline such as SENTINEL X100 and FERNOX heating circuit protective. To use this product proceeding strictly in accordance with the maker's directions.
Remember that the presence of foreign matter in the heating system can adversely affect the operation of the boiler (e.g. overheating and noisy operation of the heat exchanger).

Failure to observe the above will render the guarantee null and void.

11. BOILER INSTALLATION

Decide upon the boiler location, then tape the template on the wall.
Connect the pipework to the gas and water inlets prearranged on the template lower bar.
If you are either installing the boiler on a pre-existent system or substituting it, we suggest you also fit settling tanks on the system return pipework and under the boiler to collect the deposits and scaling which may remain and be circulated in the system after the purge.
When the boiler is fixed on the template connect the flue and air ducts (fittings supplied by the manufacturer) according to the instructions given in the following sections.
Connect the condensate outlet to the siphon supplied with the boiler. Connect the siphon to a drain, making sure there is a continuous slope. Horizontal sections must be avoided.

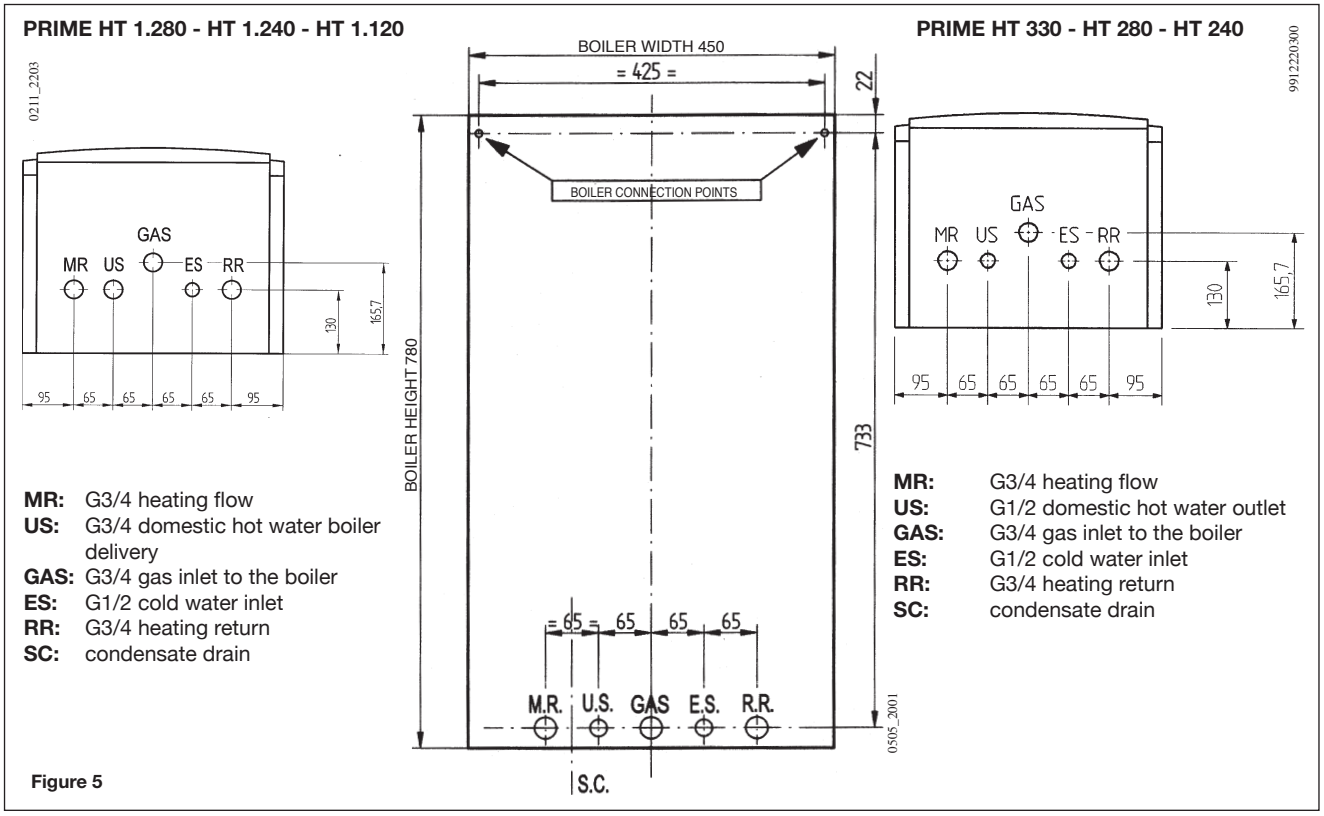


Figure 5

12. BOILER SIZE

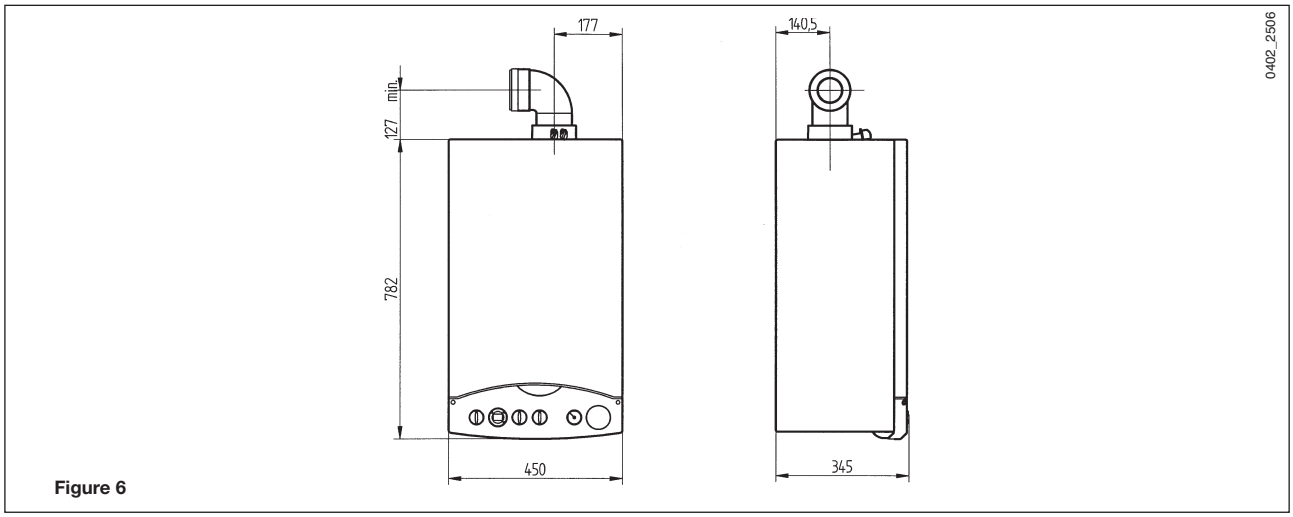


Figure 6

13. FITTINGS PRESENT IN THE PACKAGING

- template
- gas cock (16)
- inlet water tap with filter (17)
- heating system delivery cock (19)
- heating system return cock (18)
- seals
- telescopic joints
- 8 mm wall plugs and hooks

PRIME HT 240 - HT 280 - HT 330

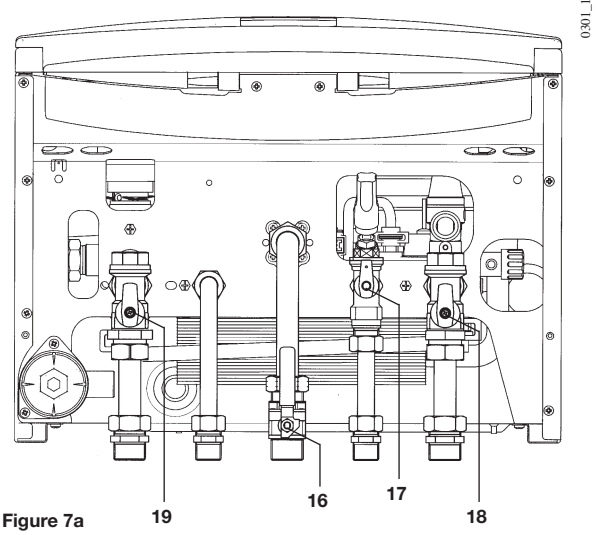


Figure 7a

PRIME HT 1.120 - HT 1.240 - HT 1.280

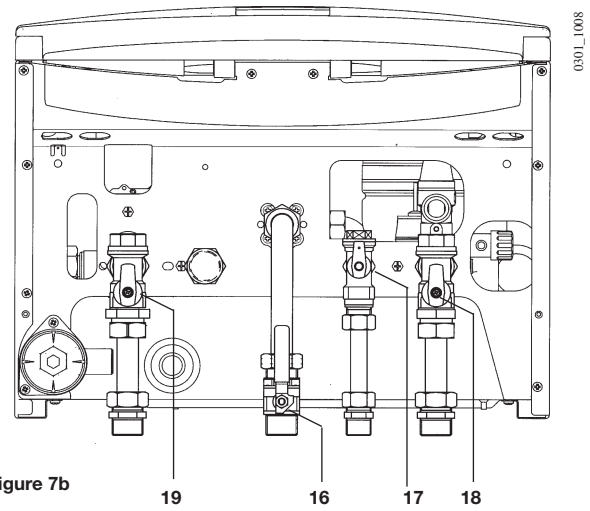


Figure 7b

14. INSTALLATION OF FLUE AND AIR DUCTS

We guarantee ease and flexibility of installation for a gas-fired forced draft boiler thanks to the fittings and fixtures supplied (described below).
The boiler is especially designed for connection to an exhaust flue / air ducting, with either coaxial, vertical or horizontal terminal. By means of a splitting kit a two-pipe system may also be installed.
In case exhaust and intake flues not supplied by BAXI S.p.A. have been installed, these must be certified for the type of use and must have a maximum pressure drop of 100 Pa.

Warnings for the following types of installation:

C_{13}, C_{33} The terminals for the split flue must be provided for within a square with 50 cm sides. Detailed instructions are given together with each accessory.

C_{53} The terminals for combustion air intake and for the expulsion of combustion products must not be provided for on opposite walls of the building.

C_{63} The maximum pressure drop of the ducts must not exceed 100 Pa. The ducts must be certified for the specific use and for a temperature of over 100°C. The chimney flue must be certified in accordance with the prEN 1856-1 Regulation.

C_{43}, C_{83} The chimney or flue used must be suitable for the use.

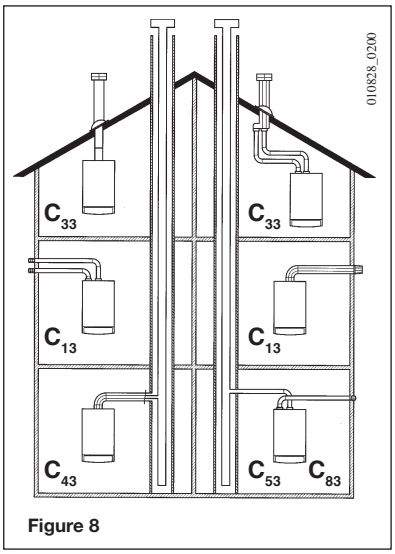


Figure 8

Flue duct terminal	Max. length of flue duct	Each 90° bend reduces the duct max. length by	Each 45° bend reduces the duct max. length by	Flue terminal diameter	Outer terminal diameter
Coaxial Ø 60/100 mm	10 m	1 m	0,5 m	100 mm	100 mm
Vertical two-pipe	15 m	0,5 m	0,25 m	133 mm	80 mm
Horizontal two-pipe	80 m	0,5 m	0,25 m	-	80 mm

… COAXIAL FLUE - AIR DUCT (CONCENTRIC)

This type of duct allows to disengage exhaust gases and to draw combustion air both outside the building and in case a LAS flue is fitted.
The 90° coaxial bend allows to connect the boiler to a flue-air duct in any direction as it can rotate by 360°. It can moreover be used as a supplementary bend and be coupled with a coaxial duct or a 45° bend.

If the flue outlet is placed outside, the flue-air ducting must protrude at least 18mm out of the wall to allow alluminium weathering tile to be fitted and sealed to avoid water leakages.
Ensure a minimum downward slope of 1 cm towards the boiler per each metre of duct length.

A 90° bend reduces the total duct length by 1 metre.
A 45° bend reduces the total duct length by 0.5 metre.

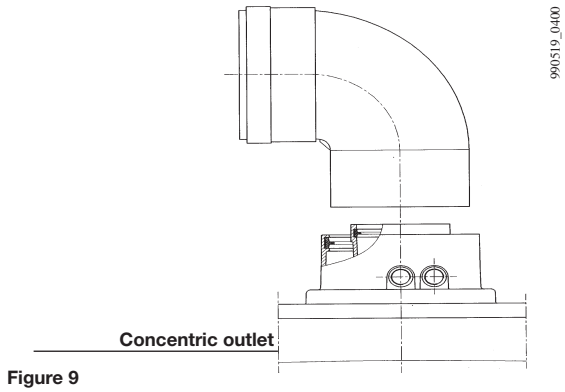
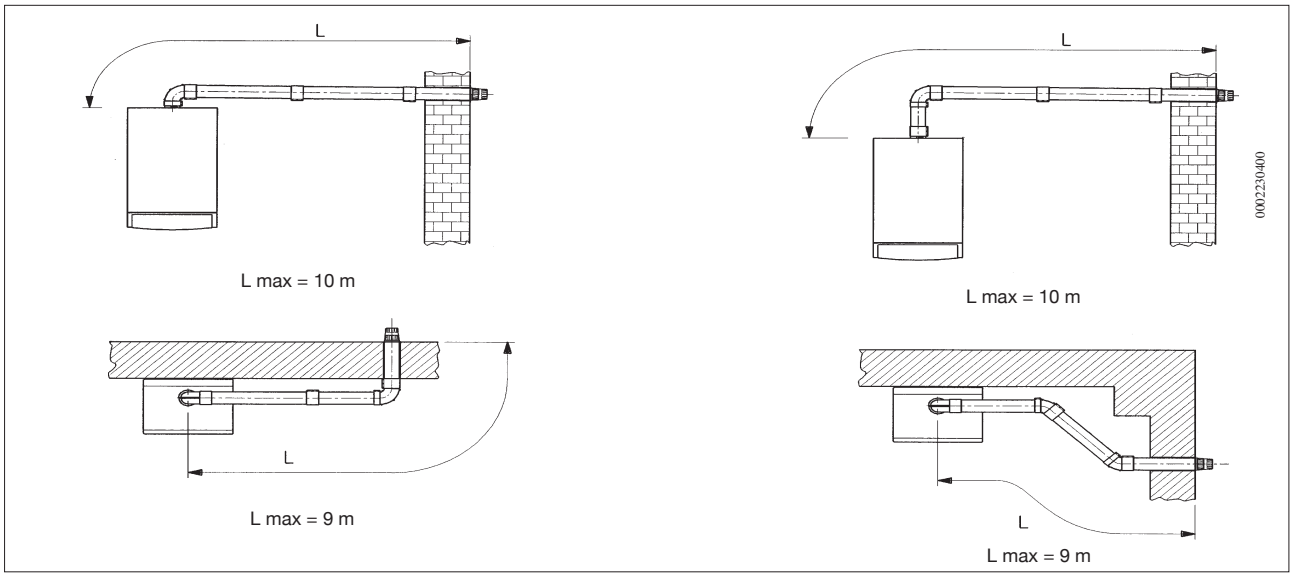
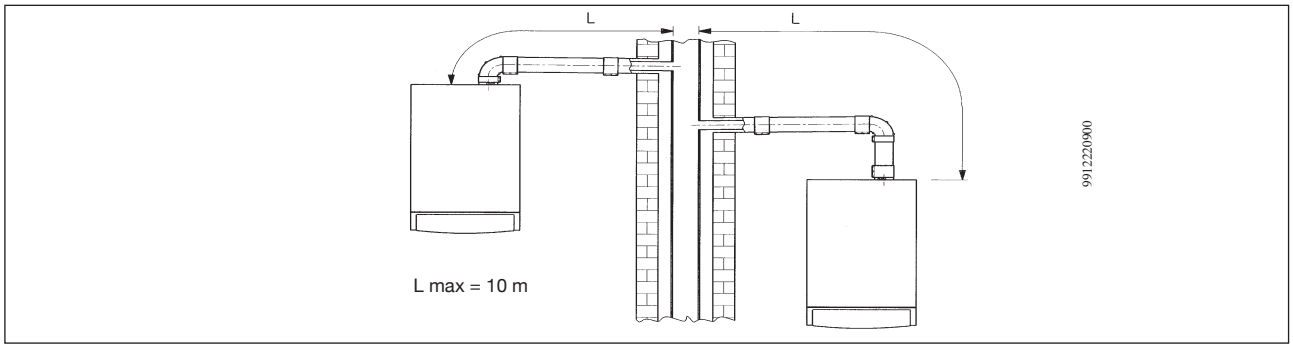


Figure 9

HORIZONTAL FLUE TERMINAL Ø 60/100 MM INSTALLATION OPTIONS

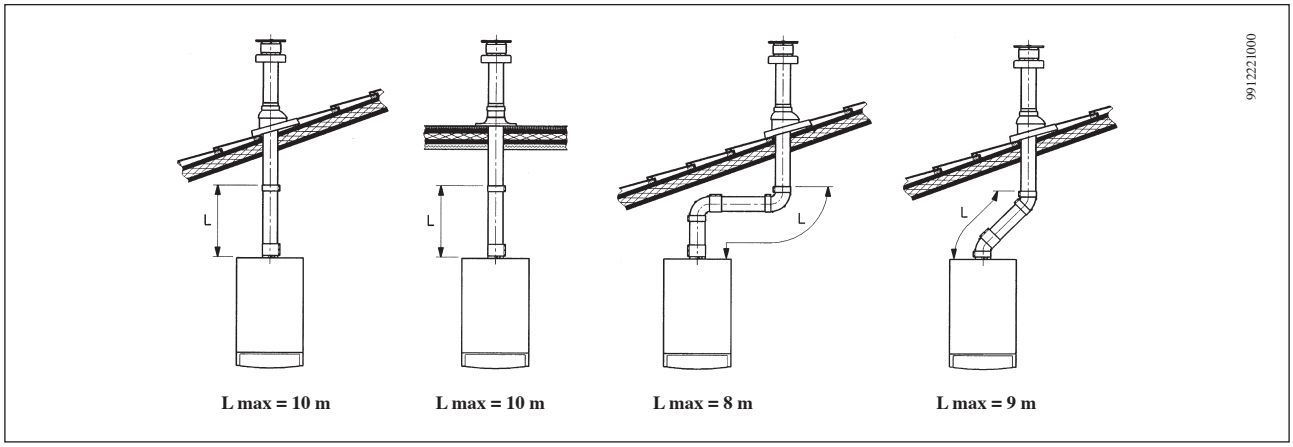


LAS FLUE DUCT Ø 60/100 MM INSTALLATION OPTIONS



VERTICAL FLUE TERMINAL Ø 60/100 MM INSTALLATION OPTIONS

This type of installation can be carried out both on a flat or pitched roof by fitting a terminal, an appropriate weathering tile and sleeve, (supplementary fittings supplied on demand).



... SEPARATED FLUE-AIR DUCTING

This type of ducting allows to disengage exhaust flue gases both outside the building and into single flue ducts.
Comburant air may be drawn in at a different site from where the flue terminal is located.
The splitting kit consists of a flue duct adaptor (100/80) and of an air duct adaptor.
For the air duct adaptor fit the screws and seals previously removed from the cap.

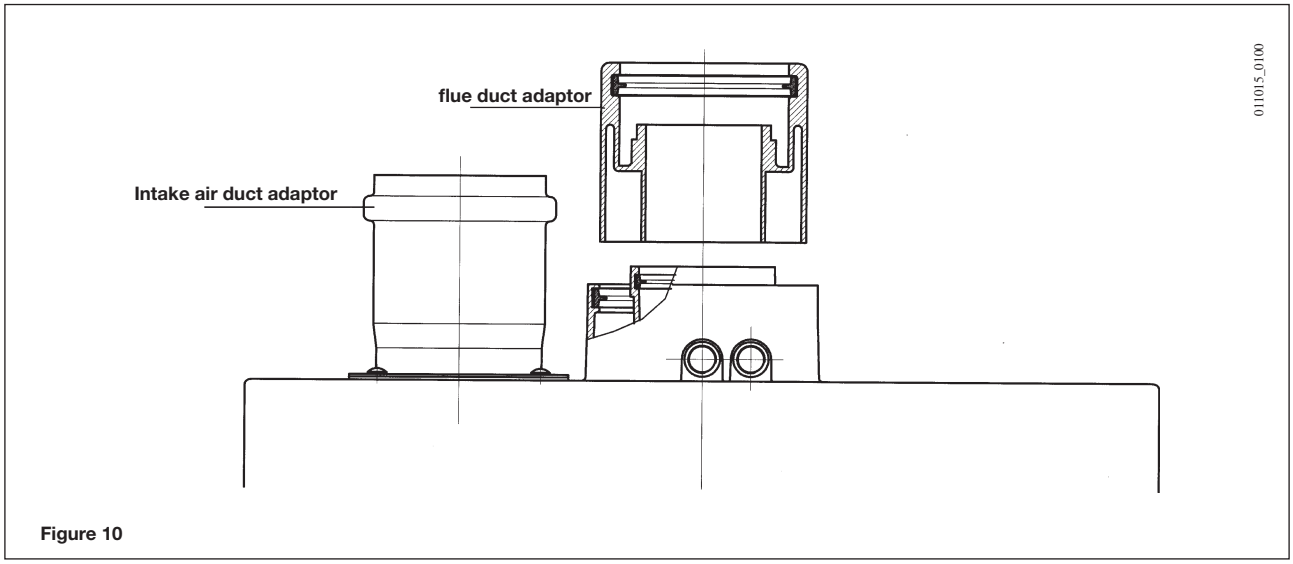


Figure 10

The 90° bend allows to connect the boiler to flue-air ducting regardless of direction as it can be rotated by 360°. It can moreover be used as a supplementary bend to be coupled with the duct or with a 45° bend.

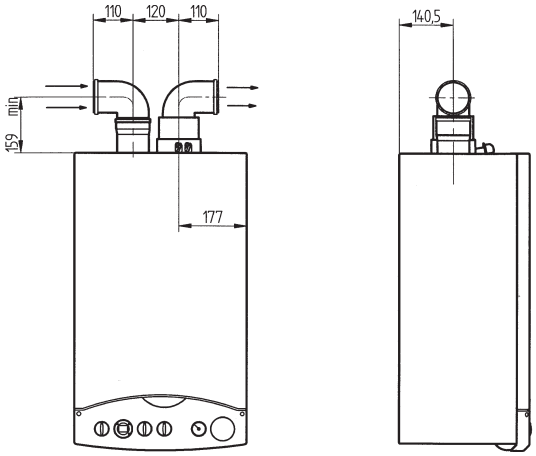
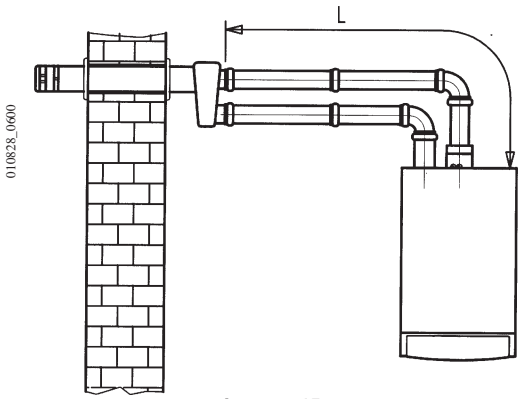


Figure 11

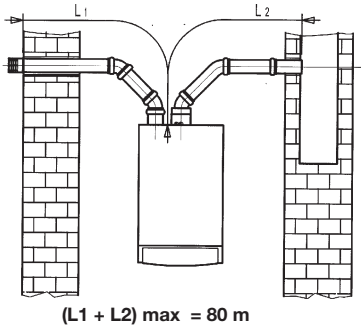
A 90° bend reduces the total duct length by 0.5 metre.
A 45° bend reduces the total duct length by 0.25 metre.

SEPARATED HORIZONTAL FLUE TERMINALS INSTALLATION OPTIONS

IMPORTANT: Ensure a minimum downward slope of **1 cm** toward the boiler per **each metre** of duct length.
Make sure that the exhaust and intake ducts are securely fixed to the walls.



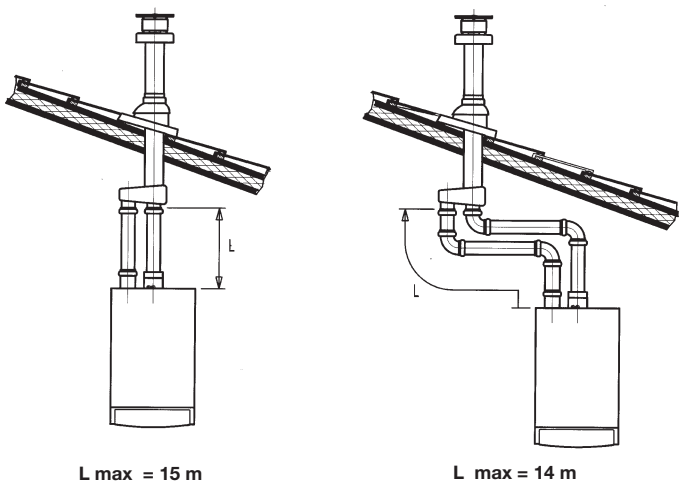
L max = 15 m



(L1 + L2) max = 80 m

The maximum length of the suction duct must be 15 metres.

SEPARATED VERTICAL FLUE TERMINALS INSTALLATION OPTIONS



Important: if fitting a single exhaust flue duct, ensure it is adequately insulated (e.g.: with glass wool) wherever the duct passes through building walls.
For detailed instructions concerning the installation of fittings refer to the technical data accompanying the fittings.

15. CONNECTING THE MAINS SUPPLY

Electrical safety of the appliance is only guaranteed by correct grounding, in compliance with the applicable laws and regulations.
Connect the boiler to a 230V monophase + ground power supply by means of the three-pin cable supplied with it and make sure you connect polarities correctly.
Use a double-pole switch with a contact separation of at least 3mm in both poles.

In case you replace the power supply cable fit a HAR H05 VV-F' 3x0.75mm^2 cable with an 8mm diameter max.
The fuse, a fast-acting type rated 2A, are incorporated into the power supply terminals (remove the black fuse holder to enable inspection and/or replacement).

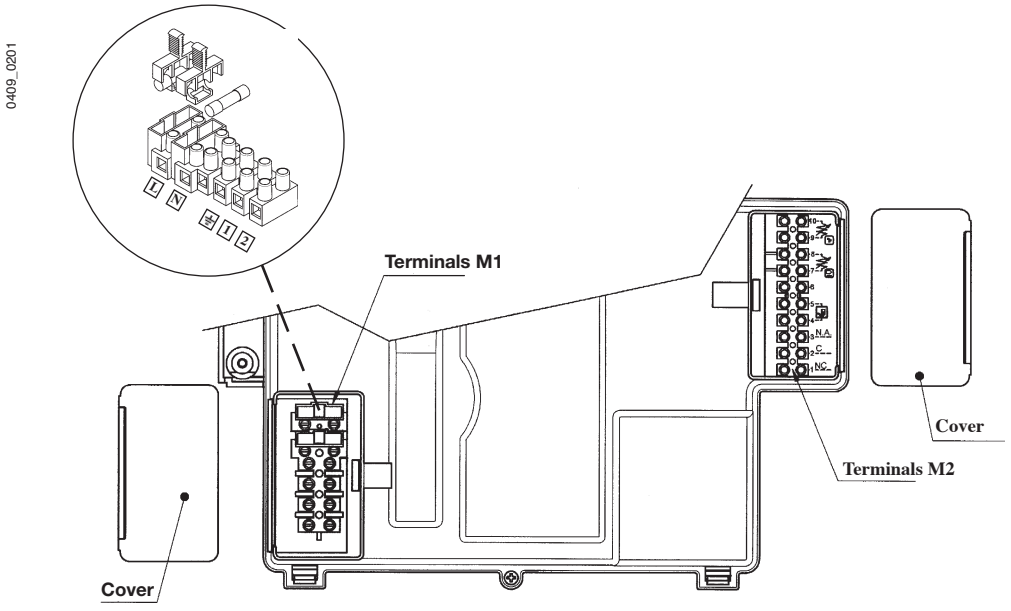


Figure 12

15.1 DESCRIPTION OF THE ELECTRICAL CONNECTIONS TO THE BOILER

Turn the control box downward to access terminal boards M1 and M2 used for the electrical connections by removing the two protective covers (see figure 12).

Terminals 1-2, terminal board M1: room temperature thermostat “TA”.
Terminals 4-5, terminal board M2: connections for the optional SIEMENS QAA73 temperature regulator. These connections do not have any specific polarity.
Remove the bridge between terminals 1-2 “TA” on terminal board M1.
Read the instructions provided with the temperature regulator to ensure correct installation and programming.
Terminals 7-8: connections for the optional SIEMENS QAC34 outdoor temperature sensor. Read the instructions provided with the outdoor temperature sensor to ensure correct installation.
Terminals 9-10: connections for the optional domestic hot water priority sensor, for connecting single system boilers to external DHW boilers.

15.2 CONNECTING THE QAA73 TEMPERATURE REGULATOR

An optional interface card is required to connect the QAA73 temperature regulator to boiler’s own electronic control card. Connect the interface card to connector X 300 on the boiler’s electronic control card (figure 13).

Terminals 1-2-3, terminal board M2: connections for a zone control solenoid valve (see figure 15 in section 15.4).

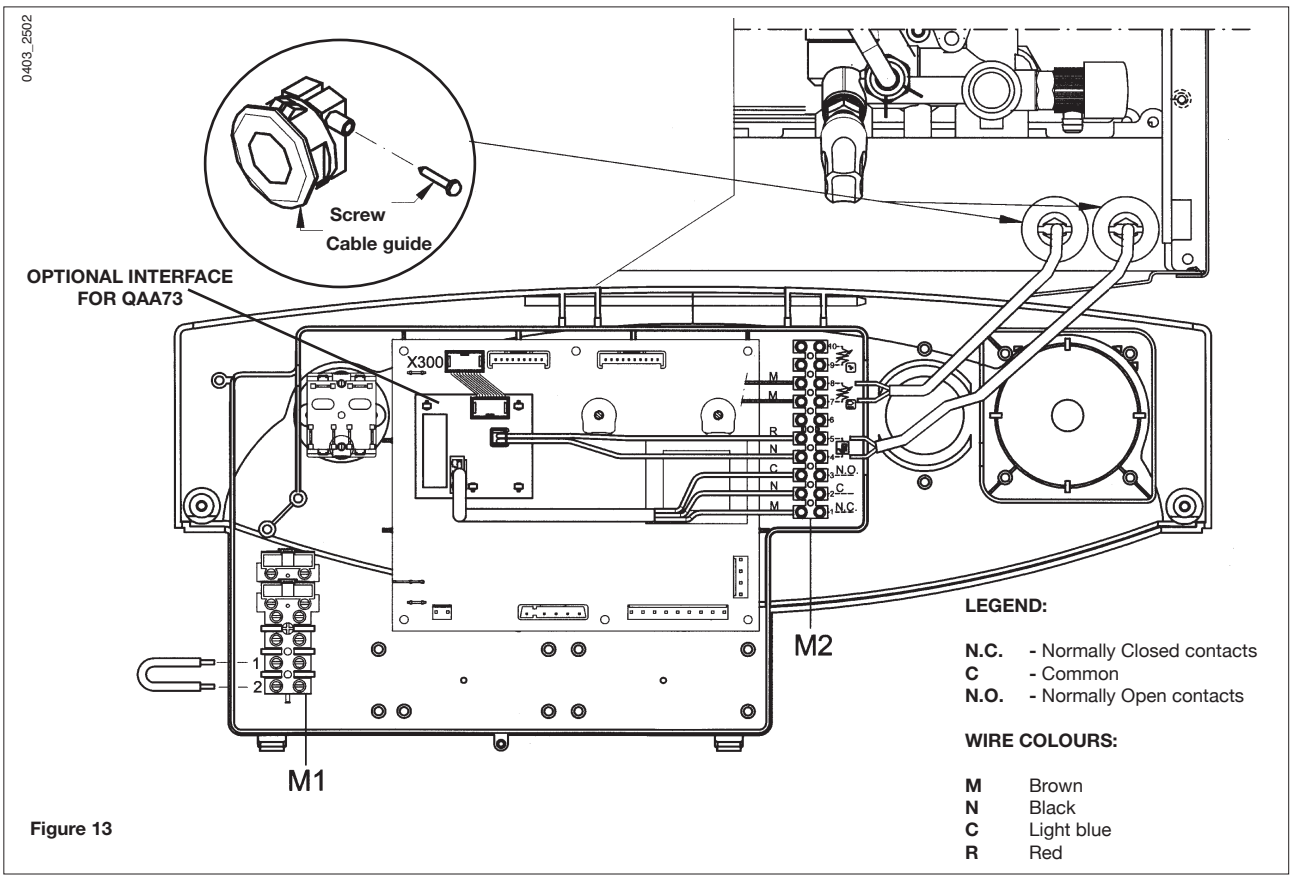


Figure 13

Domestic hot water temperature and timing must be programmed on the QAA73 temperature regulator.
The timed program of the central heating circuit must be set on the QAA73 if there is a single zone, or in relation to the zone controlled by the QAA73 device.

See the instructions provided with the QAA73 temperature regulator for the user parameter programming procedure.

QAA73: parameters which can be set by the installer (service)
By pressing the two PROG buttons together for at least three seconds it is possible to access the list of parameters that the installer can display and/or set.
Press either of these buttons to change the parameter to display or change.
Press the [+] or [-] key to change the value displayed.
Press either of the PROG buttons again to save the change.
Press the information button (i) to quit programming.

Here follows a list of the most commonly used parameters:

Line no.	Parameter	Range	Default value
70	HC1 gradient Selection of central heating circuit temperature curve “kt”	2.5…40	**15**
72	HC1 max. output Central heating system maximum output temperature	25…80	**80**
74	Type of building	Light, Heavy	**Light**
75	Room compensation Activation/deactivation of the influence of the room temperature. If it is deactivated, the outdoor temperature sensor must be installed.	on HC1 on HC2 on HC1+HC2 nil	**On HC1**
77	Automatic adaptation of the temperature curve “kt” in relation to the room temperature.	On - off	**On**
78	Opt Start Max Maximum time the boiler is switched on ahead of the timed program to optimise the temperature in the premises.	0…360 min	**0**
79	Opt Stop Max Maximum time the boiler is switched off ahead of the timed program to optimise the temperature in the premises.	0…360 min	**0**
90	DHW Red Setp Minimum temperature of the domestic domestic hot water	10 or 35…58	**10 or 35**
91	DHW program Selection of the type of timed program for domestic hot water. 24 h/day = always on PROG HC-1h = as HC1 central heating program less one hour PROG HC = as central heating program PROG ACS = specific domestic hot water program (see also program lines 30-36)	24 h/day TSP HC-1h TSP HC TSP DHW	**24 h/day**

- fault messages

In the event of fault, the display panel on the QAA73 shows the flashing symbol . Press the information key () to display the error code and a description of the fault.

Code	Display	Fault description
10	Outsidesense	Outdoor temperature probe sensor fault (or parameter 75 disabled)
20	Boilersensor	NTC delivery sensor fault
28	Flue gas	NTC flue sensor fault
50	DHW sensor	NTC domestic hot water sensor fault
60	QAA73 fault	Ambient temperature probe fault
110	Boiler STL	Safety thermostat tripped
119	W-pressSwi	No signal from water pressure switch
125	-	Pump blocked
130	FlueGasLimit	NTC flue sensor has cut out for overheat
133	No flame	Gas supply fault (No gas)
151	Burn lockout	Boiler control card internal error
155	Reset off	Maximum number of reset attempts (5) exceeded
160	Fan speed	Fan speed threshold not reached

15.3 CONNECTING THE OUTDOOR TEMPERATURE SENSOR PROBE

The SIEMENS model QAC34 outdoor temperature sensor probe (optional accessory) must be connected to terminals 5-6 of terminal board M2 in figure 13.
The procedures for setting the gradient of the temperature curve “kt” vary depending on the accessories connected to the boiler.

a) Without the QAA73 temperature regulator
When an outdoor temperature sensor is connected, the central heating temperature control knob (fig. 14) shifts the heating curves (graph 2).
Turn the knob clockwise to increase room temperature, anti-clockwise to decrease it. Figure 14 shows the correct position of the knob for operation without shifting the curves.

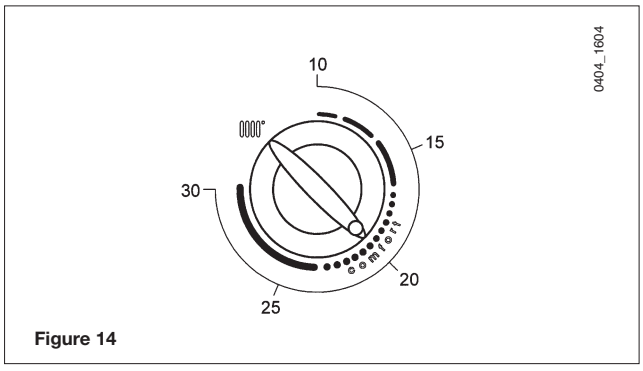
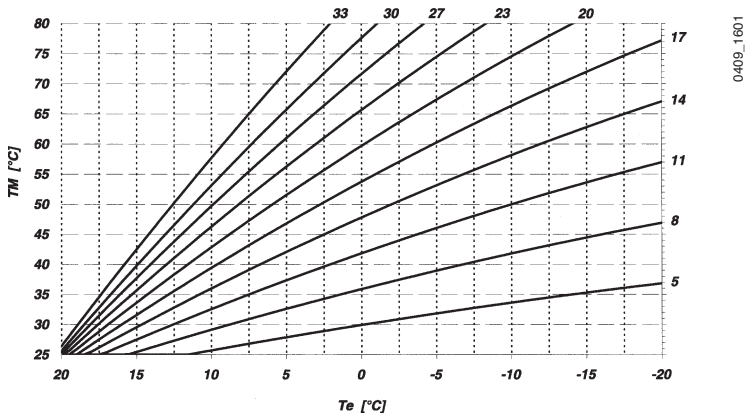
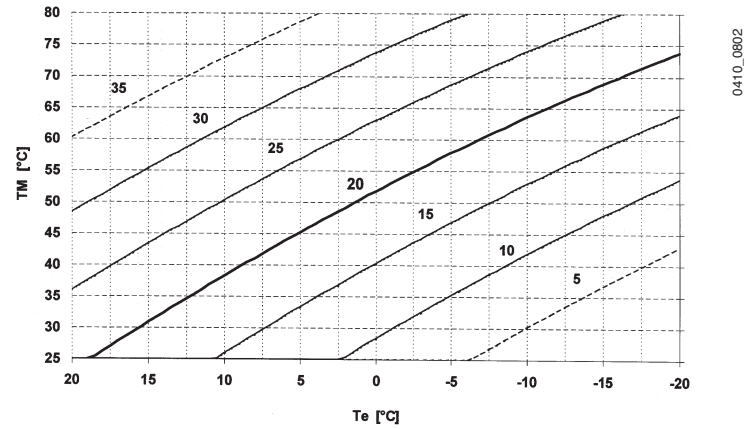


Figure 14

Modify **parameter 532** on the QAA73 temperature regulator to select the desired temperature curve “Kt”, as instructed in the table of chapter 26.
Graph 1 shows the available temperature curves.



Graph 1

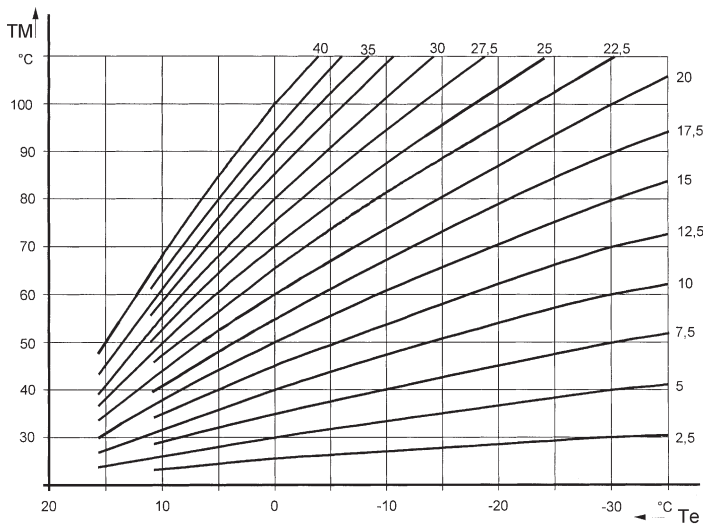


Graph 2

TM = Flow temperature
Te = Composite outside temperature

b) with QAA73 temperature regulator:

The temperature curve “kt” must be selected by setting parameter 70 “HC1 gradient” of the QAA73 temperature control device as described in section 15.2 “QAA73: parameters which can be set by the installation engineer (service)”.
See graph 3 for selecting the curve referred to a room temperature of 20°C.
The curve is shifted automatically on the basis of the room temperature set using the QAA73 climate control.
If the central heating system is divided into more than one zone, the temperature curve must be set on the QAA73 and in the boiler (See section 26 for boiler settings.). The appliance’s electronic control system provides a central heating output temperature equal to the highest of the two values set on the QAA73 and in the boiler.



TM = Flow temperature
Te = Composite outside temperature

Graph 3

15.4 ELECTRICAL CONNECTIONS TO A MULTI-ZONE SYSTEM

The electrical connections and settings needed to control a multi-zone central heating system vary depending on what accessories are connected to the boiler.
To permit the boiler to handle requests from individual zones, turn the Summer/Winter selector (1 - figure 1) on the boiler's front panel to Winter (❄) position.

a) Without a QAA73 temperature regulator:
Connect the switch for functioning in multi-zone mode in parallel to the "TA" terminals 1-2 on terminal board M1 as shown in figure 12. Remove the default bridge.
Set the desired temperature with knob 6, figure 1, directly on the boiler control panel.

b) With the QAA73 temperature regulator:
Connect the switch controlling those zones not controlled by the QAA73 in parallel to the "TA" terminals 1-2 of terminal board M1 as shown in figure 15. ***Remove the default bridge.***
The zone controlled by the QAA73 is supplied by the zone 1 solenoid valve as shown in figure 15.
The QAA73 automatically controls room temperature in its own zone.

Use the boiler control panel to set room temperature in the other zones.

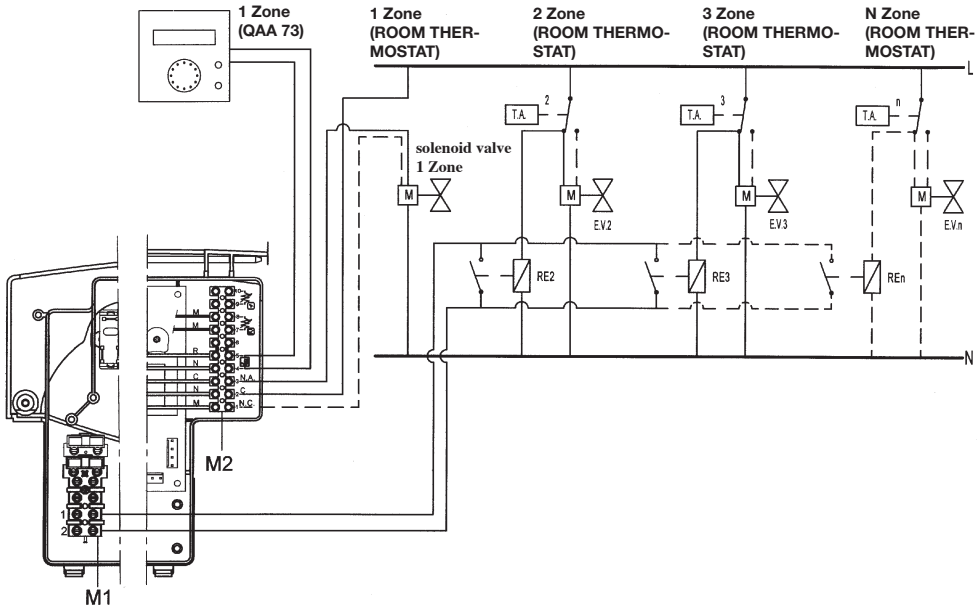


Figure 15

Case 1: installation without an outdoor temperature sensor:
Use the central heating temperature control knob (6 - figure 1) on the boiler's control panel to set central heating output temperature to the various zones.
If heating requests are received simultaneously from the main zone controlled by the QAA73 and another zone, output temperature will be the higher of the two values set on the QAA73 and on the boiler's central heating temperature control knob.

Case 2: installation with an outdoor sensor:
Central heating output temperature to the various zones is determined by the electronic control card on the basis of outdoor temperature and the preset heating curve as described in section 15.3.
If heating requests are received simultaneously from the main zone controlled by the QAA73 and another zone, output temperature will be the higher of the values set on the QAA73 and calculated by the boiler's electronic control card.

15.5 CONNECTING AN EXTERNAL BOILER (FOR MODELS PRIME HT 1.120 – 1.240 – 1.280)

Boiler models PRIME HT 1.120 – 1.240 – 1.280 feature a three way power valve for connecting an external boiler.
Connect the boiler water pipes as shown in figure 16.
Remove the resistor from terminals 9-10 of terminal board M2, and connect the optional DHW priority sensor to them (figure 16).
Insert the sensor's probe in the relevant hole in the boiler.
Set domestic hot water temperature using the control knob 7, figure 1 on the boiler's front panel.

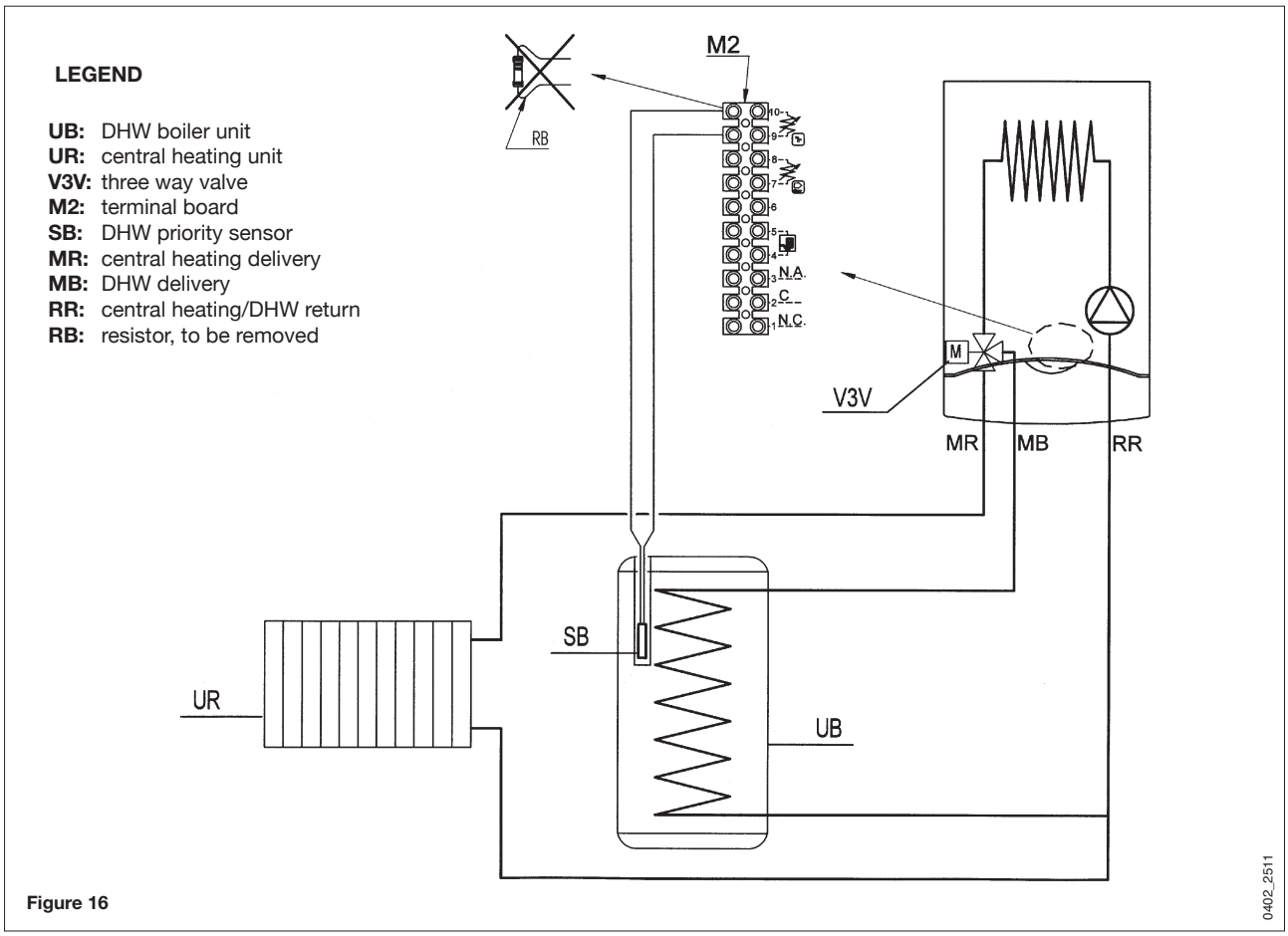


Figure 16

NOTE: legionella function is active (factory set = ON; see section 26 parameter 555.1).

16. CHANGING GAS TYPE

Proceed as follows to calibrate the gas valve.

1) Calibrate maximum thermal power. With the boiler operating at maximum thermal power, check that the value for CO_2 measured in the flue corresponds to that specified in table 1 (a-b-c). If necessary, turn the adjuster screw (V) on the gas valve. Turn clockwise to reduce the CO_2 level or anti-clockwise to increase it.
2) Calibrate minimum thermal power. With the boiler operating at minimum thermal power, check that the value for CO_2 measured in the flue corresponds to that specified in table 1 (a-b-c). If necessary, turn the adjuster screw (K) on the gas valve. Turn clockwise to increase the CO_2 level or anti-clockwise to reduce it.

Pi: Gas supply pressure measurement point
P out: Gas feed to burner pressure measurement point
P: Offset pressure measurement point
PI: Air signal input from fan
V: Gas flow adjustment screw
K: Offset adjustment screw

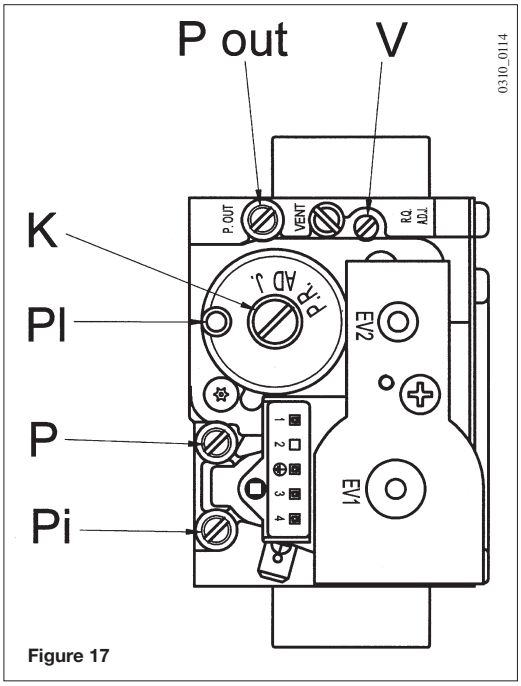


Figure 17

16.1 ACTIVATING THE CALIBRATION FUNCTION

Proceed as follows to enter “calibration function” on the boiler control panel and calibrate the gas valve.

1) Turn the control knobs 6 and 7 (figure 1) fully anti-clockwise to their minimum positions as shown in figure 18A.
2) Starting in this position, quickly turn control knob 7 twice consecutively clockwise through about a $^1/_4$ turn as shown in figure 18B.

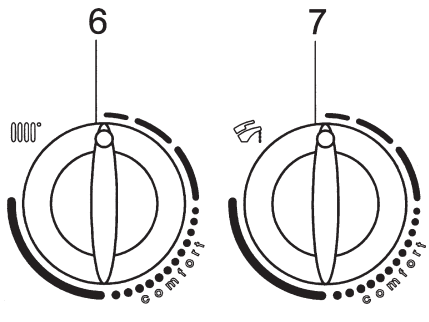
NOTE: ***LEDs 2 and 3 (figure 1) flash alternately and the display alternates the message “SF” and the boiler output temperature about every five seconds (figure 19).***

3) Now turn knob 6 to adjust fan speed to a setting between minimum thermal power (0%) and maximum thermal power (100%).

NOTE: ***In “calibration function”, the display alternates between the message “P” and the boiler output temperature about every 5 seconds (figure 20).***

4) Calibration function remains active for 20 minutes. To exit “calibration function” before this time simply turn control knob 7 (figure 1).

NOTE: ***This function is interrupted if the central heating delivery temperature reaches its MAX. SETPOINT.***



0402_2512

Figure 18A

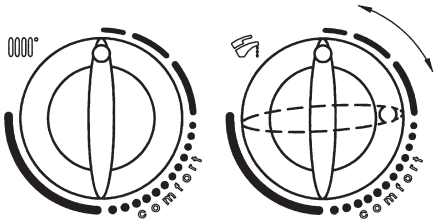


Figure 18B

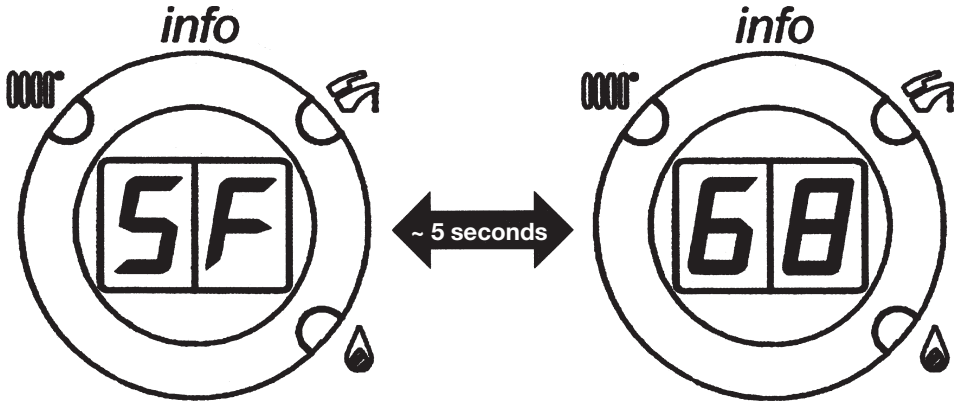


Figure 19

0402_2513

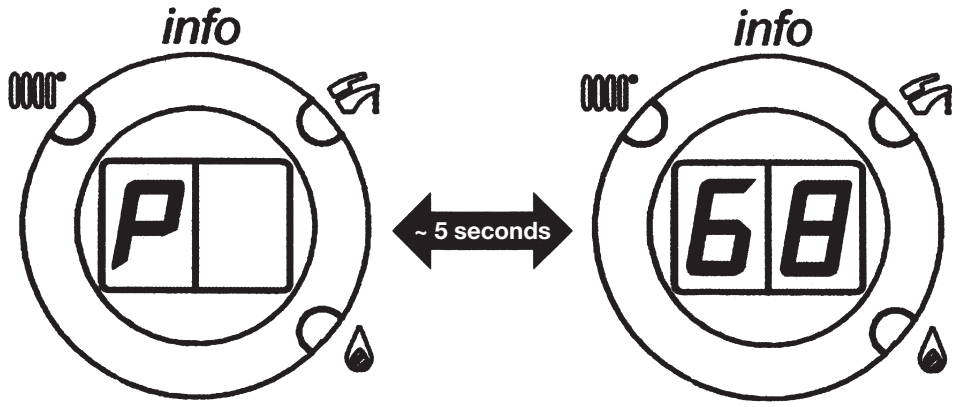


Figure 20

0402_2514

IMPORTANT: If the appliance is being converted from natural gas to propane (LPG), the following operations must be performed before calibrating the gas valve as instructed above.

- Turn adjuster screw (V) on the gas valve clockwise through the number of complete revolutions specified in table 3.
- On the QAA73 temperature regulator, set parameters 608 and 611 governing ignition power as instructed in section 26. See table 3 for the values to be set.

TABLE 1: CO_2 COMBUSTIONS; GAS NOZZLE.

PRIME HT 330 - HT 1.280	G20 - 2H - 20 mbar	G31 - 3P - 37 mbar
CO_2 max. heat output	8,7%	10%
CO_2 min. heat output	8,4%	9,8%
Gas nozzle	12,0 mm	12,0 mm

Table 1a

PRIME HT 1.240 PRIME HT 240 PRIME HT 280	G20 - 2H - 20 mbar	G31 - 3P - 37 mbar
CO_2 max. heat output	8,7%	10%
CO_2 min. heat output	8,4%	9,5%
Gas nozzle	7,5 mm	7,5 mm

Table 1b

PRIME HT 1.120	G20 - 2H - 20 mbar	G31 - 3P - 37 mbar
CO_2 max. heat output	8,7%	10%
CO_2 min. heat output	8,4%	9,5%
Gas nozzle	4,0 mm	4,0 mm

Table 1c

TABLE 2: CONSUMPTIONS MAX E MIN OUTPUT.

PRIME HT 330

Gas consumption at 15 °C 1013 mbar	G20 - 2H - 20 mbar	G31 - 3P - 37 mbar
PCI	34.02 MJ/m^3	46.3 MJ/kg
Consumption at max. heat output	3.59 m^3/h	2.64 kg/h
Consumption at min. heat output	1.06 m^3/h	0.78 kg/h

Table 2a

PRIME HT 280

Gas consumption at 15 °C 1013 mbar	G20 - 2H - 20 mbar	G31 - 3P - 37 mbar
PCI	34.02 MJ/m^3	46.3 MJ/kg
Consumption at max. heat output	3.06 m^3/h	2.25 kg/h
Consumption at min. heat output	0,95 m^3/h	0.70 kg/h

Table 2b

PRIME HT 1.280

Gas consumption at 15 °C 1013 mbar	G20 - 2H - 20 mbar	G31 - 3P - 37 mbar
PCI	34.02 MJ/m^3	46.3 MJ/kg
Consumption at max. heat output	3.06 m^3/h	2.25 kg/h
Consumption at min. heat output	1,06 m^3/h	0.78 kg/h

Table 2c

PRIME HT 240 - HT 1.240

Gas consumption at 15 °C 1013 mbar	G20 - 2H - 20 mbar	G31 - 3P - 37 mbar
PCI	34.02 MJ/m³	46.3 MJ/kg
Consumption at max. heat output	2.61 m³/h	1.92 kg/h
Consumption at min. heat output	0.74 m³/h	0.54 kg/h

Table 2d

PRIME HT 1.120

Gas consumption at 15 °C 1013 mbar	G20 - 2H - 20 mbar	G31 - 3P - 37 mbar
PCI	34.02 MJ/m³	46.3 MJ/kg
Consumption at max. heat output	1.31 m³/h	0.96 kg/h
Consumption at min. heat output	0,42 m³/h	0,31 kg/h

Table 2e

TABLE 3: SETTING PARAMETRES 608 AND 611

Boiler model	Counter clockwise turns of screw (V)	Parameter 608 %		Parameter 611 rpm	
		Gas G20	Gas G31	Gas G20	Gas G31
PRIME HT 330	3	50	35	4100	3500
PRIME HT 280	4	55	35	4400	4000
PRIME HT 240	2	50	35	4300	4000
PRIME HT 1.280	3	50	35	4100	3500
PRIME HT 1.240	2	55	35	4500	4000
PRIME HT 1.120	$^3/_4$	40	40	4000	3350

Table 3

17. DISPLAYING ELECTRONIC CONTROL CARD PARAMETERS ON THE BOILER DISPLAY ("INFO" MODE)

Proceed as follows to display boiler parameters or outdoor temperature on the front panel display.

1) Turn the control knob 6 (figure 1) fully anti-clockwise to it minimum value as shown in figure 21A.
2) Starting in this position, quickly turn control knob 6 twice consecutively clockwise through about a $^1/_4$ turn as shown in figure 21B.

NOTE: *In **"INFO"** mode, the display (5 - figure 1) alternates between the message **"A0"** and **DHW** temperature about every 5 seconds (figure 22).*

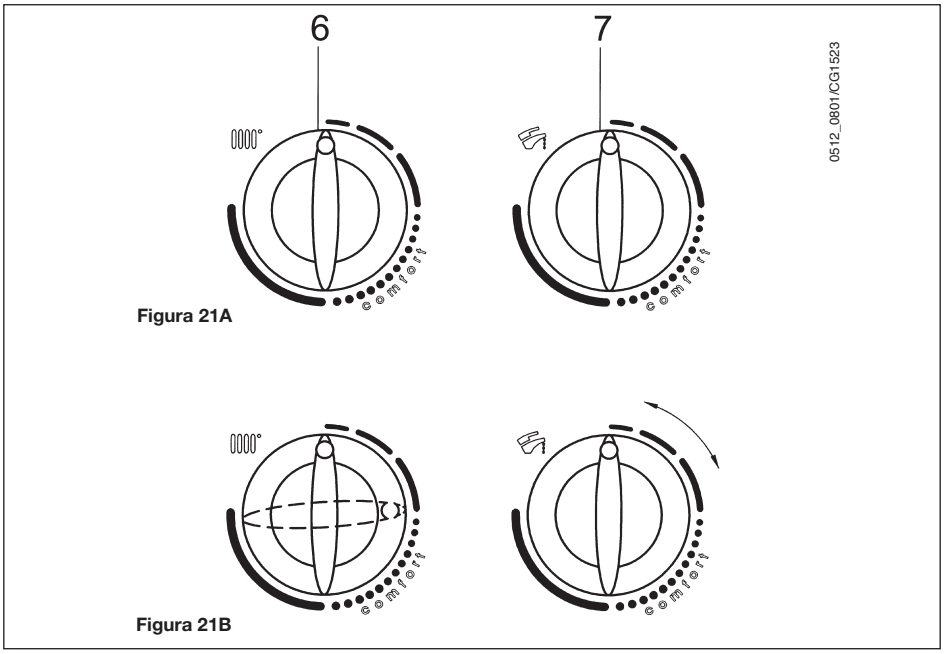


Figura 21A

Figura 21B

3) Turn the control knob 7 to display the values of the following parameters in sequence:

A0: domestic hot water output temperature (in °C);
A1: outdoor temperature (in °C);
A2: the value (%) of the PWM signal to the fan (reserved for service engineers);
A3: fan speed (in rpm) x 100 (reserved for service engineers);
A4: central heating water output setpoint temperature (in °C);
A5: flue control NTC temperature;
A6: diagnostic information;
A7: not used;
A8: manufacture information;
A9: manufacture information.

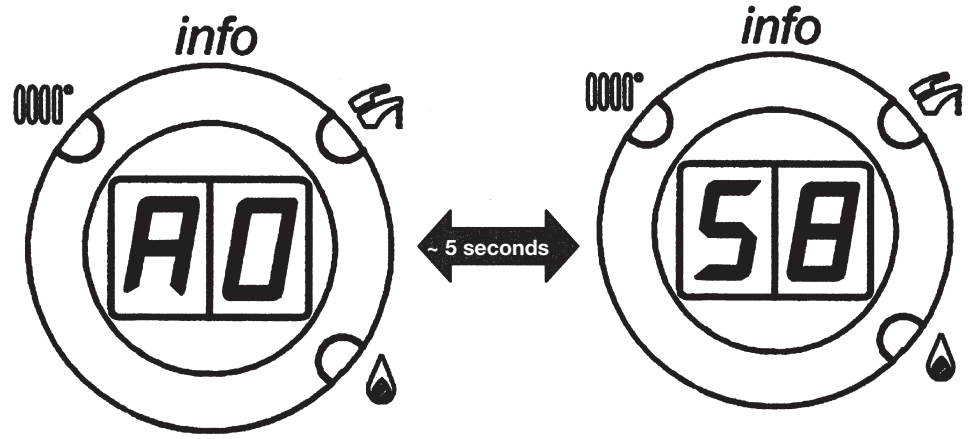


Figure 22

0402_2503

4) To exit “INFO” mode, simply turn control knob 6 fully anti-clockwise (see step 1 above) and repeat step 2.

NOTE: When you exit **“INFO”** mode, the **“A...”** message disappears and central heating output temperature is displayed instead.

18. CONTROL AND OPERATION DEVICES

The boiler has been designed in full compliance with European reference standards and in particular is equipped with the following

- **Safety thermostat**
  This device uses a sensor on the central heating delivery line to cut off the flow of gas to the burner if the water in the primary circuit overheats.
  If this occurs, the boiler blocks and can only be lit again after the cause of the fault has been eliminated. To relight the boiler, turn selector (1) (figure 1) to “R” for at least one second.

It is strictly forbidden to disable this safety device.

- **NTC Flue sensor**
  This device is located in the Primary Heat Exchanger.
  The main board shuts off the burner when the displayed temperature on the boiler control panel, A5 parameter (see paragraph 17), is > 110 °C.
  To reset the normal operating conditions, turn selector (1 - figure 1) to “R” for at least 1 second.

  Note - the reset operation is available if the displayed temperature on the boiler control panel, A5 parameter, is < 90 °C.

It is strictly forbidden to disable this safety device.

- **Flame detector**
  The flame detector electrode ensures safety in the event of a failure in the gas supply or incomplete ignition of the main burner.
  The boiler blocks in either of these conditions.
  To reset normal operating conditions, turn selector (1) (figure 1) to “R” for at least 1 second.

- **Water pressure switch**
  This device ensures that the main burner only ignites if water pressure in the system is above 0.5 bar.

- **Pump overrun**
  The electronic control system keeps the pump operating for 3 minutes in central heating mode after the room temperature thermostat has switched off the main burner.

- **Frost protection device**
  Boilers electronic management includes a “frost protection” function in the central heating system which operates the burner to reach a heating flow temperature of 30°C when the system heating flow temperature drops below 5 °C.
  This function is enabled as long as the boiler is connected to the a.c. power and gas supplies and the pressure in the system is as specified.

- **Pump-blocking prevention**
  In case there is no call for heat either from the central heating system or from the DHW system for 24 hours on end the pump will automatically switch on for 10 seconds.

- **3-way antiblocking valve**
  If there is no heat demand for a period of 24 hours the 3-way valve switches completely.

- **Hydraulic safety valve (heating circuit)**
  This device is set to 3 bar and is used for the heating circuit

The safety valve should be connected to a siphoned drain. Use as a means of draining the heating circuit is strictly prohibited.

NOTE: Control and safety device functions are only active if the boiler is receiving electrical power and switch 1 (figure 1) is NOT in position 0.

19. POSITIONING OF THE IGNITION AND FLAME SENSING ELECTRODE

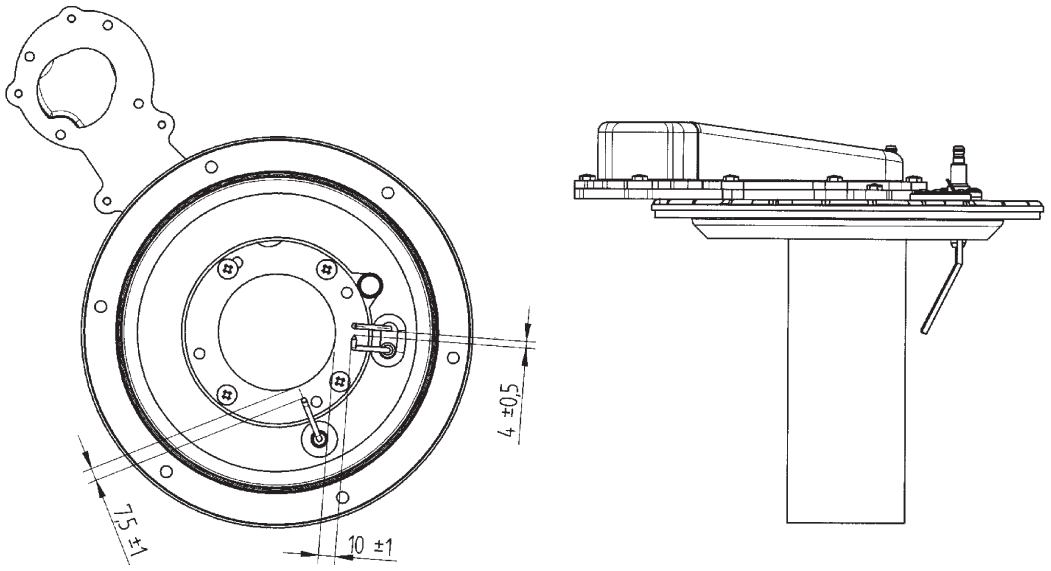


Figure 23

20. CHECK OF COMBUSTION PARAMETERS

To measure combustion performance and hygiene levels of combustion products, the forced draught boiler models are equipped with two test points on the tapered coupling specifically designed for this purpose.
One of the two test points is connected to the exhaust flue duct to allow measurements of the combustion products hygienic standards and combustion efficiency.
The second test point is connected to the comburant air inlet duct to check possible combustion products circulation in case of coaxial ducts.

The exhaust flue duct test point allows measurements of the following:
- combustion products temperature;
- concentration of oxygen (O_2) or, alternatively, of carbon dioxyde (CO_2);
- concentration of carbon monoxyde (CO).

The comburant air temperature must be measured at the test point connected to the air inlet duct.

Important: Plug all the measurement points on completion of checks.

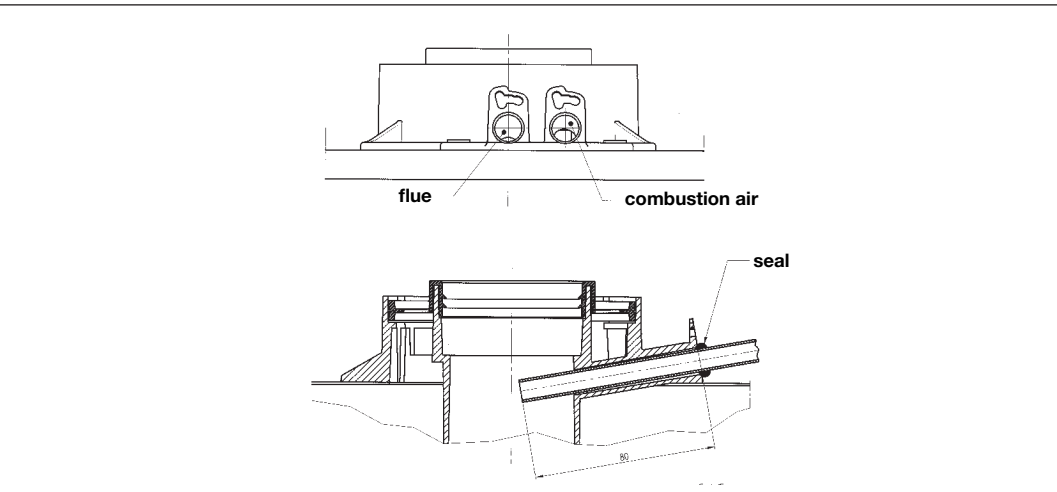


Figure 24

21. ACTIVATING THE FLUE SWEEP FUNCTION

Proceed as follows to activate the flue sweep function before measuring combustion efficiency and fume composition.

1) Turn knobs 6 and 7 (figure 1) fully anti-clockwise to their minimum positions as shown in figure 18A.
2) Starting in this position, quickly turn control knob 7 twice consecutively clockwise through about $^1/_4$ of a turn as shown in figure 18B.

NOTE: ***In FLUE SWEEP mode, LEDs 2 and 3 (figure 1) flash alternately and the display alternates the message "SF" and the boiler output temperature about every five seconds (figure 19).***

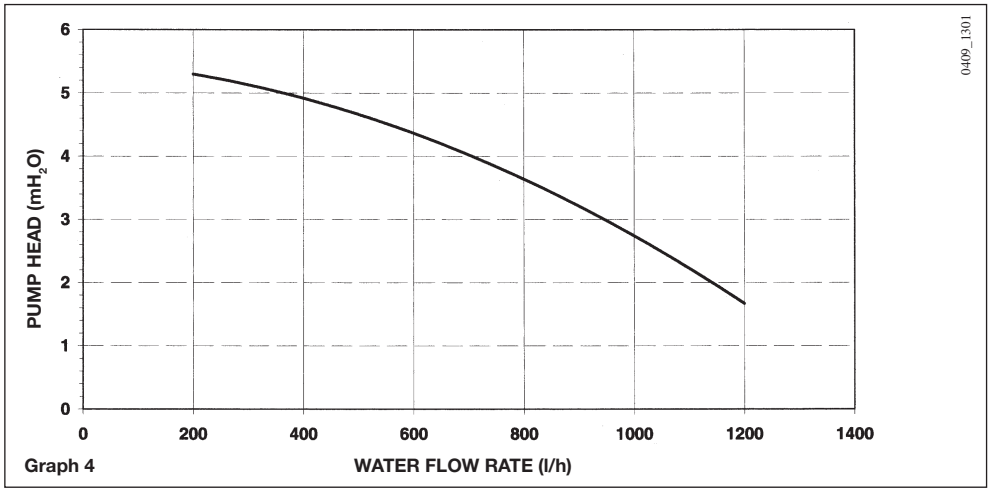
IMPORTANT: *In FLUE SWEEP mode, do not turn knob 6 from its initial position or you will enter "calibration" mode instead (see section 16.1).*

3) Flue sweep mode remains active for 20 minutes. To exit FLUE SWEEP mode before this time, simply turn knob 7 (figure 1). The function also stops if the central heating MAX. SETPOINT temperature is reached (see section 16.1 point 4).

22. OUTPUT / PUMP HEAD PERFORMANCES

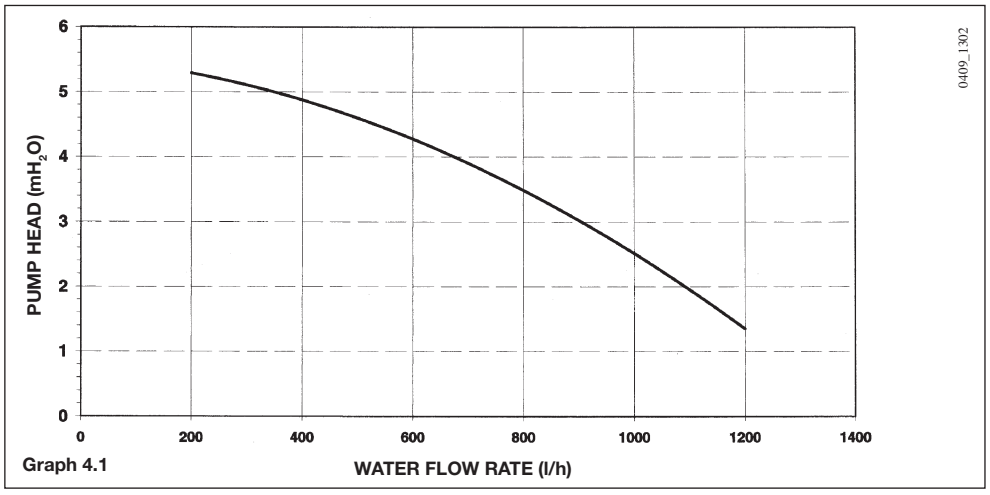
This is a high static head pump fit for installation on any type of single or double-pipe heating systems. The air vent valve incorporated in the pump allows quick venting of the heating system.

PRIME HT 1.280 - HT 330

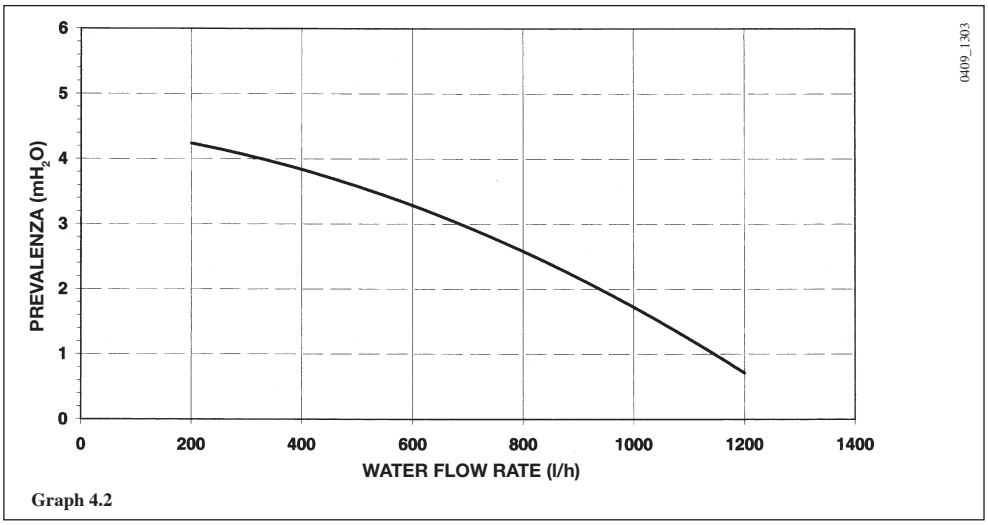


Graph 4

PRIME HT 1.240 - HT 280 - HT 240



Graph 4.1



Graph 4.2

23. HOW TO DISASSEMBLE THE DHW HEAT EXCHANGER (PRIME HT 240 - HT 280 - HT 330)

The stainless steel plate-type DHW heat exchanger is easily disassembled with a screwdriver by operating as described below:

- drain, if possible, only the boiler system, **through the drain tap;**
- drain the DHW system from water;
- remove the circulation pump;
- remove the two screws (right in front of you) securing the DHW heat exchanger and pull it off its seat (Figure 25).

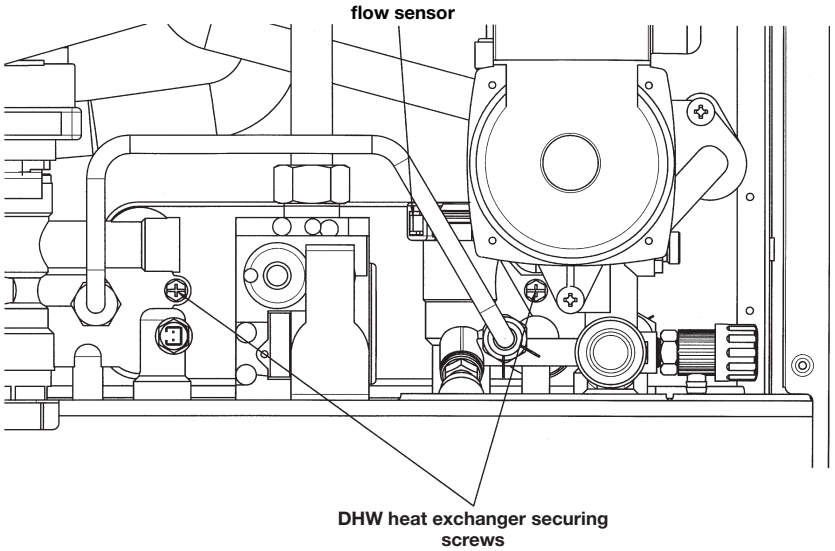


Figure 25

To purge the exchanger and/or the DHW system we suggest the use of Cillit FFW-AL or Beckinser HF-AL.

For specific areas where water hardness exceeds 20°F (1°F = 10 mg of calcium carbonate per one litre of water) we recommend you install a polyphosphate metering device - complying with the applicable regulations - in the cold water inlet pipework.

24. CLEANING THE COLD WATER FILTER (PRIME HT 280 - HT 330)

The boiler is equipped with a cold water filter placed on the hydraulic assembly. To clean it do the following:

- drain the DHW system from water.
- unscrew the nut on the flow sensing assembly (Figure 25).
- pull out the flow sensing device and its filter.
- remove the impurities.

IMPORTANT: in the event of replacements and/or cleaning of the O-rings on the hydraulic unit, do not use oil or grease as lubricant but exclusively Molykote 111.

25. ANNUAL SERVICE

To ensure the boiler operates at peak efficiency, the following checks must be performed every year:
- check on the appearance and tightness of the gas and combustion circuit gaskets;
- check on the condition and position of the ignition and flame sensing electrodes (see section 19);
- check on the condition of the burner and its fixing to the aluminium flange;
- check for any dirt in the combustion chamber. Use a vacuum-cleaner for this cleaning operation;
- check that the gas valve is calibrated correctly (see section 16);
- check that there is no dirt in the siphon;
- check on the central heating system pressure;
- check on the expansion vessel pressure.

26. USING THE SIEMENS QAA73 TEMPERATURE REGULATOR TO PROGRAM BOILER PARAMETERS

You can use the QAA73 temperature regulator to access a number of parameters on the LMU 34 electronic control card. Connect up the QAA73 as instructed in section 15.2.

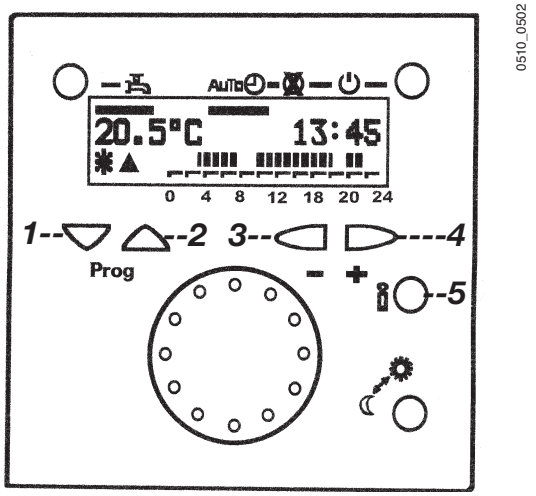


Figure 26

The editable parameters are those between 504 and 651. Proceed as follows to access these parameters:

1) Simultaneously press keys ***1 and 4*** on the QAA73 temperature regulator for about 3 seconds. The message “Initialising BMU parameters” appears on the display.
2) Simultaneously press keys ***1 and 2*** for about 3 seconds. The message “Initialising BMU Service” appears on the display.
3) Press keys ***1 or 2*** to scroll through the list of parameters.
4) To change the value of the selected parameter, press key ***3 or 4*** to decrease or increase the value respectively.
5) Press key ***5*** to enter the new values and exit programming of the boiler’s electronic control card.

Table of parameters editable with the QAA73 temperature regulator

Parameter	Text line	Description of parameter	Default value
504	TkSmax	Maximum central heating output temperature (°C)	80
516	THG	Summer/Winter changeover	30
532	Sth1	"Kt" central heating curve gradient	15
534	DTR1	Nominal room adjustment	0
536	NhzMax	Maximum fan speed (rpm) in central heating mode (maximum heating power)	*
541	PhzMax	Maximum central heating PWM (%)	*
544	ZqNach	Pump overrun time (s)	180
545	ZBreMinP	Minimum burner pause time (s) in central heating mode	180
555.0	KonfigRG1	Activation of Chimney Sweep/Calibration Function via QAA73 OFF: not active ON: active	OFF
555.1	KonfigRG1	Legionella Function for Hydraulic System 2 (with DHW storage tank) OFF: not active ON: active	ON
555.2	KonfigRG1	Type of water switch (see paragraph 27: X400 - 8,9) OFF: water pressure switch ON: flow switch	OFF
555.3...555.7	KonfigRG1	NOT USED	0
608	LmodZL_QAA	PWM setting (%): ignition power	*
609	LmodTL_QAA	PWM setting (%): minimum power	*
610	LmodVL_QAA	PWM setting (%): maximum power (domestic hot water)	*
611	N_ZL_QAA	Speed setting (rpm): ignition power	*
612	N_TL_QAA	Speed setting (rpm): minimum power	*
613	N_VL_QAA	Speed setting (rpm): maximum power	*
614	KonfigEingang	OT Input setting (QAA73) 0 = only with QAA73 1 = with low voltage room thermostat RT or QAA73 2 = only for LUNA IN ... models	0
641	Tn_QAA	Fan overrun time setting (s)	10
649	BMU-Parameter	Gas boiler heat output adjust max (100%) -min (0%) during calibration function	0
651	BMU-Parameter	Boiler type (water circuit setting)	*

**** These parameters differ depending on the model of boiler installed. See the Service instructions for a complete list of parameters and settings.***

Note: If the QAA73 is connected to the boiler, the corresponding LEDs (2 or 3, fig. 1) flash when a request for central heating or domestic hot water is received.

Do not confuse these requests for heat with the "flue sweep" or "calibration" functions during which LEDs 2 and 3 both flash quickly on and off in alternation.

27. BOILER SCHEMATIC PRIME HT 240 - HT 280 - HT 330

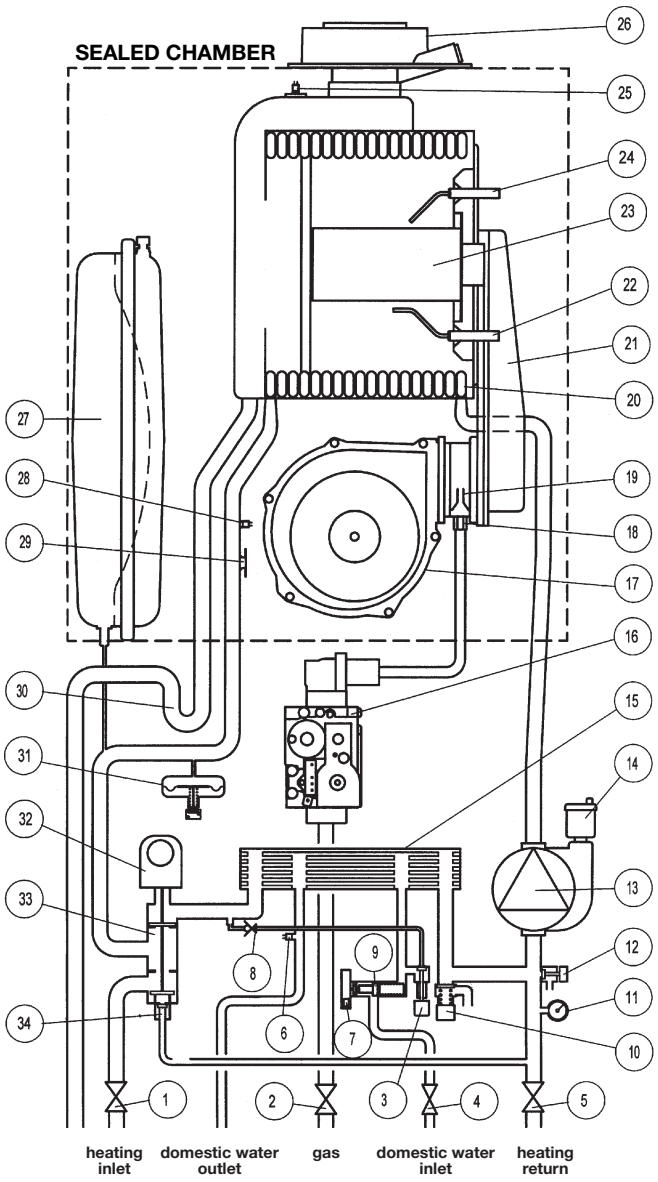


Figure 27

Key:

1 heating delivery cock
2 gas service cock
3 filling the system
4 cold water inlet on/off valve and filter
5 heating return cock
6 DHW NTC sensor / boiler unit NTC sensor
7 DHW priority sensor
8 non return value
9 flow sensor with filter and water flow rate limiter
10 pressure relief valve
11 manometer
12 boiler drain point
13 pump and air separator
14 automatic air vent
15 plate-type DHW heat exchanger
16 gas valve
17 fan
18 gas diaphragm
19 mixer with venturi
20 flue-water exchanger
21 air/gas mixture header
22 flame detector electrode
23 main burner
24 ignition electrode
25 NTC flue sensor
26 coaxial fitting
27 expansion vessel
28 central heating NTC sensor
29 105°C overheat thermostat
30 siphon
31 water pressure switch
32 3-way valve motor
33 three way valve
34 automatic bypass

27.1 BOILER SCHEMATIC PRIME HT 1.120 - HT 1.240 HT 1.280

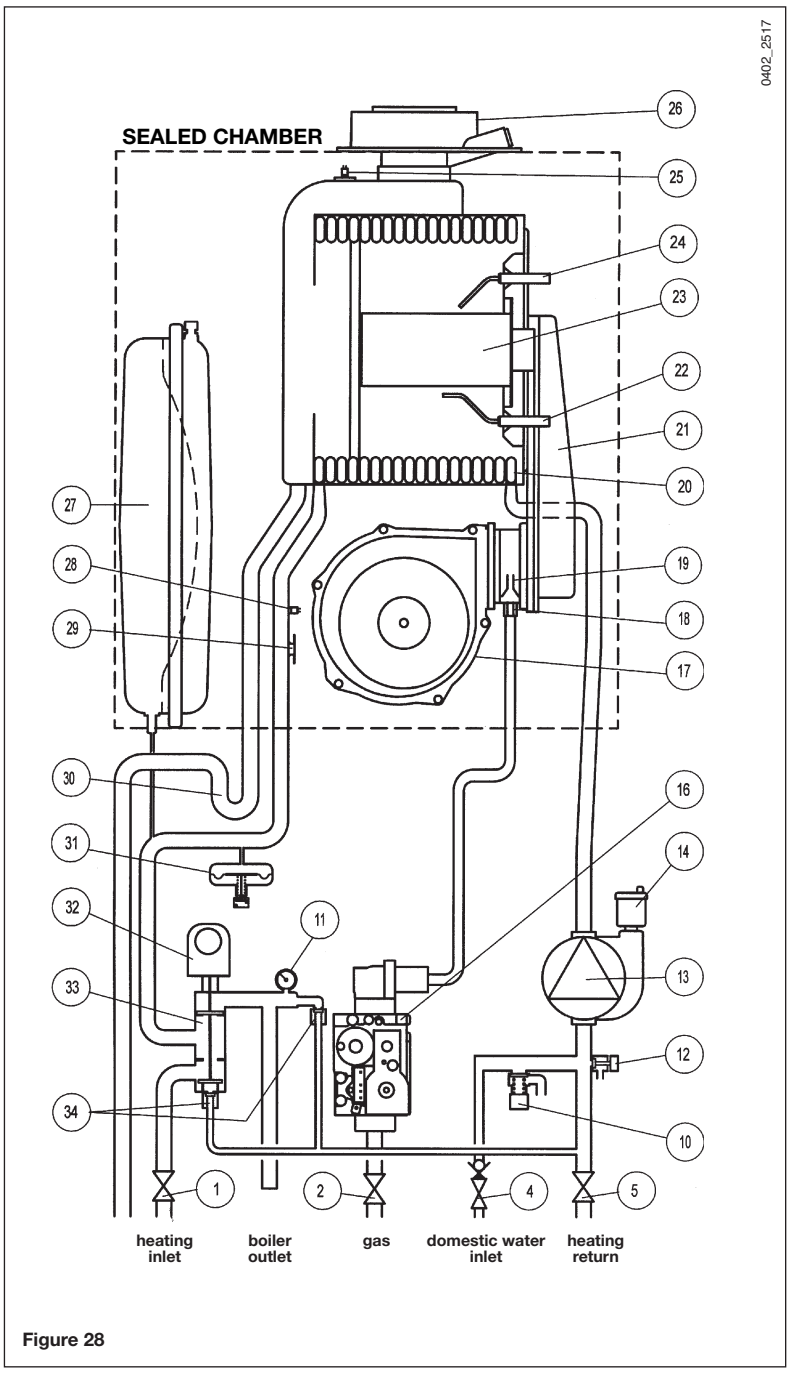
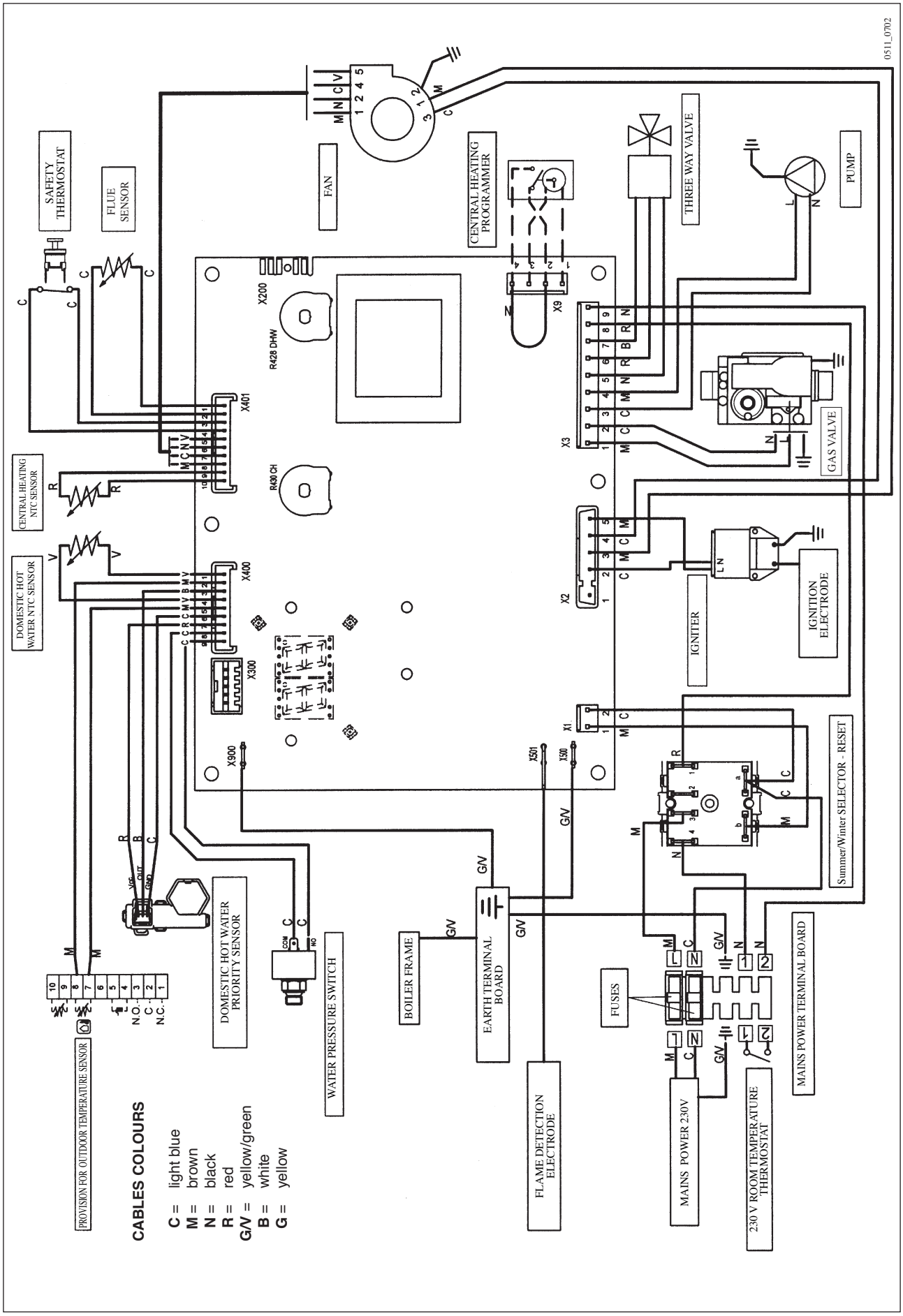


Figure 28

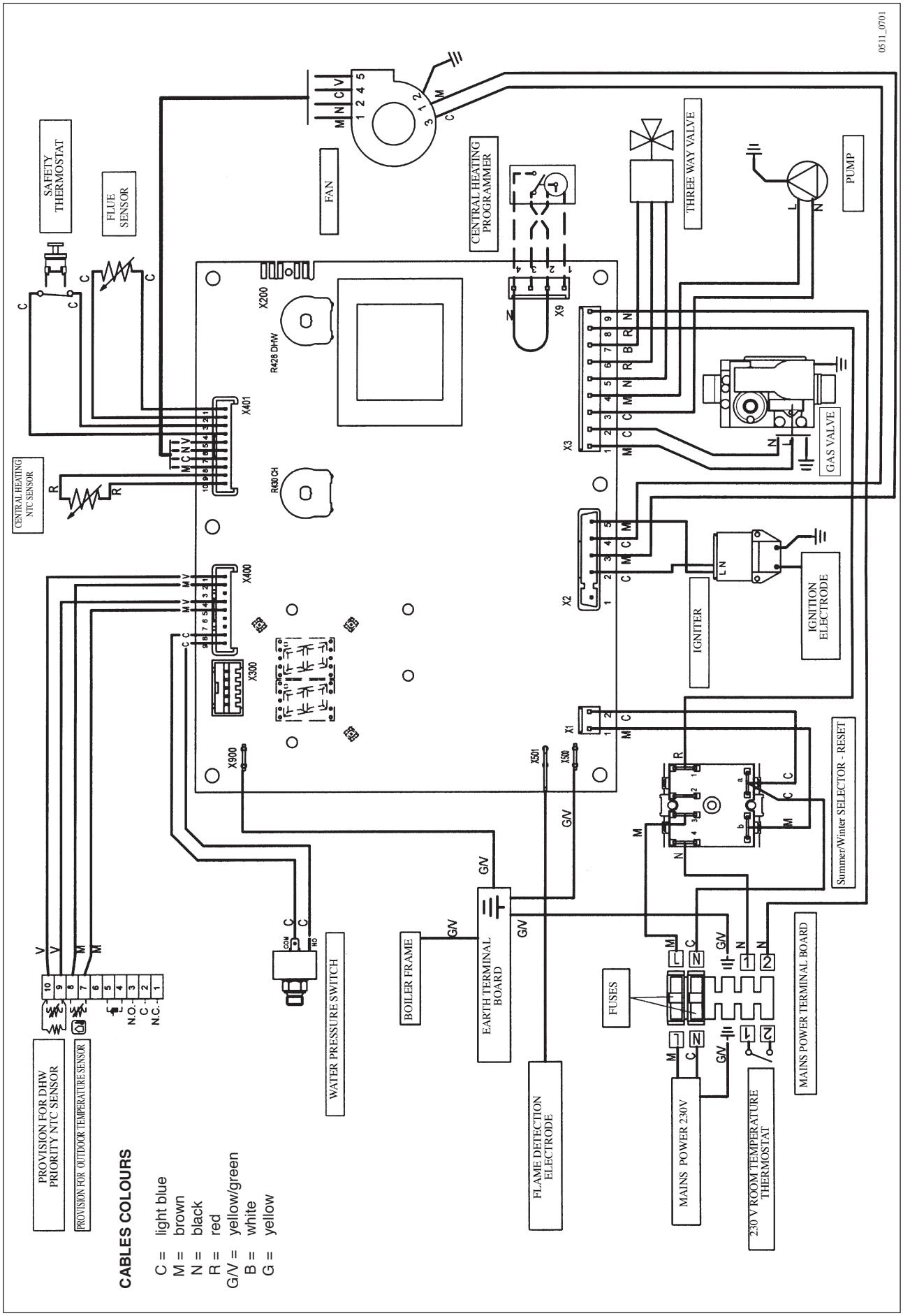
Key:

1 heating delivery cock
2 gas service cock
4 cold water inlet on/off valve and filter
5 heating return cock
10 pressure relief valve
11 manometer
12 boiler drain point
13 pump and air separator
14 automatic air vent
16 gas valve
17 fan
18 gas diaphragm
19 mixer with venturi
20 flue-water exchanger
21 air/gas mixture header
22 ignition electrode
23 main burner
24 ignition electrode
25 NTC flue sensor
26 coaxial fitting
27 expansion vessel
28 105°C overheat thermostat
29 central heating NTC sensor
30 siphon
31 water pressure switch
32 3-way valve motor
33 three way valve
34 automatic bypass

28. ILLUSTRATED WIRING DIAGRAM PRIME HT 240 - HT 280 - HT 330



28.1 ILLUSTRATED WIRING DIAGRAM PRIME HT 1.120 - HT 1.240 - HT 1.280



29. TECHNICAL DATA

Boiler model PRIME HT			**240**	**280**	**330**	**1.120**	**1.240**	**1.280**
Category			**II_{2H3P}**	**II_{2H3P}**	**II_{2H3P}**	**II_{2H3P}**	**II_{2H3P}**	**II_{2H3P}**
DHW rated heat input		kW	24,7	28,9	34	-	-	-
CH rated heat input		kW	20,5	24,7	28,9	12,4	24,7	28,9
Reduced heat input		kW	7	9	9,7	4	7	9,7
DHW rated heat output		kW	24	28	33	-	-	-
		kcal/h	20.640	24.080	28.380	-	-	-
CH rated heat output 75/60°C		kW	20	24	28	12	24	28
		kcal/h	17.200	20.640	24.080	10.320	20.640	24.080
CH rated heat output 50/30°C		kW	21,6	25,9	30,3	13	25,9	30,3
		kcal/h	18.580	22.270	26.060	11.180	22.270	26.060
Rated heat output 75/60°C		kW	6,8	8,7	9.4	3,9	6.8	9.4
		kcal/h	5.850	7.480	8.090	3.350	5.850	8.090
Rated heat output 50/30°C		kW	7,4	9,5	10.2	4,2	7.4	10.2
		kcal/h	6.360	8.170	8.770	3.610	6.360	8.770
Useful efficiency according to 92/42/CEE directive		—	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Central heating system max. pressure		bar	3	3	3	3	3	3
Expansion vessel capacity		l	8	8	10	8	8	10
Expansion vessel pressure		bar	0,5	0,5	0,5	0,5	0,5	0,5
DHW system max. pressure		bar	8	8	8	-	-	-
DHW system min. dynamic pressure		bar	0,2	0,2	0,2	-	-	-
DHW system min. output		l/min	2,2	2,2	2,2	-	-	-
DHW production at ΔT=25 °C		l/min	13,8	16,1	18,9	-	-	-
DHW production at ΔT=35 °C		l/min	9,8	11,5	13,5	-	-	-
Specific output (*)"D"		l/min	10,9	12,9	15,3	-	-	-
Heating circuit temperature range		°C	25÷80	25÷80	25÷80	25÷80	25÷80	25÷80
Domestic hot water temperature range		°C	35÷60	35÷60	35÷60	-	-	-
Type		–			C13-C33-C43			
		–			C53-C63-C83-B23			
Concentric flue duct diameter		mm	60	60	60	60	60	60
Concentric air duct diameter		mm	100	100	100	100	100	100
2-pipe flue duct diameter		mm	80	80	80	80	80	80
2-pipe air duct diameter		mm	80	80	80	80	80	80
Max. flue mass flow rate		kg/s	0,012	0,014	0,016	0,006	0,012	0,014
Min. flue mass flow rate		kg/s	0,003	0,004	0,005	0,002	0,003	0,005
Max. flue temperature		°C	73	75	75	73	73	75
NOx class		—	5	5	5	5	5	5
Type of gas used		—	G20	G20	G20	G20	G20	G20
		—	G31	G31	G31	G31	G31	G31
Natural gas feeding pressure 2H		mbar	20	20	20	20	20	20
Propane gas feeding pressure		mbar	37	37	37	37	37	37
Power supply voltage		V	230	230	230	230	230	230
Power supply frequency		Hz	50	50	50	50	50	50
Rated power supply		W	150	155	160	145	150	155
Net weight		kg	44	45	46	44	45	46
Dimensions	height	mm	763	763	763	763	763	763
	width	mm	450	450	450	450	450	450
	depth	mm	345	345	345	345	345	345
Protection-limit against humidity and water leakages (**)			IPX5D	IPX5D	IPX5D	IPX5D	IPX5D	IPX5D

(*) according to EN 625
(**) according to EN 60529

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