

## OPTIMAX HE 25 S

wall-mounted gas fired,  
pre-mix  
condensing system boiler

ISO 9001 : 2000  
CERTIFIED COMPANY



cod. 3540E632 - 04/2007 (Rev. 01)



INSTRUCTIONS FOR USE INSTALLATION AND MAINTENANCE  
FOR THE UNITED KINGDOM AND EIRE

## IMPORTANT

- Your "benchmark" Installation, Commissioning and Service Record Log Book is enclosed in the last pages of this manual. "This record must be completed and left with the end user".

Ferroli is a member of the Benchmark initiative and fully supports the aims of the programme. Benchmark has been introduced to improve the standards of installation and commissioning of central heating systems in the UK and to encourage the regular servicing of all central heating systems to ensure safety and efficiency. Please see installation and servicing guidelines.

For EIRE ( Southern Ireland ) it is necessary to complete a "Declaration of Conformity " to indicate compliance to I.S. 813. An example of this is given in the current edition of I.S. 813. In addition it is necessary to complete the "Benchmark" logbook

- "Ferroli declare that no substances harmful to health are contained in the appliance or used during the appliance manufacture".



This symbol indicates "Caution" and is placed next to all safety information. Strictly follow these instructions in order to avoid danger and damage to persons, or property.



This symbols calls attention to a note or important information, please read thoroughly.



- Read the warnings given in this manual thoroughly. They provide important information for safe installation, use and maintenance
- By law the instruction manual must be left with the end user.
- If the appliance is sold or transferred to another owner or if the owner moves, leaving the appliance behind, always ensure that the manual is kept with the appliance for consultation by the new owner and /or installer.
- Incorrect installation or poor maintenance absolves the manufacturer from all liability for damage to people or property.
- Installation and maintenance must be carried out in conformity with current legislation, according to the manufacturer's instructions and by qualified personnel.
- Before service or maintenance work is, carried out isolate the appliance from the mains electricity supply.
- In the event of malfunction or faulty operation, isolate the appliance. Do not attempt to repair or carry out any other operation on the appliance directly. Contact qualified personnel only.
- Repairs or the replacement of components must be carried out exclusively by qualified personnel using original spare parts only. Failure to respect the above may compromise the safety of the appliance.
- To guarantee efficient operation, the appliance must be serviced once a year by a corgi registered engineer.
- The appliance may not be used for purposes other than those for which it was explicitly designed. Any other use is considered improper and therefore dangerous.
- Incorrect installation and use or failure to follow the instructions provided by the manufacturer absolve the manufacturer from all liability for damage.
- After unpacking, check that the contents are complete and undamaged.
- Keep the packaging out of reach of children as it is potentially hazardous.
- To clean external parts, use a damp cloth moistened with soapy water if necessary. Avoid using abrasive cleaning products and solvents.

## Declaration of conformity

Manufacturer: FERROLI S.p.A.

Address: Via Ritonda 78/a 37047 San Bonifacio VR Italy

declares that this unit complies with the following EU directives:

- Gas Appliance Directive 90/396
- Efficiency Directive 92/42
- Low Voltage Directive 73/23 (amended by 93/68)
- Electromagnetic Compatibility Directive 89/336 (amended by 93/68)



President and Legal Representative

Cav. del Lavoro  
Dante Ferroli



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# 1. OPERATING INSTRUCTIONS

## 1.1 Introduction

Dear Customer,

Thank you for choosing the **OPTIMAX HE 25 S**, a FERROLI wall-mounted boiler of the latest generation, featuring advanced design and cutting-edge technology.

**OPTIMAX HE 25 S** is a high-efficiency **condensing pre-mix** appliance for heating with extremely low emissions, running on natural gas or LPG.

The **boiler** consists of an aluminium laminar heat exchanger providing effective condensation of the water vapour contained in the flue gases, permitting extremely high efficiency.

Above the heat exchanger, in the boiler, there is a **pre-mix burner**, with a large ceramic surface, equipped with electronic ignition and ionization flame control, which achieves extremely low emissions while ensuring high reliability and long life operation.

The boiler is totally **room sealed** from the installation room: the air needed for combustion is drawn from outside. The boiler also includes a modulating speed fan, modulating gas valve, pump, expansion vessel, safety valve, temperature sensors, a safety thermostat and a low water pressure sensor.

Thanks to the **microprocessor** control and adjustment system with advanced self-diagnosis, unit operation is for the most part automatic. The power for heating is automatically governed by the control system.

The user only has to set the temperature desired inside the home by means of a room thermostat and appliance temperature control. The adjustment and control system will provide optimum operation throughout the year.

The display continuously provides information on the unit's operating status and it is easily possible to obtain additional information on the sensor temperatures, set-points, etc. or configure them. Any operating problems associated with the boiler or system is immediately signalled by the display and, if possible, corrected automatically.



## 1.2 Control panel

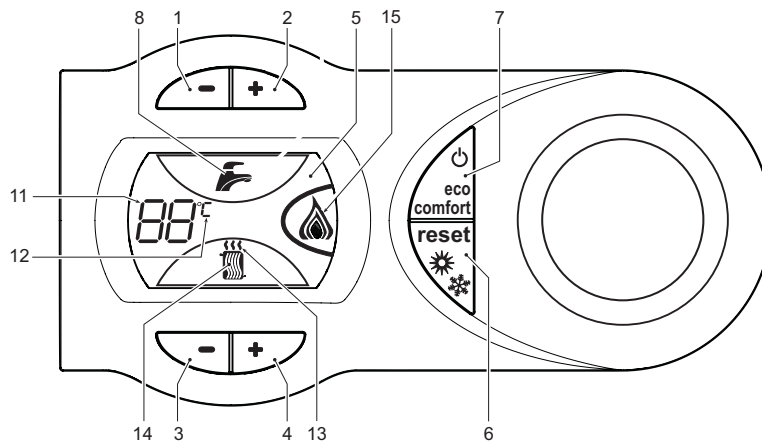


fig. 1

- 1 = Domestic Hot Water temperature setpoint decreasing push button (not used)
- 2 = Domestic Hot Water temperature setpoint increasing push button (not used)
- 3 = Central Heating water temperature setpoint decreasing push button
- 4 = Central Heating water temperature setpoint increasing push button
- 5 = Display LCD
- 6 = Reset
- 7 = On-Off push button
- 8 = Domestic Hot Water symbol
- 11 = Multi-function indication
- 12 = Degrees indication
- 13 = Central Heating mode operation
- 14 = Central Heating symbol
- 15 = Burner on and actual load indication

### Indication during boiler operation

#### **Demand mode**

The Boiler heat demand (generated by the Programmer, room thermostat and cylinder thermostat) is indicated by the flashing of the Hot Air symbol over the radiator (part. 13 and 14 – fig. 1). The display indicates the actual System water temperature (part. 11 – fig. 1).

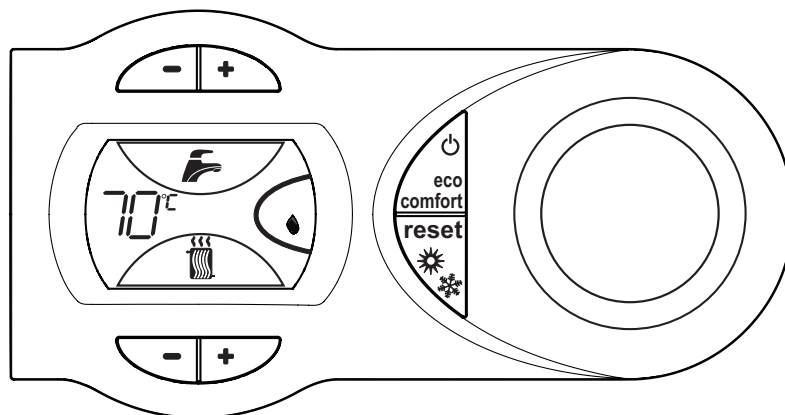


fig. 2

### 1.3 Turning ON and OFF

#### Without main power supply

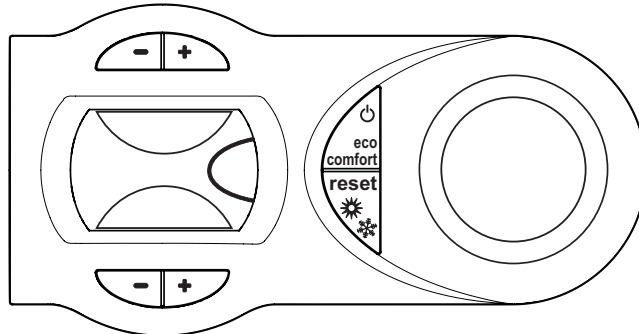


fig. 3 - Boiler without main power supply



To avoid damage caused by freezing during long shutdowns in winter, it is advisable to drain all water from the system.

#### Ignition

Ensure the power is on to the appliance.

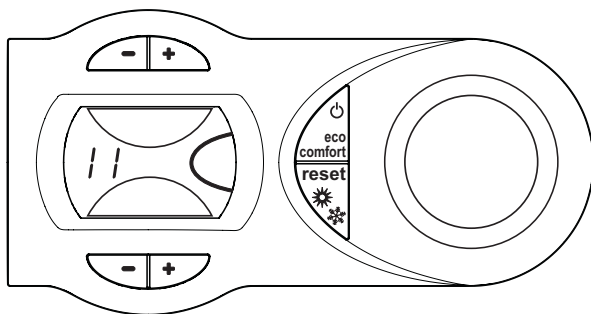


fig. 4 - Ignition

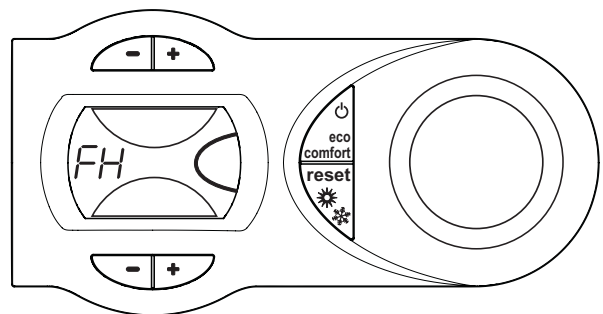



fig. 5 - Air purge

- For the first 120 seconds, the display shows FH that identifies the Air purge function.
- During the first 5 seconds, the display shows the software version of the pcb.
- Open the gas cock on the boiler and purge the air from the pipework upstream of the gas valve.
- When the FH disappears, the boiler is ready to function automatically whenever the external controls are calling for heat.

#### Turning off

Press the  (part. 7 - fig. 1) for 5 seconds.

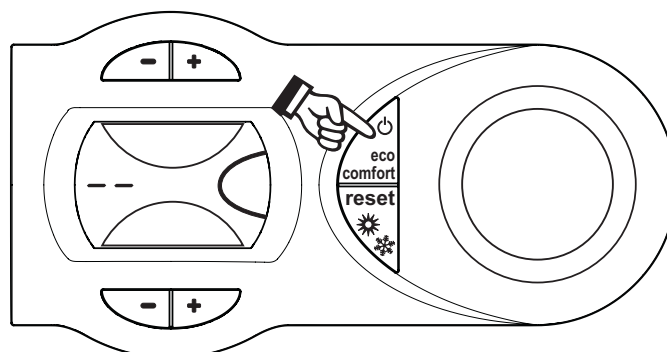


fig. 6 - Turning off

When the boiler is turned off with this key, the p.c.b is still powered, heating operation is disabled and the display is off however the frost protection will still be active.

**To totally isolate close the gas cock ahead of the boiler and disconnect electrical power.**



To avoid damage caused by freezing during long shutdowns in winter, it is advisable to drain all water from the system.

To turn the boiler on again, press  (part.7 - fig.1) for 5 seconds.

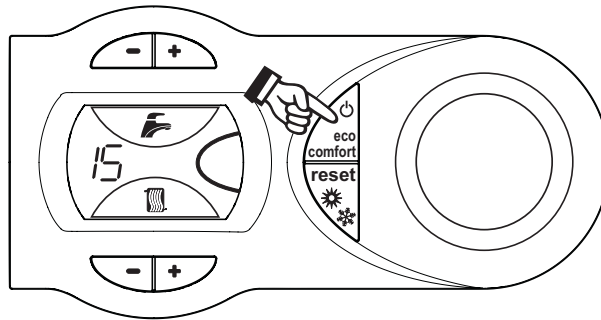


fig. 7

If there is no heat demand, the display shows the actual water pressure (bar/10).

The boiler is ready to function automatically whenever the external controls are calling for heat.

## 1.4 Adjustments

### Heating temperature setting

To set the system flow temperature, use the CH push buttons  (Part. 3 and 4 – fig. 1). It can be varied from a minimum of 20°C to a maximum of 90°C.

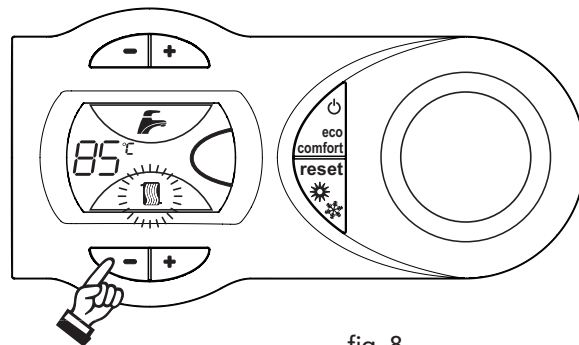


fig. 8

### Room temperature adjustment (using a room thermostat )

Using the room thermostat, set the temperature desired in the rooms. Controlled by the room thermostat, the boiler lights and heats the system water to the system delivery setpoint temperature. The burner shuts down when the desired temperature in the room is reached.



A room thermostat and programmer are a mandatory requirement (Building regulations Doc 'L' 2002).


## 1.5 Maintenance

It is strongly recommended to carry out annual maintenance of the boiler and heating system. Please refer to the "maintenance" section in this manual.

The casing, the control panel and the aesthetic parts of the boiler can be cleaned using a soft and damp cloth, **do not use abrasives or solvents.**

## 1.6 Faults

In the unlikely event of an operating problem, or component failure, the display flashes and a fault identification code appears.

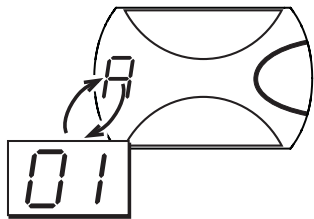
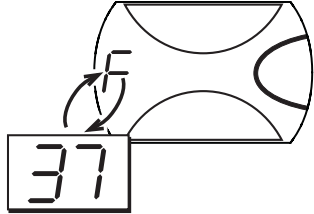
The boiler is equipped with an advanced self-diagnosis system that signals any faults on the display. Some faults ("A" indication) cause a boiler shutdown. In this case, operation must be reset manually by pressing the  (Part. 6 – fig. 1) for 1 second.


Other faults ("F" indication) cause temporary shutdowns that are automatically reset as soon as the value causing the fault comes back within the boiler's normal working range.

Listed below are some anomalies that can be caused by simple, user-solvable problems.

If the problem remains after two attempts at resetting, contact the Ferroli Service Centre.

For other faults, refer to section 3.4 "Troubleshooting".

	Fault	Cure
	<b>No burner ignition</b>	Make sure that the gas cocks ahead of the boiler and on the meter are open. Press the RESET button (for 1 second). In case of repeated shutdowns, contact the Ferroli Service Department.
	<b>Low system pressure</b>	Fill the 'system to 1-1.5 bar.

 Before calling a Ferroli service engineer, check that the problem is not due to there being no gas or electricity, or low system pressure.

## 2. INSTALLATION

### 2.1 General Instructions



This device must only be used for the purpose for which it is specially designed. This unit is designed to heat water to a temperature below boiling point and must be connected to a heating system and/or a water supply system for domestic use, compatible with its performance, characteristics and its heating capacity. Any other use is considered improper.

BOILER INSTALLATION MUST ONLY BE PERFORMED BY QUALIFIED PERSONNEL, IN ACCORDANCE WITH ALL THE INSTRUCTIONS GIVEN IN THIS TECHNICAL MANUAL, THE PROVISIONS OF CURRENT LAW, THE RECOMENDATION OF BS STANDARDS, ANY LOCAL REGULATIONS AND THE RULES OF COMPETENT WORKMANSHIP.

IN IE, THE INSTALLATION MUST BE CARRIED OUT BY A COMPETENT PERSON IN ACCORDANCE WITH THE CURRENT EDITION OF I.S. 813 "DOMESTIC GAS INSTALLATIONS", THE CURRENT BUILDING REGULATIONS AND REFERENCE SHOULD BE MADE TO THE CURRENT ETCI RULES FOR ELECTRICAL INSTALLATIONS.

Incorrect installation can cause damage or physical injury for which the manufacturer declines any responsibility.

**This appliance must be installed strictly in accordance with these instructions and regulations:**

The Gas Safety Regulations (Installations & Use).

The Local Building Regulations.

The Building Regulations (Part L).

The Buildings Standards (Scotland - Consolidated) Regulations.

British Standards Codes of Practice:

B.S. 5440 Part 1 Flues

B.S. 5440 Part 2 Air supply

B.S. 5449 FORCED CIRCULATION HOT WATER SYSTEMS

B.S. 6798 INSTALLATION OF GAS FIRED HOT WATER BOILERS

B.S. 6891 GAS INSTALLATIONS

B.S. 7671 IEE WIRING REGULATIONS

B.S. 4814 SPECIFICATION FOR EXPANSION VESSELS

B.S. 5482 INSTALLATION OF LPG

B.S. 7593 TREATMENT OF WATER IN DOMESTIC HOT WATER CENTRAL HEATING SYSTEMS

B.S. 5546 INSTALLATION OF HOT WATER SUPPLIES FOR DOMESTIC PURPOSES

I.S. 813 DOMESTIC GAS INSTALLATIONS (EIRE ONLY)

Model Water Bye Laws

B.S. 5955-8 PLASTIC PIPEWORK INSTALLATION

For Northern Ireland the rules in force apply



## 2.2 Boiler location

The unit's combustion chamber is sealed off from the installation room and therefore requires no compartment ventilation.

The installation room must be sufficiently well ventilated to prevent any dangerous conditions from forming in the event of even slight gas leakage. This safety standard is required by the EEC Directive no. 90/396 for all gas units, including those with a so-called sealed chamber.

Therefore the place of installation must be free of dust, flammable materials or objects or corrosive gases. The room must be dry and not subject to freezing.

The boiler is designed to be installed on a solid wall. The wall fixing must ensure a stable and effective support for the appliance, using the bracket and fixings supplied.

If the unit is enclosed in a cupboard or mounted alongside, there must be space for normal maintenance work. Fig. 9 and tab. 1 give the minimum clearances to leave around the unit.

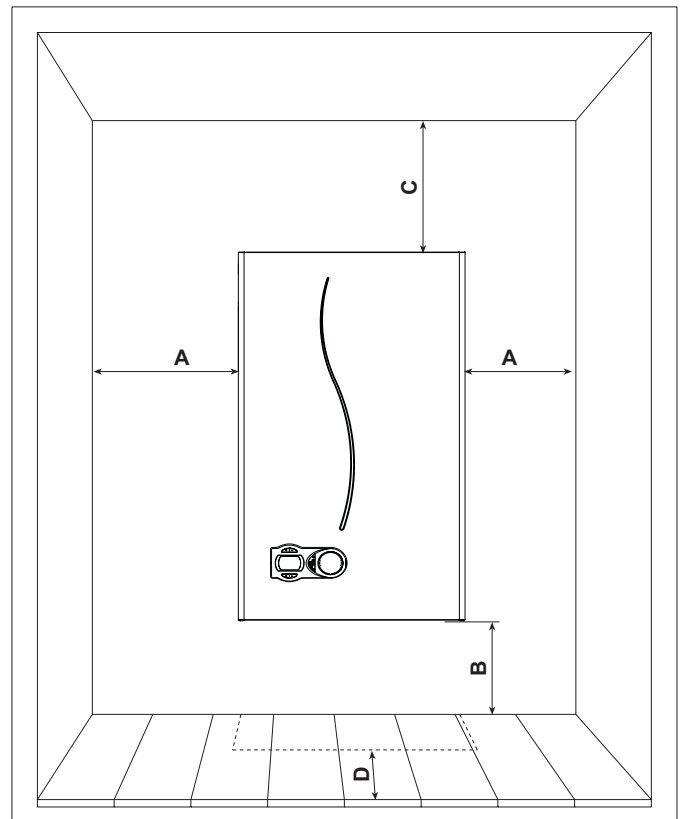


fig. 9

Table 1	
	Minimum
A	2,5 cm
B	20 cm
C	30 cm
D	60 cm (via an openable panel)

### Safe Handling of Substances

Care should be taken when handling the boiler insulation panels, which can cause irritation to the skin. No asbestos, mercury or CFCs are included in any part of the boiler.

### Product Handling Advice

When handling or lifting always use safe techniques - keep your back straight, bend your knees, don't twist - move your feet, avoid bending forwards and sideways and keep the load as close to your body as possible.

Where possible transport the boiler using a sack truck or other suitable trolley.

Always grip the boiler firmly, and before lifting feel where the weight is concentrated to establish the centre of gravity, repositioning yourself as necessary.

## 2.3 Boiler water connections

The heating capacity of the unit should be previously established by calculating the building's heat requirement according to current regulations. For good operation and long life of the boiler, the plumbing system must be well proportioned and always complete with all those accessories that guarantee regular operation and running, room thermostat, trv's etc. The flow and return must be a minimum diameter of 22mm for the first 3 metres from the appliance.

If the flow and return pipes follow a path where air pockets could form in certain places, it is essential to install vent valves at these points. Also, install type "A" drain cock device at the lowest points in the system to allow complete draining.

The temperature differential between the flow manifold and the return to the boiler should not exceed 20° C.

A minimum flow of 6 litres/min is required through the heat exchanger, calibrated on site. An automatic by-pass is fitted to the boiler which will provide this flow rate in most circumstances.

Do not use the water system pipes to earth electrical appliances.

Before installation, carefully flush all the pipes of the heating system to remove residues or impurities that could affect the unit's operation (BS 7593 Building regs Doc L).

Make the connections to the appliance as shown in fig. 10.

### Key

- 1 System flow (22 mm with isolation valve fitted)
- 3 Gas inlet (22 mm with isolation valve fitted)
- 5 System return - 22 mm with isolation valve fitted (c/w filter)
- 6 Pressure Relief Valve
- 7 Condense outlet

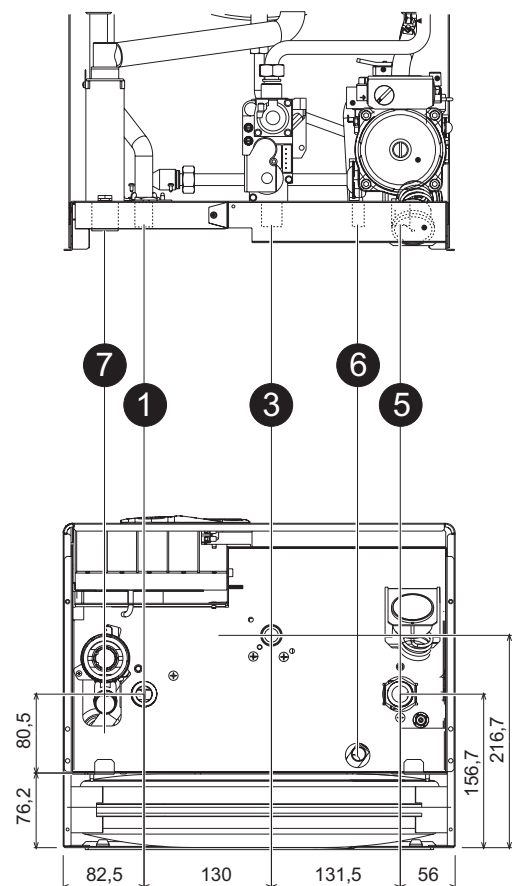


fig. 10

It is essential to install the isolation valves supplied between the boiler and heating system, allowing the boiler to be isolated from the system if necessary.

The safety valve outlet must be connected to a 15mm diameter copper pipe, with a continual fall from the boiler to allow system water out onto the ground in the event of over-pressure in the heating circuit. If this is not done, and the drain valve trips and floods the room, the boiler manufacturer is not to be held responsible. The outlet should face back against the outer brickwork or building face to prevent harm or injury from hot water discharging in the event of an over-pressurising system.

Make the boiler connection in such a way that its internal pipes are free of stress.

The isolation valve kit shown in Fig. 11 is supplied as standard.

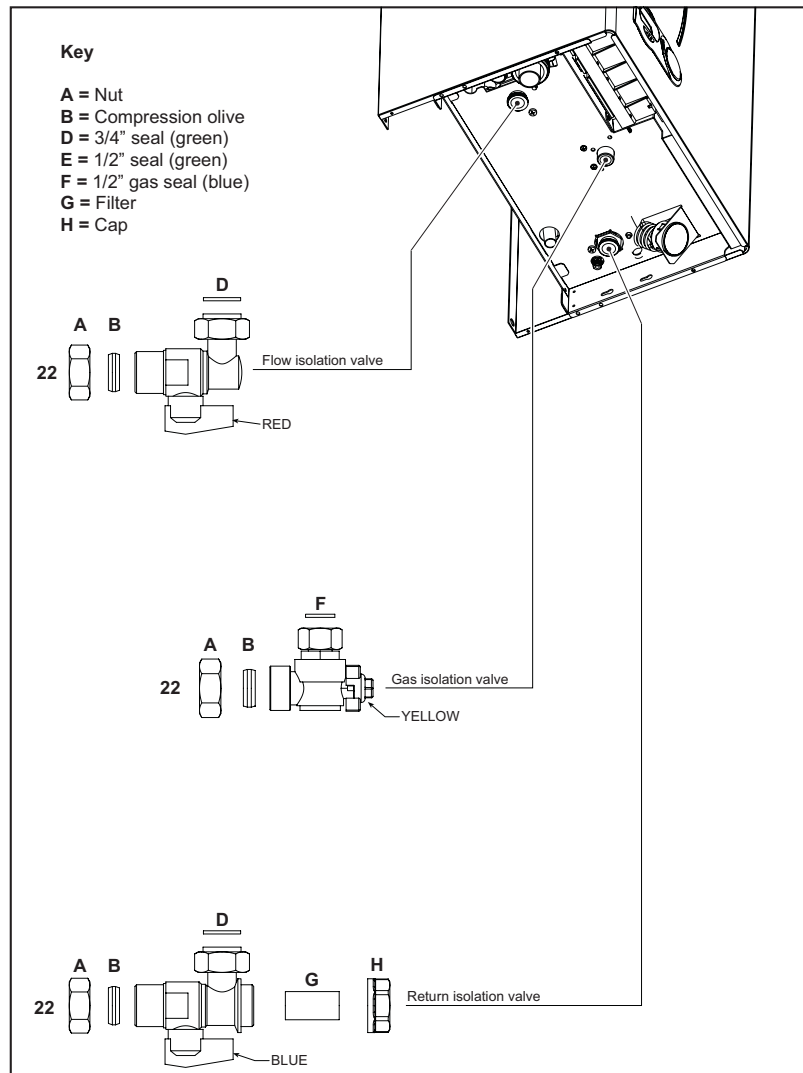


fig. 11

### Make Up Water

Provision must be made for replacing water lost from the sealed system. Reference should be made to BS6798, for methods of filling and making up sealed systems. There must be no direct connection between the boiler's central heating system and the mains water supply. The use of mains water to charge and pressurise the system directly, is conditional upon the Local Water Byelaws. Again any such connection must be disconnected after use. Ensure the filling point is on the return pipe to the boiler.

**Attention** - is drawn to the Model Water Byelaws.

### Key

1. C.H. filling valve.
2. Temporary connection.
3. Cold water supply valve.
4. Double check valve.



Fig. 12

### **Water treatment**

If treatment is used ferroli limited recommended only the use of Fernox or Sentinel water treatment products, which must be used in accordance with the manufactures instructions. for further information contact:

Fernox Manufacturing Co. LTD.  
Cookson Electronics, Forsyth Road  
Sheerwater, Woking, surrey, GU21 5RZ  
Tel: 0870 8700362

Sentinel Performance Solutions Ltd  
The Heath Business & Technical Park  
Runcorn, Cheshire WA7 4QX  
Tel: 0151 424 5351

**Note** - If the boiler is installed on an existing system any unsuitable additives must be removed by thorough cleansing. All systems should be cleansed according to B.S. 7593.

**Note** - In hard water areas treatment to prevent lime scale may be necessary.

**Note** - It is important that the correct concentration of the water treatment product is maintained in accordance with the manufacturers instructions.

## **2.4 Connection to the gas system**

If necessary the local Gas supplier should be consulted, at the installation planning stage, in order to establish the availability of an adequate supply of gas.

An existing service pipe must **not** be used without prior consultation with the local Gas supplier.

A gas meter can only be connected by the Local Gas supplier, or by a Local Gas suppliers Contractor. Installation pipes should be fitted in accordance with BS6891.

Appliance inlet **working pressure** must be 20mbar MINIMUM, for NG and 37 mbar minimum for LPG. Do not use pipes of a smaller size than the boiler inlet gas connection (22 mm).



The complete installation must be tested for gas soundness and purged as described in BS689. All pipework must be adequately supported. An isolating gas valve is provided and should be fitted on the boiler gas inlet. Please wait 10 minutes when lighting from cold before checking gas rate. Gas pressures should be checked after the boiler has operated for 10 minutes to reach thermal equilibrium. This appliance has no facility to check the burner pressure and the gas valve is sealed and should not be adjusted. A combustion test can be carried out (see page 28 combustion analyser testing).



The isolation kit shown in Fig. 11 is supplied as standard.

## **2.5 Electrical Connections**

The unit must be installed in conformity with current national and local regulations.

### **Connection to the electrical Supply**

The boiler must be connected to a single-phase, 230 Volt-50 Hz electric supply.



The unit's electrical safety is only guaranteed when correctly connected to an efficient earthing system executed according to current safety standards. Have the efficiency and suitability of the earthing system checked by professionally qualified personnel. The manufacturer is not responsible for any damage caused by failure to earth the system. Also make sure that the electrical system is adequate for the maximum power absorbed by the unit, as specified on the boiler dataplate, in particular ensuring that the cross sectional area of the system's cables is suitable for the power absorbed by the unit.

The boiler is prewired and provided with a cable and fitted with a 3 amp plug for connection to the electricity supply.



**!** The user must never change the unit's power cable. If the cable gets damaged, switch off the unit and have it changed only by professionally qualified personnel. If changing the electric power cable, use only "HAR H05 VV-F" 3x0.75 mm<sup>2</sup> cable with a maximum outside diameter of 8 mm.

**Access to the electrical terminal block**

Follow the instructions given in fig. 13 to access the electrical connection terminal block. The layout of the terminals for the various connections is given in the wiring diagram in the Technical Data chapter.

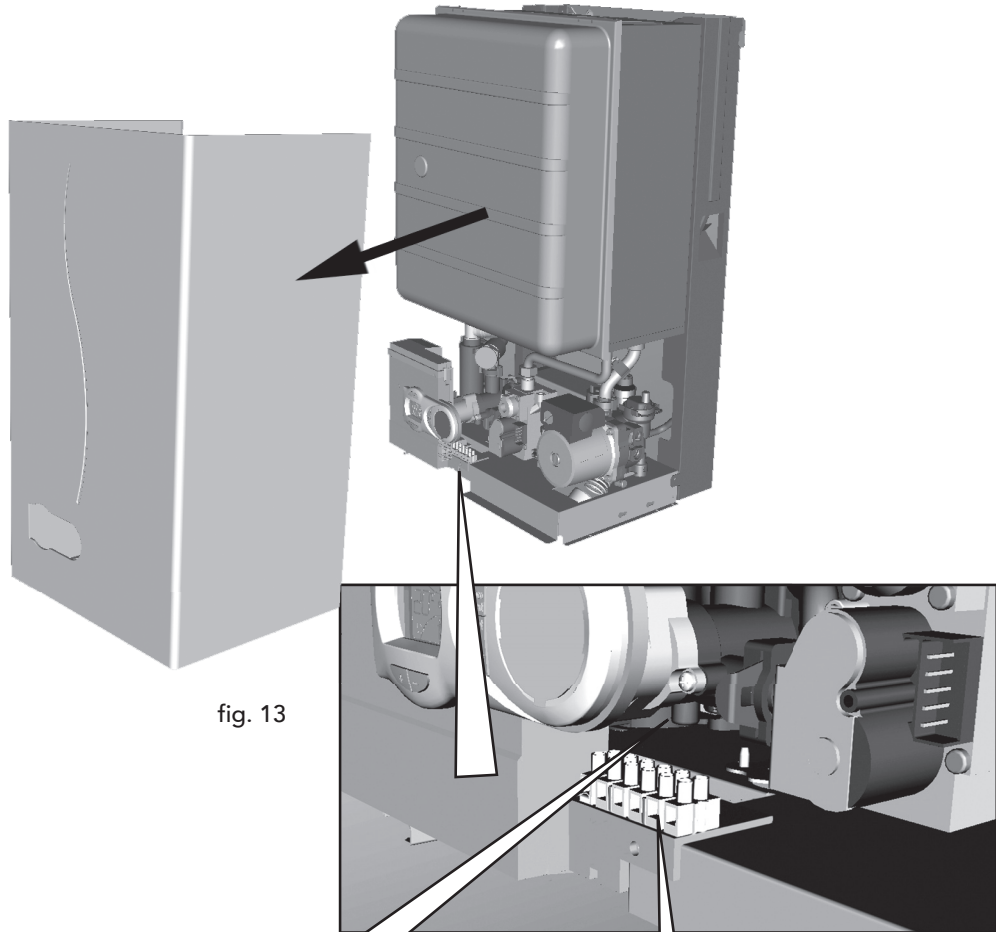


fig. 13

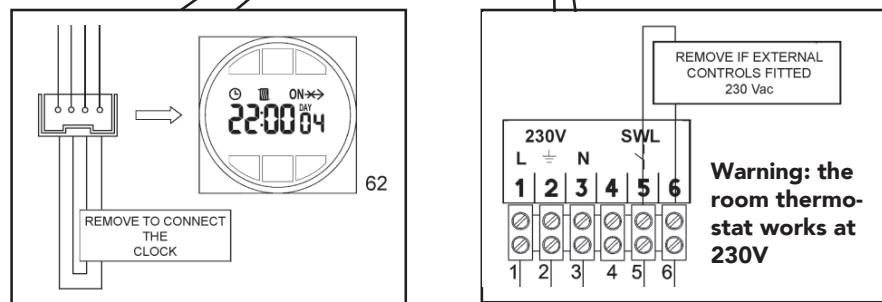


fig. 14

Key

62 Time Clock (optional)

**Room thermostat**

**!** Remove connections 5 - 6 if external control fitted. If using external controls the switched line can be connected into terminal 5 of the electrical block ( see fig 15 and 16 ).

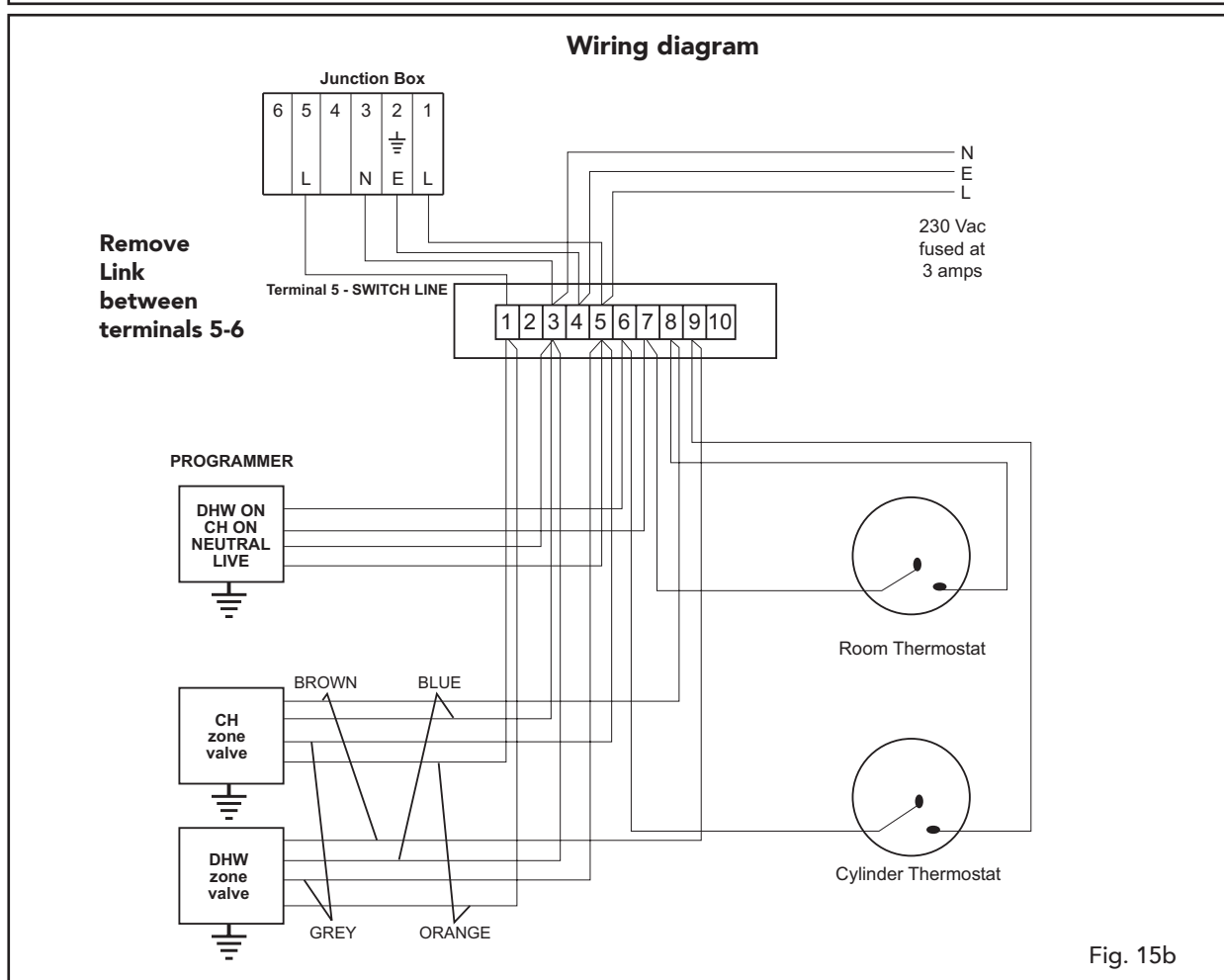
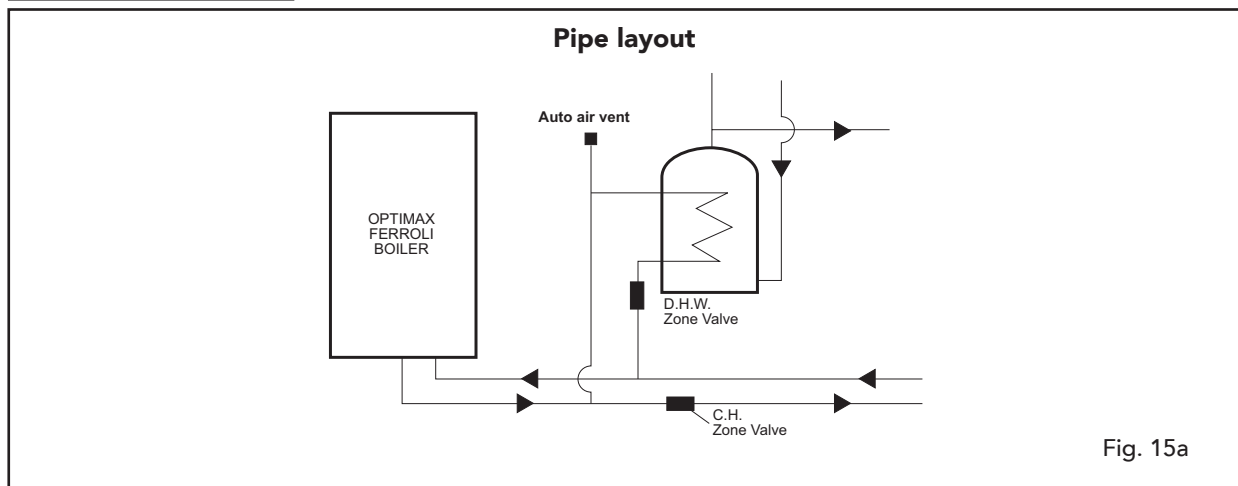
## Central heating Demand

The heat demand can be controlled by the room thermostat (terminal 5-6) or by a switch line 230 V (terminal 5).

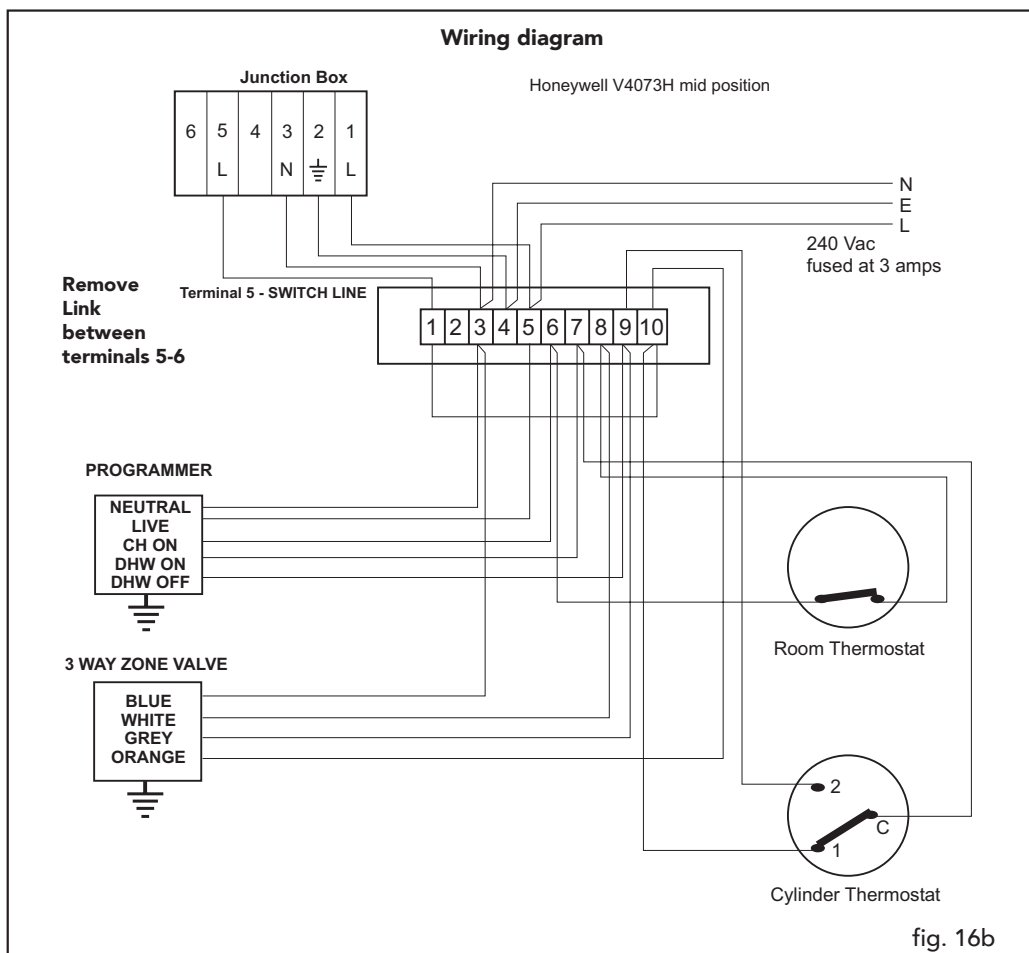
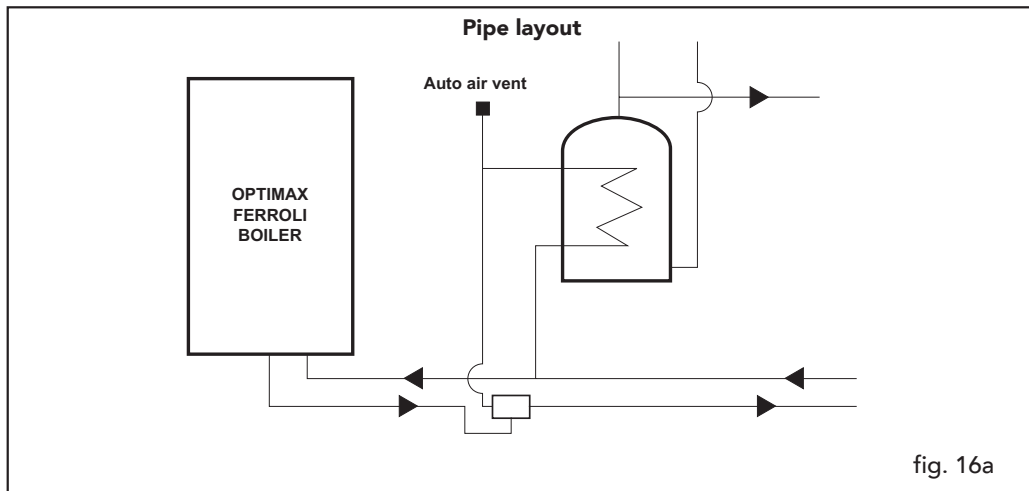
## Standard Systems

For a general pipe layout and wiring diagram on the "S" and "Y" plan systems please see fig. 15a, 15b, and 16a, 16b.

## OPTIMAX "S" Plan



**OPTIMAX "Y" Plan**



**2.6 Flue system**

The unit is "type C" with a **sealed chamber** and forced draught, the air inlet and flue outlet must be connected to one of the following flue systems. With the aid of the tables and methods of calculation indicated, before commencing installation, it is first necessary to check that the flue system does not exceed the maximum permissible length. The current standards and local regulations must be observed.

It should be noted that only Ferroli flue system and accessories should be used on this appliance, as per BS 5440 2000 and C.E. test certification.















































