FERSYSTEM TECH 38 C

Seasonal Efficiency (SEDBUK) band A

INSTRUCTIONS FOR USE INSTALLATION AND MAINTENANCE
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.

• “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 symbol 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 instal-
  lation, 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 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 engi-
  neer.

• 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.

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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
Daniele Ferroli
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1. OPERATING INSTRUCTIONS

1.1 Introduction

Dear Customer,

Thank you for choosing the FERSYSTEM TECH 38 C, a FERROLI wall-mounted boiler of the latest generation, featuring advanced design and cutting-edge technology.

FERSYSTEM TECH 38 C is a high-efficiency condensing pre-mix appliance for heating and hot water production 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, flow sensor, temperature sensors, a safety thermostat and a low water pressure switch.

Thanks to the twin 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

1 = Domestic Hot Water temperature setpoint decreasing push button
2 = Domestic Hot Water temperature setpoint increasing push button
3 = Central Heating water temperature setpoint decreasing push button
4 = Central Heating water temperature setpoint increasing push button
5 = Display LCD
6 = Reset / OTC push button
7 = Economy-Comfort / On-Off push button
8 = Domestic Hot Water symbol
9 = Domestic Hot Water mode operation
11 = Multi-function indication (Flashing during heat exchanger protection)
12 = Economy symbol
13 = Central Heating mode operation
14 = Central Heating symbol
15 = Burner on and actual load indication (Flashing during flame current supervision)

Indication during boiler operation
Central Heating mode
The Central Heating heat demand (generated by the OpenTherm Remote Control, the Room Thermostat or the Clock) is indicated by the flashing of the Hot Air symbol over the radiator (part. 13 and 14 – fig. 1). The display indicates the actual Central Heating water temperature (part. 11 – fig. 1) and during central heating off time the text “d2”.

fig. 1

fig. 2
Domestic Hot Water mode
The Domestic Hot Water heat demand (generated by the DHW flow sensor or due to a Comfort request) is indicated by the flashing of the Hot Water symbol under the tap (part. 8 and 9 – fig. 1). The display indicates the actual Domestic Hot Water temperature (part. 11 – fig. 1) and during domestic hot water off time the text “d1”.

1.3 Turning ON and OFF
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.

- For the firsts 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.

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

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. 9](image9)

**Domestic hot water temperature setting**  
To set the hot water temperature, use the DHW push buttons (Part. 1 and 2 – fig. 1). It can be varied from a minimum of 40°C to a maximum of 55°C.

![fig. 10](image10)

**Room temperature adjustment (using a room thermostat )**  
Using the room thermostat, set the temperature desired. 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).

**Room temperature adjustment (using an optional Remote Control)**  
Using the remote control, set the temperature desired. The flow temperature will be controlled by the remote control. For settings and other informations, see the relative manual.
Economy/Comfort selection
The unit is equipped with a special internal device that ensures a high hot-water delivery speed and excellent user comfort. When comfort mode is active the water in the boiler is maintained at a pre-determined temperature, which means that hot water is available at the boiler outlet as soon as a tap is opened, ie with no waiting.

The user can turn the device off (ECO mode) by pressing (part.7 - fig.1). In ECO mode the display shows the relevant symbol (part. 12 - fig. 1). To turn on COMFORT mode, press (part.7 - fig.1) again, the ECO symbol will vanish from the display.

Outside temperature compensation
When the (optional) external sensor kit is fitted to the appliance, the system can work in Outside temperature compensation mode. In O.T.C. mode the temperature of the heating system is controlled according to the external climate conditions, this will guarantee a high degree of comfort and energy saving all year round.

By the CH push buttons (Part. 3 and 4 – fig. 1) is possible to set the maximum flow temperature for the installation.

O.T.C. setting
To enter the OTC mode, press (Part. 6 – fig. 1) for 5 seconds.
The display shows CU flashing (fig. 11); to set Curve, use the DHW push buttons (Part. 1 and 2 – fig. 1). It can be varied from 1 to 10, in accordance with the chart (fig. 13). O means no O.T.C. mode.

It is recommended a start point of 20 - 30°C and a flow temperature of 85°C is required for the UK (Curve 9 or 10).

By pressing the CH push buttons (Part. 3 e 4 – fig. 1), the display shows OF flashing (fig. 12); to set Offset, use the DHW push buttons (Part. 1 and 2 – fig. 1). It can be varied from 20 to 40, in accordance with the chart (fig. 14).
To exit the OTC mode, press \( \text{(Part. 6 – fig. 1)} \) for 5 seconds.

**fig. 13**

**OFFSET = 20**

**fig. 14**

**OFFSET = 40**
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 button (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”.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>No burner ignition</td>
<td>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 centre.</td>
</tr>
<tr>
<td>Low system pressure</td>
<td>Fill the system to 1-1.5 bar.</td>
</tr>
</tbody>
</table>

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 RECOMMENDATION OF BS STANDARDS, ANY LOCAL REGULATIONS AND THE RULES OF COMPETENT WORKMANSHP.

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

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 circuit 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. 15 and tab. 1 gives the minimum clearances to leave around the unit.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2.5 cm</td>
</tr>
<tr>
<td>B</td>
<td>20 cm</td>
</tr>
<tr>
<td>C</td>
<td>30 cm</td>
</tr>
<tr>
<td>D</td>
<td>60 cm (via an openable panel)</td>
</tr>
</tbody>
</table>

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 Advise

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 22 mm 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 cocks 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. 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. 16

Key

1. System flow (22 mm with isolation valve fitted)
2. DHW outlet (15 mm)
3. Gas inlet (22 mm with isolation valve fitted)
4. Cold main inlet (15 mm with isolation valve fitted)
5. System return - 22 mm with isolation valve fitted (c/w filter)
6. Pressure Relief Valve
7. Condense outlet

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-pressurised system.

Make the boiler connection in such a way that its internal pipes are free of stress. If a check valve is installed on the tap water circuit (where applicable), it is necessary to mount a safety valve between the boiler and this circuit (check valve minimum 3 metres from boiler) or a domestic expansion vessel.
The isolation valves and filling kit shown in Fig. 17 is supplied as standard.

1 - The kit consist of the following items shown in fig 17.

![Diagram of isolation valves and filling kit](image17.png)

**Key**

- A Cold water inlet valve
- B Double check valve
- C Blanking cap
- D Removable connection
- E Blanking plug
- F Isolation valve
- G C/H return valve & filter

2 - Connect the items together as shown in fig. 18.  
3 - .....and then connect the completed assembly to the boiler as shown in fig. 19.

![Connection diagram](image18.png)

**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.

A filling connection is supplied with the valve set in the boiler box.  
**Attention** - is drawn to the Model Water Byelaws.
**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 manufacturers instructions. For further information contact:

- Fernox Manufacturing Co. LTD.
- Sentinel Performance Solutions Ltd
- Cookson Electronics, Forsyth Road
- The Heath Business & Technical Park
- Sheerwater, Woking, surrey, GU21 5RZ
- Runcorn, Cheshire WA7 4QX
- Tel: 0870 8700362
- Tel: 0151 424 5351

**Note** - If the boiler is installed in 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 combination 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 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, however if the inlet pressure and the gas rate are correct the boiler should be set correctly, the gas valve is set and sealed at the factory and should not be adjusted without authorisation from Ferroli Personnel. A combustion test can be carried out to ensure correct air/gas mix (see page 28 combustion analyser testing).

- The isolation kit shown in Fig. 17 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 installed 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 fused plug for connection to the electricity supply. It is important to respect the polarities (LIVE: brown wire / NEUTRAL: blue wire / EARTH: yellow-green wire) in making connections to the electrical 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 mm² cable with a maximum outside diameter of 8 mm.

**Access to the electrical terminal block**

Follow the instructions given in fig. 20 to access the electrical connection terminal board. The layout of the terminals for the various connections is given in the wiring diagram in the Technical Data chapter.

**Key**

72  Room thermostat (Volt Free)
138  Outside temperature sensor
139  Room unit (OpenTherm)
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.

**Room thermostat**

⚠️ CAUTION: THE ROOM THERMOSTAT MUST HAVE VOLTAGE FREE CONTACTS. CONNECTING 230 V. TO THE TERMINALS OF THE TIME CLOCK AND ROOM THERMOSTAT WILL IRREPARABLY DAMAGE THE P.C.B.
Connection with coaxial pipes

fig. 22 - Examples of connection with coaxial pipes (Air / Fumes)

For coaxial connection, fit the unit with one of the following starting accessories. For the wall hole dimensions, refer to sec. 4.1. Any horizontal sections of the fume exhaust must be kept sloping slightly towards the boiler, to prevent possible condensate from flowing back towards the outside and causing dripping.

Table. 2 - Max. length coaxial ducts

<table>
<thead>
<tr>
<th></th>
<th>Coaxial 60/100</th>
<th>Coaxial 80/125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. permissible length</td>
<td>5 m</td>
<td>15 m</td>
</tr>
<tr>
<td>Reduction factor 90° bend</td>
<td>1 m</td>
<td>0.5 m</td>
</tr>
<tr>
<td>Reduction factor 45° bend</td>
<td>0.5 m</td>
<td>0.25 m</td>
</tr>
</tbody>
</table>
Connection with separate pipes

fig. 24 - Examples of connection with separate pipes (Air = Fumes)

For connection of the separate ducts, fit the unit with the following starting accessory:

Before proceeding with installation make sure the maximum permissible length has not been exceeded, by means of a simple calculation:

1. Establish the layout of the system of split flues, including accessories and outlet terminals.
2. Consult the table 4 and identify the losses in \( m_{\text{eq}} \) (equivalent metres) of every element, according to the installation position.
3. Check that the sum total of losses is less than or equal to the maximum permissible length in Table 3.

Table. 3 - Max. length separate ducts

<table>
<thead>
<tr>
<th>Max. permissible length</th>
<th>Separate ducts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55 ( m_{\text{eq}} )</td>
</tr>
</tbody>
</table>
Table. 4 - Accessories

<table>
<thead>
<tr>
<th>Ø 80</th>
<th>Accessory</th>
<th>Code</th>
<th>Air inlet</th>
<th>Fume exhaust</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PIPE 1 m M/F</td>
<td>1KWMA83W</td>
<td>1.0</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>BEND 45° M/F</td>
<td>1KWMA65W</td>
<td>1.2</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>90° M/F</td>
<td>1KWMA01W</td>
<td>1.5</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>PIPE SECTION with test point</td>
<td>1KWMA70W</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>TERMINAL air, wall</td>
<td>1KWMA85A</td>
<td>2.0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>fumes, wall with antiwind</td>
<td>1KWMA86A</td>
<td>-</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>FLUE Split air/fumes 80/80</td>
<td>1KWMA84U</td>
<td>-</td>
<td>12.0</td>
</tr>
</tbody>
</table>

Terminal Position

![Diagram showing terminal position](image-url)

fig. 25
### Minimum Dimensions of Flue Terminal Positions

<table>
<thead>
<tr>
<th>Letter</th>
<th>Description</th>
<th>Minimum Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Directly below an opening, air brick, opening windows, etc.</td>
<td>300mm</td>
</tr>
<tr>
<td>B</td>
<td>Above an opening, air brick, opening windows, etc.</td>
<td>300mm</td>
</tr>
<tr>
<td>C</td>
<td>Horizontally to an opening, air brick, opening windows, etc.</td>
<td>300mm</td>
</tr>
<tr>
<td>D</td>
<td>Below gutters, soil pipes or drain pipes</td>
<td>75mm</td>
</tr>
<tr>
<td>E</td>
<td>Below eaves</td>
<td>200mm</td>
</tr>
<tr>
<td>F</td>
<td>Below balconies or car port roof</td>
<td>200mm</td>
</tr>
<tr>
<td>G</td>
<td>From a vertical drain pipe or soil pipe</td>
<td>150mm</td>
</tr>
<tr>
<td>H</td>
<td>From an internal or external corner</td>
<td>100mm</td>
</tr>
<tr>
<td>I</td>
<td>Above ground roof or balcony level</td>
<td>300mm</td>
</tr>
<tr>
<td>J</td>
<td>From a surface facing the terminal</td>
<td>600mm</td>
</tr>
<tr>
<td>K</td>
<td>From a terminal facing the terminal</td>
<td>1200mm</td>
</tr>
<tr>
<td>L</td>
<td>From an opening in the car port (e.g. door, window) into the dwelling</td>
<td>1200mm</td>
</tr>
<tr>
<td>M</td>
<td>Vertically from a terminal on the same wall</td>
<td>1500mm</td>
</tr>
<tr>
<td>N</td>
<td>Horizontally from a terminal on the same wall</td>
<td>300mm</td>
</tr>
<tr>
<td>O</td>
<td>From the wall on which the terminal is mounted</td>
<td>N/A</td>
</tr>
<tr>
<td>P</td>
<td>From a vertical structure on the roof</td>
<td>150mm</td>
</tr>
<tr>
<td>Q</td>
<td>Above intersection with roof</td>
<td>300mm</td>
</tr>
</tbody>
</table>

**NOTE**

N/A = Not applicable

In addition, the terminal should not be nearer than 150mm (fanned draught) to an opening in the building fabric formed for the purpose of accommodating a built-in element such as a window frame.

Condensing Terminal Positions: If the flue is to be terminated at low level, then the potential effect of the plume must be considered. Plume management kits are available from Ferroli.

The plume should not be directed:  
- across a frequently used access route  
- towards a window or door  
- across a neighbouring property
Connection to collective flues or single flues with natural draught

If you are then going to connect the FERSYSTEM TECH 38 C boiler to a collective flue or a single flue with natural draught, the flue must be expressly designed by professionally qualified technical personnel in conformity with the standards and rules in force.

In particular, flues must have the following characteristics:

- Be sized according to the method of calculation stated in the standard
- Be airtight to the products of combustion, resistant to the fumes and heat and waterproof for the condensate
- Have a circular or square cross-section (some hydraulically equivalent sections are permissible), with a vertical progression and with no constrictions
- Have the flue conveying the hot fumes adequately distanced or isolated from combustible materials
- Be connected to just one unit per floor, for at most 6 units in all (8 if there is a compensation duct or opening)
- Have no mechanical suction devices in the main ducts
- Be at a lower pressure, all along their length, under conditions of stationary operation
- Have at their base a collection chamber for solid materials or condensation of at least 0.5 m, equipped with a metal door with an airtight closure.

2.7 Condensate outlet connection

The boiler is equipped with an internal air-trap to drain off the condensate. Fit the inspection coupling A and the hose B, pushing it on for approximately 3 cm and securing it with a clamp.

Fill the air-trap with approximately 0.5 ltrs of water and connect the hose to the waste system, or soakaway.
Condensate discharge
Where possible the condensate should discharge into an internal soil pipe or waste system. The minimum pipe diameter required is 22 mm, a trap has already been fitted to the appliance with a flexible tail to facilitate the connection to the condensate discharge pipe.

The pipe should be a solvent weld plastic, not copper, as the condensate has a pH value of 4 (slightly acidic).

Where it is not possible to terminate internally, the condensate discharge pipe may be run outside (see below drawing).

Any external run is subject to freezing, in severe weather conditions. To avoid this the pipework should be installed to dispose of the condensate quickly, with as much as possible run internally, before passing through the wall.

Pipework external to the building should be increased in diameter to 32 or 40 mm solvent weld. It should be run to a external drain or soakaway, with a maximum length of 3 metres.

When a soakaway (condensate absorption point) is used, it should be constructed as shown below, or use a specifically designed unit, for example Mc Alpine SOAK1GR available from most plumbing and heating stockists.
3. SERVICE AND MAINTENANCE

3.1 Adjustments

All adjustment and conversion operations must be carried out by Qualified Personnel such as ferroli Technical Service.

FERROLI declines any responsibility for damage or physical injury caused by unqualified and unauthorized persons tampering with the device.

**Gas supply conversion**

The unit can operate on natural gas or LPG and is factory-set for use with one of these two gases, as clearly shown on the packing and on the dataplate. If a gas different from that for which the unit is arranged has to be used, a conversion kit will be required, proceeding as follows:

1. Remove the casing.
2. Open the airtight chamber.
3. Release the fixing clip C and remove gas pipe A from the fan - venturi assembly.
4. Replace nozzle B, inserted in the gas pipe, with that contained in the conversion kit.
5. Reassemble gas pipe A with the clip and check the seal of the connection.
6. Apply the label, contained in the conversion kit, near the dataplate.
7. Refit the sealed chamber and casing.
8. Modify the parameter for the type of gas:
   - put the boiler in standby mode
   - press the DHW buttons details 1 and 2 - fig.1 for 10 seconds: the display shows “P01” flashing.
   - press the DHW buttons fig.1 details 1 and 2 - **to set parameter** 00 (for use with natural gas) or 01 (for use with LPG).
   - press the DHW buttons details 1 and 2 - fig.1 for 10 seconds.
   - the boiler will return to standby mode
9. Using a combustion analyser connected to the boiler fume outlet, check that the CO₂ content in the fumes, with the boiler operating at max. and min. power, matches that given in the technical data table for the corresponding type of gas.
3.2 System start-up

Commissioning must be performed by Qualified Personnel. Checks to be made at first ignition, and after all maintenance operations that involved disconnecting from the systems or an intervention of a safety device.

Before lighting the boiler:

- Open any isolation valves between the boiler and the system.
- Check the tightness of the gas system, proceeding with caution and use gas leak detection fluid to detect any leaks in connections.
- Check the pre-filling of the expansion tank (ref. sec.4.4).
- Fill the water system and make sure that all air contained in the boiler and the system has been vented by opening the air vent valve on the boiler and any vent valves on the system.
- Make sure there are no water leaks in the system, hot water circuits, connections or boiler.
- Make sure the electrical system is properly connected.
- Make sure that the unit is connected to a good earthing system.
- Make sure there are no flammable liquids or materials in the immediate vicinity of the boiler.
- Vent and spin the pump.
- Ensure the flue system is correctly fitted, including terminal locations.

Ignition

- Open the gas valve upstream of the boiler.
- Purge the air from the installation pipework to the appliance.
- Switch on the boiler electrical supply.
- Press the key on the boiler for 5 seconds (part. 7 - fig. 1).
- The boiler is now ready to function automatically whenever there is a demand on the boiler.

In case of an electrical power failure while the boiler is working, the burner will go out. When power returns, the boiler will run the self-test cycle again, after which the burner will automatically re-ignite (if there is still a demand).

Checks during operation

- Check the tightness of the gas circuit and water systems.
- Check the efficiency of the flue and air-flue ducts while the boiler is working.
- Check that the water is circulating properly between the boiler and the system.
- Make sure that the gas valve modulates correctly.
- Check the proper ignition of the boiler by performing various tests, turning it on and off with the room thermostat or remote control.
- Make sure that the gas rate indicated on the meter corresponds to that given in the technical data table in section 4.4 page 35

Turning off

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

⚠️ The following operations are strictly reserved for Qualified Personnel, such as corgi registered engineers or Ferroli engineers.

**Seasonal inspection of the boiler and flue**

It is advisable to carry out the following checks at least once a year:

- The control and safety devices (gas valve, flow meter, thermostats, etc.) must function correctly.
- The flue terminal and ducts must be free of obstructions and leaks.
- The gas and water systems must be sound.
- The burner and exchanger must be clean.
- The electrodes must be free of deposits and correctly positioned.
- The system pressure when cold must be approx 1 bar; otherwise, bring it to that value.
- The expansion vessel must be filled to 1 bar cold with zero system pressure.
- The gas flow and pressure must correspond to that given in table 10 section 4.4 page 34.
- The circulating pump must be vented and free of debris.
- The return filter cleaned.
- The condensate trap inspection bowl should be cleaned and free of debris.
Opening the casing
To open the boiler casing, you need to follow the sequence given below and the instructions of fig. 29.

1. Using a screwdriver, fully unscrew and remove the 2 screws “A”
2. Open by lowering the panel “B”
3. Lift and take off the casing “C”

Cleaning the boiler and burner
The body and burner must not be cleaned with chemical products or wire brushes. Special care must be taken over all the sealing systems pertaining to the sealed chamber (gaskets, cable clamps, etc.). In addition, it is necessary to pay attention after performing all these operations to check and carry out all the phases of ignition and thermostat operation, the gas valve and circulation pump.

⚠️ After these checks, make sure there are no gas leaks.

Combustion analysis
It is possible to analyse the combustion through the air and flue sampling points shown in fig. 16.

To make the measurement, it is necessary to:
1) Open the flue sampling point
2) Insert the probe;
3) Press CH button ⬇️ (part. 3, 4 - fig. 1) for 5 seconds to turn on TEST mode;
4) Wait 10 minutes for the boiler to stabilize
5) Take the measurement.

NAT GAS; CO2 reading should be 8.7 to 9.0%
L.P.G; CO2 reading should be 9.5 to 10%

⚠️ Readings taken with an unstabilized boiler will cause measurement errors.
## 3.4 Troubleshooting

### Fault Diagnosis

In the event of operating problems or trouble, the display will flash and a fault identification code appears.

There are faults that in order to restore operation the RESET button must be pressed (ref.6 - fig. 1); or if the boiler fails to start, it will be necessary to repair the fault (code nos. F1 to F24). Other faults cause temporary shutdowns that are automatically reset as soon as the value comes back within the boiler’s normal working range (codes from 25 to 47).

When the boiler starts functioning normally again, the display stops flashing and the fault code disappears.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01</td>
<td>No burner ignition</td>
<td>No gas Check the regular gas flow to the boiler and the air has been purged from the pipes.</td>
</tr>
<tr>
<td></td>
<td>Detection or ignition electrode fault</td>
<td>Check that the electrodes are correctly positioned and free of any deposits</td>
</tr>
<tr>
<td></td>
<td>Defective gas valve</td>
<td>Check and change the gas valve</td>
</tr>
<tr>
<td></td>
<td>Incorrect inlet gas pressure</td>
<td>Check inlet gas pressure</td>
</tr>
<tr>
<td></td>
<td>Siphon obstructed</td>
<td>Check and if necessary change the siphon</td>
</tr>
<tr>
<td>A02</td>
<td>Flame detected with the burner off</td>
<td>Ionisation electrode defective Check the ionizing electrode wiring</td>
</tr>
<tr>
<td></td>
<td>Main board defective</td>
<td>Check the PCB</td>
</tr>
<tr>
<td>A03</td>
<td>High limit protection</td>
<td>Flow temperature sensor not active or correctly located Check the correct positioning and operation of the flow sensor</td>
</tr>
<tr>
<td></td>
<td>No system circulation</td>
<td>Check the pump and radiator valves present in the system Check operation of the internal by-pass</td>
</tr>
<tr>
<td>A04</td>
<td>Flue gas fault</td>
<td>Fault F07 happened 3 times in the last 24 hours Check the flue</td>
</tr>
<tr>
<td>A05</td>
<td>Fan problem</td>
<td>Tachometer signal interrupted for 1 hour or longer Check the wiring and the fan</td>
</tr>
<tr>
<td>A06</td>
<td>No flame after the ignition phase (6 times in 4 min.)</td>
<td>Detection electrode fault Check that the electrode is correctly positioned and if necessary change it</td>
</tr>
<tr>
<td></td>
<td>Flame unstable</td>
<td>Check the burner</td>
</tr>
<tr>
<td></td>
<td>Incorrect valve gas Offset</td>
<td>Check Offset at the minimum power</td>
</tr>
<tr>
<td></td>
<td>Flue gas circuit obstructed</td>
<td>Check if flue gas circuit is free</td>
</tr>
<tr>
<td></td>
<td>Siphon obstructed</td>
<td>Check and if necessary change the siphon</td>
</tr>
<tr>
<td>A41</td>
<td>Flow sensor disconnected</td>
<td>Sensor disconnected Check the correct position and operation of the flow sensor</td>
</tr>
<tr>
<td>F07</td>
<td>Flue gas fault</td>
<td>The exhaust gases temperature becomes higher than 95°C for 2 minutes Check the flue</td>
</tr>
<tr>
<td>F10</td>
<td>Flow sensor fault</td>
<td>Sensor damaged or short circuited Check the wiring or change the sensor</td>
</tr>
<tr>
<td></td>
<td>Sensor damaged or wiring broken</td>
<td>Check the wiring or change the sensor</td>
</tr>
<tr>
<td>F11</td>
<td>Return sensor fault</td>
<td>Sensor damaged or wiring shorted Check the wiring or change the sensor</td>
</tr>
<tr>
<td></td>
<td>Sensor damaged or wiring broken</td>
<td>Check the wiring or change the sensor</td>
</tr>
<tr>
<td>Fault</td>
<td>Possible cause</td>
<td>Cure</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>F12</td>
<td>DHW sensor fault</td>
<td>Sensor damaged</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wiring shorted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wiring disconnected</td>
</tr>
<tr>
<td>F13</td>
<td>Flue sensor fault</td>
<td>Sensor damaged or wiring shorted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sensor damaged or wiring broken</td>
</tr>
<tr>
<td>F14</td>
<td>Flow sensor fault</td>
<td>Sensor damaged or short circuited</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sensor damaged or wiring broken</td>
</tr>
<tr>
<td>F15</td>
<td>Fan problem</td>
<td>Tachometer signal interrupted, fan connection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fan damaged, debris in fan</td>
</tr>
<tr>
<td>F34</td>
<td>Supply voltage under 170V.</td>
<td>Electric supply problem</td>
</tr>
<tr>
<td>F35</td>
<td>Irregular mains frequency</td>
<td>Electric supply problem</td>
</tr>
<tr>
<td>F37</td>
<td>Incorrect system water pressure</td>
<td>Pressure too low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sensor damaged</td>
</tr>
<tr>
<td>F39</td>
<td>External probe fault</td>
<td>Sensor damaged or short-circuited</td>
</tr>
<tr>
<td>F42</td>
<td>Flow sensor fault</td>
<td>Sensor damaged</td>
</tr>
</tbody>
</table>

- Check the wiring or replace the sensor
- Check the wiring or change the sensor
- Check the wiring or change the sensor
- Check the wiring or change the sensor
- Check the wiring and fan
- Check the fan, clean debris
- Check the electrical system
- Fill the system
- Check the sensor
- Check the wiring or change the sensor
- Change the sensor
4. TECHNICAL CHARACTERISTICS AND DATA

4.1 Dimensions and connections

Key
1. System flow (22 mm with isolation valve fitted)
2. DHW outlet (15 mm)
3. Gas inlet (22 mm with isolation valve fitted)
4. Cold main inlet (15 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. 31
4.2 General view and main components

Key

5 Room sealed compartment
7 Gas inlet
8 DHW outlet
9 Cold main inlet
10 CH flow
11 CH return
14 Heating safety valve
16 Premix fan assembly
19 Combustion-compartment
22 Main burner
29 Internal flue collar
32 Heating pump
36 Automatic air vent
37 Cold water inlet filter
39 Cold water flow limiter
42 D.h.w. temperature sensor
44 Gas valve

56 Expansion vessel
82 Ionisation electrode
95 Motorised Diverting valve
114 Water pressure switch
136 Flow meter
145 C.h. pressure gauge
154 Condensate outlet pipe
161 Heat exchanger
186 Return temperature sensor
188 Spark Electrode
191 Flue temperature sensor
194 Domestic plate Heat exchanger
196 Condensate collector
201 Fan Venturi
250 System delivery filter
278 Double sensor (Safety + Heating flow)
4.3 Hydraulic diagram

Key

7 Gas inlet
8 DHW outlet
9 Cold main inlet
10 CH flow
11 CH return
14 Heating Pressure Relief safety valve
16 Premix fan assembly
32 Heating pump
36 Automatic air vent
42 D.h.w. temperature sensor
44 Gas valve
56 Expansion vessel

95 Motorised Diverting valve
114 Water pressure switch
136 Flow meter
154 Condensate outlet pipe
161 Heat exchanger
186 Return temperature sensor
193 Siphon
194 Domestic plate Heat exchanger
241 Automatic by-pass valve
278 Double sensor (Safety + Heating)
### 4.4 Technical data table

<table>
<thead>
<tr>
<th>Powers</th>
<th>Pmax</th>
<th>Pmin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi Heating power</td>
<td>30.8</td>
<td>6.5</td>
</tr>
<tr>
<td>Hi DHW power</td>
<td>38.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Useful Heating Power 80° C - 60° C</td>
<td>30.2</td>
<td>6.3</td>
</tr>
<tr>
<td>Useful Heating Power 50° C - 30° C</td>
<td>32.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Useful DHW Power</td>
<td>37.7</td>
<td>6.3</td>
</tr>
<tr>
<td>Natural Gas delivery (G20)</td>
<td>4.07</td>
<td>0.69</td>
</tr>
<tr>
<td>Natural Gas supply pressure (G20)</td>
<td>m³/h</td>
<td></td>
</tr>
<tr>
<td>LPG flow rate (G31)</td>
<td>kg/h</td>
<td>3.01</td>
</tr>
<tr>
<td>LPG supply pressure (G31)</td>
<td>mbar</td>
<td>37</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Combustion</th>
<th>Pmax</th>
<th>Pmin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal Efficiency (SEDBUK)</td>
<td>%</td>
<td>90.4</td>
</tr>
<tr>
<td>CO2 (G20 - Natural Gas)</td>
<td>%</td>
<td>9.0</td>
</tr>
<tr>
<td>Gas nozzle (G20 - Natural Gas)</td>
<td>Ø mm</td>
<td>8.2</td>
</tr>
<tr>
<td>CO2 (G31 - Propane)</td>
<td>%</td>
<td>10</td>
</tr>
<tr>
<td>Gas nozzle (G31 - Propane)</td>
<td>Ø mm</td>
<td>5.1</td>
</tr>
<tr>
<td>Flue temperature 80°C - 60°C</td>
<td>°C</td>
<td>65</td>
</tr>
<tr>
<td>Flue temperature 50°C - 30°C</td>
<td>°C</td>
<td>46</td>
</tr>
<tr>
<td>Flue flow rate</td>
<td>kg/h</td>
<td>64.8</td>
</tr>
<tr>
<td>Quantity of condensate</td>
<td>kg/h</td>
<td>3.3</td>
</tr>
<tr>
<td>pH of condensation water</td>
<td>pH</td>
<td>4.1</td>
</tr>
<tr>
<td>Energy marking (92/42 EEC directive)</td>
<td></td>
<td>⭐⭐⭐⭐</td>
</tr>
<tr>
<td>NOx emission class</td>
<td></td>
<td>5</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Heating</th>
<th>°C</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating temperature adjustment range</td>
<td></td>
<td>20 - 90</td>
</tr>
<tr>
<td>Maximum working temperature in heating</td>
<td>°C</td>
<td>95</td>
</tr>
<tr>
<td>Heating circuit PMS safety valve (preset)</td>
<td>bar</td>
<td>3</td>
</tr>
<tr>
<td>Minimum working pressure in heating</td>
<td>bar</td>
<td>0.8</td>
</tr>
<tr>
<td>Expansion vessel capacity</td>
<td>litres</td>
<td>10</td>
</tr>
<tr>
<td>Expansion vessel pre-filling pressure</td>
<td>bar</td>
<td>1</td>
</tr>
<tr>
<td>Total boiler water content</td>
<td>litres</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hot water</th>
<th>l/min</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot tap water supply Δt 25°C</td>
<td></td>
<td>21.6</td>
</tr>
<tr>
<td>Hot tap water supply Δt 30°C</td>
<td></td>
<td>18.0</td>
</tr>
<tr>
<td>Hot tap water supply Δt 35°C</td>
<td></td>
<td>12.6</td>
</tr>
<tr>
<td>Tap water temperature adjustment range</td>
<td>°C</td>
<td>40 - 55</td>
</tr>
<tr>
<td>Maximum working pressure in hot water production</td>
<td>bar</td>
<td>9</td>
</tr>
<tr>
<td>Minimum working pressure in hot water production</td>
<td>bar</td>
<td>0.25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions, weights connections</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>mm</td>
<td>700</td>
</tr>
<tr>
<td>Width</td>
<td>mm</td>
<td>450</td>
</tr>
<tr>
<td>Depth</td>
<td>mm</td>
<td>330</td>
</tr>
<tr>
<td>Weight empty</td>
<td>kg</td>
<td>42</td>
</tr>
<tr>
<td>Gas system connection (with isolation valve fitted)</td>
<td>mm</td>
<td>Ø22</td>
</tr>
<tr>
<td>Heating system connections (with isolation valve fitted)</td>
<td>mm</td>
<td>Ø22</td>
</tr>
<tr>
<td>Hot water circuit connections (with isolation valve fitted)</td>
<td>mm</td>
<td>Ø15</td>
</tr>
<tr>
<td>Maximum length of separate flues D=80&quot; (incl. isolation valve fitted)</td>
<td>mₚ</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical power supply</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max electrical power absorbed</td>
<td>W</td>
<td>140</td>
</tr>
<tr>
<td>Electric power drawn by the circulator (Speed I-II-III)</td>
<td>W</td>
<td>60-65-70</td>
</tr>
<tr>
<td>Electrical protection rating</td>
<td>IP</td>
<td>X5D</td>
</tr>
<tr>
<td>Power voltage/frequency</td>
<td>V/Hz</td>
<td>230/50</td>
</tr>
</tbody>
</table>
4.5 Diagrams

Head available for the system

Key

1 - 2 - 3 = Pump selector positions
(In order to obtain maximum hot water output the pump must be left in position 3).

A = Boiler losses of head
4.6 Wiring diagram

fig. 35

Key

16  Fan
32  Central heating pump
42  D.h.w. temperature sensor
44  Combination gas valve
62  Time clock (optional)
72  Room thermostat
81  Spark Electrode
82  Ionisation electrode
95  Diverting valve
101 Main p.c.b.

104  Fuse
114  Water pressure switch
136  Flowmeter
138  Outside temperature sensor
139  Room unit
186  Return temperature sensor
191  Flue temperature sensor
202  Transformer 230V-24V
203  230v A/C switched supply
278  Double sensor (Safety + Heating)
## GAS BOILER COMMISSIONING CHECKLIST

**BOILER SERIAL No.**

**NOTIFICATION No.**

### CONTROLS

To comply with the Building Regulations, each section must have a tick in one or other of the boxes.

<table>
<thead>
<tr>
<th>TIME &amp; TEMPERATURE CONTROL TO HEATING</th>
<th>ROOM T/STAT &amp; PROGRAMMER/TIMER</th>
<th>PROGRAMMABLE ROOMSTAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME &amp; TEMPERATURE CONTROL TO HOT WATER</td>
<td>CYLINDER T/STAT &amp; PROGRAMMER/TIMER</td>
<td>COMBI BOILER</td>
</tr>
<tr>
<td>HEATING ZONE VALVES</td>
<td>FITTED</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>HOT WATER ZONE VALVES</td>
<td>FITTED</td>
<td>NOT REQUIRED</td>
</tr>
<tr>
<td>THERMOSTATIC RADIATOR VALVES</td>
<td>FITTED</td>
<td></td>
</tr>
<tr>
<td>AUTOMATIC BYPASS TO SYSTEM</td>
<td>FITTED</td>
<td>NOT REQUIRED</td>
</tr>
</tbody>
</table>

### FOR ALL BOILERS CONFIRM THE FOLLOWING

- The system has been flushed in accordance with the Boiler manufacturer’s instructions?
- The system cleaner used
- The inhibitor used

### FOR THE CENTRAL HEATING MODE, MEASURE & RECORD

- **GAS RATE**
  - m³/hr
  - ft³/hr
- **BURNER OPERATING PRESSURE (IF APPLICABLE)**
  - N/A
  - mbar
- **CENTRAL HEATING FLOW TEMPERATURE**
  - °C
- **CENTRAL HEATING RETURN TEMPERATURE**
  - °C

### FOR COMBINATION BOILERS ONLY

- Has a water scale reducer been fitted? YES [ ] NO [ ]
- What type of scale reducer has been fitted?

### FOR THE DOMESTIC HOT WATER MODE, MEASURE & RECORD

- **GAS RATE**
  - m³/hr
  - ft³/hr
- **MAXIMUM BURNER OPERATING PRESSURE (IF APPLICABLE)**
  - N/A
  - mbar
- **COLD WATER INLET TEMPERATURE**
  - °C
- **HOT WATER OUTLET TEMPERATURE**
  - °C
- **WATER FLOW RATE**
  - lts/min

### FOR CONDENSING BOILERS ONLY CONFIRM THE FOLLOWING

- The condensate drain has been installed in accordance with the manufacturer’s instructions? YES [ ]

### FOR ALL INSTALLATIONS CONFIRM THE FOLLOWING

- The heating and hot water system complies with current building regulations
- The appliance and associated equipment has been installed and commissioned in accordance with the manufacturer’s instructions
- If required by the manufacturer, have you recorded a CO/CO₂ ratio reading? N/A [ ] YES [ ] CO/CO₂ RATIO
- The operation of the appliance and system controls have been demonstrated to the customer
- The manufacturer’s literature has been left with the customer

### COMMISSIONING ENG’S NAME

PRINT ______________________ CORGI ID No. ______________________

SIGN ______________________ DATE ______________________
It is recommended that your heating system is serviced regularly and that you complete the appropriate Service Interval Record Below.

**Service Provider.** Before completing the appropriate Service Interval Record below, please ensure you have carried out the service as described in the boiler manufacturer’s instructions. Always use the manufacturer’s specified spare part when replacing all controls.

<table>
<thead>
<tr>
<th>SERVICE 1</th>
<th>DATE</th>
<th>ENGINEER NAME</th>
<th>COMPANY NAME</th>
<th>TEL No.</th>
<th>CORGI ID CARD SERIAL No.</th>
<th>COMMENTS</th>
<th>SIGNATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVICE 2</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
<tr>
<td>SERVICE 3</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
<tr>
<td>SERVICE 4</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
<tr>
<td>SERVICE 5</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
<tr>
<td>SERVICE 6</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
<tr>
<td>SERVICE 7</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
<tr>
<td>SERVICE 8</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
<tr>
<td>SERVICE 9</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
<tr>
<td>SERVICE 10</td>
<td>DATE</td>
<td>ENGINEER NAME</td>
<td>COMPANY NAME</td>
<td>TEL No.</td>
<td>CORGI ID CARD SERIAL No.</td>
<td>COMMENTS</td>
<td>SIGNATURE</td>
</tr>
</tbody>
</table>

FERROLI TECHNICAL HELPLINE - 08707 282 885
Should you require any assistance during the installation call our Technical Service Helpline on 0871 559 2927

Should you require a service engineer to visit call our service centre on 0871 559 2924

Phone numbers:

Installer ____________________________

Service Engineer ____________________

BECAUSE OF OUR CONSTANT ENDEAVOUR FOR IMPROVEMENT DETAILS MAY VARY SLIGHTLY FROM THOSE QUOTED IN THESE INSTRUCTIONS.

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Lichfield Road, Branston Industrial Estate, Burton Upon Trent, Staffordshire DE14 3HD

ALL SPECIFICATIONS SUBJECT TO CHANGE

Please note - to avoid incurring unnecessary expense, in the event of a boiler shut down, check this is not caused by lack of electricity supply, gas supply or low water pressure before calling our Customer Service Helpline.