CE

# The Euromatic Range

Series 2

## OEM Instructions for DH Units

WARNING: THIS APPLIANCE MUST BE EARTHED

Euro Range OEM Issue 3 June 2002

powrmatic

# CONTENTS

## 1. INTRODUCTION

The Euromatic DH range of gas fired air heaters cover a heat output range of 15kW to 150kW, have a closed combustion circuit and are supplied complete with a flue system and are for installation into air handling and similar equipment. They are certified for use on Natural Gas, Group H - G20, Propane - G31 and Butane - G30.
Appliance Categories are Cat II2H3+.

The heaters are designed to be fitted into air handling and similar equipment.

Heaters are fitted as standard with atmospheric bar burners, a fully automatic control for ignition, flame sensing, gas supply control and safety functions, an internal exhaust fan, fan thermostat and limit thermostat and both inlet and outlet duct connection spigots. As standard Natural Gas fired units are fitted with modulating burner controls operating at the dictate of an external 0-10V signal, at 0V the burners are turned off.

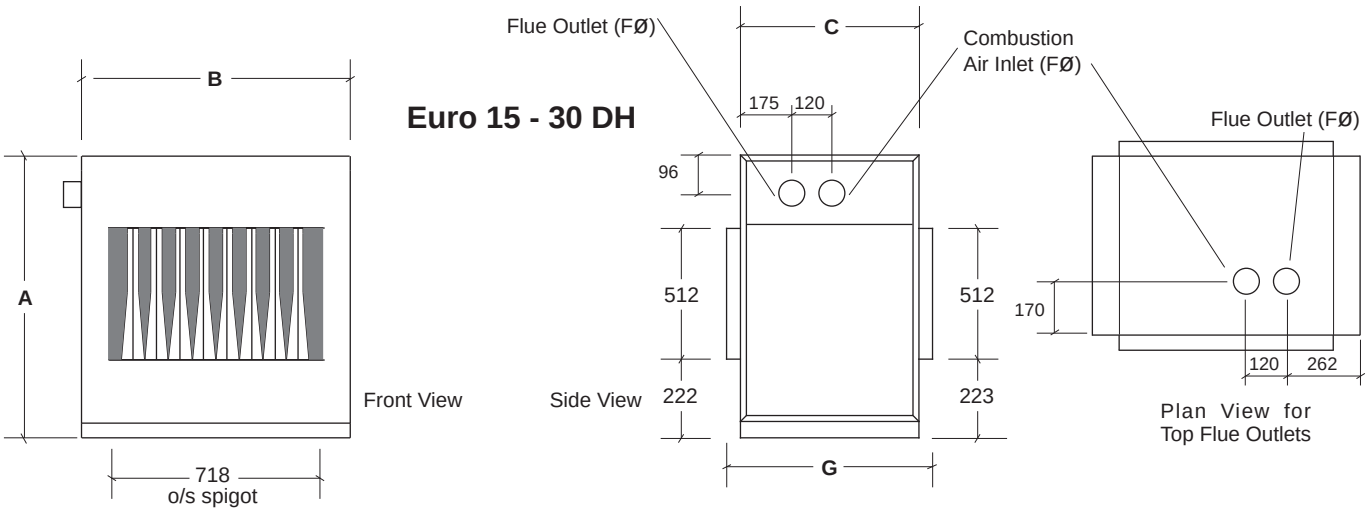
High/Low burner controls are available as an option on Natural Gas fired units.

## Gas Safety (Installation & Use) Regulations 1994

It is law that all gas appliances are installed, adjusted and, if necessary, converted by qualified persons* in accordance with the above regulations. Failure to install appliances correctly can lead to prosecution. It is in your own interests and that of safety to ensure that the law is complied with.
* e.g. Corgi Registered

## 2 Technical Data

### Euro 15 - 30 DH

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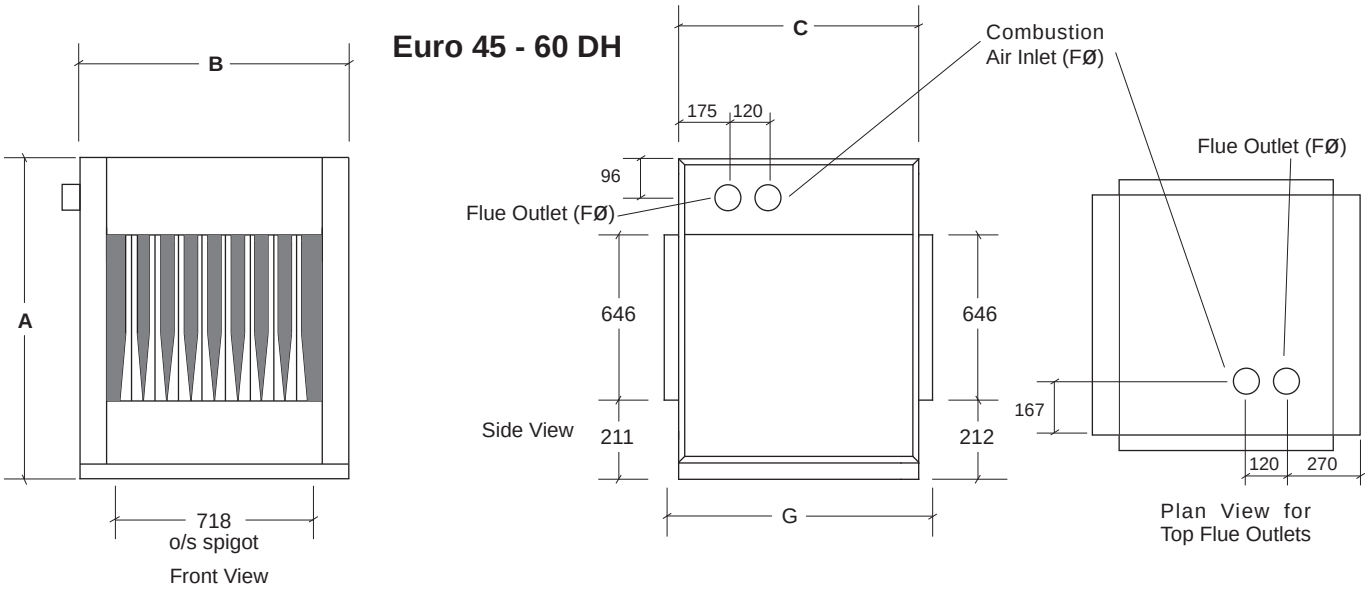


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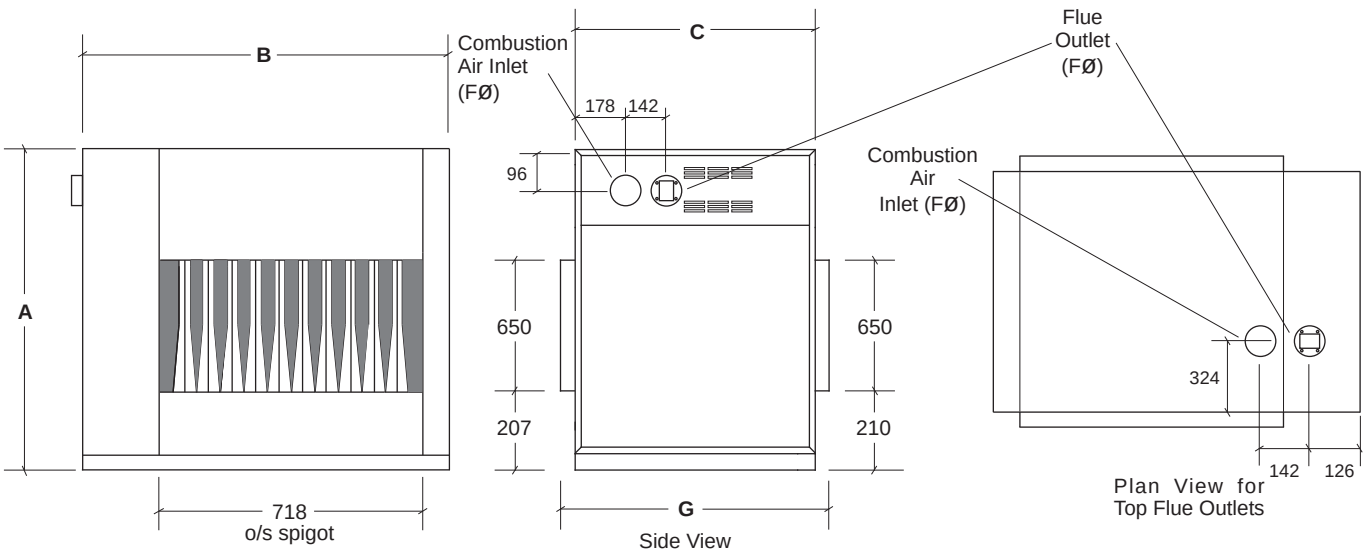
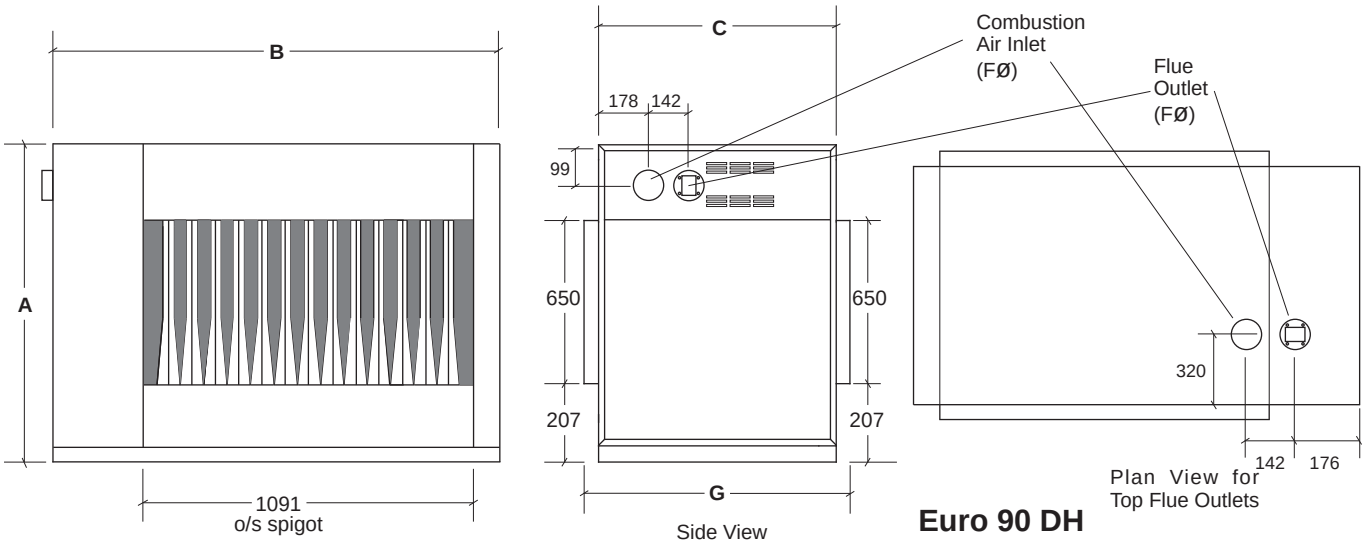
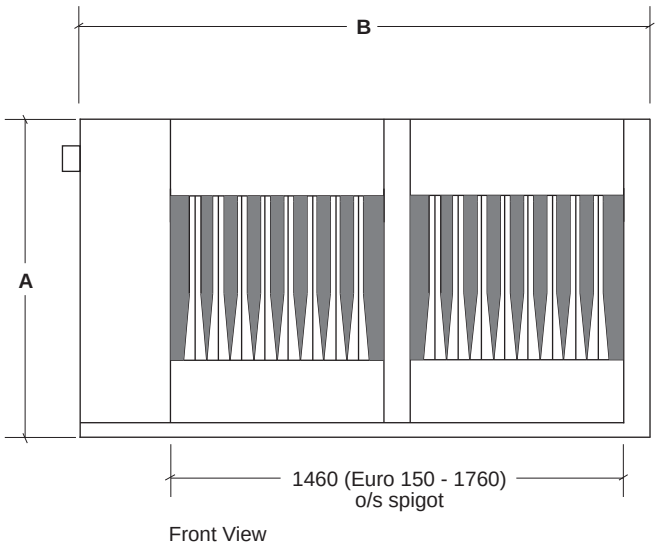





## Euro 90 DH




Front View

## Euro 105 - 150 DH

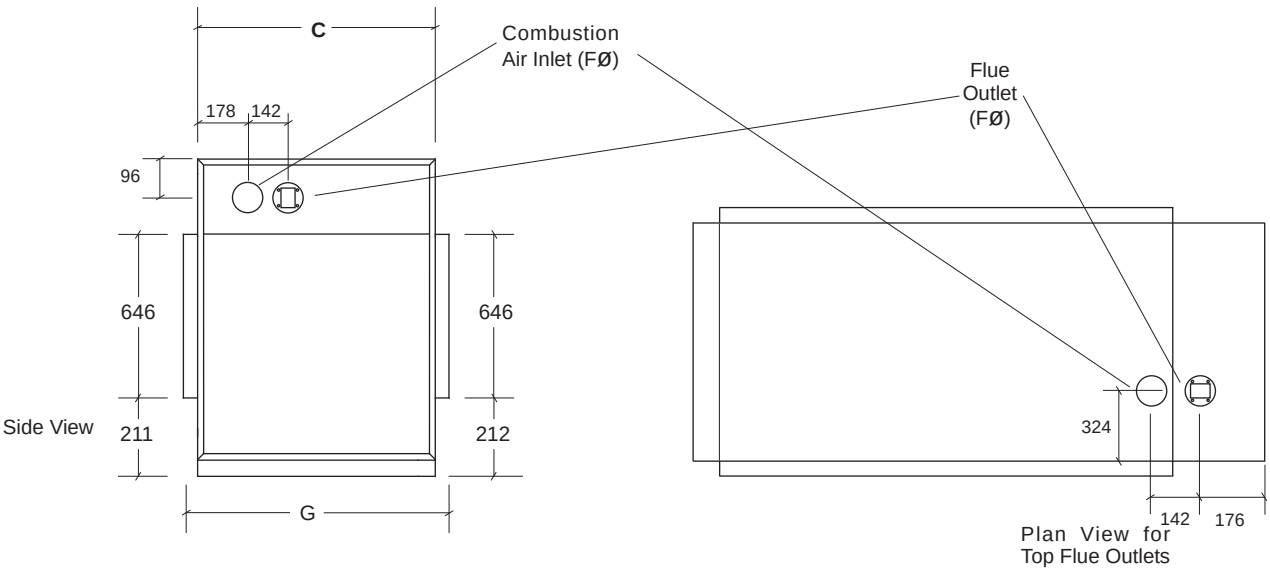


**Table 1**
**Dimensions**

| | A | B | C | F | G |
|---|---|---|---|---|---|
| **Euro 15** | 960 | 875 | 595 | 81 | 695 |
| **Euro 22** | | | | | |
| **Euro 30** | | | | | |
| **Euro 45** | 1083 | | 795 | | 895 |
| **Euro 52** | | | | | |
| **Euro 60** | | | | | |
| **Euro 75** | | 1125 | | 101 | |
| **Euro 90** | | 1400 | | | |
| **Euro 105** | | 1762 | | | |
| **Euro 120** | | | | | |
| **Euro 150** | | 2059 | | | |

**Table 1a - Exhaust Fan Mounting Plate Inlet Diameters**

| Euro 15 | Euro 22 | Euro 30 | Euro 45 | Euro 52 | Euro 60 | Euro 75 | Euro 90 |
|---|---|---|---|---|---|---|---|
| 34 | 42 | 50 | 60 | 70 | 90 | N/A | N/A |

Note: Length, in mm, of oblong notch on plate side equals unit size.

**Table 2 - Specifications**

| MODEL | HIGH FIRE | | LOW FIRE | | MINIMUM AIRFLOW REQUIREMENT | AIR VOLUME FOR 20°C r T @ High Fire | PRESSURE DROP AT AIRFLOW FOR 20°C r T | WEIGHT |
|---|---|---|---|---|---|---|---|---|
| | INPUT (Nett) | OUTPUT | INPUT (Nett) | OUTPUT | | | | kg |
| | kW | | kW | | m³/s | m³/s | Pa | |
| **Euro 15** | 17.05 | 15.0 | 8.92 | 7.5 | 0.4100 | 0.6048 | 33 | 100 |
| **Euro 22** | 25.57 | 22.5 | 13.39 | 11.25 | 0.6000 | 0.9072 | 67 | 100 |
| **Euro 30** | 34.09 | 30.0 | 17.85 | 15.0 | 1.8300 | 1.2096 | 53 | 100 |
| **Euro 45** | 51.14 | 45.0 | 26.78 | 22.5 | 1.3000 | 1.8144 | 138 | 140 |
| **Euro 52** | 59.66 | 52.5 | 31.25 | 26.25 | 1.4400 | 2.1168 | 143 | 140 |
| **Euro 60** | 68.18 | 60.0 | 35.71 | 30.0 | 1.6600 | 2.4192 | 152 | 140 |
| **Euro 75** | 85.23 | 75.0 | 44.64 | 37.5 | 2.0600 | 3.0240 | 155 | 166 |
| **Euro 90** | 102.27 | 90.0 | 53.57 | 45.0 | 2.4800 | 3.6288 | 237 | 200 |
| **Euro 105** | 119.32 | 105.0 | 59.66 | 52.5 | 2.9000 | 4.8384 | 152 | 280 |
| **Euro 120** | 136.36 | 120.0 | 68.18 | 60.0 | 3.3100 | 6.0480 | 155 | 280 |
| **Euro 150** | 170.46 | 150.0 | 85.23 | 75.0 | 4.1400 | 7.2576 | 237 | 332 |

**Table 3.1**
**Injector Sizes & Burner Pressures Natural Gas - Group H - G20 Net CV (Hi) = 34.02MJ/m³**
**Inlet pressure 20mbar**

| Inlet Pressure 20mb | INJECTORS | | | High Fire | | Low Fire | |
|---|---|---|---|---|---|---|---|
| | | | | Burner Pressure | Gas Rate | Burner Pressure | Gas Rate |
| MODEL | No. | Size mm | Marked | mbar | $m^3/h$ | mbar | $m^3/h$ |
| **Euro 15** | 5 | 1.51 | 151 | 18.2 | 1.8 | 4.5 | 0.94 |
| **Euro 22** | 6 | 1.70 | 170 | 15.5 | 2.7 | 4.5 | 1.41 |
| **Euro 30** | 8 | 1.70 | 170 | 15.5 | 3.6 | 4.5 | 1.89 |
| **Euro 45** | 6 | 2.46 | 246 | 15.5 | 5.41 | 4.5 | 2.83 |
| **Euro 52** | 7 | 2.46 | 246 | 15.5 | 6.31 | 4.5 | 3.30 |
| **Euro 60** | 8 | 2.46 | 246 | 15.5 | 7.21 | 4.5 | 3.77 |
| **Euro 75** | 10 | 2.46 | 246 | 15.5 | 9.01 | 4.5 | 4.72 |
| **Euro 90** | 13 | 2.60 | 260 | 12.0 | 10.82 | 4.1 | 5.41 |
| **Euro 105** | 14 | 2.46 | 246 | 15.5 | 12.62 | 4.5 | 6.60 |
| **Euro 120** | 16 | 2.46 | 246 | 15.5 | 14.42 | 4.5 | 7.54 |
| **Euro 150** | 20 | 2.60 | 260 | 12.0 | 18.02 | 4.1 | 9.44 |

**Table 3.2**
**Injector Sizes & Burner Pressures - Propane G31 - Net CV (Hi) = 88.00MJ/m³**
**Inlet Pressure 37mbar**

| Inlet Pressure 37mb | INJECTORS | | | High Fire | | Low Fire | |
|---|---|---|---|---|---|---|---|
| | | | | Burner Pressure | Gas Rate | Burner Pressure | Gas Rate |
| MODEL | No. | Size mm | Marked | mbar | $m^3/h$ | mbar | $m^3/h$ |
| **Euro 15** | 5 | 0.93 | 120 | N/A | 0.70 | N/A | N/A |
| **Euro 22** | 6 | 1.04 | 150 | N/A | 1.05 | N/A | N/A |
| **Euro 30** | 8 | 1.04 | 150 | N/A | 1.39 | N/A | N/A |
| **Euro 45** | 6 | 1.45 | 280 | N/A | 2.09 | N/A | N/A |
| **Euro 52** | 7 | 1.45 | 280 | N/A | 2.44 | N/A | N/A |
| **Euro 60** | 8 | 1.45 | 280 | N/A | 2.79 | N/A | N/A |
| **Euro 75** | 10 | 1.51 | 300 | N/A | 3.48 | N/A | N/A |
| **Euro 90** | 13 | 1.51 | 300 | N/A | 4.18 | N/A | N/A |
| **Euro 105** | 14 | 1.45 | 280 | N/A | 4.88 | N/A | N/A |
| **Euro 120** | 16 | 1.51 | 300 | N/A | 5.58 | N/A | N/A |
| **Euro 150** | 20 | 1.51 | 300 | N/A | 6.96 | N/A | N/A |

**Table 3.3**
**Injector Sizes & Burner Pressures Butane G30 Net CV (Hi) = 116.09MJ/m³**
**Inlet pressure 29mbar**

| Inlet Pressure 29mb | INJECTORS | | | High Fire | |
|---|---|---|---|---|---|
| | | | | Burner Pressure | Gas Rate |
| MODEL | No. | Size mm | Marked | mbar | $m^3/h$ |
| **Euro 15** | 5 | 0.93 | 120 | N/A | 0.53 |
| **Euro 22** | 6 | 1.04 | 150 | N/A | 0.79 |
| **Euro 30** | 8 | 1.04 | 150 | N/A | 1.06 |
| **Euro 45** | 6 | 1.45 | 280 | N/A | 1.58 |
| **Euro 52** | 7 | 1.45 | 280 | N/A | 1.85 |
| **Euro 60** | 8 | 1.45 | 280 | N/A | 2.11 |
| **Euro 75** | 10 | 1.51 | 300 | N/A | 2.64 |
| **Euro 90** | 13 | 1.51 | 300 | N/A | 3.16 |
| **Euro 105** | 14 | 1.45 | 280 | N/A | 3.70 |
| **Euro 120** | 16 | 1.51 | 300 | N/A | 4.22 |
| **Euro 150** | 20 | 1.51 | 300 | N/A | 5.28 |

## 3. General Requirements

### 3.1 Related Documents

The installation of the air heater(s) must be in accordance with the rules in force and the relevant requirements of the Gas Safety Regulations, Building Regulations and the I.E.E. Regulations for Electrical Installations.
It should be in accordance also with any relevant requirements of the local gas region, local authority and fire authority and the relevant recommendations of the following documents.

### 3.2 Air Handling Unit

The air handling unit containing the air heater must permit the provision of a satisfactory flue system and an adequate air supply. The location must also provide adequate space for servicing.

### 3.3 Flue System

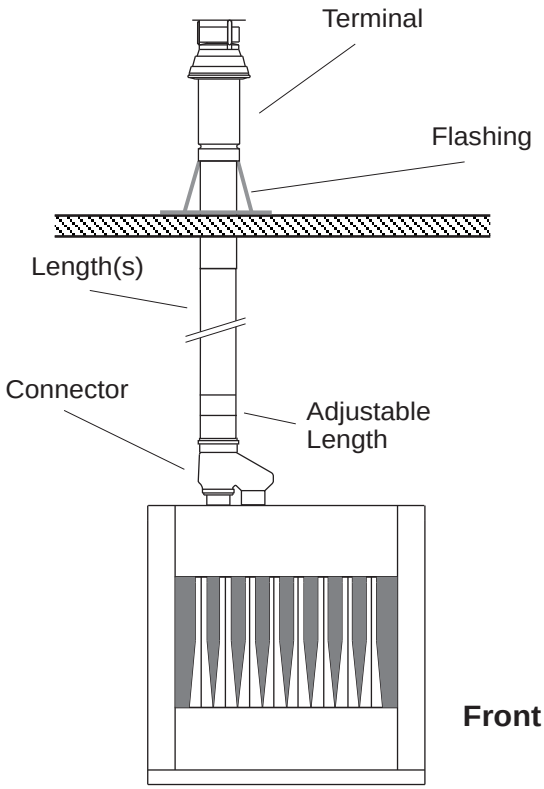
Euromatic units feature a closed combustion circuit and have an internal exhaust fan, mounted downstream of the heat exchanger, to both assist the evacuation of the products of combustion and to draw in air for combustion. The air heater must be connected to the flue system that is provided by Powrmatic Ltd. Several configurations of flue and combustion air ducts are available as shown diagrammatically *(See Figs 1a - 1d)*.

### 3.4 Air Supply

Heaters not fitted with the concentric terminal and flue arrangement must have provision for the supply of combustion air. This air may be admitted through suitable grilles in the air handler casing into a space that connects directly with the combustion air entry socket on the heater. This space must be sealed and seperate from the airflow sections of the air handler.

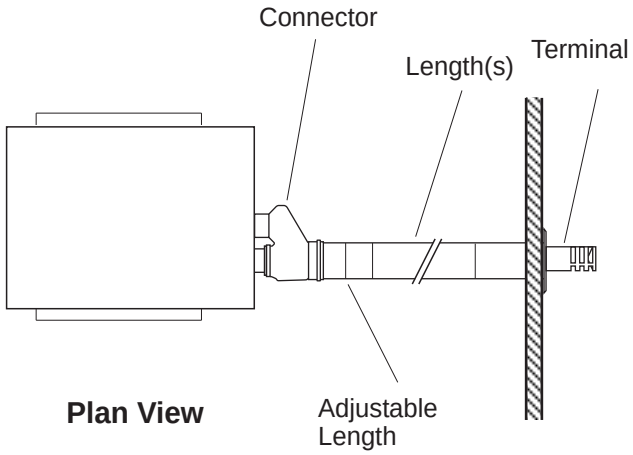
### Euromatic Flue/Combustion Air Duct Options

**Fig. 1a - Vertical - Top Outlet**



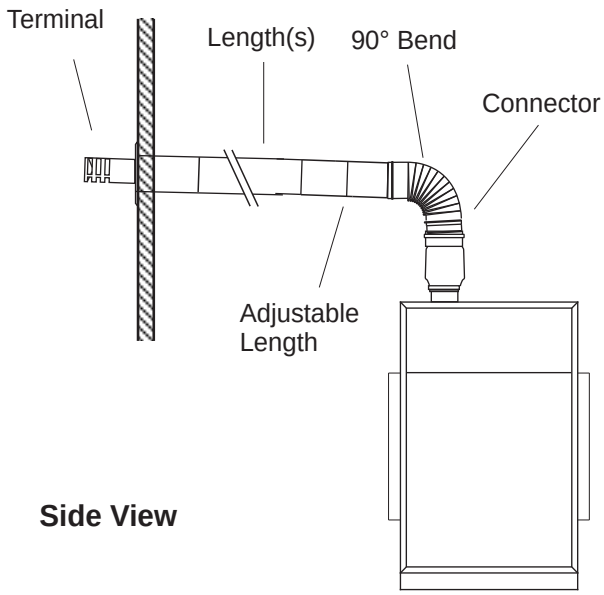

**Front View**

**Fig. 1b - Horizontal - Side Outlet**



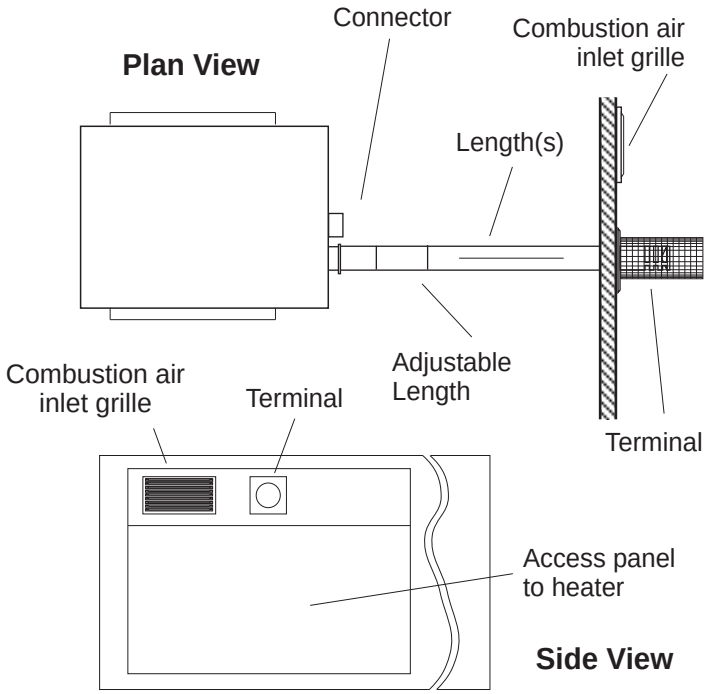

**Plan View**

**Fig. 1c - Horizontal - Top Outlet**




**Side View**

**Fig. 1d - Typical AHU Flue / Combustion Air**




**Side View**

## 3.5 Electrical Supply

Wiring external to the air heater must be installed in accordance with the I.E.E. Regulations for Electrical Installations and any local regulations which apply. Wiring should be completed in flexible conduit.

All standard heaters are supplied by 230V - 1ph, 50Hz. The method of connection to the main electricity supply must facilitate the complete electrical isolation of the air heater(s). It must have a contact separation of at least 3mm in all poles. The method of connection should be provided adjacent to the air heater(s) in a readily accessible position.

See the accompanying wiring diagram for the heater electrical connections

Euromatic units can also be supplied for 400V 3N, 50Hz.

# 4. Installation of Air Heater(s)

## 4.1 General

The air heater must be installed into a purpose designed section of the air handling unit, the main air flow being ducted into, and away from the air heater via the duct spigots provided on the heater. Full access must be maintained to the heater end panel that provides service access to the burners and controls. Any combustible material adjacent to the air heater and the flue system must be so placed or shielded as to ensure that its temperature does not exceed 65 °C.

**IMPORTANT:**

1. To facilitate removal of the burner tray there must be no projection or fixture in front of the left hand access panel (when viewed from the front of the unit). The distance in which this is applicable is the same as the width of the heater.

## 4.2 Flue/Combustion Air Duct System

All models are provided with two sockets, either at the side or the top of the unit as ordered, one for combustion air and the other for the products of combustion *(See Section 2 Page 2)*. In all cases the flue outlet socket must be connected via the provided flue system to outside air. The combustion air socket need not be connected if it is required to take the combustion air through grilles in the casing of the air handler. The normal maximum permitted length of flue system is

i) for side outlet horizontal - 3m
ii) for top outlet vertical - 4m
iii) for top outlet horizontal (90° bends inc) - 3m.

The maximum permitted length of flue outlet only is double the above lengths. If an offset is required two sets of 45° bends may be used each set being equivalent to 0.5m of flue length. The minimum flue length (end of flue terminal to back, top or side of heater) shall not be less than 0.5m.

All outer joints must be finished with the provided locking bands. Application of a smear of silicon grease to the inside of sockets will assist in fitting components together. All flue and combustion air ducts must be supported independently of the air heater.

## 4.3 Installation of Flue System

### 4.3.1 Horizontal System - Standard *(see Fig.1b and 1c)*

1. Locate the position of the flue terminal, allowing for a slight gradient down to the heater (2° - 3°) and cut a hole to suit.
2. Fit the flue terminal, securing via the wall plate and weather with silicon sealant or similar.
3. Extend the concentric flue to the heater using straight lengths fitting an adjustable length prior to the connector, to facilitate flue disconnection for servicing. Fit connector to the heater inlet/outlet spigots ensuring that the connector spigot that is central to the concentric flue fits into the flue outlet socket. Extend the adjustable length to make the final connection. Do not exceed the maximum extended length so as to maintain joint integrity.
4. Ensure that internal silicon sealing rings are in place and that all tubes are pushed fully home. Secure concentric lengths with the locking band provided.
5. If required the flue only can be terminated on the outside of the air handling unit, using a single wall flue pipe connected directly to the flue outlet socket of the heater and a grille fitted in the outer wall of the ahu to admit the combustion air *(See Fig 1d and Section 3.5)*.

### 4.3.2 Horizontal System - Internal Combustion Air

1. Complete the run of flue sections from the terminal spigot to the flue outlet socket of the heater, ensuring that the internal silicon sealing rings are in place.

### 4.3.3 Vertical System (see Fig.1a)

1. Locate the position of the flue terminal cut a hole in the roof of the air handler to suit.
2. Fit the flashing and the the flue terminal so that the lower edge of the outer case is over the top of the flashing. Weather with silicon sealant or similar.
3. Extend the concentric flue to the heater using straight lengths fitting an adjustable length prior to the connector, to facilitate flue disconnection for servicing. Fit connector to the heater inlet/outlet spigots ensuring that the connector spigot that is central to the concentric flue fits into the flue outlet socket. Extend the adjustable length to make the final connection. Do not exceed the maximum extended length so as to maintain joint integrity.
4. Ensure that internal silicon sealing rings are in place and that all tubes are pushed fully home. Secure concentric lengths with the locking band provided.

## 4.4 Gas Connection

To facilitate removal of the burner tray for servicing purposes a servicing valve and downstream union must be fitted at the inlet to the air heater. The gas supply to the air heater must be completed in solid pipework and be adequately supported.

**Warning**

When completing the final gas connection to the heater do not place undue strain on the gas pipework of the heater.

## 4.5 Electrical Connections

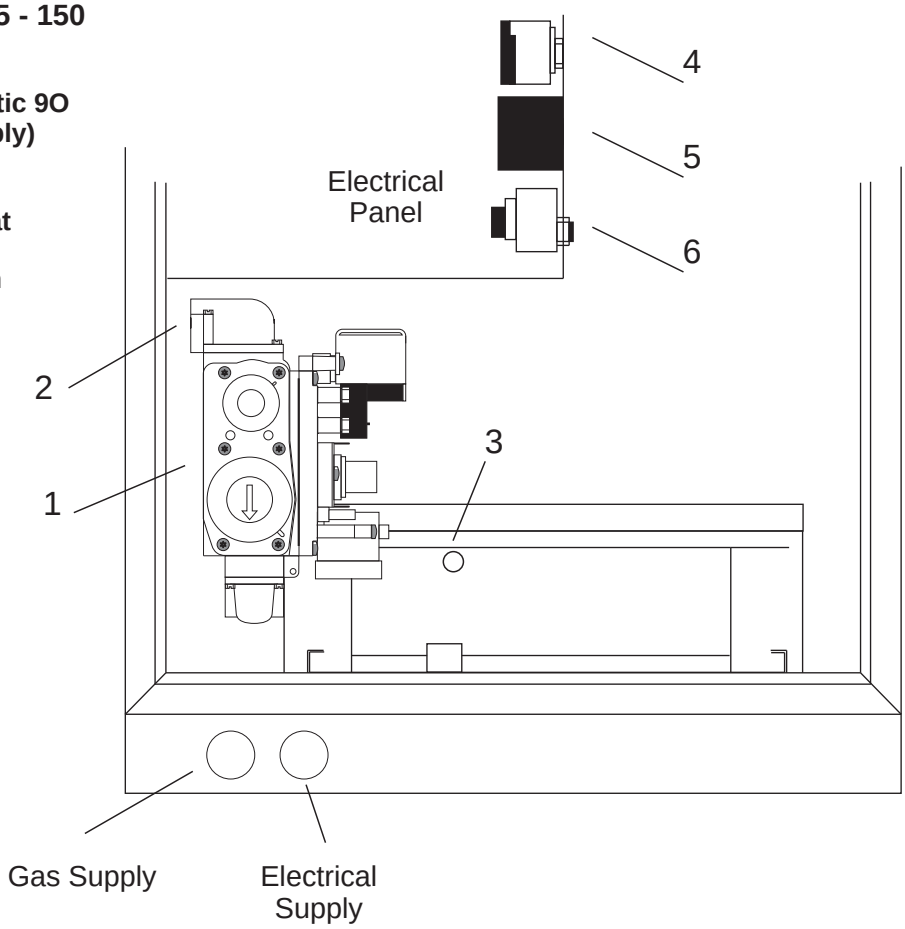
All units are fully prewired and only require final connections for the incoming mains supply, completion of the control circuit and provision of a 0-10V modulation/burner ON/OFF control signal. The main electrical supply must be run to a point adjacent to the heater and be suitably terminated to provide an isolation point that will prevent remote activation of the unit during servicing. The length of the conductors between the cord anchorage and the terminals must be such that the current carrying conductors become taut before the earth conductor if the cable or cord slips out of the cord anchorage. All external controls must be of an approved type.

Euro DH models must be electrically interlocked to the air movement system so that should this fail the heater will be switched off.

If required the main air fan can be contolled by the heater. A connection from heater terminal No 5 can be made to one side of the fan motor contactor coil, the other side of the coil being connected to Neutral. Under no circumstances must the fan motor electrical supply be taken direct from the internal wiring of the Euromatic heater.

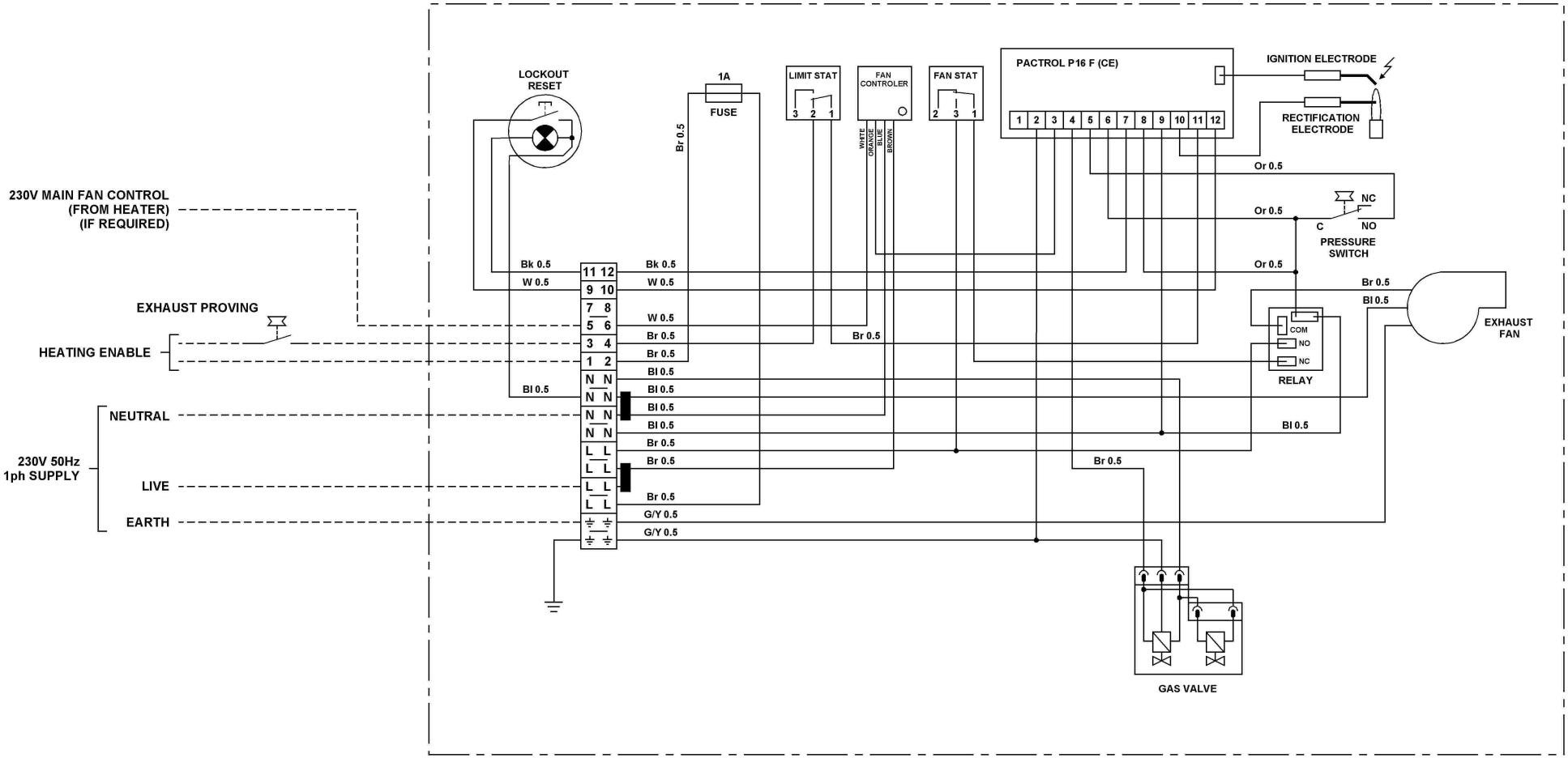
**Fig. 2 Controls Location Euro 15 - 150**

1) **SIT 822 Nova M.F.C. (Euromatic 9O uses Johnsons Valve assembly)**
2) **Gas connection (Rp¾).**
3) **Viewing port.**
4) **Exhaust fan run on thermostat**
5) **Fan controller**
6) **Limit Thermostat reset button**



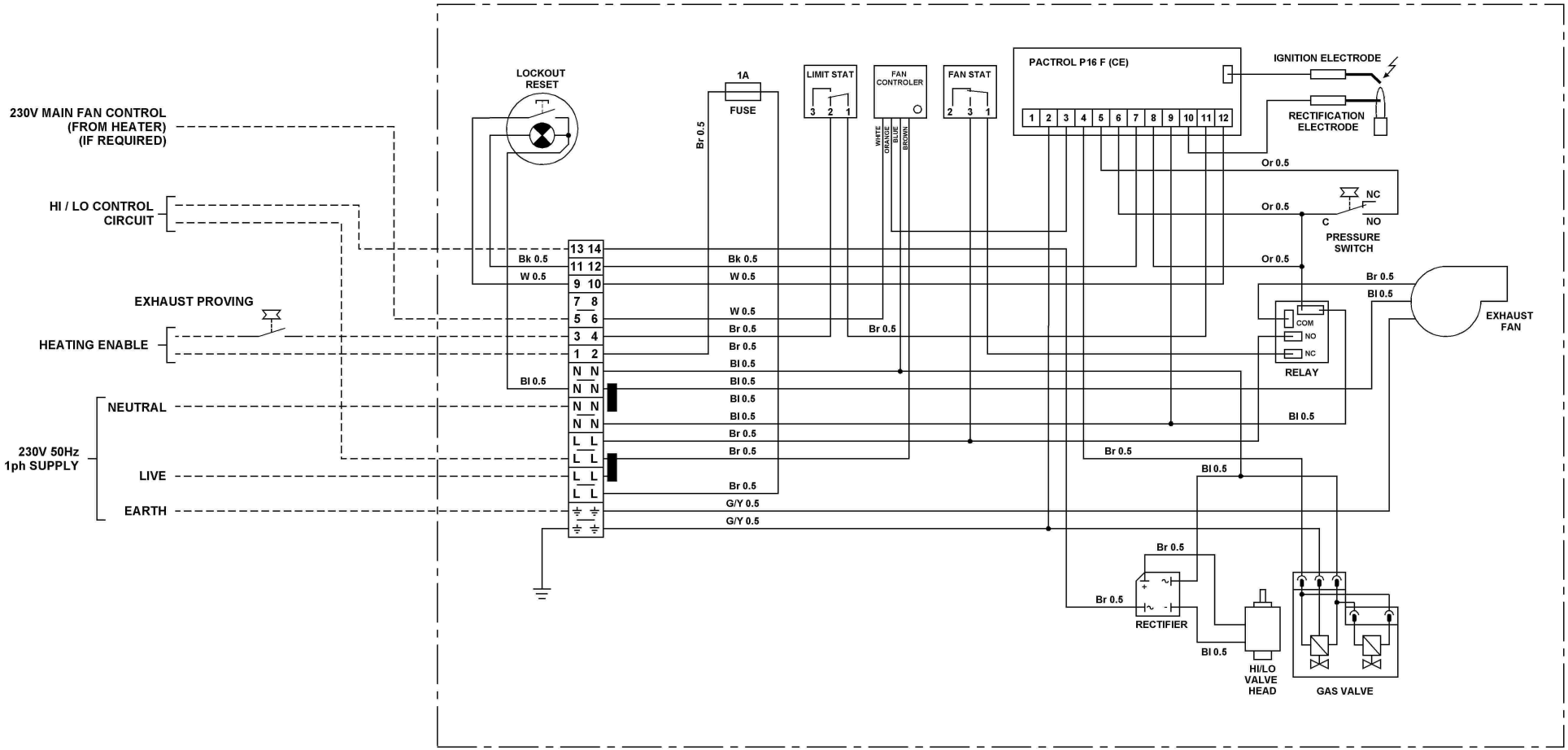
# Euromatic Series 2. Models 15-75 DH

## Single Stage Burner



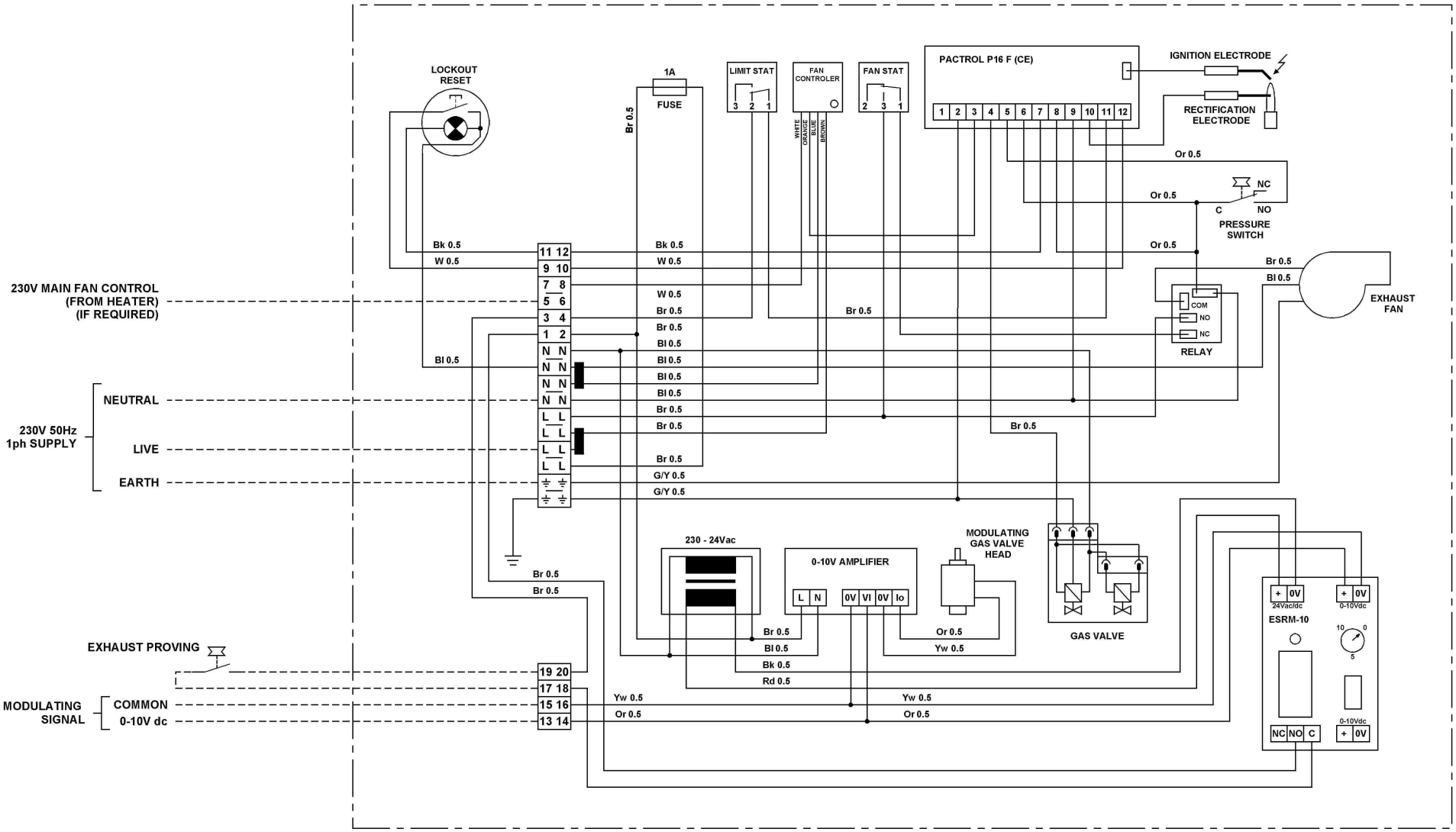
# Euromatic Series 2. Models 15-75 DH

Hi / Lo Burner



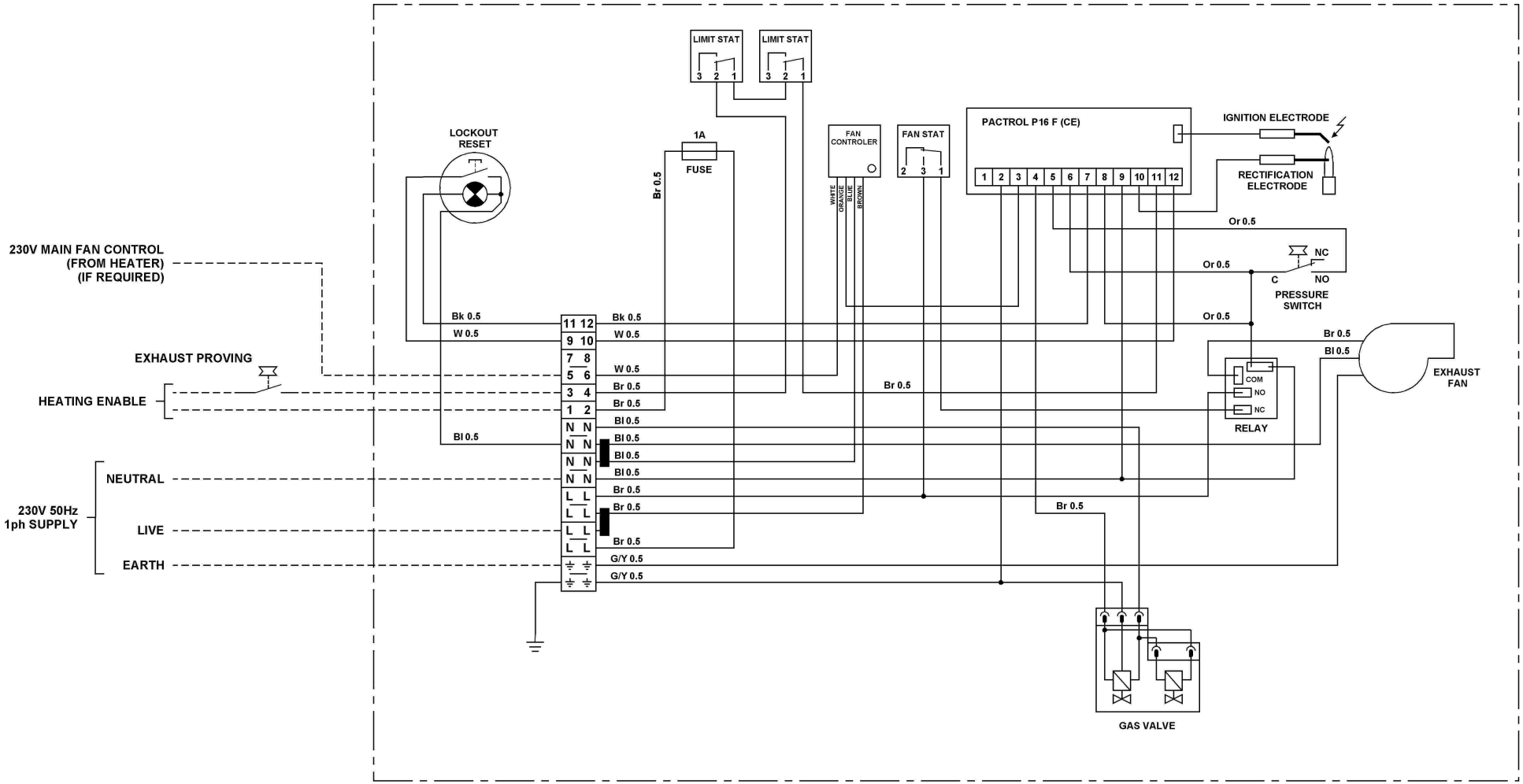
# Euromatic Series 2. Models 15-75 DH

## 0-10V Modulating Burner



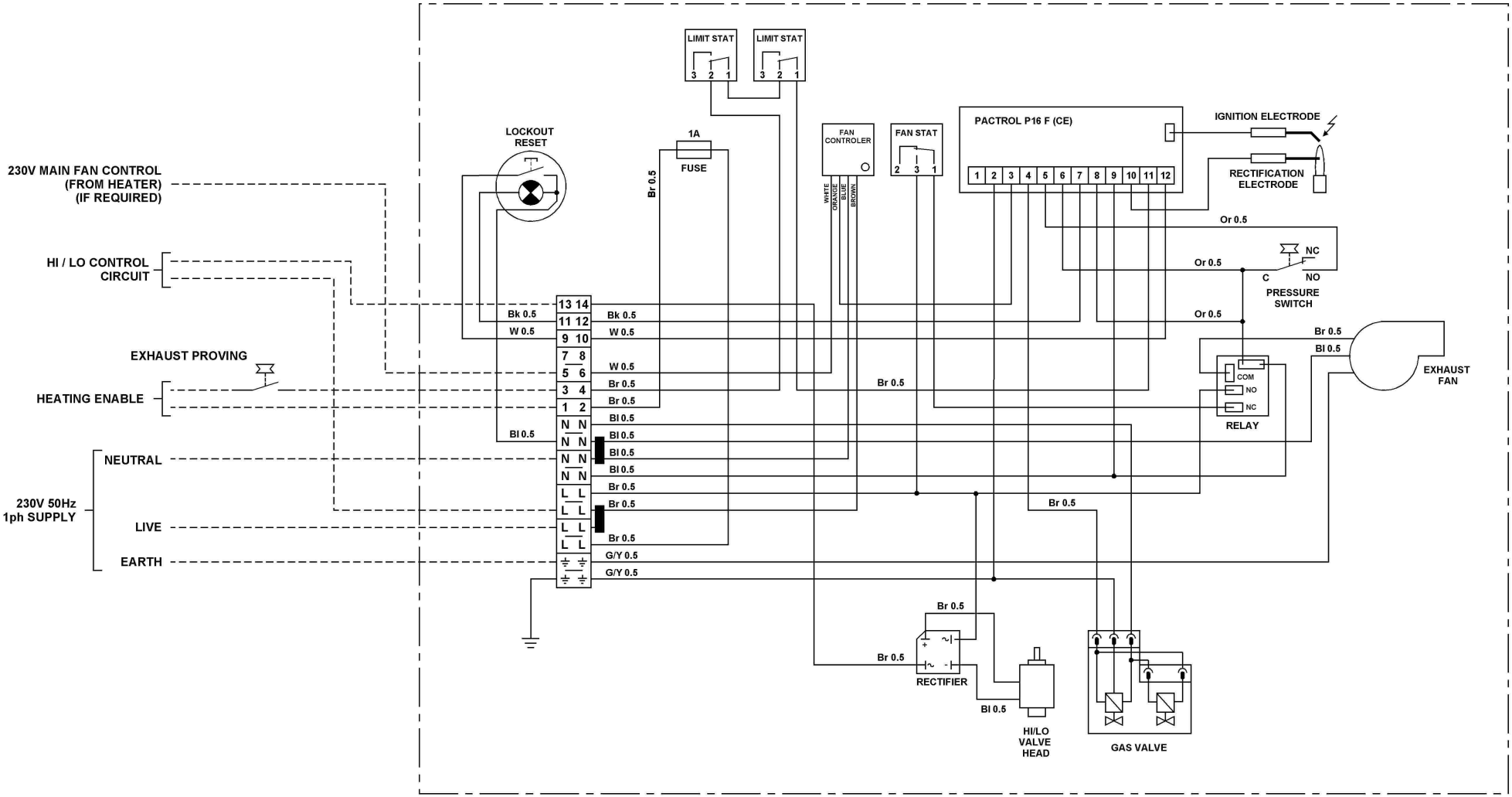
# Euromatic Series 2. Model 90 DH

Single Stage Burner



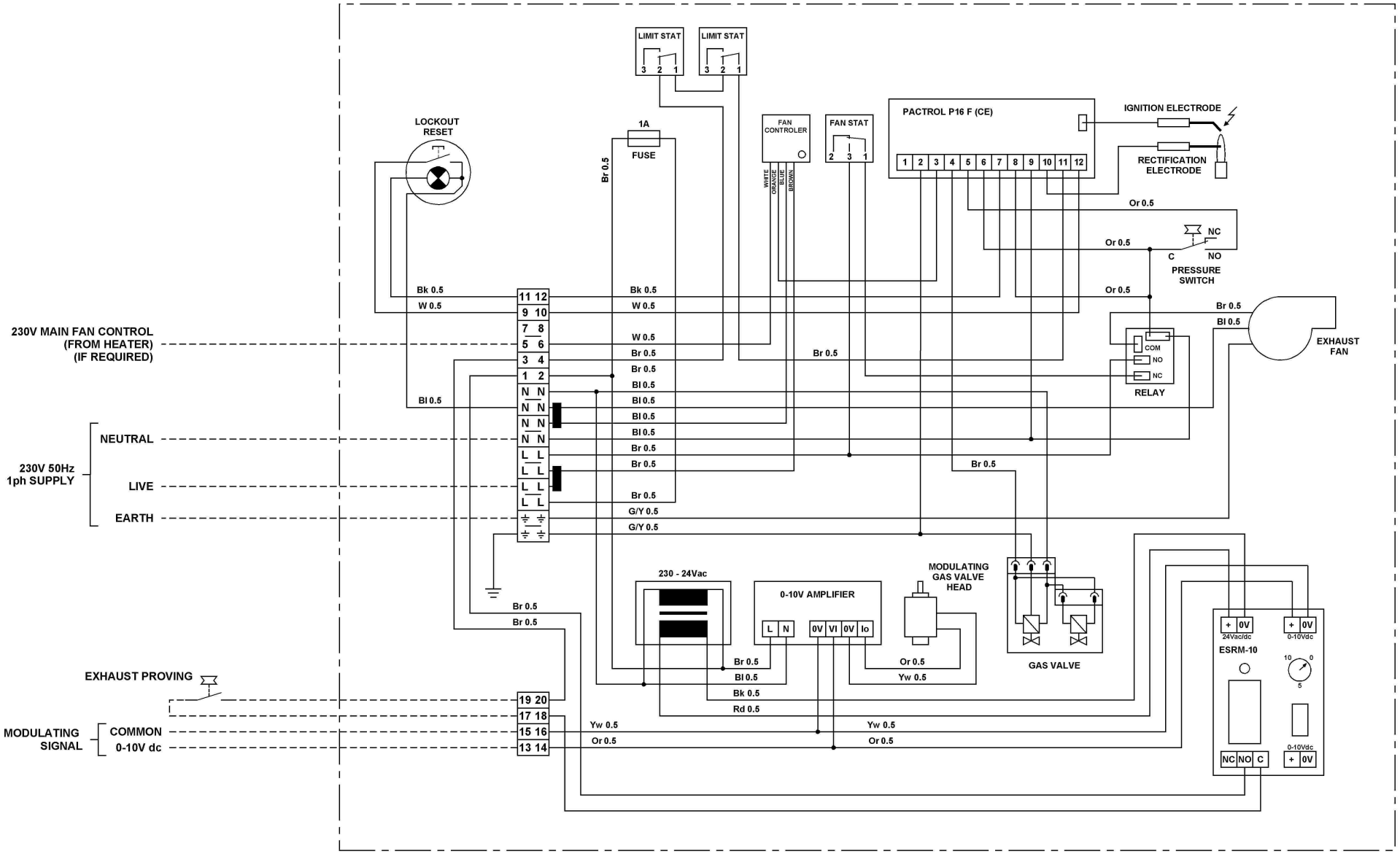
# Euromatic Series 2. Model 90 DH

Hi / Lo Burner



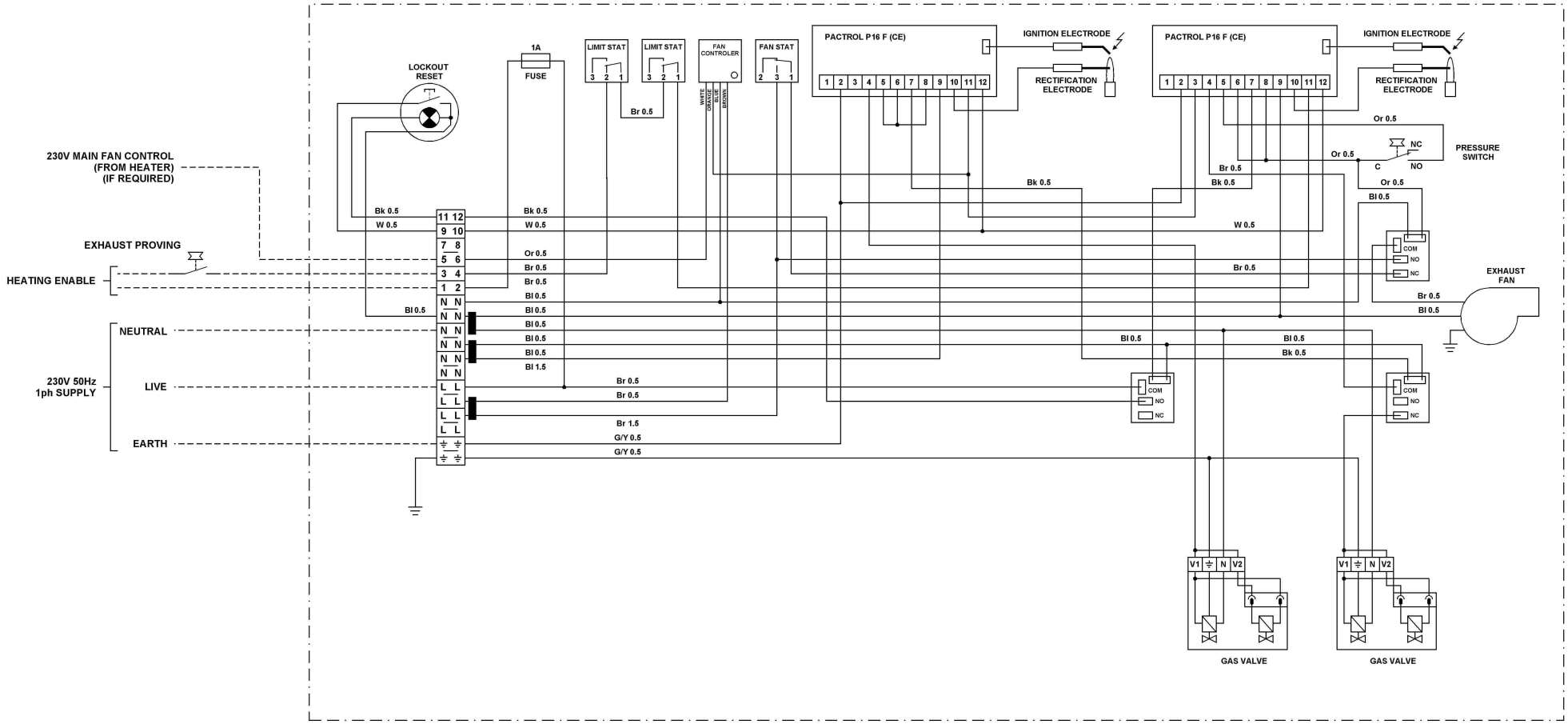
# Euromatic Series 2. Model 90 DH

0-10V Modulating Burner



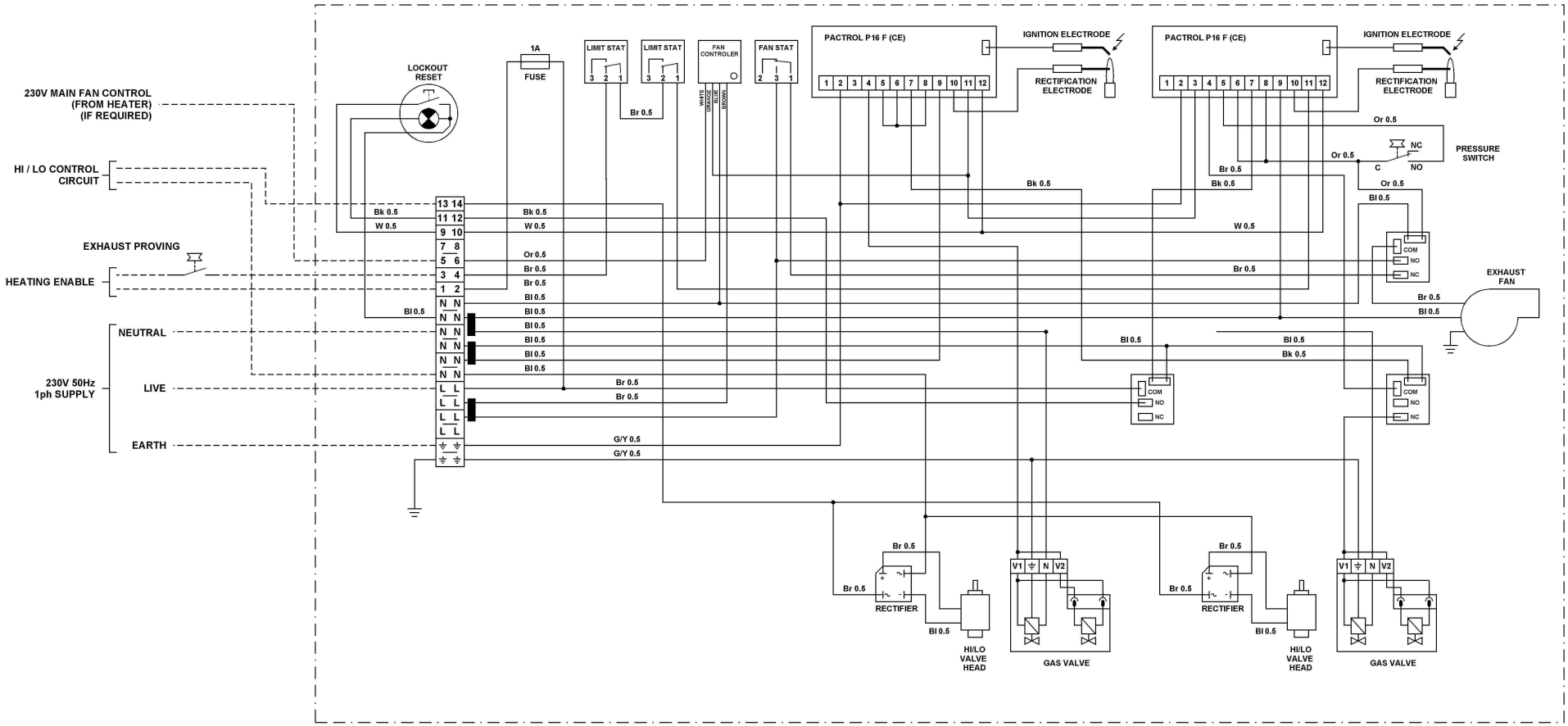
# Euromatic Series 2. Models 105 - 150 DH

## Single Stage Burner



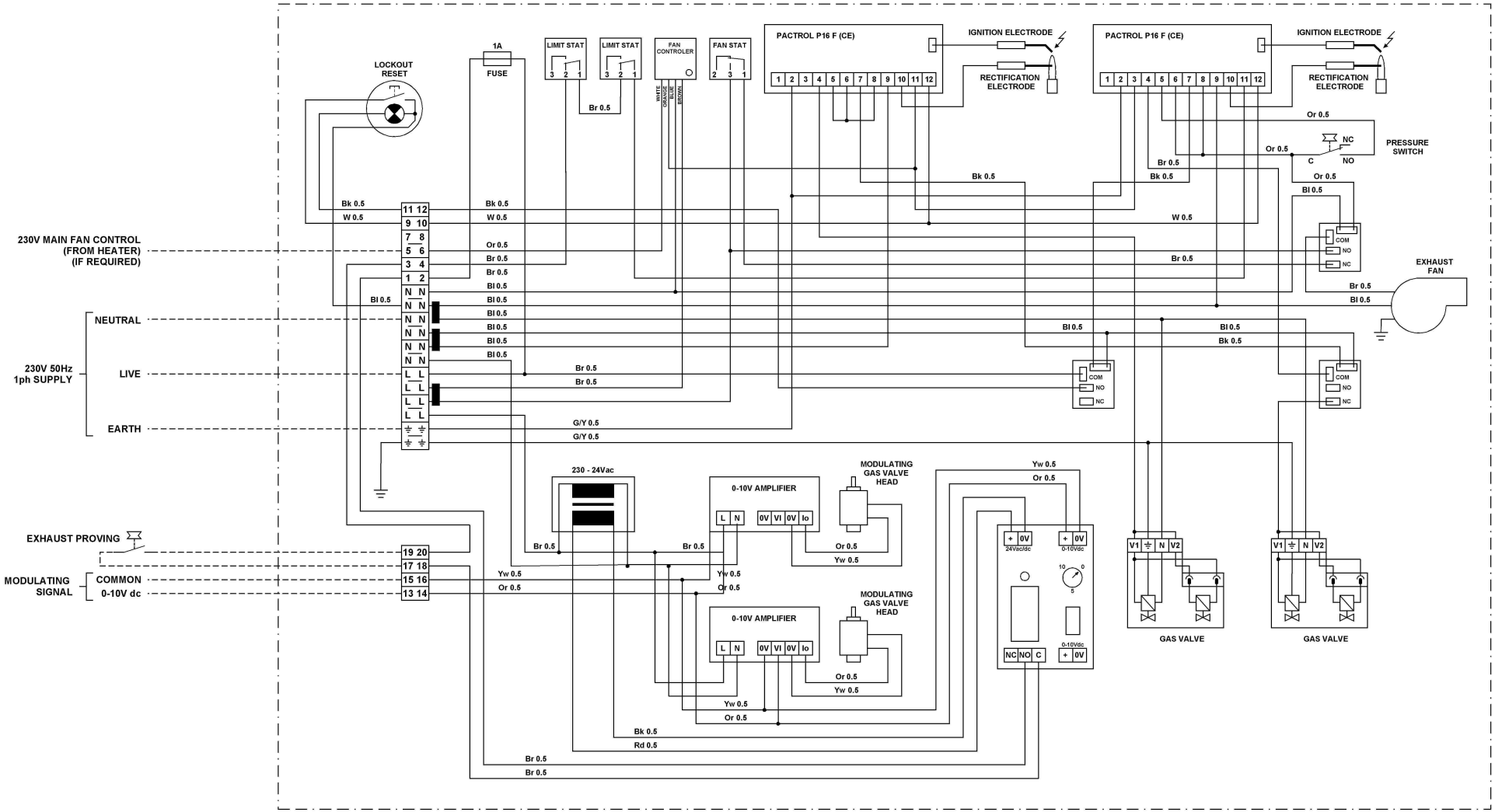
# Euromatic Series 2. Models 105 - 150 DH

## Hi / Lo Burner



# Euromatic Series 2. Models 105 - 150 DH

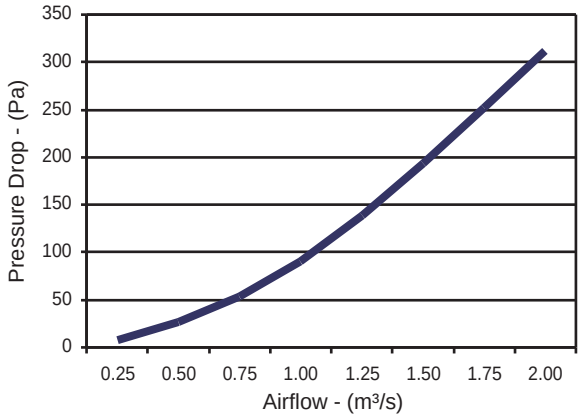
## 0-10V Modulating Burner



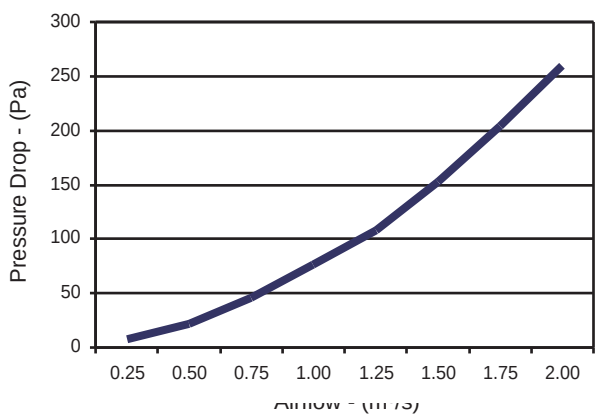
# Euromatic Series 2. Models 15-60

## Airflow Resistance

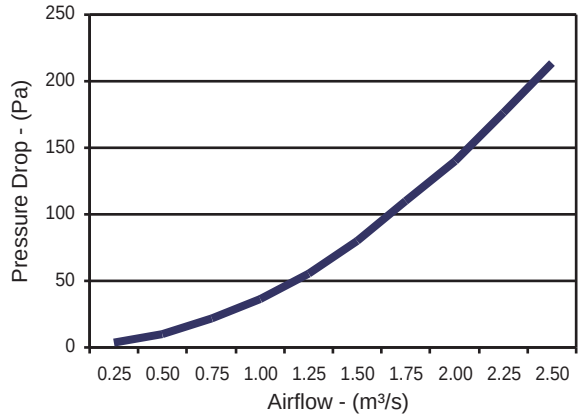
### Euro 15 DH



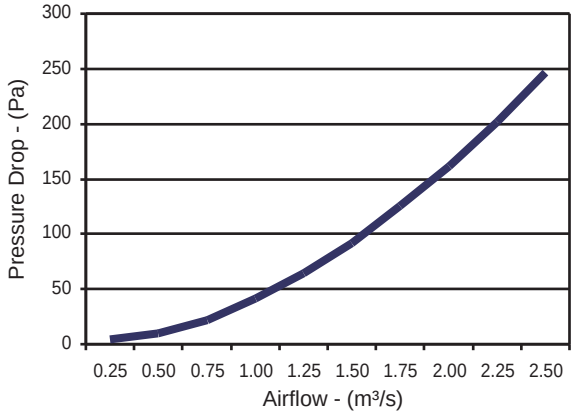

### Euro 22 DH



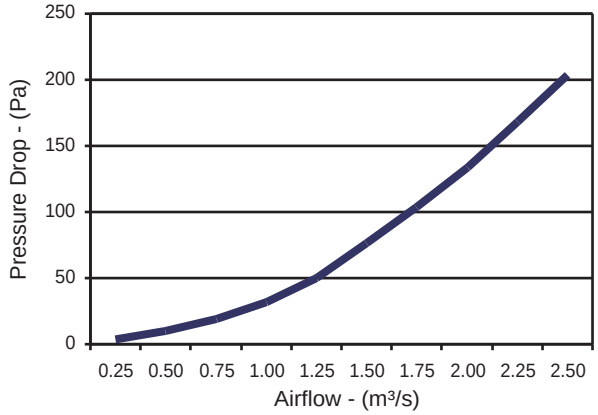

### Euro 30 DH



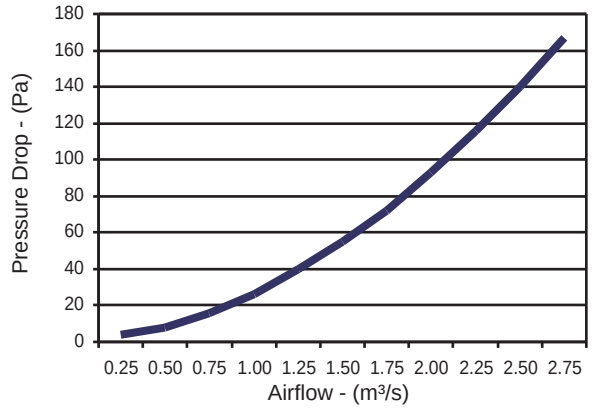

### Euro 45 DH




### Euro 52 DH



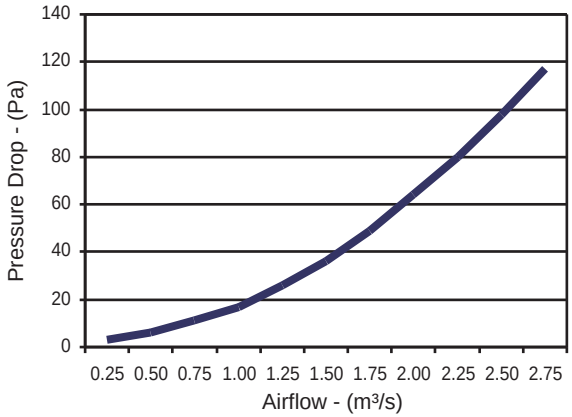

### Euro 60 DH



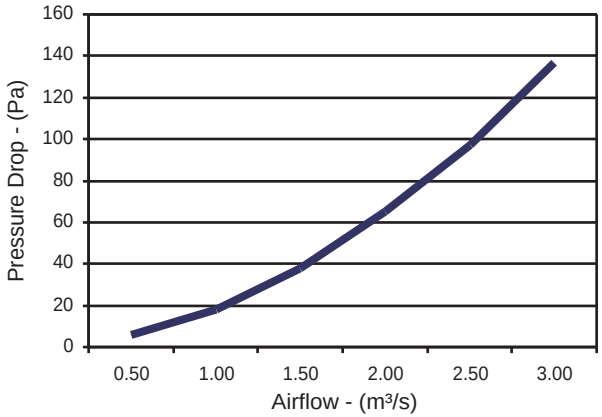
# Euromatic Series 2. Models 75-150

## Airflow Resistance

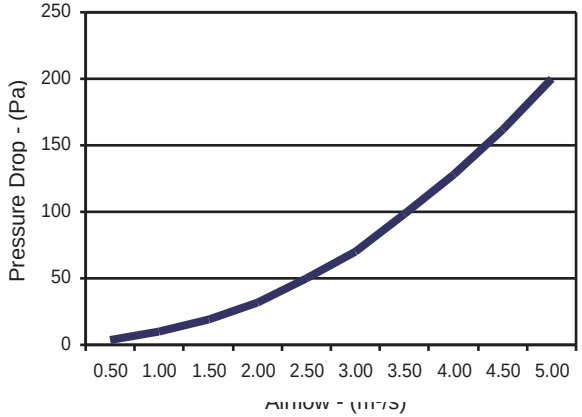
### Euro 75 DH



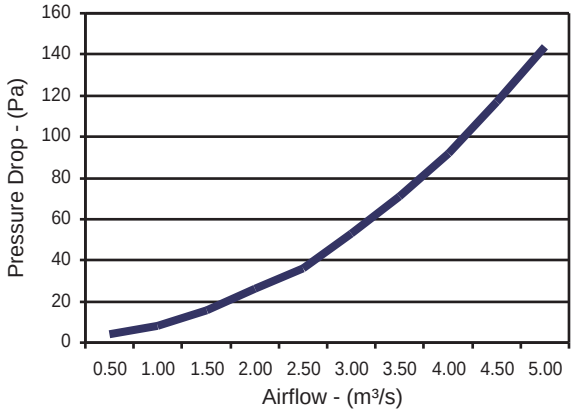

### Euro 90 DH



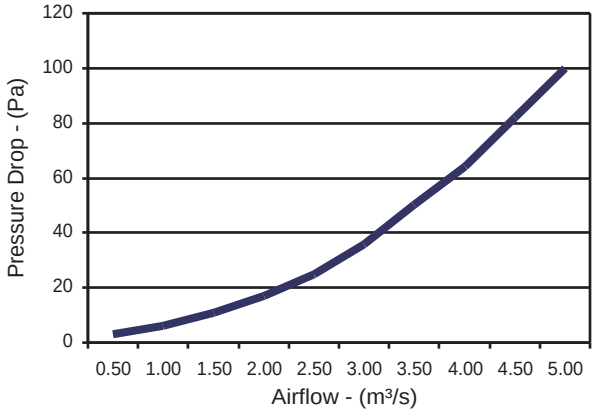

### Euro 105 DH




### Euro 120 DH

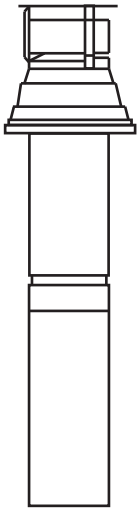



### Euro 150 DH



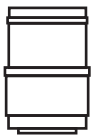
# Euromatic Series 2. Models 15-60 DH

Top Flue/Combustion Air Inlet (Vertical Flue Only)



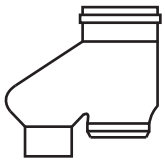
Concentric Vertical Terminal.
80/125mm
Powrmatic Part No. 148800001

1000mm Concentric Length.
80/125mm
Powrmatic Part No. 148800011

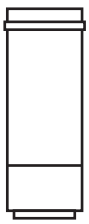


Adjustable Length.
80/125mm
Powrmatic Part No. 148800003

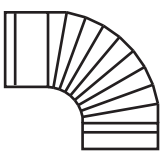
Tube. 80mm
Fits into Ski Boot)
Powrmatic Part No. 148800025



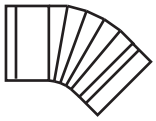
Ski Boot.
80/80mm
Powrmatic Part No. 148800023



500mm Concentric Length.
80/125mm
Powrmatic Part No. 148800013



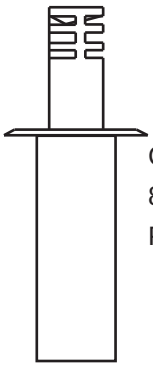
87-90º Concentric Elbow.
80/125mm
Powrmatic Part No. 148800005



43-45º Concentric Elbow.
80/125mm
Powrmatic Part No. 148800009

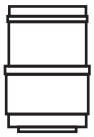
# Euromatic Series 2. Models 15-60 DH

Side Flue/Combustion Air Inlet (Horizontal Flue Only)



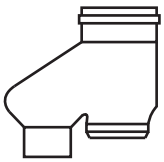
Concentric Horizontal Terminal.
80/125mm
Powrmatic Part No. 148800007

1000mm Concentric Length.
80/125mm
Powrmatic Part No. 148800011



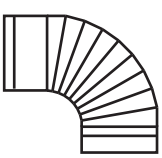
Adjustable Length.
80/125mm
Powrmatic Part No. 148800003

Tube. 80mm
(Fits into Ski Boot)
Powrmatic Part No. 148800025

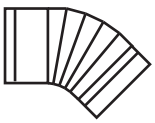


Ski Boot.
80/80mm
Powrmatic Part No. 148800023

500mm Concentric Length.
80/125mm
Powrmatic Part No. 148800013



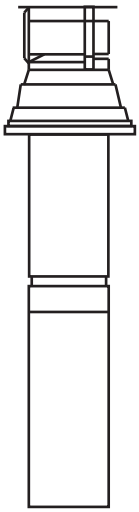
87-90º Concentric Elbow.
80/125mm
Powrmatic Part No. 148800005



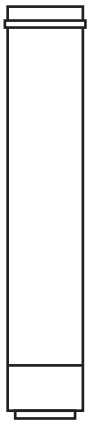
43-45º Concentric Elbow.
80/125mm
Powrmatic Part No. 148800009

# Euromatic Series 2. Models 75-150 DH

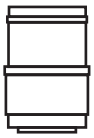
Top Flue/Combustion Air Inlet (Vertical Flue Only)



Concentric Vertical Terminal.
100/150mm
Powrmatic Part No. 148800002

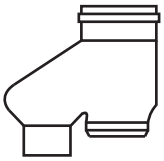


1000mm Concentric Length.
100/150mm
Powrmatic Part No. 148800012

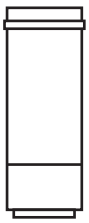


Adjustable Length.
100/150mm
Powrmatic Part No. 148800004

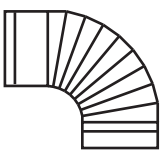
Tube. 100mm
(Fits into Ski Boot)
Powrmatic Part No. 148800026



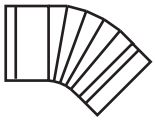
Ski Boot.
100/100mm
Powrmatic Part No. 148800024



500mm Concentric Length.
100/150mm
Powrmatic Part No. 148800014



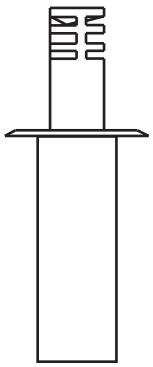
87-90º Concentric Elbow.
100/150mm
Powrmatic Part No. 148800006



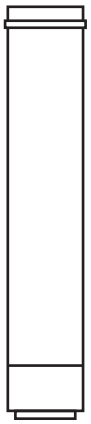
43-45º Concentric Elbow.
100/150mm
Powrmatic Part No. 148800011

# Euromatic Series 2. Models 75-150 DH

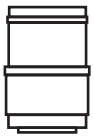
Side Flue/Combustion Air Inlet (Horizontal Flue Only)



Concentric Horizontal Terminal.
100/150mm
Powrmatic Part No. 148800008

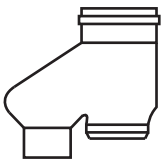


1000mm Concentric Length.
100/150mm
Powrmatic Part No. 148800012



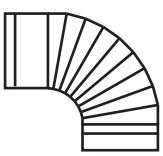
Adjustable Length.
100/150mm
Powrmatic Part No. 148800004

Tube. 100mm
(Fits into Ski Boot)
Powrmatic Part No. 148800026

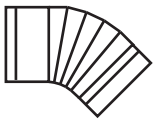


Ski Boot.
100/100mm
Powrmatic Part No. 148800024

500mm Concentric Length.
100/150mm
Powrmatic Part No. 148800014



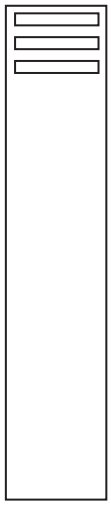
87-90º Concentric Elbow.
100/150mm
Powrmatic Part No. 148800006



43-45º Concentric Elbow.
100/150mm
Powrmatic Part No. 148800011

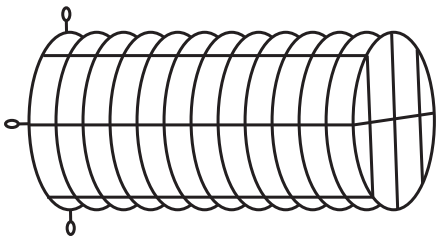
# Euromatic Series 2. Models 15-150 DH

Standard Parts



1000mm Flue Length.
100mm dia.
Powrmatic Part No. 148800026

1000mm Flue Length.
80mm dia.
Powrmatic Part No. 148800025



Euromatic Exhaust Guard.
Powrmatic Part No. 146600021

**BSI Registered Firm**

FM414
Industrial and Commercial Air Heaters; Air Moving Equipment; Flue and Chimneys; Natural, Smoke and Heat Ventilators; Powered Supply and Extract Fans and Systems.

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