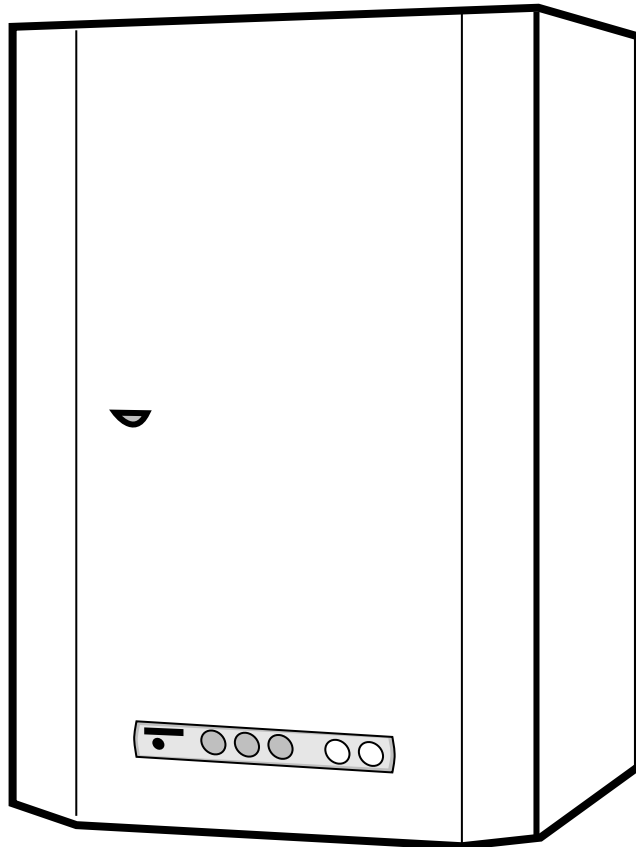


**SYLVA**

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IN WARRANTY

**TECHNICAL HELPLINE**

**01773 828400**

**HEATCALL**

**01773 828100**



THIS IS A CAT II2H3+ APPLIANCE

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**Saunier Duval** 

# INSTALLATION AND OPERATING INSTRUCTIONS

## SYLVA FF 24 E

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### NOTE !

The boiler serial number is marked on the label attached to the inside of the side panel. Refer to the 'introduction' section page 3 for a description of the basic functions of the boiler. The 'users' section describes how to safely operate the boiler.

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#### **Mandatory warning for CEE countries**

**Warning:** This appliance is designed, approved and inspected to meet the requirements of the English market. The identification plate located on the inside of the appliance **certifies the origin** where the product was manufactured and the **country** for which it is intended.

If you see any exception to this rule, please contact your nearest **Saunier Duval** dealer.

Thank you in advance for your assistance

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# INTRODUCTION

The **SYLVA FF 24 E** boiler is a wall mounted combination boiler with electronic ignition providing central heating and an unvented hot water storage of 60 litres.

The boiler is of the **II2H3+** category for use with Natural Gas (G20) as distributed in the United Kingdom, or Butane (G30), Propane (G31) with the appropriate conversion kit.

## Conversion kits:

Conversion	Part No.
Natural Gas (G20) to LPG (G30/G31)	85402

Boilers burning LPG or similar gases **MUST NOT** be fitted in basements or below ground level.

The boiler has a fan assisted balanced flue which both discharges the products of combustion to and draws the combustion air from the outside of the room.

The boiler is suitable for top outlet flue connection only but, can be fitted with horizontal flue, vertical flue or twin-pipe flue. Refer to flue catalogue for further details.

Both the central heating and domestic hot water temperature are user adjustable from the boiler control panel.

Electrical components have been tested to meet the equivalent requirements of BEAB.

Domestic hot water demand always has priority over heating demand.

The boiler is designed for use as part of a sealed water central heating system with fully pumped circulation. The pump, expansion vessel and associated safety devices are all fitted within the boiler.

The boiler can be installed against either an external wall or on an adjacent inside wall, that is, the flue system will pass directly to the rear or to either side to the terminal fitted on the outside wall face.

The installation must be carried out by a competent person in accordance with the relevant requirements of The Building Regulations, The Water Byelaws, The Building Standards (Scotland) Regulations and any applicable local regulations.

These instructions should be carefully followed for the safe and economical use of your boiler.

## Ancillary equipment

A range of flue accessories are available including vertical flues, twin-pipe flues, bends etc. For further information contact your supplier.

# COMMISSIONING

## Gas safety (Installation and use) Regulations

In your interests and that of gas safety, it is the law that ALL gas appliances are installed and serviced by a competent person in accordance with the above regulations.

## Gas leak or fault

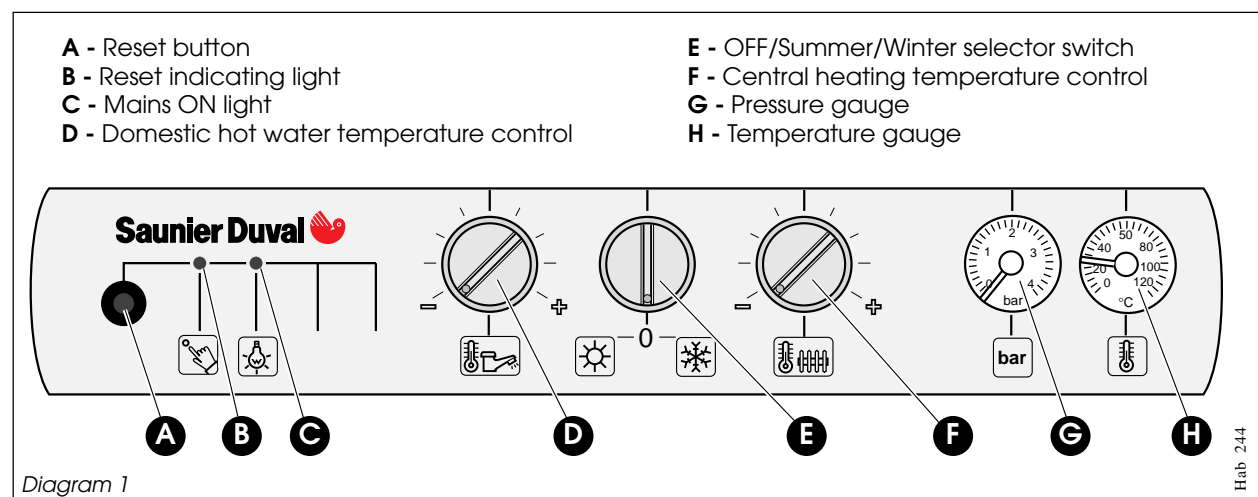
If a gas leak or fault exists or is suspected, turn the boiler off and consult the local gas supply company or your installation/service company.

## Boiler controls

The control panel, located at the lower front of the boiler casing, **see diagram 1**, allows the boiler to be started, shut down, controlled and monitored during use.

## Flue

Do not obstruct the outside terminal of the boiler.



## CONTROLS AND LIGHTING


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### Starting the boiler

#### Before starting the boiler, make sure that:

- The boiler is connected to the electrical supply and turned on.
- The boiler gas service cock is open.
- The pressure gauge reads between **1** and **2** bar. The boiler is now ready to start


#### Setting to WINTER mode (Heating and hot water)

- Turn the OFF/Summer/Winter selector switch (**E**) to the 'Winter'  position, **see diagram 1**.
- Turn the central heating temperature control (**F**) to the desired setting, **see diagram 1**.
- Turn the domestic hot water temperature control (**D**) to the desired setting, **see diagram 1**.
- Make sure that any external controls are calling for heat.

The boiler will light and proceed to heat up the integral storage cylinder, after which time, up to approximately 10 minutes depending on the setting of the temperature control, the heating system will begin to heat up.

**NOTE:** Once the cylinder has reached its' set temperature, the boiler will continue to operate in heating mode until the cylinder needs topping-up again. To obtain domestic hot water, open a hot water tap. Hot water always has priority over central heating.

#### Setting to SUMMER mode (Hot water only)

- Turn the OFF/Summer/Winter selector switch (**E**) to the 'Summer'  position, **see diagram 1**.
- Turn the domestic hot water temperature control (**D**) to the desired setting, **see diagram 1**.

The boiler will light and proceed to heat up the integral storage cylinder, after which time, up to approximately 10 minutes depending on the setting of the temperature control, the boiler will stop.

**NOTE:** Once the cylinder has reached its' set temperature, the boiler will remain off until the cylinder needs topping-up again. To obtain domestic hot water, open a hot water tap. Hot water always has priority over central heating.

## DRAINING

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### Protection against freezing

If the boiler is to be out of use for any long periods during severe weather conditions, it is recommended that the whole system, including the boiler, be drained to avoid the risk of freezing. If in doubt, consult your servicing company.

The **SYLVA** has a built in frost protection device that protects the boiler from freezing. If the boiler is to be left and there is a risk of frost, ensure that the gas and electrical supplies are left connected and that the OFF/Summer/Winter switch is left in the 'Summer' or the 'Winter' position. The frost protection device will light the boiler when the temperature of the boiler water falls below 6°C. When the temperature reaches 16°C, the boiler stops.

**Note:** This device works irrespective of any room thermostat setting and only protects the boiler. Always ensure that adequate frost protection is given to the entire system where necessary.

### Draining and filling

Caution: The boiler is installed as part of a sealed system which must only be drained and filled by a competent person.

### Heating safety valve

**CAUTION :** A safety valve with a discharge pipe is fitted to this boiler.

The valve **MUST NOT BE TOUCHED** except by a competent person. If the valve discharges at any time, switch the boiler off and isolate it from the electrical supply. Contact your installation/service company.

### Temperature/pressure relief valve

**CAUTION:** A temperature/pressure relief valve with a discharge pipe into a tundish is fitted to this boiler.

The valve **MUST NOT BE TOUCHED** except by a competent person. If the valve discharges at any time, switch the boiler off and isolate it from the electrical supply. Contact your installation/service company.

## SERVICING/MAINTENANCE

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To ensure the continued efficient and safe operation of the boiler, it is recommended that it is checked and serviced at regular intervals. In particular, the anode fitted to the domestic hot water storage cylinder must be checked at least once a year and replaced as necessary.

The frequency of servicing will depend upon the installation conditions and usage but, in general, once a year should be enough.

### Cleaning

The boiler casing can be cleaned with a damp cloth followed by a dry cloth to polish. Do not use abrasive or solvent cleaners.

### Boiler casing

**CAUTION.** Do not remove or adjust the casing in any way, as incorrect fitting may result in faulty operation. If in doubt, consult your installation/service company.

# TECHNICAL DATA

## Heating output

adjustable from	10,8 kW to 24 kW 36,850 BTU/H to 81,890 BTU/H
Efficiency	81 %
Maximum heating temperature	90 °C
Expansion vessel effective capacity	7,5 l
Expansion vessel charge pressure	1,0 bar
Maximum system capacity at 75°C	170 l
Safety valve, maximum service pressure	3 bar
Products outlet	Ø 60 mm
Fresh air inlet	Ø 100 mm

Electrical supply	230 V
Maximum absorbed power	165 W
Level of protection	IP44

## Hot water output

automatically variable from	10,8 kW to 24 kW 36,850 BTU/H to 81,890 BTU/H
Storage capacity	60 l
Maximum hot water temperature	65 °C
Specific flow rate (for 30°C temperature rise)	13,6 l/min.
Nominal water flow rate	10 l/min.
Expansion vessel effective capacity	2 l
Expansion vessel charge pressure	3 bar
Maximum supply pressure	10 bar
Maximum operating pressure	3,5 bar
Temp./press. relief valve opening pressure	7 bar
Temp./press. relief valve opening temperature	90 °C
Cylinder heat up time	7 min.
Time to reheat 70% of storage to 65°C	3 min.
Expansion valve setting	6 bar
Weight when full	144 kg

## Gas (reference 15° - 1013 mbar)

	Natural Gas (G20)	Butane (G30)	Propane (G31)
Burner injector	1,20 mm	0,77 mm	0,77 mm
Inlet pressure	20 mbar	28 mbar	37 mbar
Gas rate (maximum)	2,81 m³/h	2,10 kg/h	2,06 kg/h
Gas rate (minimum)	1,32 m³/h	0,98 kg/h	0,97 kg/h

**Burner pressures** : burner pressures, as listed in the table below, must be checked after the boiler has been operating for 3 minutes.

Table 1

		Heat output															
		(kW)	10,8	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		(Btu/h)	36850	37532	40944	44356	47768	51180	54592	58004	61416	64828	68240	71652	75064	78476	81888

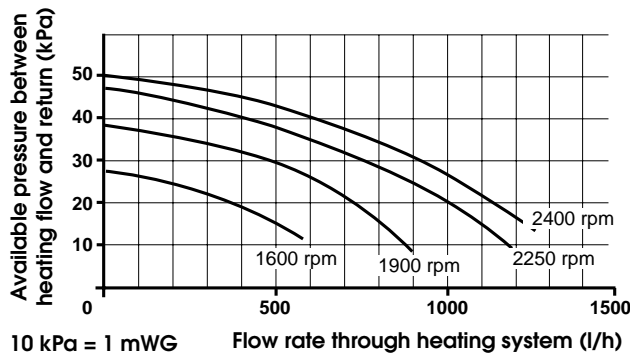
		Heat input															
		(kW)	13,9	14,1	15,3	16,6	17,8	19,0	20,2	21,4	22,6	23,8	24,9	26,1	27,3	28,4	29,6
		(Btu/h)	47389	48115	52326	56510	60668	64800	68907	72989	77045	81077	85084	89067	93026	96961	100877

GAS
G 20
G 30
G 31

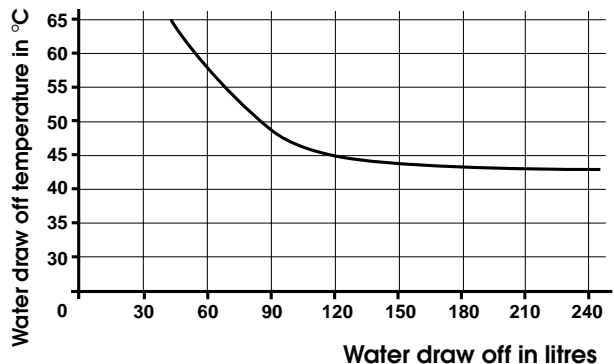
(mbar)	3,1	3,4	3,5	4,1	4,7	5,4	6,1	6,8	7,6	8,4	9,2	10,1	11,1	12,0	13
(mbar)	5,8	6,3	6,9	8,1	9,3	10,6	12,0	13,5	15,0	16,6	18,3	20,0	21,9	23,7	25,7
(mbar)	7,6	8,0	9,1	10,6	12,3	14,0	15,8	17,7	19,8	21,9	24,1	26,4	28,8	31,3	33,9

## Pump :

Diagram 3



Domestic hot water production :  
 Temperature of cold water = 15°C  
 Temperature of stored water = 60°C  
 Drawing off at 12 l/min.



## DIMENSIONS

The **SYLVA** is delivered in two separate packages:

- the boiler itself
- the flue system

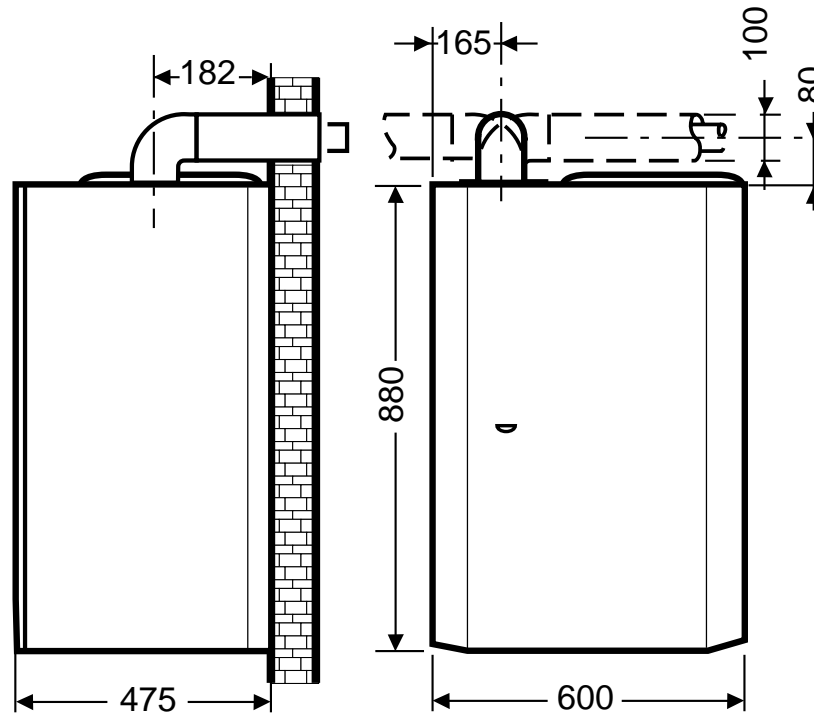


Diagram 2

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## HEATING SYSTEM DESIGN

- The **SYLVA** is compatible with any type of installation.
- Heating surfaces may consist of radiators, convectors or fan assisted convectors.
- Pipe sectional areas shall be determined in accordance with normal practices, using the output/pressure curve (**diagram 3**). The distribution system shall be calculated in accordance with the output requirements of the actual system, not the maximum output of the boiler. However, provision shall be made to ensure sufficient flow so that the temperature difference between the flow and return pipes be less than or equal to 20°C. The minimum flow is 500 l/h.
- The piping system shall be routed so as to avoid any air pockets and facilitate permanent venting of the installation. Bleed fittings shall be provided at every high point of the system and on all radiators.
- The total volume of water permitted for the heating system depends, amongst other things, on the static head in the cold condition. The expansion vessel on the boiler is pressurised at 1 bar

(corresponding to a static head of 5 m w.g.) and allows a maximum system volume of 170 litres for an average temperature of 75°C and a maximum service pressure of 3 bar. This pressure setting can be modified at commissioning stage if the static head differs. An additional expansion vessel can be fitted to the system if required, see **diagram 6**.

- Provision shall be made for a drain valve at the lowest point of the system.
- Where thermostatic radiator valves are fitted, not all radiators must be fitted with this type of valve, and in particular, where the room thermostat is installed.
- In the case of an existing installation, it is **ESSENTIAL** that the system is thoroughly flushed prior to installing the new boiler.

### Filling the system

Provision must be made for filling the system at low level. The use of a WRC approved filling loop is strongly recommended, connected as shown in **diagram 6**.

## DOMESTIC HOT WATER SYSTEM DESIGN

- Copper tubing must be used for the domestic hot water system. Unnecessary pressure losses should be avoided.
- A flow restrictor limiting the flow through the boiler to a maximum of 12 l/min is fitted to the boiler.
- A pressure reducing valve for the cold water inlet is supplied, this is packed inside the boiler. This valve is a necessary part of the unvented system and **MUST** be fitted to the cold water supply see **diagram 6**.

# BOILER SCHEMATIC

## SYLVA FF 24 E

- |                                 |  |
|---------------------------------|--|
| 1 - 3-way valve                 | 17 - Expansion valve (6 bar)                   |
| 2 - Loss of water switch        | 18 - Domestic expansion vessel                 |
| 3 - Pump                        | 19 - Drain valve                               |
| 4 - CVI unit                    | 20 - Fan                                       |
| 5 - Gas valve                   | 21 - Air pressure switch                       |
| 6 - Ignition electrode          | 22 - Temperature/pressure relief valve (7 bar) |
| 7 - Injector manifold           | 23 - Tundish                                   |
| 8 - Flame detection electrode   | 24 - Non-return valve                          |
| 9 - Heat exchanger              |  |
| 10 - Bleed valve                |  |
| 11 - Thermistor                 |  |
| 12 - Expansion vessel           |  |
| 13 - Anode                      |  |
| 14 - Cylinder                   |  |
| 15 - Domestic thermostat        |  |
| 16 - Overheat safety thermostat |  |
- A - Heating return  
 B - Cold water inlet  
 C - Heating flow  
 D - Domestic hot water flow  
 F - Gas supply

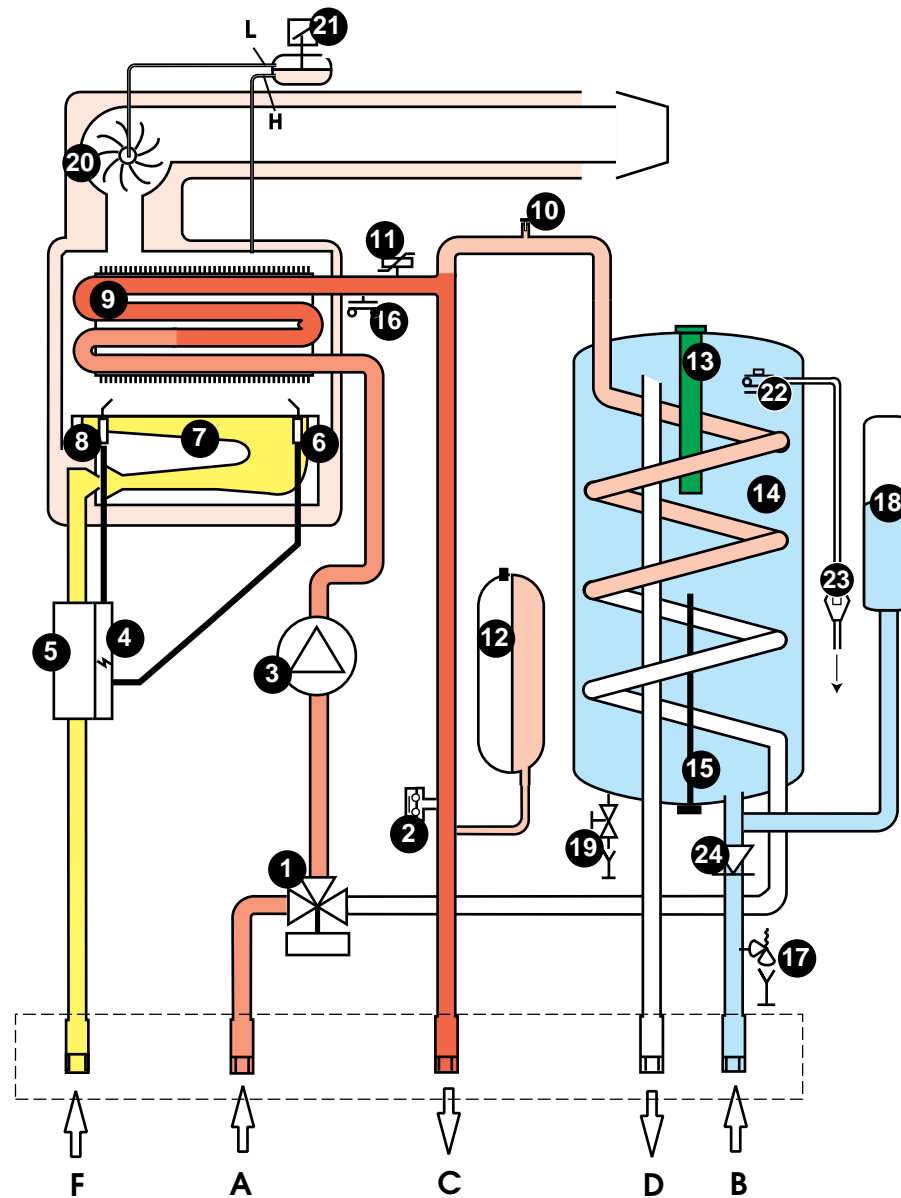


Diagram. 4

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# PIPING SYSTEM INSTALLATION

- Heating system connections - Pipe diam 22 mm
- Hot water system connections - Pipe diam 15 mm
- Gas connection - Pipe diam 22 mm
- Tundish connection - Pipe diam 22 mm
- Safety valve discharge - Pipe diam 22 mm

## Water connection

Connect the copper tails and isolating cocks supplied, to the boiler : see **diagram 5**. Connect the system pipework to the boiler observing the correct flow and return format shown in **diagram 5**.

## Safety valve discharge

**WARNING.** It must not discharge above an entrance or window or any type of public access area.

Connect the safety valve discharge pipe to the boiler, the discharge must be extended using not less than 15 m o.d. pipe, to discharge in a visible position outside the building, facing downward preferably over a drain. The pipe must have a continuous fall and be routed to a position so that any discharge of water, possibly boiling or steam, cannot create any danger to persons, damage to property or external electrical components and wiring. Tighten all pipe connection joints.

## Gas connection

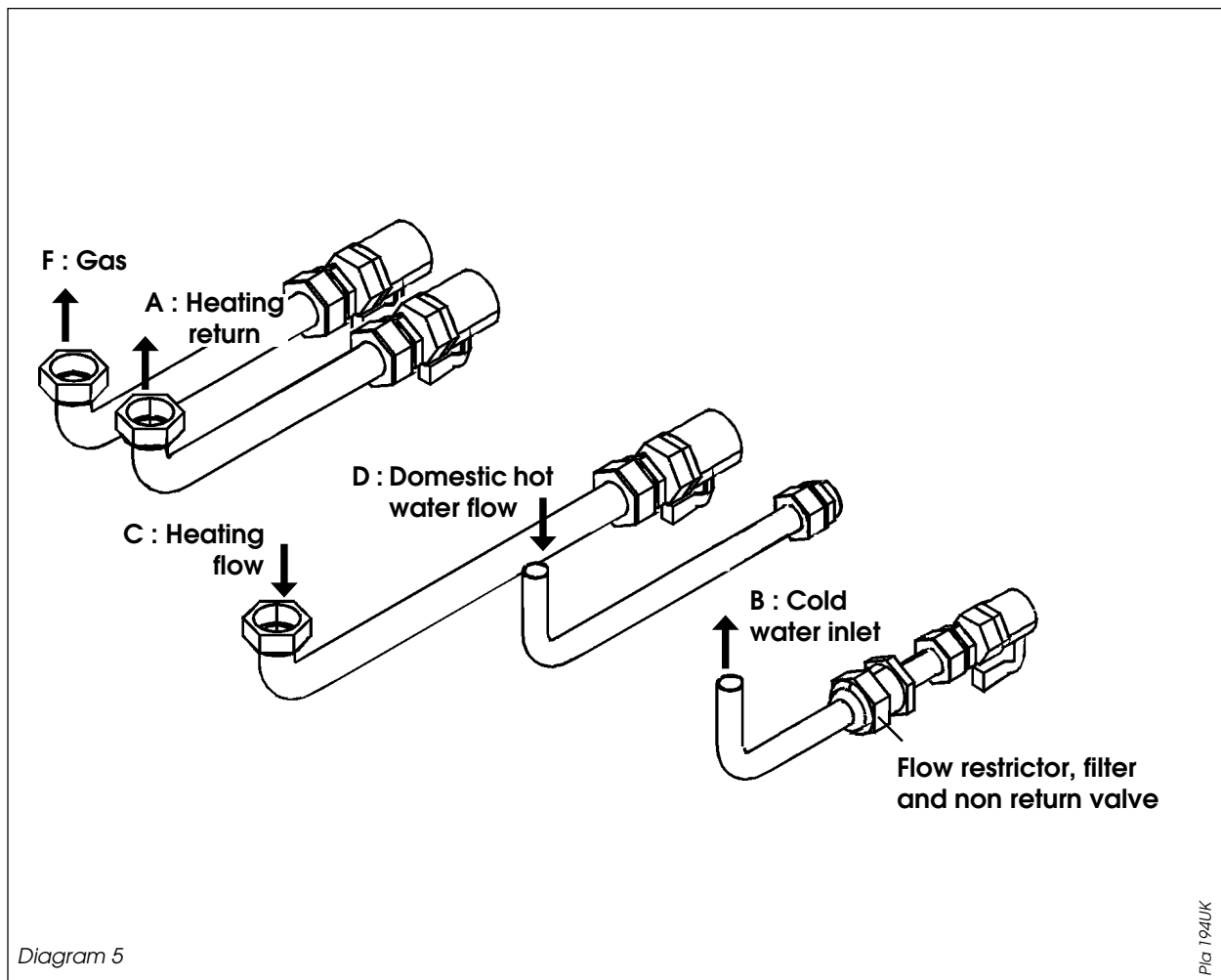
- The supply from the governed gas meter must be of adequate size to provide a constant inlet working pressure of 20 mbar (8 in w.g.).

To avoid low gas pressure problems, it is recommended that the gas supply is connected using 22 mm pipe.

- On completion, the gas installation must be tested using the pressure drop method and purged in accordance with the current issue of BS6891.

## Gas Safety (Installation and use) Regulations

In your interests and that of gas safety, it is the law that ALL gas appliances are installed and serviced by a competent person in accordance with the above regulations.





# PIPING SYSTEM INSTALLATION

## Tundish discharge

The SYLVA is delivered with the tundish fitted to the boiler but must be piped to a suitable position outside the building in accordance with Building Regulations.

It is permissible to use copper or an appropriate temperature resistant plastic pipe, such as HEP<sub>2</sub>O for this, see diagram 6.

**WARNING.** It must not discharge above an entrance or window or any type of public access area.

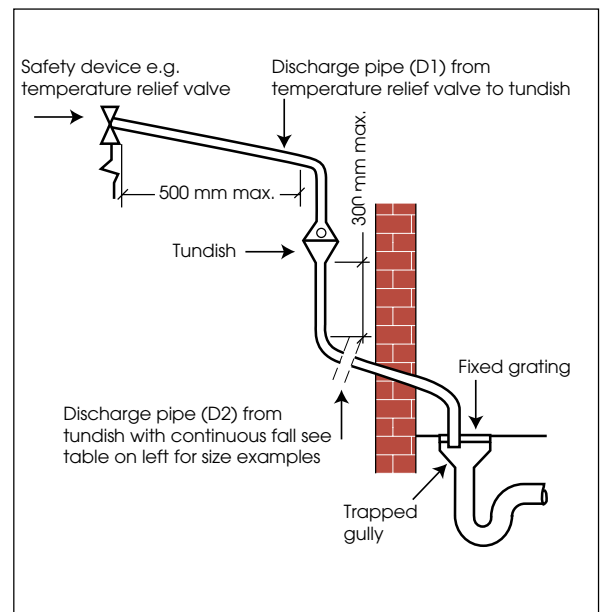
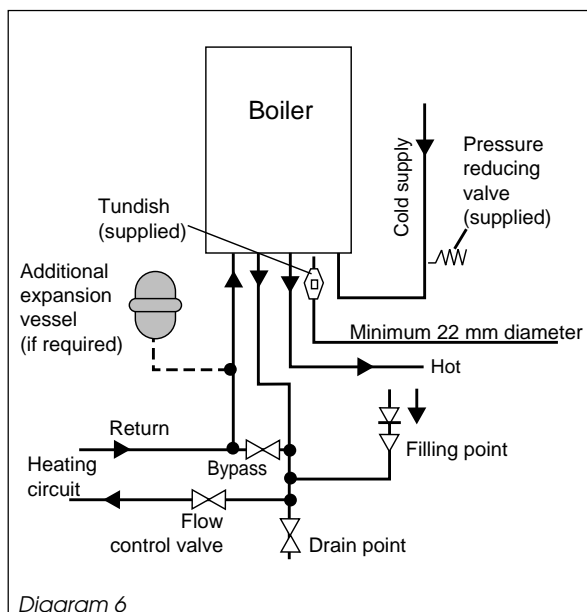
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less than 15 m o.d. pipe, to discharge in a visible position outside the building, facing downward preferably over a drain. The pipe must have a continuous fall and be routed to a position so that any discharge of water, possibly boiling or steam, cannot create any danger to persons, damage to property or external electrical components and wiring. Tighten all pipe connection joints.

The tundish outlet pipe must have a vertical section of at least 300 mm before any bends or elbows in the pipework.

## Sizing of tundish discharge pipework D2

Valve outlet size	Minimum size of discharge to tundish	Minimum size of discharge pipe D2 from tundish	Maximum resistance allowed expressed as a length of straight pipe i.e. no elbows or bends	Resistance created by each elbow or bend
G 1/2	15 mm	22mm 28 mm 35 mm	up to 9 m up to 18 m up to 27 m	0.8 m 1.0 m 1.4 m
G 3/4	22 mm	28 mm 35 mm 42 mm	up to 9 m up to 18 m up to 27 m	1.0 m 1.4 m 1.7 m
G 1	28 mm	35 mm 42 mm 54 mm	up to 9 m up to 18 m up to 27 m	1.4 m 1.7 m 2.3 m



# BOILER LOCATION

## Clearances

The position of the boiler must be such that there is adequate space for servicing.

The recommended clearances are:

- 50 mm either side of the boiler.
- 600 mm at the front of the boiler.
- 300 mm below the boiler.

- Place template on wall in required position, noting that hanging bracket must be 780 mm above centre line of pipework, making allowances for the necessary clearances etc.

**Note:** It is permissible to install the boiler with reduced clearances at the bottom and sides of the boiler PROVIDING adequate consideration is given for Servicing/Repairs at a later date. If any doubt exists, contact **Saunier Duval Technical Helpline 01773 828400**.

- Mark position of the holes for the hanging bracket.
- Drill, plug and fix the hanging bracket to the wall using suitable screws.
- Check that the hanging bracket is level.
- For horizontal flue system, mark the position for the flue hole as follows:

## Flue to rear of boiler

- Mark correct position of hole from template.

## Flue to side of boiler

- Mark the horizontal centre line for the hole on the rear wall. Extend the horizontal centre line to the side wall and mark the vertical centre line of flue hole as shown in **diagram 7**.

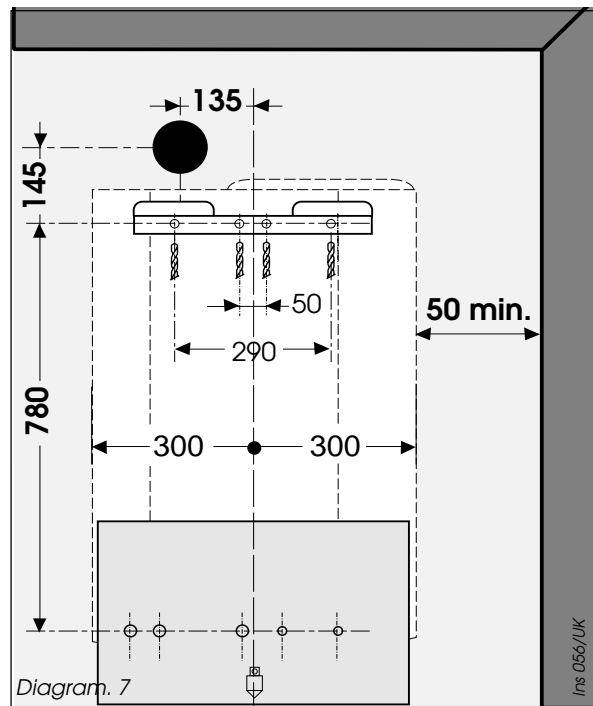
**Important:** When fitting a flue to the right hand side of the boiler, the flue must be raised to clear the anode in the top of the storage cylinder. To do this, use the spacer, **Saunier Duval** part number 85812.

## Cutting the flue hole

- Making allowance for the slope of the flue, cut hole in external wall, preferably using a 115 mm core drill. If necessary, make good at both the inner and outer surface of the wall.

## Important

When cutting the flue hole and when extending the flue centre line to a side wall, remember that the flue system must have a fall of about 35 mm per metre of



flue DOWNWARD towards the terminal. There must NEVER be a downward incline towards the boiler.

## Terminal position

The minimum acceptable spacings from the terminal in obstructions and ventilation openings are shown in **diagram 8**.

The boiler must be installed so that the terminal is exposed to the external air.

Should any doubt exist as to the permissible position of the terminal, contact the **Saunier Duval Technical Helpline 01773 828400**.

## Terminal guard

If a terminal guard is required, a suitable guard can be obtained from your supplier, **Saunier Duval** part number 85373.

## Cupboard or compartment ventilation

The boiler can be fitted in a cupboard or compartment as long as adequate permanent high and low level ventilation is provided in accordance with ventilation requirements.

## Minimum dimensions (in mm) for the positioning of flue terminals

<b>A</b>	- under a window .....	300
<b>B</b>	- under an air vent .....	300
<b>C</b>	- under a gutter .....	75
<b>D</b>	- under a balcony .....	300
<b>E</b>	- from an adjacent window .....	300
<b>F</b>	- from an adjacent air vent .....	300
<b>G</b>	- from vertical or horizontal air pipes .....	300
<b>H</b>	- from an external corner of the building .....	300
<b>I</b>	- from an internal corner of the building .....	300
<b>L</b>	- from the ground or from another floor .....	300
<b>M</b>	- between two terminals vertically .....	1500
<b>N</b>	- between two terminals horizontally .....	600

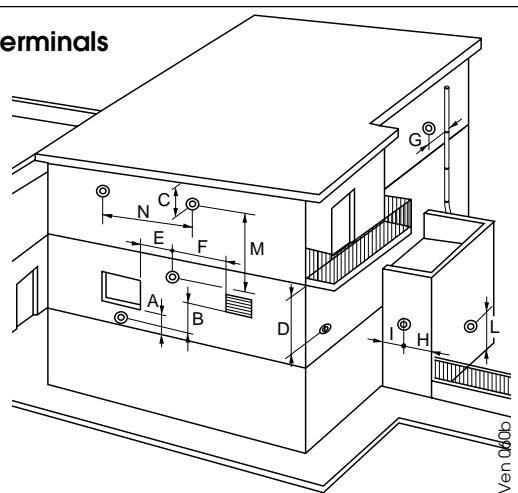


Diagram. 8

# BOILER INSTALLATION

## Statutory requirements

The installation of this boiler must be carried out by a competent person in accordance with the relevant requirements of the current issue of:  
 The Gas Safety (Installation and Use) Regulations  
 The Building Regulations  
 The local water company Byelaws  
 The Building Standards Regulations (Scotland)  
 The Health and Safety at Work Act

## Sheet metal parts

**WARNING.** When installing or servicing this boiler, care should be taken when handling the edges of sheet metal parts to avoid the possibility of personal injury.

## Installing the boiler

Prior to starting work, the system must be thoroughly flushed using a propriety cleanser such as **Sentinel X300** to eliminate any foreign matter and contamination e.g. metal filings, solder particles, oil, grease etc.

**Note.** Solvent products could cause damage to the system.

- Engage boiler upper part onto the hanging bracket.
- Connect the system pipework to the boiler.
- Connect the tundish outlet to a suitable drain, refer to **Piping System Installation**.

# FLUE INSTALLATION

## Top outlet flue - kit 85090

The boiler is only suitable for top outlet flue connection.

## Calculation of flue cutting lengths

- Measure wall thickness **e** (mm), see diagram 9.
- For right hand side flue, measure distance from inside face of side wall to centre line of boiler and subtract 435 to get dimension **a** (mm).
- For left hand side flue, measure distance from inside face of side wall to centre line of boiler and subtract 165 to get dimension **a** (mm).
- Refer to **table 2** for cutting lengths of both inner and outer flue pipes for each of the various flue options available.

**Important:** All flue cutting lengths must be measured from the terminal end of the flue pipes, see diagram 10.

When the dimension **X** measured on site is greater than that given in **table 2**, a flue extension kit will be required, refer to **table 3** for details.

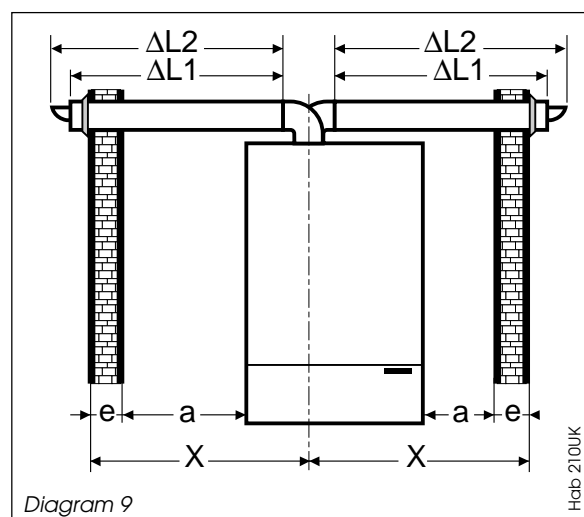
## Extended flue

The horizontal flue is extended by using one or more of the 1000 mm extension pipes, **Saunier Duval** part number 85091. These are connected together by push fit type joints, clamps and seals.

## Calculation of flue cutting lengths for extended flue

- Using the correct number of extension kits as **table 3**, measure dimensions **a** and **e**, see diagram 9. Cut both the inner and outer pipes to the dimensions given in **table 4**

**Important:** All cutting lengths should be measured from the push fit joint end of the extension pipe. Do not leave any burrs or sharp edges on the cut ends of the pipes.



**Table 2 :**  
**Flue cutting lengths**

Flue option	Cutting length (mm)		Comments
	outer pipe	inner pipe	
Top outlet rear flue	e + 108	e + 192	maximum wall thickness "e" without extension 808 mm
Top outlet side flue (right)	e + a + 361	e + a + 429	maximum distance "X" without extension 990 mm
Top outlet side flue (left)	e + a + 91	e + a + 159	maximum distance "X" without extension 990 mm

**Table 3 :**  
**Number of extension kits required**

Flue option	Dimension "X"	N° of extension kits
Side flue (right or left)	991 to 1991 mm	1
	1991 to 2991 mm	2

# FLUE INSTALLATION

**Table 4 :**  
Flue extension cutting lengths

Flue option	Cutting length (mm)		Comments
	outer pipe	inner pipe	
Side flue (right)	e + a - 555	e + a - 555	maximum dimension "X" without extension 990 mm
Side flue (left)	e + a - 825	e + a - 825	maximum dimension "X" without extension 990 mm

## Installation of flue assembly

- Fit rubber sealing collar (A) into groove at the outer end of pipe (B).
- Fit outer pipe (B) into wall with groove to the outside.
- Pull pipe inwards to bring rubber sealing collar hard up against external wall, see **diagram 12**.
- Fit internal plastic flange (C) onto outer pipe. Push along the pipe until engaged against internal wall.
- From inside, insert inner pipe (D) into outer pipe.
- Fit both 'O' rings (E) into the flue elbow (F), one at the inlet, one at the outlet. By necessity, they are a loose fit, apply a small amount of silicone grease to each 'O' ring when fitting.
- Slacken the two screws and fit the clamp and seal (G) onto the elbow.
- Take hold of the inner flue and push gently onto the elbow outlet taking care not to tear the 'O' ring.

**Important:** If the flue has been cut, ensure that there are no burrs that could damage the 'O' ring.

- Push the elbow clamp and seal over the outer flue.
- For flue systems less than 1 m long, leave the restrictor (a) fitted in the fan outlet, see **diagram 13**.
- Remove the backing from the self adhesive gasket (H) and carefully fit gasket to base of flue elbow.
- Fit elbow onto boiler and secure with the four screws (I).

## Concentric flue system

The maximum permissible length (L) for the concentric flue system is **3 m**. For flue systems up to 1 m length, the restrictor (a), supplied fitted to the boiler inside the fan outlet, must be left in place. For longer flue systems, the restrictor must be removed.

For each flue elbow used, the maximum permissible length (L) must be reduced by 1 metre.

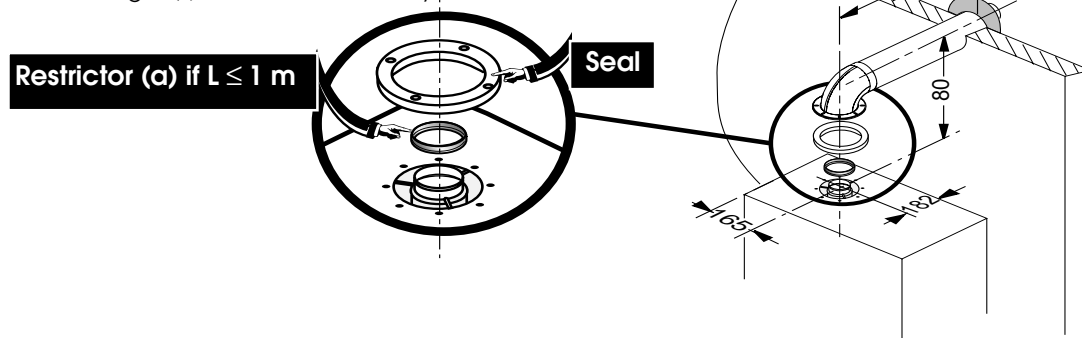


Diagram 13

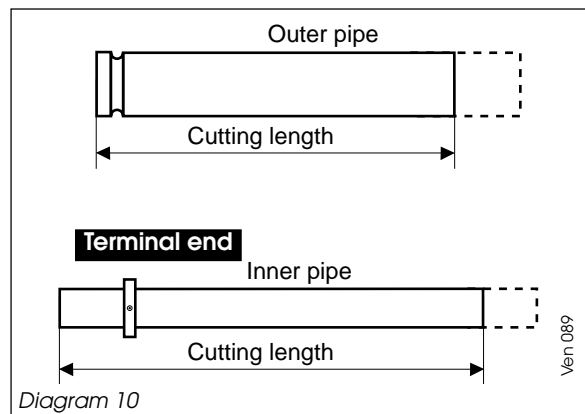


Diagram 10

The standard flue kit 85090, see **diagram 11**, comprises :

- External rubber sealing collar ..... **A**
- Outer pipe ..... **B**
- Plastic flange ..... **C**
- Inner pipe ..... **D**
- 2 'O' rings ..... **E**
- Elbow ..... **F**
- Clamp and seal ..... **G**
- Gasket ..... **H**
- Four screws ..... **I**

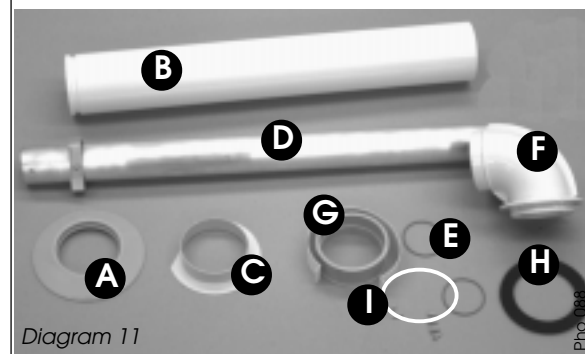


Diagram 11



Diagram 12

Ven 089

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Hab 243

# ELECTRICAL CONNECTION

**Warning.** This boiler must be earthed  
All system components must be of an approved type.

Connection of the whole electrical system and any heating system controls to the electrical supply must be through a common isolator. Isolation should preferably be by a double pole switched fused spur box having a minimum contact separation of 3 mm on each pole. The fused spur box should be readily accessible and preferably adjacent to the boiler. It should be identified as to its use.

A fused three pin plug and shuttered socket outlet may be used instead of a fused spur box provided that:

- a) They are not used in a room containing a fixed bath or shower.
- b) Both the plug and socket comply with the current issue of BS1363.

The mains electrical supply must be maintained at all times in order to provide domestic hot water. Do not interrupt the mains supply with a time switch or programmer.

**WARNING: ON NO ACCOUNT MUST ANY EXTERNAL VOLTAGE BE APPLIED TO ANY OF THE TERMINALS ON THE HEATING CONTROLS CONNECTION PLUG.**

## External controls

The **SYLVA FF 24 E** boiler is designed to operate at maximum efficiency at all times. The boiler will run at its' maximum efficiency when connected to a programmable electronic room thermostat. A programmable room thermostat is available as an accessory, **Saunier Duval** part number 40010. Please contact your supplier.

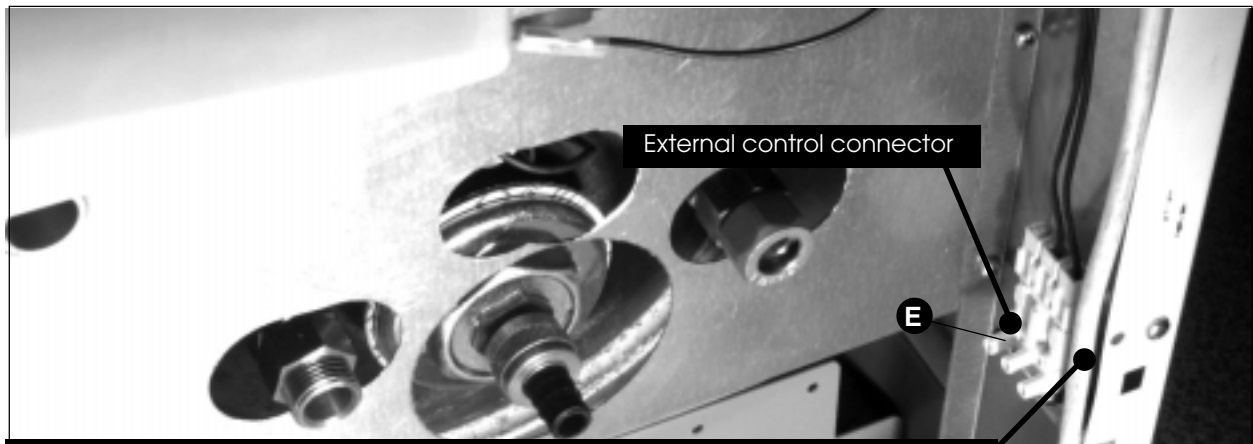
The boiler will work for heating without a room thermostat and/or timeswitch being connected provided that the wire link fitted between the upper two terminals of the connector (**E**) is left in place, see **diagram 14**.

A 230V room thermostat can be used but do not make any connection to the compensating resistor, see **diagram 14**.

**ON NO ACCOUNT** must any electrical voltage be applied to any of the terminals of the external controls plug.

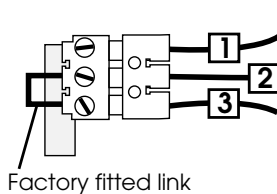
For use with a timeswitch or timeswitch and room thermostat, see **diagram 14**.

**Warning:** This appliance must be wired in accordance with these instructions. Any fault arising from incorrect wiring cannot be put right under the terms of the **Saunier Duval** guarantee.



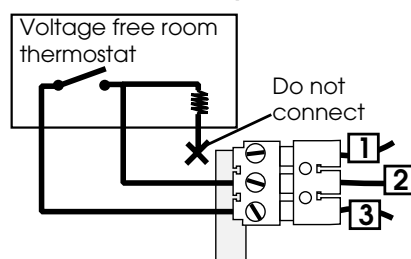
Boiler's 230 V mains lead :  
- brown wire : line / blue wire : neutral / yellow and green wire : earth  
**Warning : you must respect the line / neutral connections to the 230 V mains supply.**

### No external controls

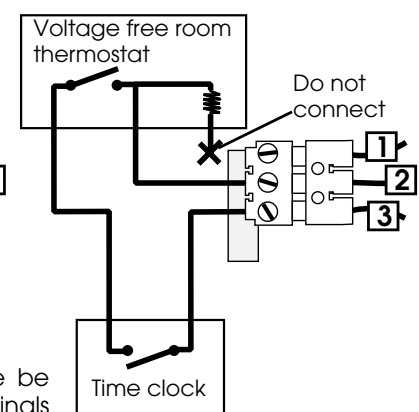


- 1** Green wire
- 2** Red wire
- 3** White wire

### Room thermostat only



### Room thermostat and time clock



**Warning :**  
- All external controls must be voltage free  
- On no account must any external voltage be applied to any of the external controls plug terminals

Diagram 14

Sch 152

# COMMISSIONING

The commissioning and first firing of the boiler must only be done by a competent person.

## Gas installation

It is recommended that any air is purged from the supply at the gas inlet test point on the gas valve, see **diagram 15**.

## Filling the system

- Open the boiler isolating valves (**a, b and c diagram 16**) and cap on automatic air vent on top of boiler.
- Open bleed vent (item 10) on flow pipe to storage tank, see **diagram 4**, until all the air has been released from the boiler.
- Important:** If this procedure is not carried out properly, the boiler will go into safety lock-out until all the air has been purged.
- Bleed each radiator until a continuous jet of water is obtained.
- Do not close automatic air vent cap on top of boiler.
- Open various hot water taps to bleed system.
- Make sure that pressure gauge reads between 1 and 2 bar. Re-pressurise as necessary.

## Important:

When venting air from boiler, do not touch the schrader valve on the expansion vessel, it is NOT a vent.

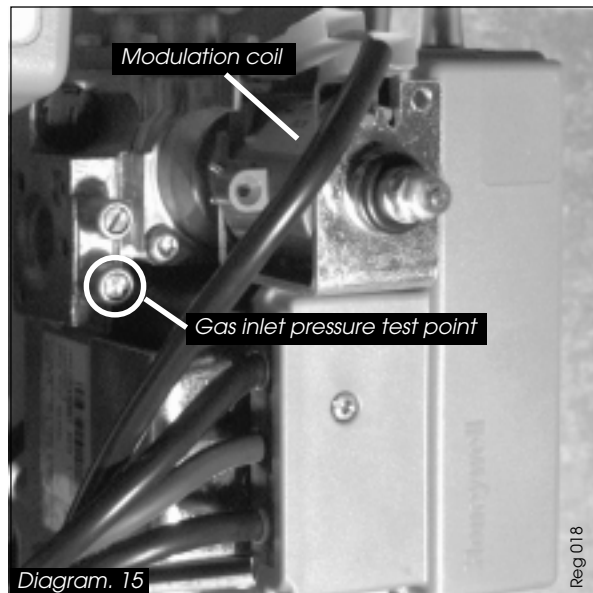
## Starting the boiler

Before starting the boiler check that:

- The gas meter tap is open.
- The boiler gas service cock is open.
- The boiler is connected to the electrical supply.

## First starting up

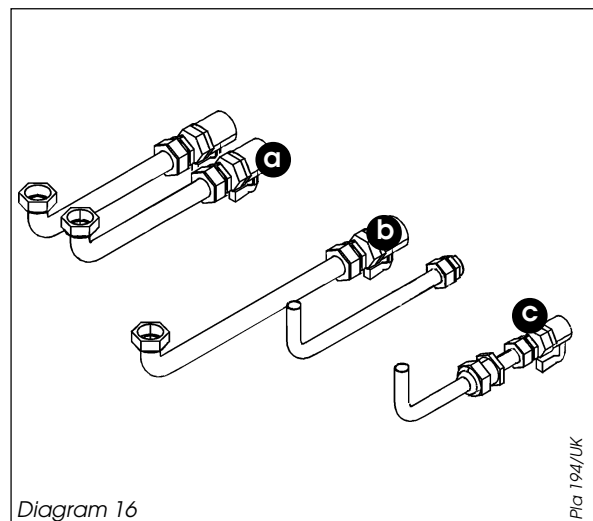
- Referring to '**Instructions for Use**', set boiler to run in central heating mode.
- Set boiler thermostat to maximum .
- Check that any external controls, if fitted, are calling for heat (set room thermostat to maximum).
- Allow the temperature to rise to the maximum value, with all radiator valves open. The temperature rise will cause release of the gases contained in the water of the central heating system.
- Gases driven towards the boiler will be automatically released through the automatic air vent.
- The gases trapped at the highest point of the system must be released by bleeding the radiators. On reaching maximum temperature, the boiler should be turned off and the system drained as rapidly as possible whilst still hot.
- Refill system to a pressure of 1 bar and vent as before.
- Restart boiler and operate until a maximum temperature is reached. Shut down boiler and vent heating system. If necessary, top up heating system and make sure that a pressure of 1 bar is indicated when system is COLD.



## Gas pressures

The main burner pressure should be checked during commissioning to make sure the correct input is obtained. Proceed as follows:

- Shut down boiler.
- Undo screws on gas inlet test points **RMP** and **MP** below sealed combustion chamber, see **diagram 17**.
- Connect a suitable pressure gauge.
- Gain access to the rear of the control panel and locate the range rating adjuster screw, see **diagram 18**.
- Start boiler as described in '**Instructions for Use**'
- Set selector switch to heating and hot water position.
- Set boiler thermostat to maximum and check that any external controls are calling for heat.
- Check that the reading on the gauge matches that given in '**Technical data**' for the type of gas being used.
- Adjust the range rating adjuster screw as necessary to obtain the desired input.
- Shut down boiler.
- Remove pressure gauge, tighten up test point screws and check for gas soundness.



## COMMISSIONING

- Using a ball point pen, clearly indicate on the data label the value the boiler is set to.

**Note:** This adjustment does not affect the domestic hot water output.

If measured burner pressure differs greatly from the given figure, check the gas inlet pressure as follows:

- Shut down boiler.
- Remove screw from inlet test point on the side of the gas valve, **see diagram 15**.
- Connect a suitable pressure gauge.
- Start boiler as described in 'Instructions for Use'.
- Check that the inlet pressure reading matches that given in 'Technical Data' for the type of gas being used.
- Shut down boiler.
- Remove pressure gauge, tighten up test point screws and check for gas soundness.
- If the gas pressure is incorrect, refer to the Fault Finding section in 'Servicing Instructions'.
- If the inlet pressure is below that given, the gas supply pipework/meter must be checked and any fault corrected.
- In the case of an LPG installation, check the storage tank or cylinder, regulator and pipework.

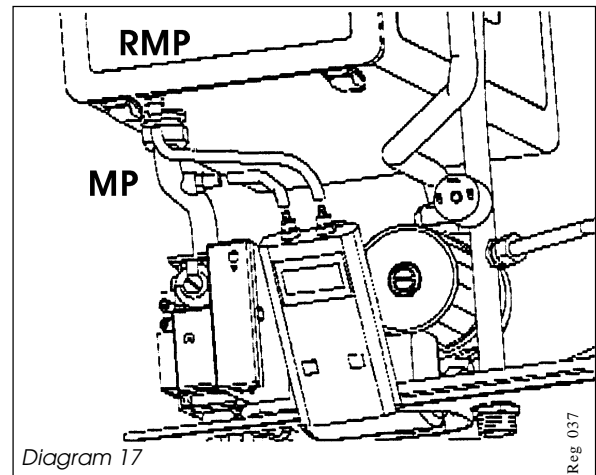


Diagram 17

Reg 037

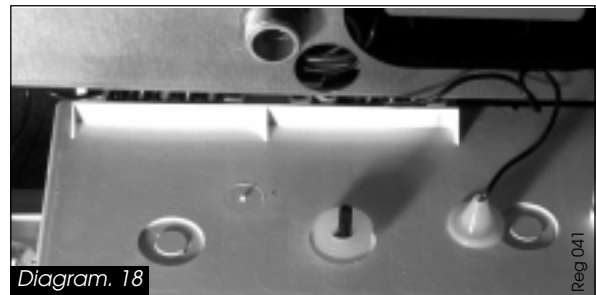


Diagram. 18

Reg 041

## OPERATING SAFETY DEVICES

### Air flow rate safety device

If an obstruction, even partial, of the flue occurs, for any reason whatsoever, the built in safety system of the boiler will turn the boiler OFF and the fan will continue to run.

The boiler will be ready to operate when the fault has been cleared.

### In case of power supply failure

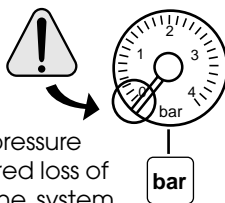
The boiler no longer operates.

As soon as power supply is restored, the boiler will be automatically restarted.

### In case of loss of water in the system

**CAUTION:** The boiler is installed as part of a sealed system which must only be drained and filled by a competent person.

If the pressure shown on the pressure gauge is less than 1 bar or the red loss of water indicating light is ON, the system must be filled up immediately. Call your Installation/Servicing company.



### Gas leak or fault

If a gas leak or fault exists or is suspected, turn the boiler off and consult the local gas company or your Installation/Servicing company.

**Important notice:** A central heating system cannot operate satisfactorily unless it is properly filled with

water and unless the air initially contained in the pipework has been properly bled off. If these conditions are not satisfied, air noise will occur within the system.

### Air in the heating system

Persistent air in the heating system may indicate leaks in the system or corrosion taking place. Call your Installation/Servicing company.

### Overheating safety

In the event of a problem, the overheating safety devices cause safety shutdown of the boiler. If this happens, call your Installation/Servicing company.

### Frost protection

The SYLVA has a built in frost protection device that protects the boiler from freezing. If the boiler is to be left and there is a risk of frost, ensure that the gas and electrical supplies are left connected and that the OFF/Summer/Winter switch is left in the 'Summer' or the 'Winter' position. The frost protection device will light the boiler when the temperature of the boiler water falls below 6°C. When the temperature reaches 16°C, the boiler stops.

**Note:** This device works irrespective of any room thermostat setting and only protects the boiler. Always ensure that adequate frost protection is given to the entire system where necessary.

## SETTINGS

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### Gas valve setting

All boilers are tested and factory set during manufacture. Should it be necessary to reset a gas valve, for example, after replacement, proceed as follows:

- Shut down boiler.

### Minimum setting

- Remove one electrical connector from the modulating gas valve coil, see **diagram 19**.
- Connect a suitable pressure gauge as described in 'Commissioning'.
- Turn the OFF/Summer/Winter switch to the 'Summer' position.
- Turn the domestic hot water temperature adjuster to maximum setting.
- Remove the protective cover from the gas valve adjuster.
- Turn nut 'A', see **diagram 19**:  
CLOCKWISE: To increase the pressure.  
ANTICLOCKWISE: To decrease the pressure.

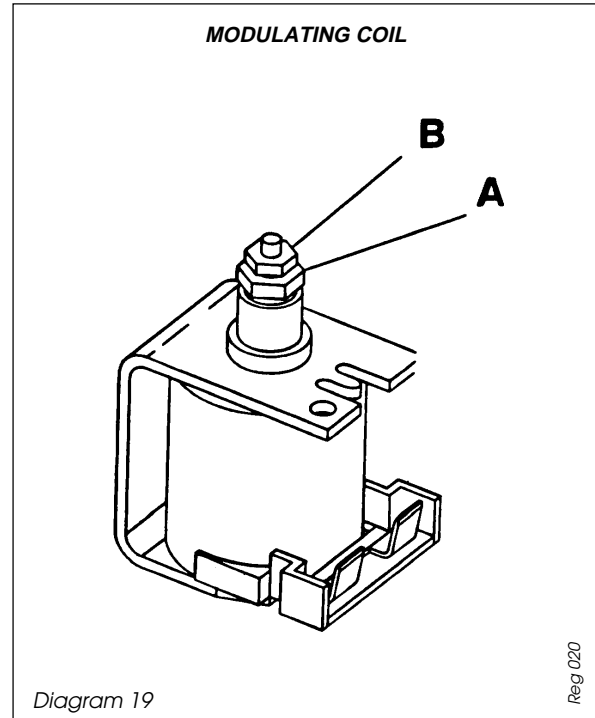
### Maximum setting

- Reconnect the electrical connector removed from the modulating gas valve coil.
- Remove the protective cover from the gas valve adjuster.
- Turn nut 'B', see **diagram 19**:  
CLOCKWISE: To increase the pressure.  
ANTICLOCKWISE: To decrease the pressure.

After adjustment, refit the cover to the gas valve adjuster.

### Bypass

When using thermostatic radiator valves (TRV's), it is essential that a separate, adjustable bypass of 15 mm minimum diameter is fitted between the flow and return of the heating circuit, see **diagram 6**. Any bypass must be fitted before system controls.



## CHANGING GAS TYPE

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Should it become necessary to change the gas type, a modification kit comprising injectors and factory set gas valve will be required. This

modification must only be carried out by a suitably qualified engineer.