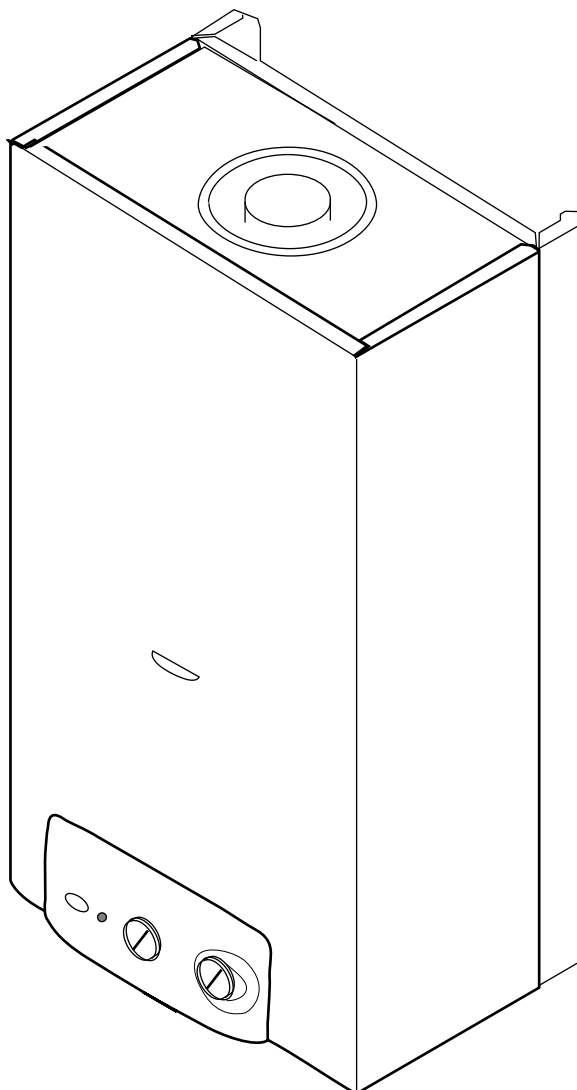


# OPALIA

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*IN WARRANTY*

**TECHNICAL HELPLINE**

**01773 828400**

***HEATCALL***

**01773 828100**



THESE ARE CAT II<sub>2H3</sub> + APPLIANCES

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**Saunier Duval** 

## OPALIA X13

### Mandatory warning notice for CEE countries

**WARNING**, this appliance was 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

**These instructions describe how to install and use Saunier Duval appliances. It is important to pay attention to the warnings on the packaging and the casing of the appliances, and follow the information given in this document.**

These water-heaters are gas-fired appliances providing instant hot water to fill a sink or a bath.

The **OPALIA X13** water-heater is of the room-sealed type, that is the venting of combustion products and the incoming fresh air pass through a flue system. This venting principle offers a variety of advantages, such as :

- installation with greatly reduced space requirements and with no need for room ventilation;
- a number of installation configurations depending on the constraints of the premises.

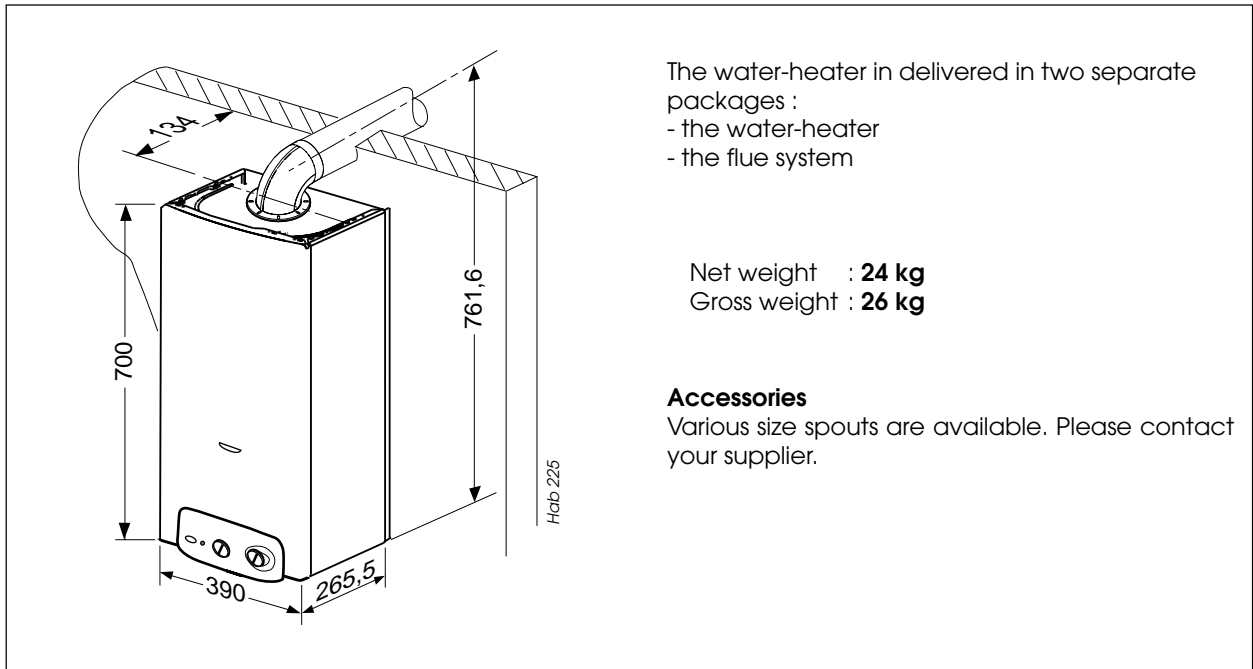
**The OPALIA X13 water-heater is of the II2H3+ gas category for use with either natural gas (G20), butane (G30) or propane (G31)**

The water-heater is delivered for a flue system connection with a top outlet to right or left.

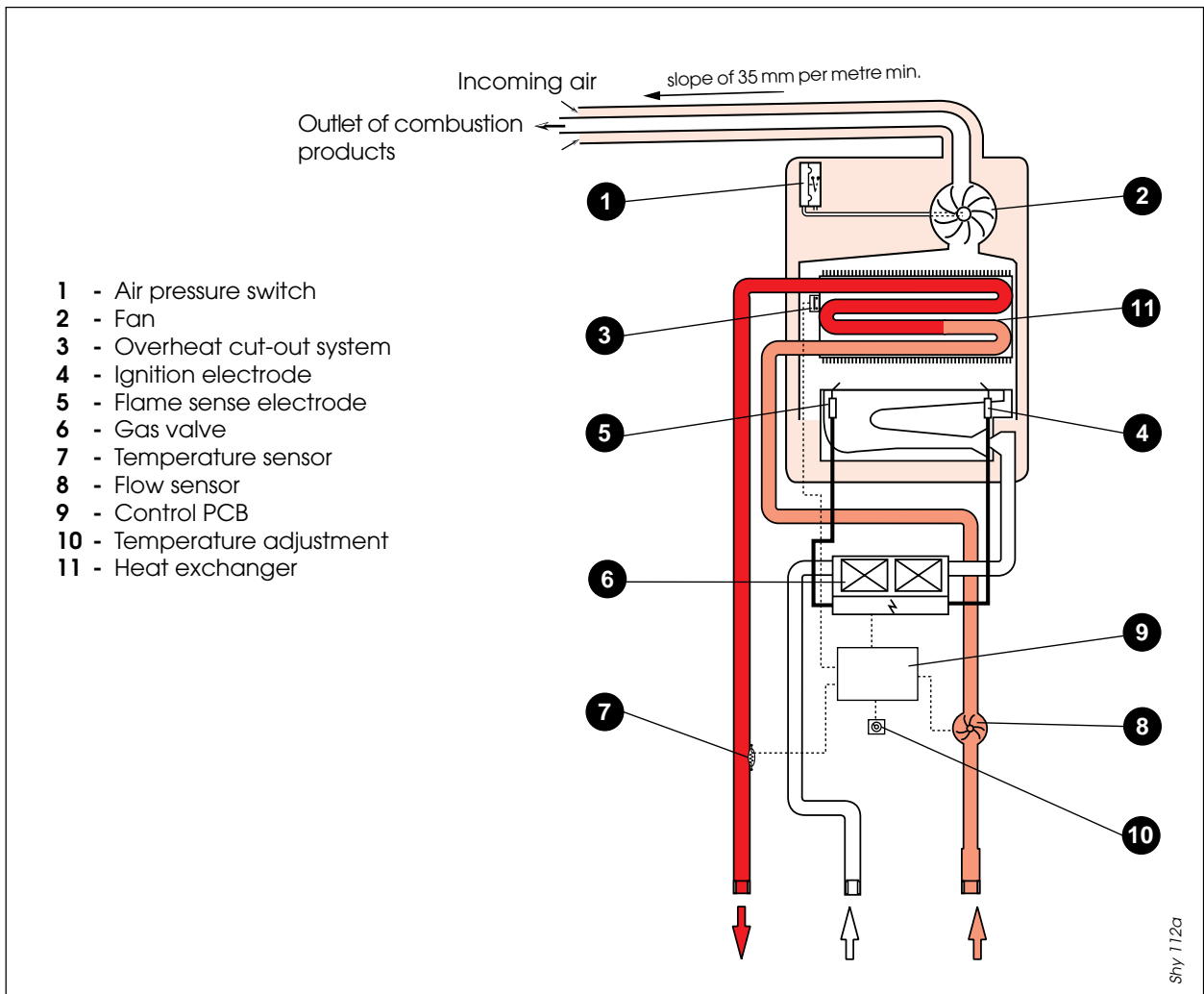
Its variable input means that whatever the rate at which water is drawn, there will be instantaneous hot water at a very nearly constant temperature within the maximum capacity of the appliance.

The ignition system on this water-heater with no permanent pilot has been designed to achieve maximum energy saving.

## DIMENSIONS



## HEATER SCHEMATIC



## TECHNICAL DATA

Refer to the data badge for exact type of appliance and the gases it is suitable for.

Variable output of	8,7 kW (29665 Btu/h) to 22,7 kW (77403 Btu/h)
Efficiency	78,4 %
Minimum flow rate, hot water temperature to :	
maxi. position	2,7 l/min (0,60 g/min)
mini. position	4,2 l/min (0,92 g/min)
Maximum flow rate (by flow limiter)	3 l/min (2,86 g/min)
Specific flow rate ( $\Delta t$ 30 °C)	11 l/min (2,42 g/min)
Minimum water pressure	(pw) 0,3 bar (4,50 lb/in <sup>2</sup> )
Maximum water pressure*	(pw) 10 bar (150 lb/in <sup>2</sup> )
Max hot water temperature	60 °C
Venting of flue gases via flue system	Ø 60 mm
Incoming fresh air via flue system	Ø 100 mm
Supply voltage	230 V
Current	0,31 A
Power	55 W
Electrical protection	<b>IP 44</b>

\* These maximum water pressure values take into account the dilation of the water.

**Gas Category : II<sub>2H3+</sub>.**

**Natural (G 20)** (ref. 15°C and 1013 mbar)

Ø burner injector	1,20 mm
Appliance Inlet pressure	20 mbar
Max. gas flow rate output	2,75 m <sup>3</sup> /h
Min. gas flow rate	1,13 m <sup>3</sup> /h

**Butane (G 30)**

Ø burner injector	0,80 mm
Appliance Inlet pressure	28 - 30 mbar
Max. gas flow rate output	2,04 kg/h
Min. gas flow rate	0,83 kg/h

**Propane (G 31)**

Ø burner injector	0,80 mm
Appliance Inlet pressure	37mbar
Max. gas flow rate output	2,02 m <sup>3</sup> /h
Min. gas flow rate	0,82 m <sup>3</sup> /h

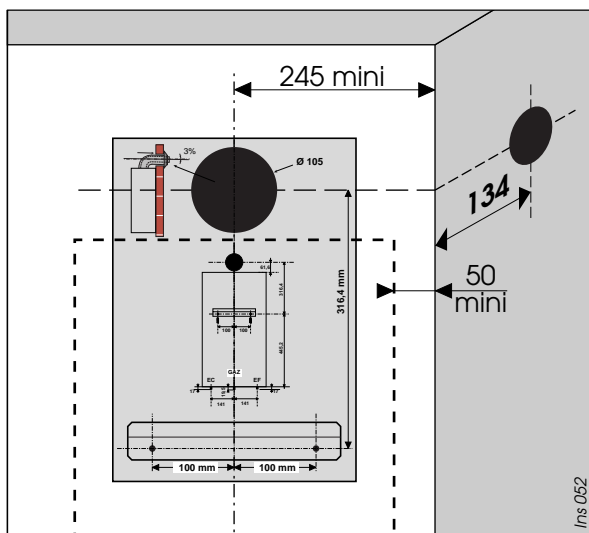
**Only a qualified technician is authorized to intervene on sealed mechanisms.**

## WATER HEATER INSTALLATION

This appliance must be installed in accordance with 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.

The gas safety (installation and use) regulations : it is the law that all gas appliances are installed by competent persons in accordance with the above regulations. Failure to install appliances correctly could lead to prosecution. It is in your own interest, and that of safety, to ensure the law is complied with.



### LOCATION

When determining the siting of the water heater, make sure you keep an approx. distance of 50 mm between the sides of the appliance to ensure total accessibility for servicing.

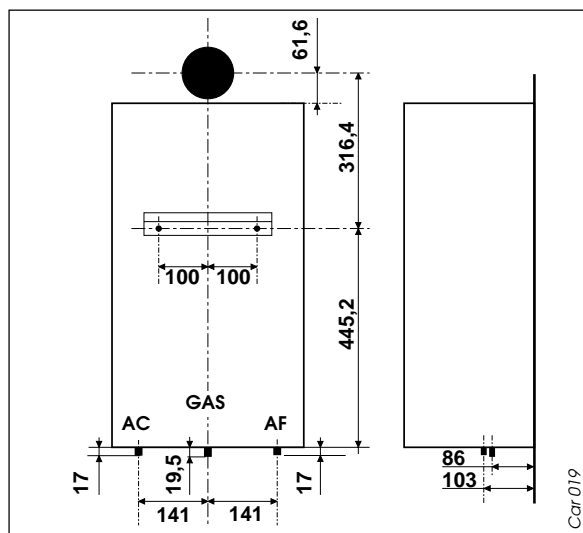
The jig will enable you to determine the position of the flue system hole at the top outlet. All information regarding the installation of the flue system is provided in the flue system package.

If the water-heater is not fitted straight away, the water and gas fittings must be protected from contaminants E.G. plaster, paint.

**PIPE FITTINGS : Gas** Manual gas cock 3/4" F - 1/2" M

**Cold water inlet** : stop cock 3/4" F - 1/2" M with angled tail

**DHW outlet** : 3/4" F - 1/2" M angled tail



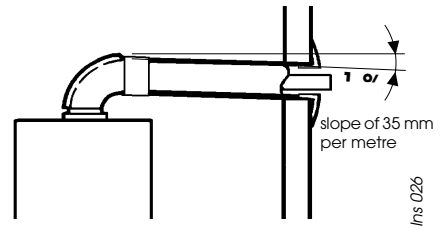
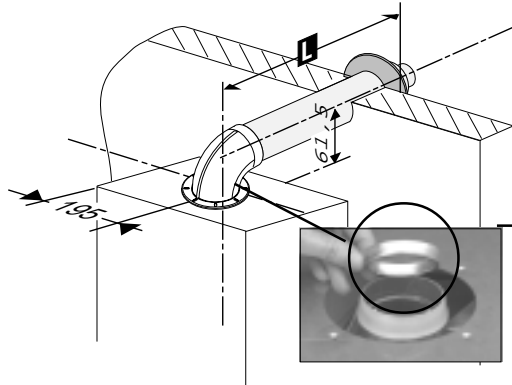
# FLUE CONFIGURATIONS

## HORIZONTALE FLUE

Maximum flue index : **60 Pa.**

This value is reached when **L** exceeds **3 m**  
(include elbow)

The flue must be fitted with a minimum slope of 35 mm per metre towards the terminal.



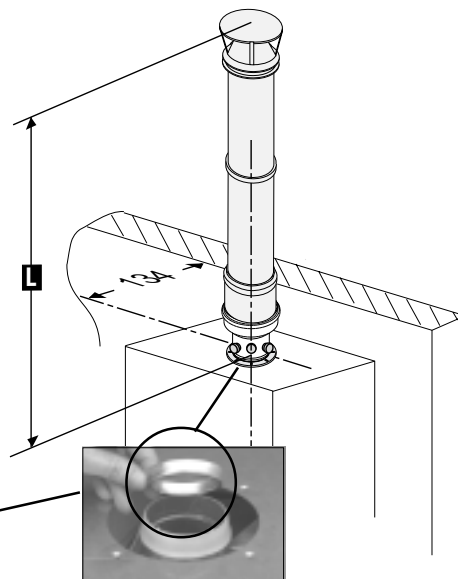
Ins 026

**Important** : remove the flue restrictor ring when (**L**) exceeds **1 m**.

## VERTICAL CONCENTRIC FLUE Ø 80 / 125 mm

Maximum flue index : **60 Pa.**

This value is reached when the vertical flue **L** exceeds **7,5 m** (include adapter)

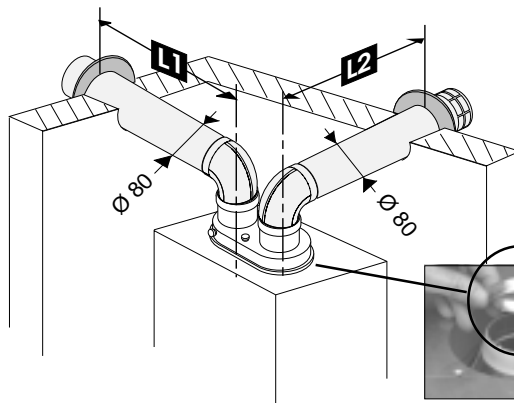


**Important** : remove the flue restrictor ring when (**L**) exceeds **4 m**.

## TWIN PIPE FLUE 2 x Ø 80 mm

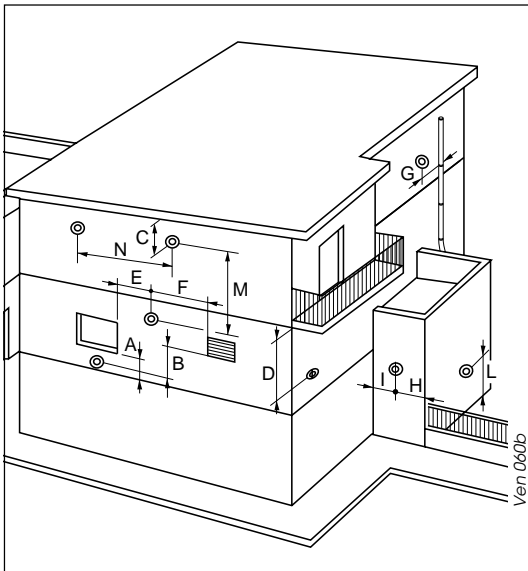
Maximum flue index : **60 Pa.**

This value is reached when (**L1**) + (**L2**) exceeds **11 m** (includes elbows and terminal).



**Important** : remove the flue restrictor ring when (**L1**) + (**L2**) exceeds **8 m**.

## FLUE LOCATION



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

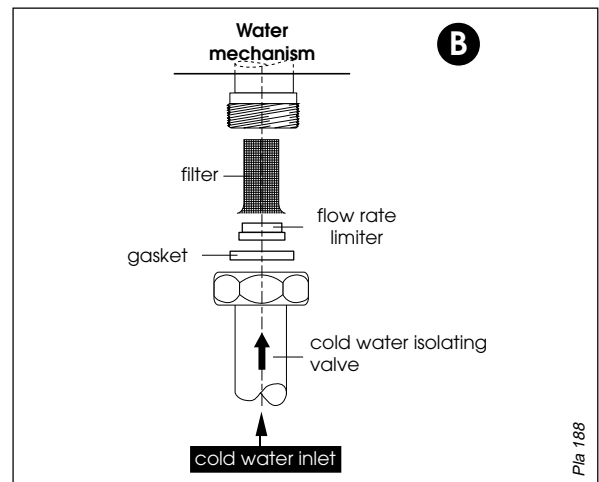
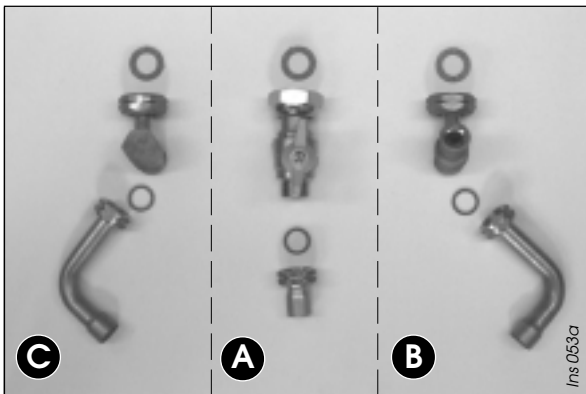
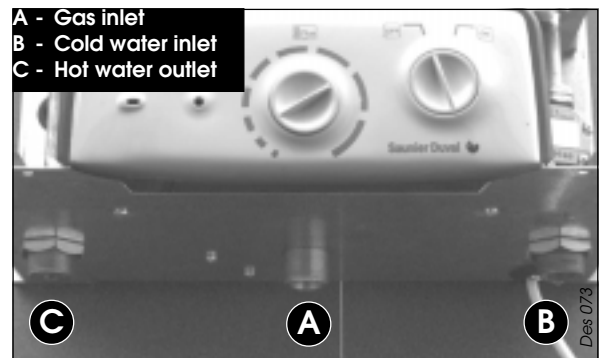
A - Under a window .....	600
B - Under an air vent .....	600
C - Under a gutter .....	300
D - Under a balcony .....	300
E - From an adjacent window .....	400
F - From an adjacent air vent .....	600
G - From vertical or horizontal air pipes .....	600
H - From an external corner of the building .....	300
I - From an internal corner of the building .....	1000
L - From the ground or from another floor .....	1800
M - Between two terminals vertically .....	1500
N - Between two terminals horizontally .....	600

## INSTALLATION

Before installing the water-heater, the water pipework must be flushed out to ensure that there is no foreign matter present that could damage the heater.

**NOTE :** do not use solvent products.

- Using the template supplied, fasten the hanging bracket onto the wall.
- Hang the water heater onto the hanging bracket.
- Connect the pipework and fittings, supplied, to the gas inlet, cold water inlet and hot water outlet, see diagrams.



## ELECTRIC POWER SUPPLY

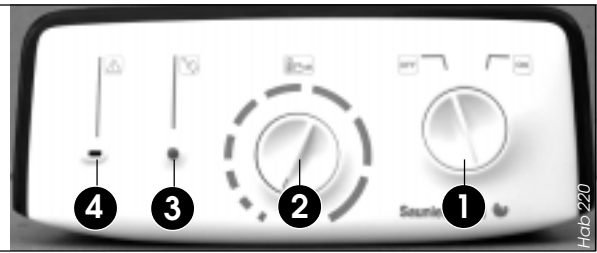
- Connect the water-heater power supply cable to the 230V mains supply. **Ensure that the live and neutral are connected correctly.** To comply with current standards, this connector must be made through a double-pole switch with a contact separation of no less than 3 mm.

**Warning :** the power supply cable built into the water-heater is specific to it. If you wish to replace it, please order a new one quoting part number 59114 from an approved **Saunier Duval dealer**.

# COMMISSIONING AND LIGHTING

**IMPORTANT** : before operating the boiler, remove the two fan transit packing pieces

- 1 - ON / OFF button
- 2 - hot water temp adjustment
- 3 - reset button
- 4 - safety indicator



## Start-up

- Turn the ON / OFF button to **ON**
- Open a draw OFF tap
- Turn the temperature adjustment to obtain the desired temperature

## Stopping the water-heater

- Turn the ON / OFF button to **OFF**

## Operating principles

The **OPALIA X13** water-heater operates with no permanent pilot :

- when a hot water tap is opened, the gas entering the burner is ignited by a spark train emitted by the ignition electrode. A second electrode checks for the presence of a flame at the burner, the appliance is shut down by disconnection;
- when the hot water tap is closed, the gas input is cut off by the valve and the appliance is shut down.

## Safety shutdown

A malfunction or an abnormality gives rise to the disconnection of the appliance, and the safety indicator (4) lights .....



To restart the water-heater,

press the RESET button (3) .....



## Hot water temperature adjustment



In this position the hottest water temperature is obtained (up to 60 °C for a minimal flow rate)

Hab 236



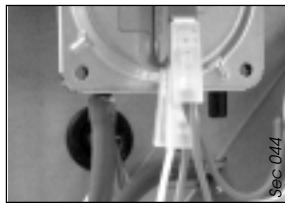
In this position the least hottest water temperature is obtained (~ 40 °C)

Hab 237

# SAFETY DEVICES


## Air flow safety device (air pressure switch )

In the event of even partial blockage of the flue, for whatever reason resulting in a reduced air flow, the water-heater's built-in safety device comes into operation : the burner is shut down whilst the fan continues to operate. The water-heater is ready to operate as soon as the fault has been rectified.



Sec 044

## In the event of loss of gas supply

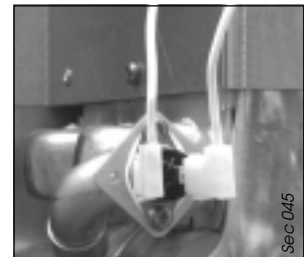
The safety device automatically disconnects the water-heater. When the gas supply is restored, press the "RESET" button .

## In the event of a power cut

The water-heater will cease to operate. When the electricity supply is restored, the heater will automatically restart.

## Overheat cutout device

If anything occurs which results in the overheat cutout device shutting down the water-heater, please call your nearest approved after-sales organisation.



Sec 045

**IMPORTANT** : It is forbidden to bypass or tamper with any of the safety devices. If, after attempting to use the heater, a safety shut-down condition occurs, this must be rectified immediately by a qualified, competent person.

## **SERVICING / MAINTENANCE**

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To ensure the continued efficient and safe operation of the water-heater, it is recommended that it is checked and serviced annually.

The technical maintenance of the appliance must be carried out by a **Saunier Duval** approved specialist who will more particularly inspect the heating element, burner, safety mechanisms and servo-systems.

If the appliance is installed in a region where water is very hard and a drop in the water flow rate is noted and/or a noise phenomenon, descaling of the heat exchanger is required.

To carry out this descaling :

- Shut off water supply,
- Open one or various hot water taps to drain the water-heater,
- Dismantle heat exchanger and fill with a 15 % inhibited acid solution,
- leave to act for 10 to 15 minutes then rinse thoroughly,
- If necessary, repeat operation.

The periodic cleaning of the panels of the water-heater can be carried out with a cloth dampened in soapy water. Do not use abrasive or solvent-based chemicals, as they may damage the coating.

## **DRAINING**

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If there is a risk of frost it is essential to drain the heater :

- Shut off gas supply
- Shut off water supply
- open all hot water taps

## **CHANGING GAS TYPE**

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If the kind of gas supplying the appliance is changed, certain parts of the burner and pilot need to be modified.

These modifications and the new adjustments they involve must only be carried out by a qualified engineer.



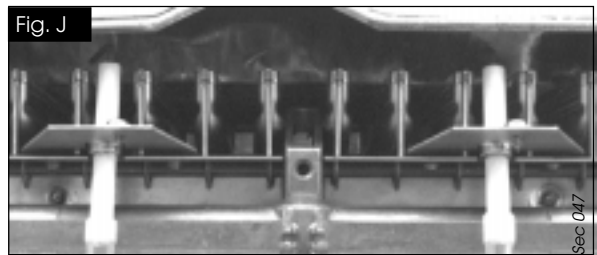
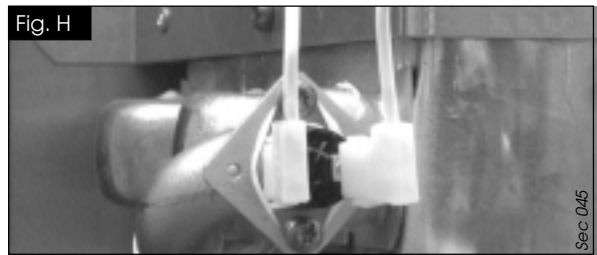
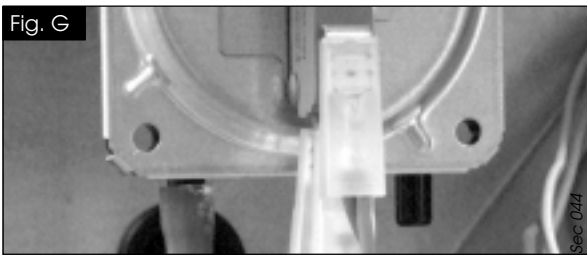
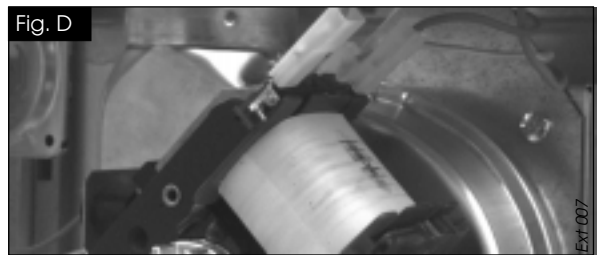
## FAULT FINDING

fault	cause	> remedy
the water-heater will not run but the safety indicator light is not lit	no electrical supply	<ul style="list-style-type: none"> <li>&gt; check there is 230 V AC : at the supply at the appliance plug</li> <li>&gt; then check : the connections to the ignition PCB the fuse on the PCB the thermistor connections the flow sensor connections</li> </ul>
the water-heater will not run = safety disconnection	no gas flow	<ul style="list-style-type: none"> <li>&gt; check that the gas supply is turned on</li> <li>&gt; check that there is sufficient gas pressure to the heater</li> </ul>
the spark train does not light the burner = safety disconnection	gas valve	<ul style="list-style-type: none"> <li>&gt; check that the gas supply is turned on</li> <li>&gt; check that there is sufficient gas pressure to the heater</li> <li>&gt; change gas valve</li> <li>&gt; change main PCB</li> </ul>
The burner lights for less than 10 seconds, then goes out	reversed live and neutral	<ul style="list-style-type: none"> <li>&gt; Correct live and neutral connections to the heater</li> <li>&gt; change ignition PCB</li> </ul>
there is no spark train then the fan runs = safety disconnection	flue system  ignition system	<ul style="list-style-type: none"> <li>&gt; incorrectly fitted or obstructed flue</li> <li>&gt; check connections to the air pressure switch and that the tubes are not blocked or spilt ;</li> <li>&gt; check air pressure switch : change if necessary</li> <li>&gt; check electrode lead : change if necessary</li> <li>&gt; check flame sense lead : change if necessary</li> <li>&gt; change ignition PCB</li> <li>&gt; change main PCB</li> </ul>
water too hot = safety disconnection	electrical circuit  water circuit	<ul style="list-style-type: none"> <li>&gt; change temperature sensor</li> <li>&gt; change main PCB</li> <li>&gt; heat exchanger blocked : descale or replace</li> </ul>
water is not hot enough (maximum temp 50°C at 5 l/min control at max)	electrical circuit	<ul style="list-style-type: none"> <li>&gt; change temperature sensor</li> <li>&gt; change main PCB</li> <li>&gt; change gas valve</li> </ul>

# FAULT FINDING

- Diag. A** : gas valve, ignition module, water flow sensor
- Diag. B** : connections to main PCB (behind control housing)
- Diag. C** : controls, gas and water connections
- Diag. D** : fan connections

- Diag. E** : gas valve modulator connections
- Diag. F** : temperature sensor connections
- Diag. G** : air pressure switch connections
- Diag. H** : overheat thermostat connections
- Diag. I** : flow sensor
- Diag. J** : ignition and flame sense electrodes



Ever anxious to improve the quality of its appliances **Saunier Duval** reserves the right to modify the latter without prior notice.  
The technical information contained in our documents are given for guidance only and are without liability.

