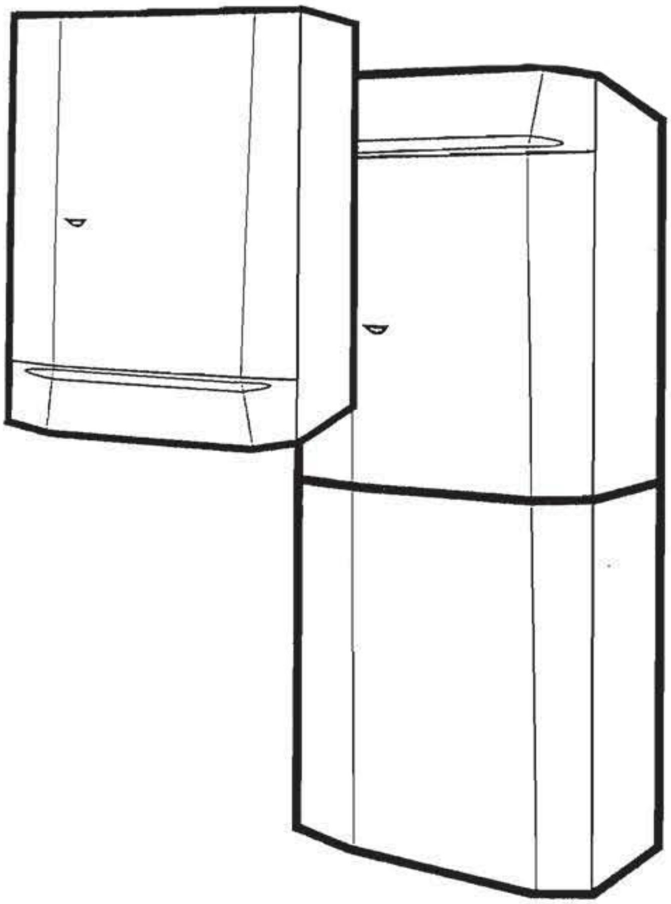
# *TWIN*

# *MASTER TWIN*



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THIS IS A CAT II2H3+ APPLIANCE

**Saunier Duval**

# INSTALLATION AND OPERATING INSTRUCTIONS

# TWIN and MASTER TWIN

*Note !*
*The boiler serial number is marked on the label attached to the inside of the side panel. Refer to the «Introduction» section page 4 for a description of the basic functions of the boiler. The «Users» section describes how to safely operate the boiler.*

## USERS SECTION

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## INSTALLATION SECTION

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***Mandatory warning 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.*

# INTRODUCTION

The **THELIA TWIN 28 E and MASTER TWIN L 85 E** range of boilers are wall/floor mounted combination boilers with electronic ignition providing central heating and an unvented hot water storage of 50 litres for the **Twin** and 85 litres for the **Master Twin**.

The boilers are of the II2H3+ gas category for use with natural gas (G20) as distributed in the United Kingdom, or Butane (G30), Propane (G31) or Towns Gas (G130) with the appropriate conversion kit.

Conversion kits:

| Conversion | Part No. |
|---|---|
| Natural Gas (G20) to Butane (G30) | 85401 |
| Natural Gas (G20) to Propane (G31) | 85401 |
| Natural Gas (G20) to Towns Gas (G130) | 85205 |

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

The boilers have fan assisted balanced flues which both discharge the products of combustion to and draws the combustion air from the outside air. The boilers are suitable for top outlet flue connection only.

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

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 appliance.

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 accessories are available including, vertical flue components, bends....
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 undertaking or your installation/servicing company.

**Boiler controls**
The control panel, located at the lower front of the boiler casing for the **Twin, see diagram 1**, and at the upper front of the boiler casing for the **Master Twin, see diagram 2**, allows the boiler to be started, shut down, controlled and monitored during use.

**Flue**
Do not obstruct the outside terminal of the boiler.

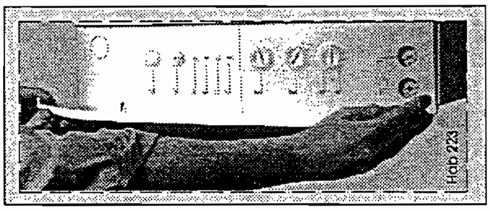


*Diagram 1 Opening the control panel cover/control panel - THELIA TWIN 28 E*

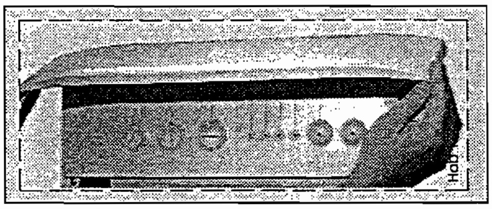


*Diagram 2 Opening the control panel cover/control panel - MASTER TWIN L 85 E*

# CONTROLS AND LIGHTING

The control panel, located at the lower front of the boiler casing for the **THELIA TWIN 28 E, see diagram 3a**, and at the upper front of the boiler casing for the **MASTER TWIN L 85 E, see diagram 3b**, allows the boiler to be started, shut down, controlled and monitored during use.

**Control panel description :**

A - OFF/Summer/Winter selector switch
B - Central Heating temperature control
C - Domestic Hot Water temperature control
D - Reset indicating light
E - Not used on UK boilers
F - Loss of system pressure light
G - Mains ON light
H - Reset button
I - Blanking plug
J - Temperature gauge
K - Pressure gauge

**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 to the "Winter" ❄ position, **see diagram 4.**
- Turn the Central Heating temperature control to the desired setting, **see diagram 5.**
- Turn the Domestic Hot water temperature control to the desired setting, **see diagram 6.**
- Make sure that any remote heating controls are calling for heat

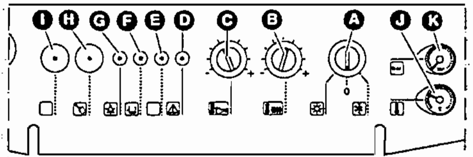
The boiler will light and proceed to heat up the integral storage cylinder, after which time, up to approximately 10 minutes depending on the setting of the temperature control, the heating system will begin to heat up.

**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**

*Diagram 3a :Control panel THELIA TWIN 28 E*



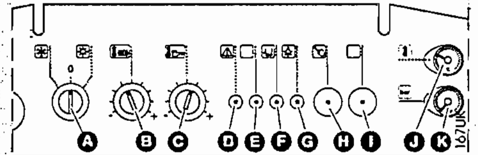


*Diagram 3b : Control panel MASTER TWIN L 85 E*

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

- Turn the OFF/Summer/Winter selector switch to the "Summer" ☼ position.
- Turn the Domestic Hot water temperature control to the desired setting, **see diagram 6.**

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**

**To turn the boiler OFF**

Switch OFF the boiler by turning the OFF/Summer/Winter selector switch to the centre '0' position, **see diagram 7.**

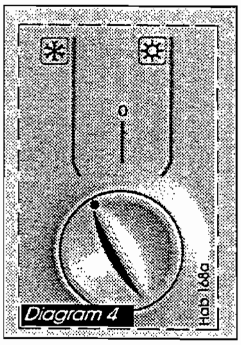


*Diagram 4*

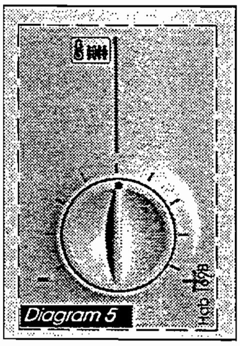


*Diagram 5*

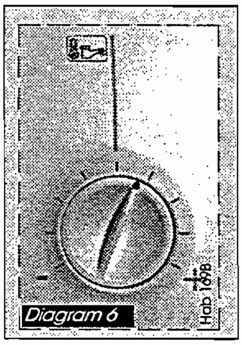


*Diagram 6*

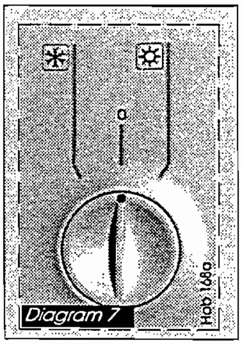


*Diagram 7*

# DRAINING

**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 **Twin** and **Master Twin** have a built in 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 to the boiler 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 these boilers.
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/ servicing company.

**Temperature/pressure relief valve**
**CAUTION:** A temperature/pressure relief valve with a discharge pipe into a tundish is fitted to these boilers.
The valve **MUST NOT BE TOUCHED** except by a competent person. If the valve discharges into the tundish at any time, switch the boiler off and isolate it from the electrical supply. Contact your installation/servicing company.

# SERVICING/MAINTENANCE

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.

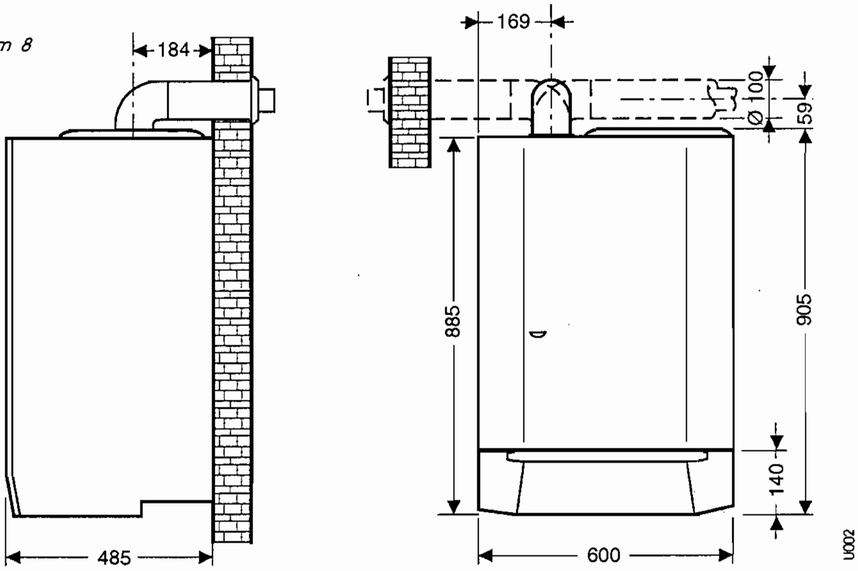
**Boiler casing**
**CAUTION.** Do not remove or adjust the casing in any way, as incorrect fitting may result in faulty operation. If in doubt consult your installation/ servicing company.

# DIMENSIONS

The **THELIA TWIN 28 E** is delivered in three separate packages:

- the boiler itself
- its connection plate
- the flue system

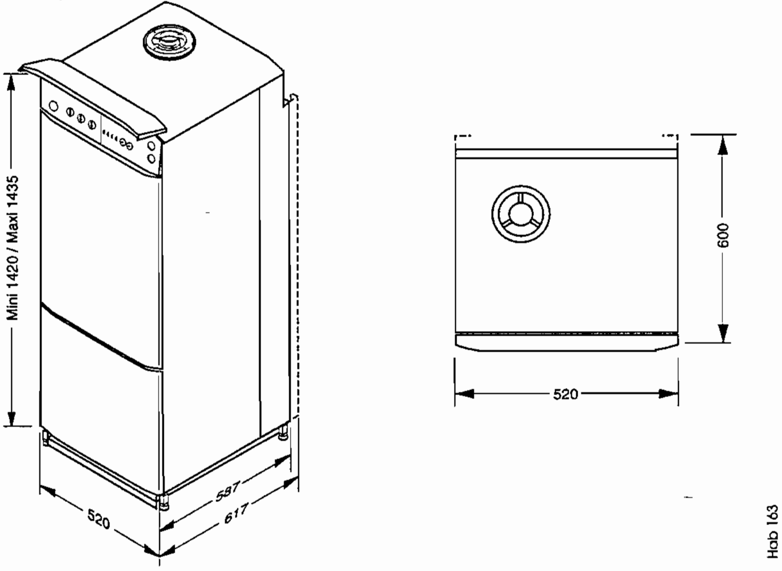
*Diagram 8*



The **MASTER TWIN L 85 E** is delivered in two separate packages:

- the boiler itself
- the flue system

*Diagram 9*



# TECHNICAL DATA

| | | | THELIA TWIN 28 E | MASTER TWIN L 85 E |
|---|---|---|---|---|
| Heating output | adjustable from... | (kW) | 14,9 | 14,9 |
| | | (BTU/H) | 50,840 | 50,840 |
| | to... | (kW) | 28,3 | 28,3 |
| | | (BTU/H) | 96,560 | 96,560 |
| Efficiency | | (%) | 81 | 81 |
| Maximum heating temperature | | (°C) | 90 | 90 |
| Expansion vessel, effective capacity | | (l) | 7,5 | 7,5 |
| Expansion vessel charge pressure | | (bar) | 1,0 | 1,0 |
| Maximum system capacity at 75°C | | (l) | 190 | 190 |
| Safety valve, maximum service pressure | | (bar) | 3 | 3 |
| Products outlet | | (Ø) | 60 | 60 |
| Fresh air inlet | | (Ø) | 100 | 100 |
| Hot water output | | kW) | 28,3 | 28,3 |
| | | (BTU/H) | 96,560 | 96,560 |
| Storage capacity | | (l) | 50 | 85 |
| Maximum hot water temperature | | (°C) | 65 | 65 |
| Minimum hot water temperature | | (°C) | 30 | 30 |
| Specific flow rate (for 30°C temperature rise) | | (l/min.) | 14,7 | 14,7 |
| Nominal water flow rate | | (l/min.) | 12 | — |
| Expansion vessel, effective capacity | | (l) | 4,5 | 4,5 |
| Expansion vessel charge pressure | | (bar) | 3 | 3 |
| Maximum supply pressure | | (bar) | 10 | 10 |
| Maximum operating pressure | | (bar) | 3,5 | 3,5 |
| Electrical supply | | (V) | 230 | 230 |
| Max. power absorbed | | (W) | 165 | 165 |

| | | | | |
|---|---|---|---|---|
| Natural Gas (G20) | Ø Burner injector | (mm) | 1,20 | 1,20 |
| | Inlet pressure | (mbar) | 20 | 20 |
| | Gas rate (maximum) | (m³/h) | 3,33 | 3,33 |
| | Gas rate (minimum) | (m³/h) | 1,83 | 1,83 |
| Butane (G30) | Ø Burner injector | (mm) | 0,8 | 0,8 |
| | Inlet pressure | (mbar) | 28 | 28 |
| | Gas rate (maximum) | (kg/h) | 2,48 | 248 |
| | Gas rate (minimum) | (kg/h) | 1,37 | 1,37 |
| Propane (G31) | Ø Burner injector | (mm) | 0,8 | 0,8 |
| | Inlet pressure | (mbar) | 37 | 37 |
| | Gas rate (maximum) | (kg/h) | 2,44 | 2,44 |
| | Gas rate (minimum) | (kg/h) | 1,34 | 1,34 |

# TECHNICAL DATA

**Burner pressures**

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

*Table 1*

| GAS | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Heat output* | | | | | | | | | | | | | | | |
| | (kW) | 14.9 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28.3 |
| | (Btu/h) | 50839 | 51180 | 54592 | 58004 | 61416 | 64828 | 68240 | 71652 | 75064 | 78476 | 81888 | 85300 | 88712 | 92124 | 96560 |
| | *Heat input* | | | | | | | | | | | | | | | |
| | (kW) | 19.2 | 19.3 | 20.5 | 21.7 | 22.9 | 24.1 | 25.3 | 26.5 | 27.7 | 28.8 | 30.0 | 31.2 | 32.3 | 33.5 | 35.0 |
| | (Btu/h) | 65510 | 65852 | 69946 | 74040 | 78135 | 82229 | 86324 | 90418 | 94512 | 98266 | 102360 | 106454 | 110208 | 114302 | 119420 |
| G 20 | (mbar) | 4.2 | 4.3 | 4.8 | 5.4 | 6.0 | 6.7 | 7.4 | 8.1 | 8.8 | 9.5 | 10.4 | 11.2 | 12.0 | 12.9 | 14.1 |
| G 30 | (mbar) | 6.3 | 6.4 | 7.3 | 8.1 | 9.1 | 10.1 | 11.1 | 12.2 | 13.3 | 14.4 | 15.6 | 16.8 | 18.1 | 19.4 | 21.2 |
| G 31 | (mbar) | 8.3 | 8.5 | 8.8 | 9.9 | 11.0 | 12.2 | 13.4 | 14.7 | 16.1 | 17.4 | 18.9 | 20.4 | 21.9 | 23.5 | 25.7 |
| G 130 | (mbar) | 0.8 | 0.8 | 0.9 | 1.0 | 1.2 | 1.3 | 1.4 | 1.5 | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.5 | 2.7 |

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*Pump :*

——— = by-pass closed

— — — — = by-pass open

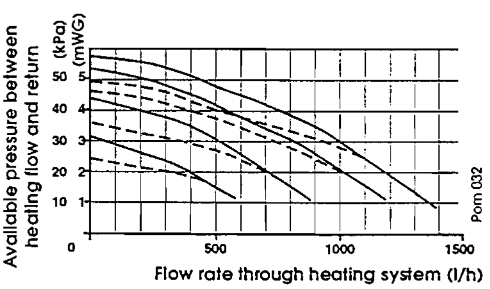

*Diagram 10*

*Domestic hot water production MASTER TWIN :*

Temperature of cold water = 15°C

Temperature of water stored = 60°C

Drawing off at 14 l/min.

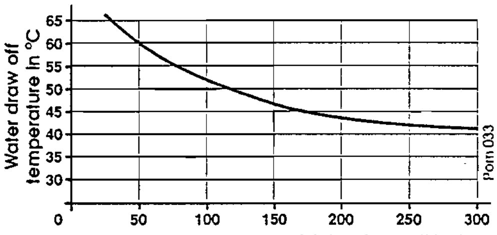

*Diagram 11*

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