

# Commissioning

## Filling The Unit With Water

- Ensure that all fittings and immersion heaters are correctly fitted and tightened. An immersion heater key is provided to aid tightening the immersion heater(s)
- Check expansion vessel pre-charge pressure The vessel is supplied precharged to 0.35MPa (3.5 bar) to match the control pressure of the pressure reducing valve. The precharge pressure is checked using a car tyre gauge by unscrewing the plastic cap opposite the water connection.
  - Check all connections for tightness including the immersion heater(s). An immersion heater key spanner is supplied for this purpose.
  - Ensure the drain cock is CLOSED.
  - Open a hot tap furthest from the cylinder.
  - Open the mains stop cock to fill the unit. When water flows from the tap, allow to run for a few minutes to thoroughly flush through any residue, dirt or swarf, then close the tap.
  - Open successive hot taps to purge the system of air.

## System Checks

- Check all water connections for leaks and rectify as necessary.
- Turn off mains water supply.
- Remove the pressure reducing valve head work to access the strainer mesh, clean and re-fit.
- Turn mains water supply on.
- Manually open, for a few seconds, each relief valve in turn, checking that water is discharged and runs freely through the tundish and out at the discharge point.
- Ensure that the valve(s) reseal satisfactorily.

## Direct Units

Switch on electrical supply to the immersion heater(s) and allow the cylinder to heat up to normal working temperature (60°C recommended). If necessary the temperature can be adjusted by inserting a flat bladed screwdriver in the adjustment knob on front of the immersion heater thermostat and rotating. The adjustment represents a temperature range of 10°C to 72°C. Check the operation of thermostat(s) and that no water has issued from the expansion relief valve or temperature/pressure relief valve during the heating cycle.

## Indirect Units

Fill the indirect (primary) circuit following the boiler manufacturer's commissioning instructions. To ensure the cylinder primary heat exchanger is filled, the 2 port motorised valve (supplied) should be manually opened by moving the lever on the motor housing to the MANUAL setting. When the primary circuit is full return the lever to the AUTOMATIC position.

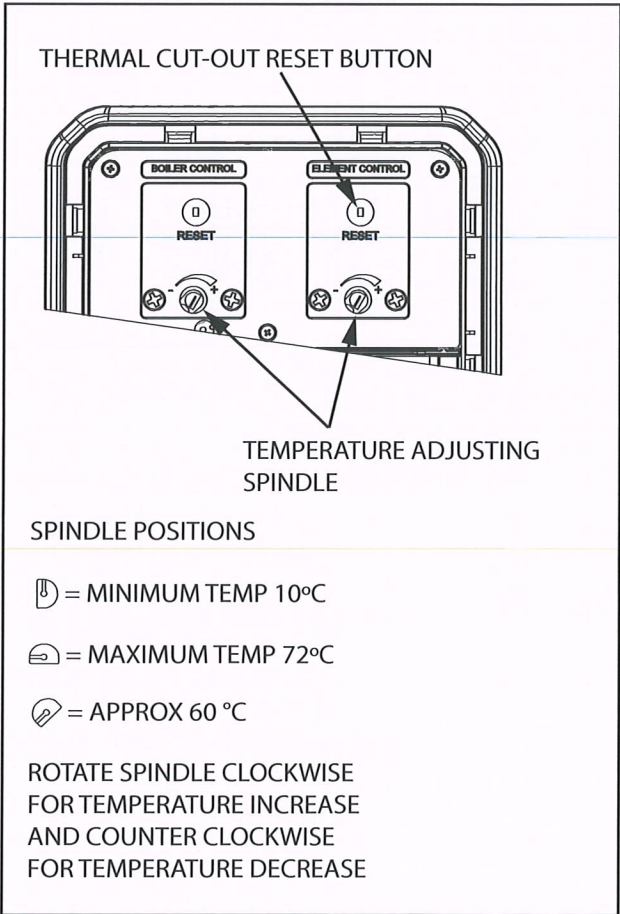
Switch on the boiler, ensure the programmer is set to Domestic Hot Water and allow the cylinder to heat up to a normal working temperature 60°C (recommended). If necessary the temperature can be adjusted by inserting a flat bladed screwdriver in the adjustment knob and rotating. The minimum thermostat setting is 10°C. Adjustment represents a temperature range of 10°C to 72°C. Fig. 11, below.

Check the operation of the indirect thermostat, and 2 port motorised valve, and that no water has emitted from the expansion relief valve or temperature/pressure relief valve during the heating cycle.

## Benchmark Log Book

On completion of the installation and commissioning procedures detailed in this manual the Benchmark Installation, Commissioning and Service Record Log, pages 20 and 21 should be completed and signed off by the competent installer or commissioning engineer in the relevant sections. The various system features, location of system controls, user instructions and what to do in the event of a system failure should be explained to the customer. The customer should then countersign the Benchmark™ Commissioning Checklist (page 20) to accept completion. The service record should be filled in when any subsequent service or maintenance operation is carried out on the product.

Fig. 11: Temperature Adjustment Details



# Installation - Direct

## Safety

DISCONNECT FROM THE MAINS ELECTRICAL SUPPLY BEFORE REMOVING ANY COVERS. Never attempt to replace the immersion heater(s) other than with the recommended immersion heater(s).

DO NOT BYPASS THE THERMAL CUT-OUT(S) IN ANY CIRCUMSTANCES. Ensure the terminal shroud is fitted. Ensure the two male spade terminations are pushed firmly into the corresponding terminations on the element assembly.

In case of difficulty contact service support; contact details available at the back of this booklet.

## Electrical Supply

All electrical wiring should be carried out by a competent electrician and be in accordance with the latest I.E.E Wiring Regulations.

**Each circuit must be protected by a suitable fuse and double pole isolating switch with a contact separation of at least 3mm in both poles.**

The immersion heater(s) should be wired in accordance with Fig 07, opposite. The immersion heaters MUST be earthed. The supply cable should be 1.5mm² 3 core HO5 VV-F sheathed and must be routed through the cable grip provided with the outer sheath of the cable firmly secured by tightening the screws on the cable grip.

**DO NOT operate the immersion heaters until the cylinder has been filled with water.**

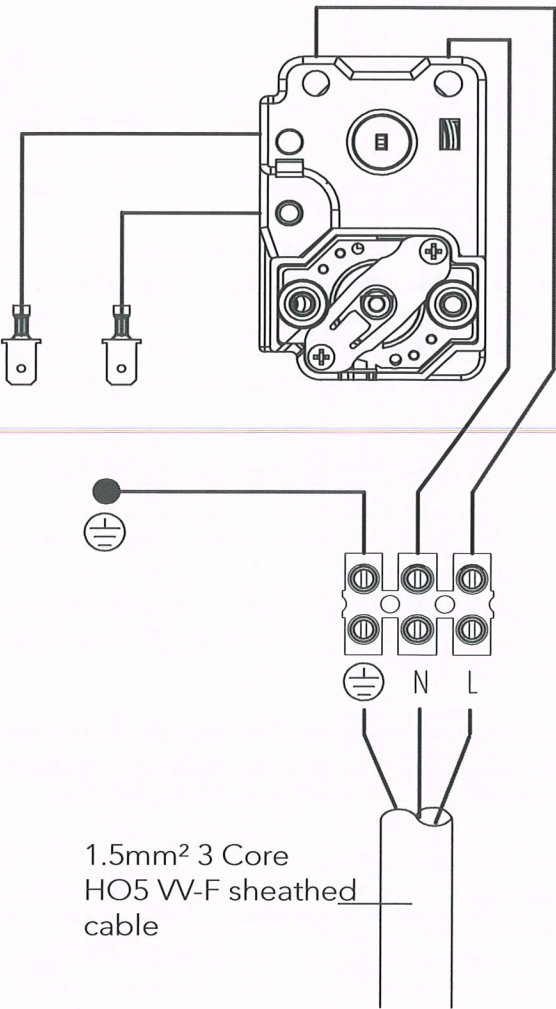
Ensure the thermostat and thermal cut-out sensing bulbs are pushed fully into the pockets on the element plate assembly.

## Plumbing Connections

Direct cylinders require the following pipework connections.

- Cold water supply to and from inlet controls.
- Outlet to hot water draw off points.
- Discharge pipework from valve outlets to tundish.

Figure 07: Electrical Connections (Direct Schematic)





# Installation - Indirect

## Safety

DISCONNECT FROM THE MAINS ELECTRICAL SUPPLY BEFORE REMOVING ANY COVERS.  
Never attempt to replace the immersion heater other than with the recommended authorised immersion heater.

DO NOT BYPASS THE THERMAL CUT-OUT(S) IN ANY CIRCUMSTANCES. Ensure the two male spade terminations on the underside of the combined thermostat and thermal cut-out are pushed firmly onto the corresponding terminations on the element plate assembly.

In case of difficulty contact service support; contact details available at the back of this booklet.

## Electrical Supply

All electrical wiring should be carried out by a competent electrician and be in accordance with the latest I.E.E Wiring Regulations.

**Each circuit must be protected by a suitable fuse and double pole isolating switch with a contact separation of at least 3mm in both poles.**

The immersion heater should be wired in accordance with Fig 08, opposite. The immersion heater **MUST** be earthed. The supply cable should be 1.5mm² 3 core HO5 VV-F sheathed and must be routed through the cable grip provided with the outer sheath of the cable firmly secured by tightening the screws on the cable grip.

**DO NOT operate the immersion heaters until the cylinder has been filled with water.**

Ensure the thermostat and thermal cut-out sensing bulbs are pushed fully into the pockets on the element plate assembly.

## Plumbing Connections

Indirect cylinders require the following pipework connections.

- Cold water supply to and from inlet controls.
- Outlet to hot water draw off points.
- Discharge pipework from valve outlets to tundish.
- Connection to the primary circuit.

All connections are 22mm compression. However, 3/4"BSP parallel threaded fittings can be fitted to the primary coil connections if required.

## Boiler Selection

The boiler should have a control thermostat and non self-resetting thermal cut-out and be compatible with unvented storage water heaters. Where use of a boiler without a thermal cut-out is unavoidable a "low head" open vented primary circuit should be used. The feed and expansion cistern head above the cylinder should not exceed 2.5m.

## Primary Circuit Control

The 2 port motorised valve supplied with the cylinder **MUST** be fitted on the primary flow to the cylinder heat exchanger (coil) and wired in series with the indirect control thermostat and thermal cut-out fitted to the unit. Primary circulation to the cylinder heat exchanger (coil) must be pumped; gravity circulation **WILL NOT WORK**.

## Space and Heating Systems Controls

The controls provided with the cylinder will ensure the safe operation of the unit within the central heating system. Other controls (eg. room thermostat and timer) will be necessary to control the space heating requirements and times that the system is required to function, (see Fig. 08 below). The cylinder is compatible with most heating controls, examples of electrical circuits are shown in Figs. 09 and 10 (Page 13). However, other systems may be suitable, refer to the controls manufacturers' instructions, supplied with the controls selected, for alternative system wiring schemes.

Figure 08: Electrical Connections (indirect schematic)

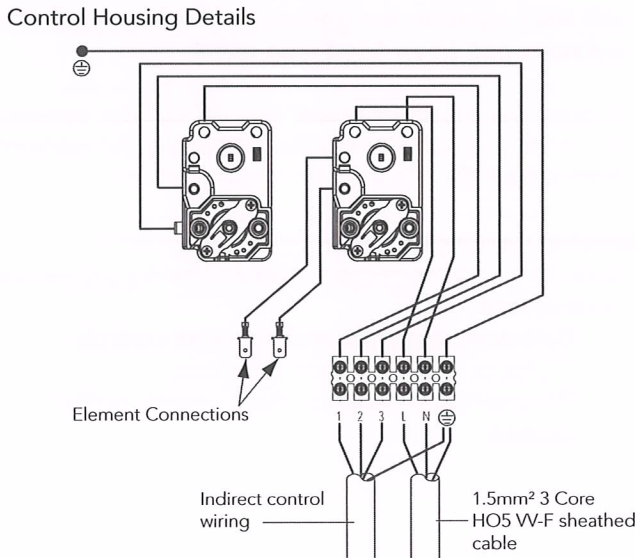


Fig. 09: Schematic Wiring Diagram - Basic 2 x 2 port valve system ( 'S' plan )

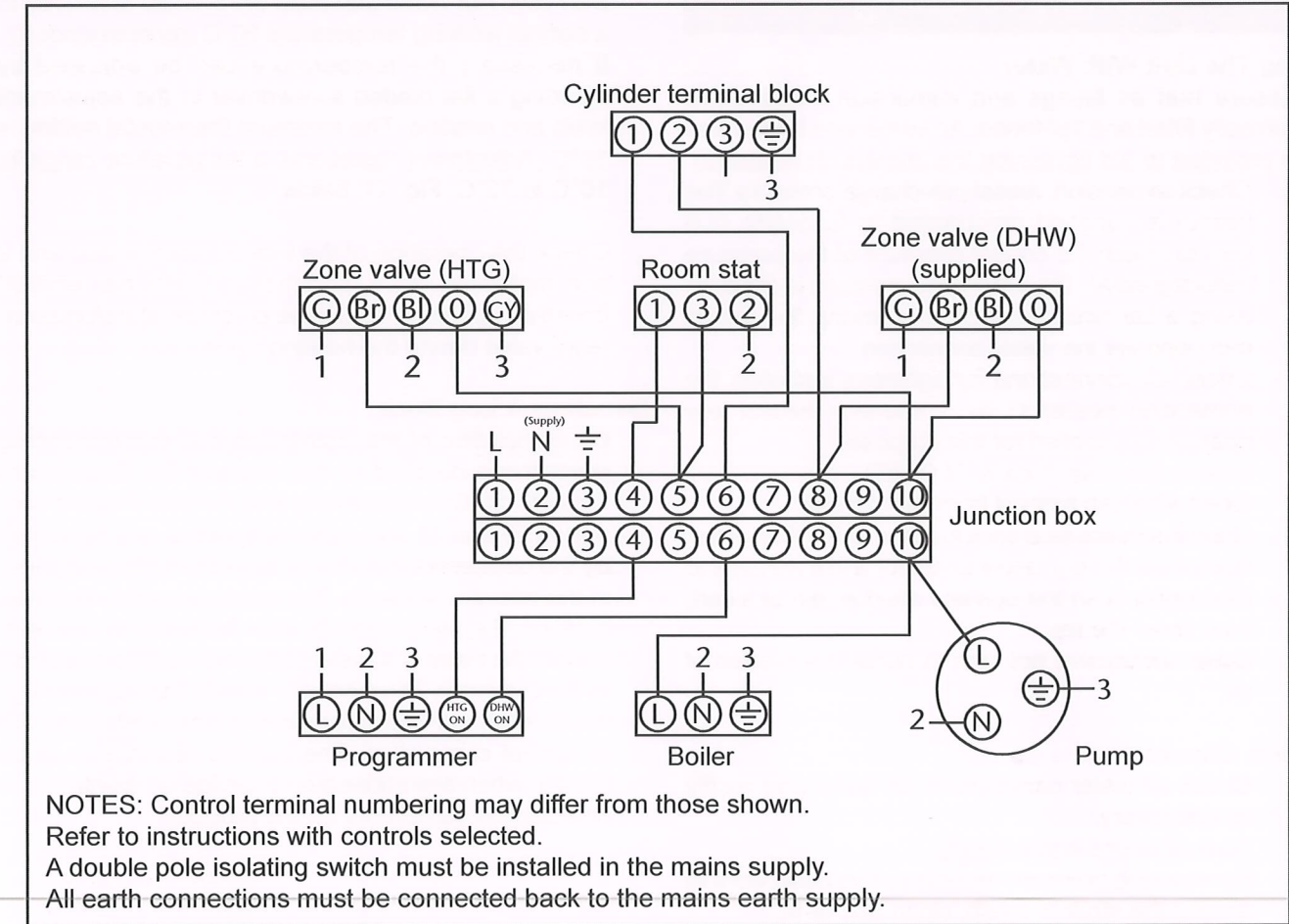


Fig. 10: Schematic Wiring Diagram - 3 port mid position valve system. ( 'Y' plan ) N.B. Must be used in conjunction with 2 port zone valve supplied

