



# Cylinder Manual

Incorporating:    **User Instructions**  
                          **Installation Instructions**  
                          **Guarantee Registration**

## Open Vented Cylinders

**Stainless Steel Water Heaters**

**Products covered by this manual:**

<b>Twin Coil</b>	TW180V	TW210V	TW250V	TW300V
<b>Triple Coil</b>	TR250V	TR300V		

## **INSTALLATION AND REGISTRATION**

This appliance must be installed as described herein and the Guarantee Registration section completed and returned to the manufacturer with proof of purchase (e.g. receipts / invoices).

The complete guarantee policy statement is included in Section 6, page 9.

### **FAILURE TO CORRECTLY INSTALL AND REGISTER THIS PRODUCT WILL INVALIDATE ALL GUARANTEES**

## **TECHNICAL, SPARES & GUARANTEE CLAIMS**

For technical advice about the installation or use of this appliance, please contact the Warmflow Customer Care Centre by post, phone, fax or email at the addresses below. Please also refer to our website.

Should replacement components be required, a list of available spares is provided in Section 5.2, page 8.

In the unlikely event that replacement components might be required within the guarantee period, please notify the Customer Care Centre in writing, by post, fax or email, stating the nature of the fault and the part number of the replacement components required.

### **Warmflow Customer Care Centre**

Warmflow Engineering  
Lissue Industrial Estate  
Moir Road  
Lisburn  
BT28 2RF  
Northern Ireland

#### **Telephone**

United Kingdom: 028 9262 1515  
Republic of Ireland: 048 9262 1515

#### **Facsimile**

United Kingdom: 028 9262 0869  
Republic of Ireland: 048 9262 0869

#### **Email**

[technical@warmflow.co.uk](mailto:technical@warmflow.co.uk)

#### **Website**

[www.warmflow.co.uk](http://www.warmflow.co.uk)

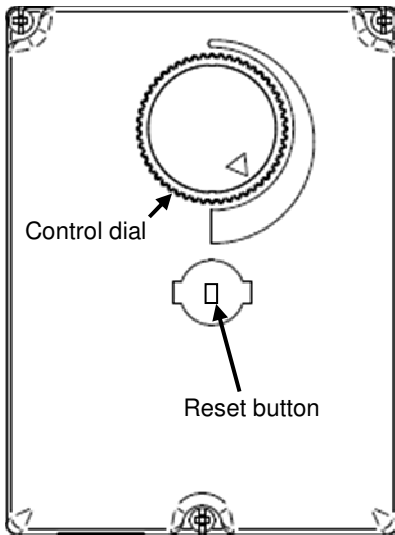
# 1 USER INSTRUCTIONS

## 1.1 General Information

Your hot water cylinder has been designed to give many years of trouble free service and is made from hygienic, high grade, duplex stainless steel.

The flow temperature of the hot water can be adjusted to your requirements, and should ideally be set to 60°C. Choosing a higher temperature increases the energy required to heat the cylinder and maintain its temperature, costing more in fuel.

## 1.2 Cylinder Thermostat



All cylinders are fitted with cylinder thermostats to control the heat input to the cylinder from a remote heat source, such as a boiler, heat pump or solar thermal installation.

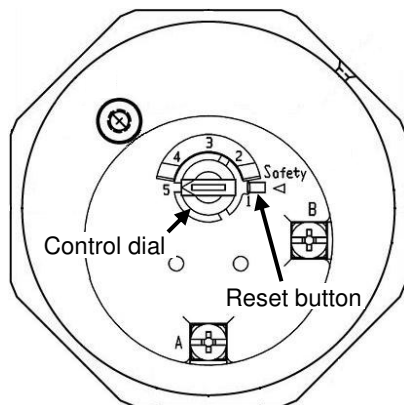
The temperature of each cylinder thermostat is adjustable between **nominally** 40°C and 70°C. Turn the control knob clockwise to increase temperature, and anticlockwise to decrease.

Each cylinder thermostat has a built-in manually reset safety thermostat which will 'lock out' in the event of the cylinder overheating and which will need to be reset in order to restore operation. Remove the lock-out cover and depress the red button to reset.

## 1.3 Immersion Thermostat



Isolate ALL electrical supplies to the appliance before removing the immersion cover.



All cylinders are supplied with an immersion heater to allow the cylinder to be heated electrically. The immersion heater has an immersion thermostat, the temperature of which is adjustable between **nominally** 10°C and 70°C. Remove the immersion heater cover and turn the control dial anticlockwise to increase temperature, and clockwise to decrease.

The immersion thermostat also has a built-in manually reset safety thermostat which will 'lock out' in the event of the cylinder overheating and which will need to be reset in order to restore operation. Remove the immersion heater cover and depress the red button to reset.

# 2 INSTALLATION REQUIREMENTS

The cylinder must be installed vertically (not on its side) in a frost-free indoor location.

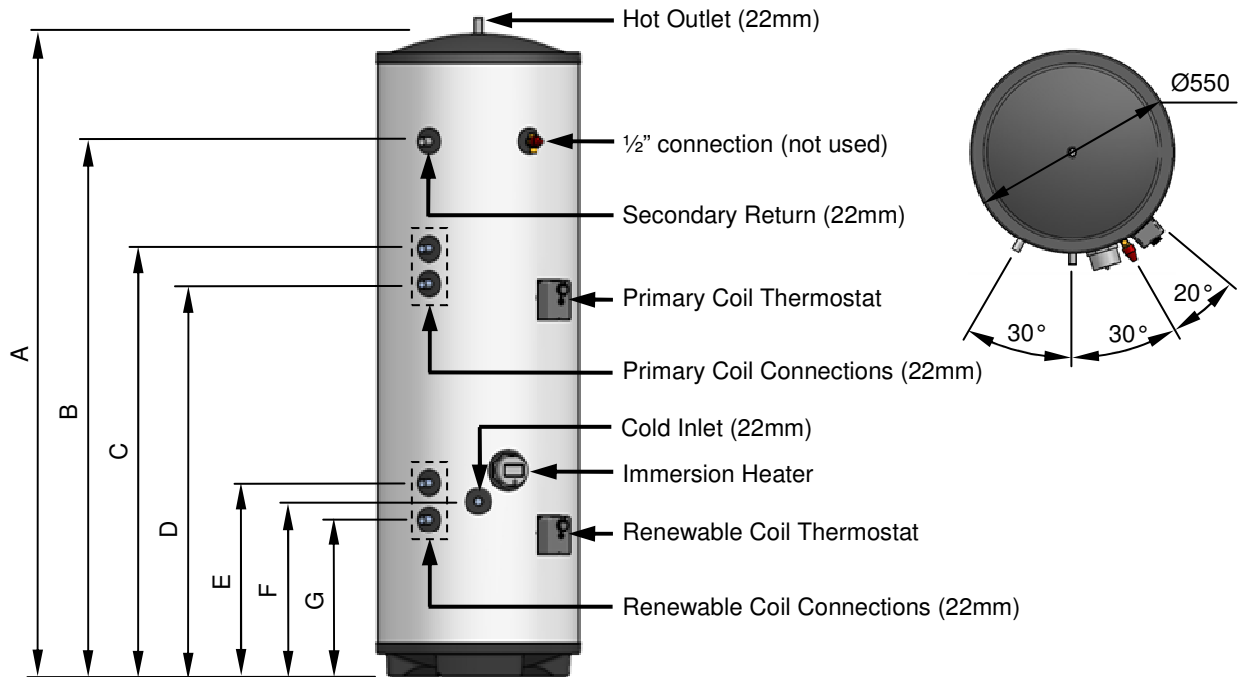
The cylinder must be open vented i.e. supplied via an open vented expansion tank and have a vertical vent pipe of at least 19mm internal diameter.

The mains water supply must be from a public source (i.e. not from a private borehole) and the hardness of the water must be less than 200 mg/litre. Where hardness in excess of 200 mg/litre is experienced, a suitable and effective hard water treatment must be installed.

All 22mm coils must be fully pumped – gravity circulation is NOT suitable for the 22mm coils. Gravity circulation may only be used on the 28mm coil(s).

### 3 TECHNICAL DATA

#### 3.1 Twin Coil Cylinders

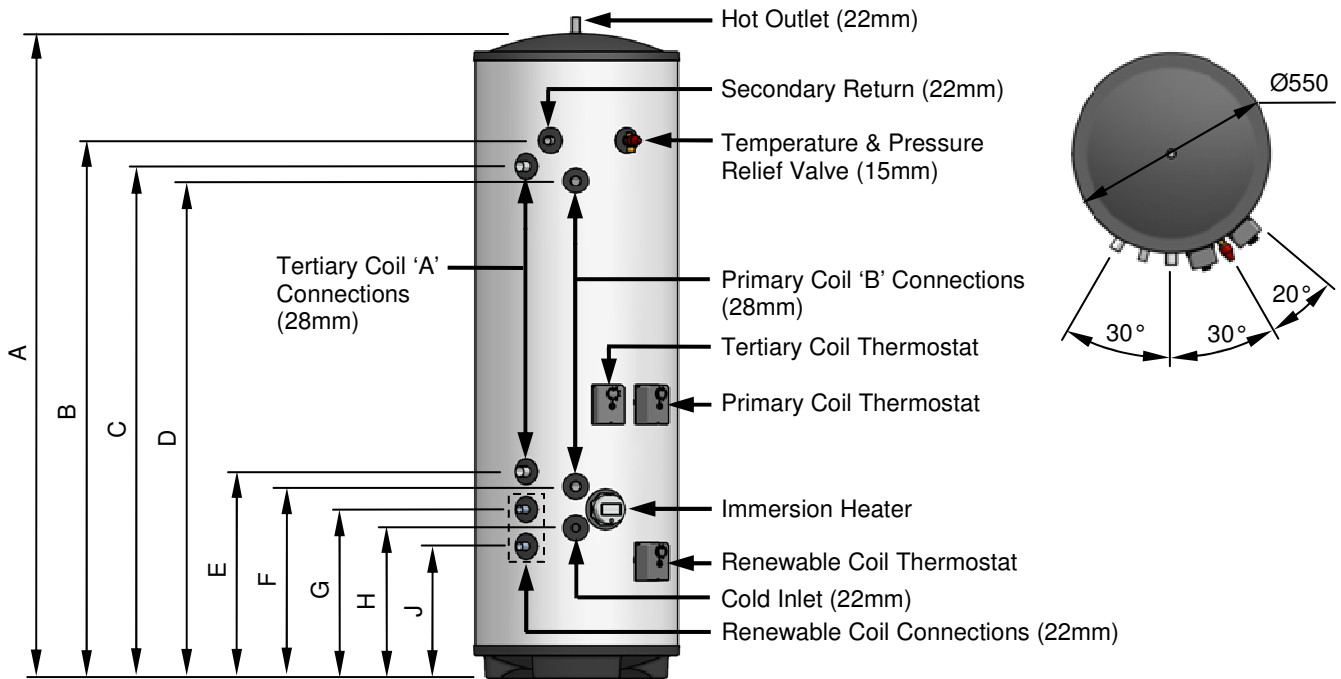


**Figure 1: Twin Coil cylinders components & dimensions**

	TW180V	TW210V	TW250V	TW300V
<b>DIMENSIONS</b>				
(A) Overall height (mm)	1327	1517	1767	2077
(B) Secondary return connection (mm)	n/a	1223	1473	1783
(C) Primary coil upper connection (mm)	973	1078	1078	1388
(D) Primary coil lower connection (mm)	873	978	978	1288
(F) Renewable coil upper connection (mm)	532	532	532	532
(F) Cold inlet connection (mm)	482	482	482	482
(G) Renewable coil lower connection (mm)	432	432	432	432
<b>OPERATING DATA</b>				
Cold water capacity (litres)	180	210	250	300
Weight when full (kg)	210	250	290	350
Standing heat loss (kWh/24h)	1.40	1.66	1.92	2.07

**Table 1: Twin Coil cylinder data**

### 3.2 Triple Coil Cylinders



**Figure 2: Triple Coil cylinders components & dimensions**

	TR250V	TR300V
<b>DIMENSIONS</b>		
(A) Height (mm)	1767	2077
(B) Secondary return connection (mm)	1473	1783
(C) Tertiary coil 'A' upper connection (mm)	1403	1683
(D) Primary coil 'B' upper connection (mm)	1363	1643
(E) Tertiary coil 'A' lower connection (mm)	564	844
(F) Primary coil 'B' lower connection (mm)	524	804
(G) Renewable coil upper connection (mm)	462	532
(H) Cold inlet connection (mm)	412	482
(J) Renewable coil lower connection (mm)	362	432
<b>OPERATING DATA</b>		
Cold water capacity (litres)	248	298
Weight when full (kg)	290	350
Standing heat loss (kWh/24h)	1.92	2.07

**Table 2: Triple Coil cylinder data**

## 4 INSTALLATION

### 4.1 Cylinder Location

The unit must be located where it can be supplied from an expansion tank / cistern above the cylinder. A vertical vent pipe of at least 19mm internal diameter must be connected to the hot outlet.

Ensure the cylinder is positioned such that future servicing and part replacement is possible. The routing of pipework must not prevent the thermostats or immersion heater from being removed for maintenance.

### 4.2 Hot & Cold Water Connections

All connections to the cylinder must be made using compression fittings. We recommend 22mm supply pipework is used.

#### 4.2.1 Drain

A full bore drain cock (not supplied) must be fitted to the cold inlet pipework, between the cistern and the cylinder, at as low a level as possible, to facilitate draining.

#### 4.2.2 Distribution pipework

The pipework supplying the hot water taps should be run in 22mm throughout the property. Only short lengths (max 1 metre) of 15mm should be used to connect baths, showers and basin taps where required. If using a secondary / pumped return circuit, all pipework must be well insulated. The circulator (bronze pump) should be time and/or temperature controlled to reduce energy consumption.

### 4.3 Primary, Renewable & Tertiary Circuits

The working pressure and temperature for all heat exchanger coils must not exceed 6 bar and 120 °C respectively. All connection to the cylinder must be made using compression fittings.

All 22mm coils **must be fully pumped** – gravity circulation is NOT suitable for the 22mm coils.

Gravity circulation may be used on the 28mm coil(s) only, although these may be pumped if desired.

#### 4.3.1 Safety thermostat

Each heat exchanger coil has an associated combined control & safety thermostat. These can be used as part of system controls on **fully pumped circuits only**. Suggested S-Plan and Y-plan system schematics are given in Section 4.5.

Controls devices (e.g. motorised valves) **must not be used on gravity circuits**.

#### 4.3.2 Solar installations

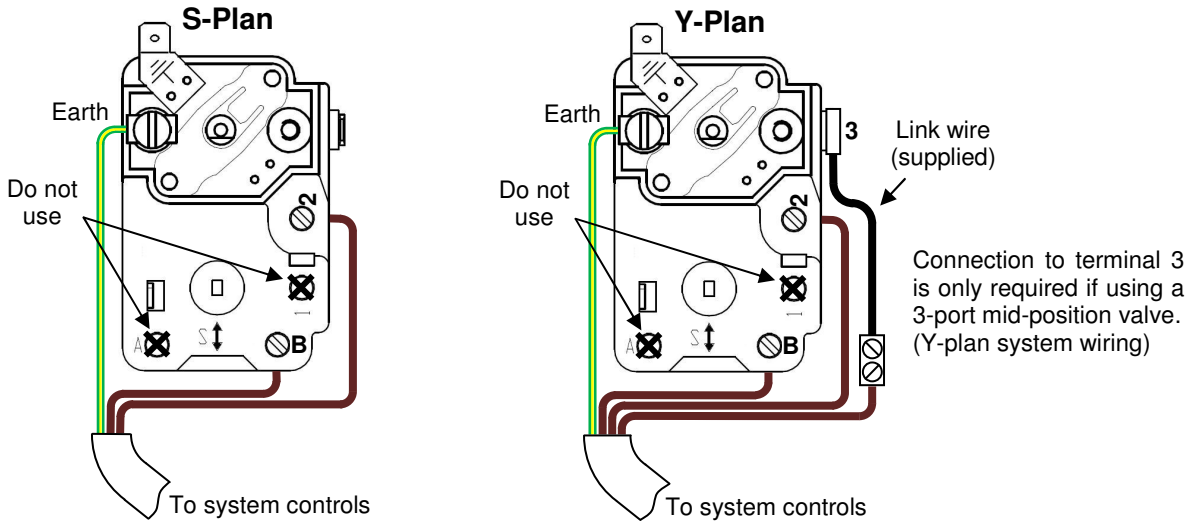
If connecting a solar thermal installation, for example, to the renewable coil, the controls must be wired in series with the combined control & safety thermostat. If using a solar pump station with check valves to prevent gravity circulation, a motorised valve may not be required. Refer to the appliance manufacturer's instructions and to Building Control for further guidance. Additional motorised valves (not supplied) may be required.

### 4.4 Hard water

In areas with moderately hard water, choosing a lower control thermostat temperature can result in less scale being deposited within the cylinder. Where water hardness in excess of 200mg/litre is experienced, a suitable and effective hard water treatment must be installed. A device rated for a flow rate of 50 litres per minute is recommended in order to maintain maximum performance.

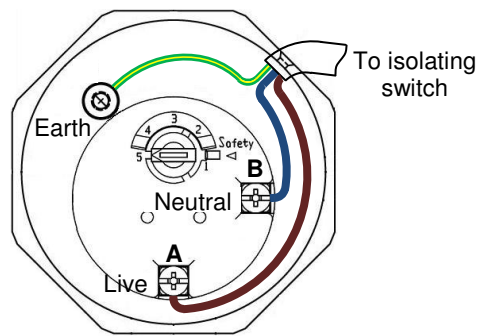
## 4.5 Electrical Installation

### 4.5.1 Cylinder thermostats



**Figure 3: Control thermostat wiring**

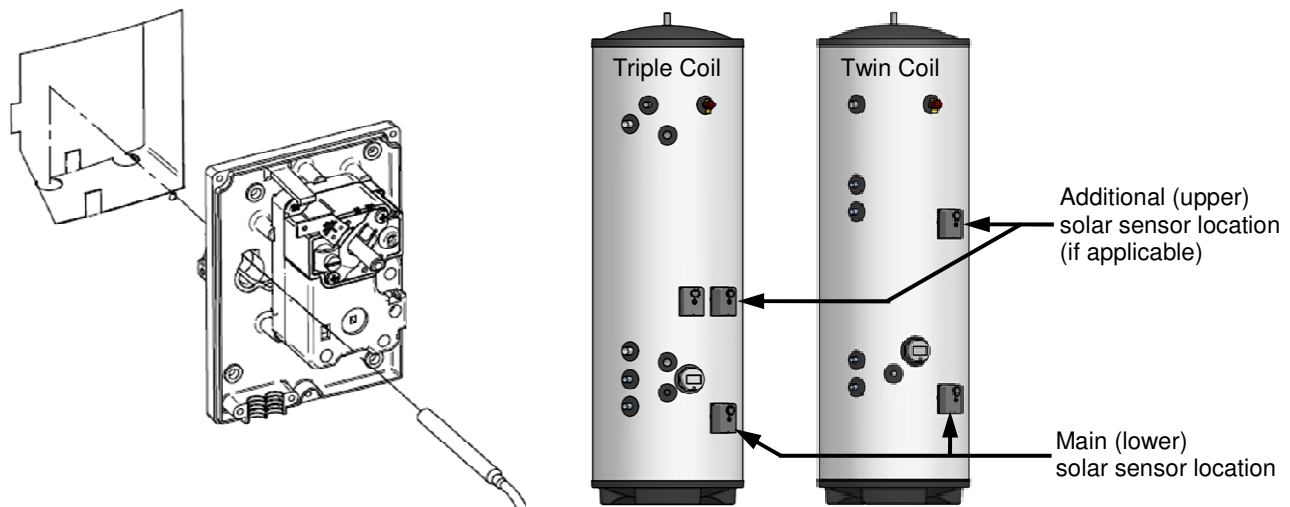
### 4.5.2 Immersion heater(s)



**Figure 4: Immersion heater wiring**

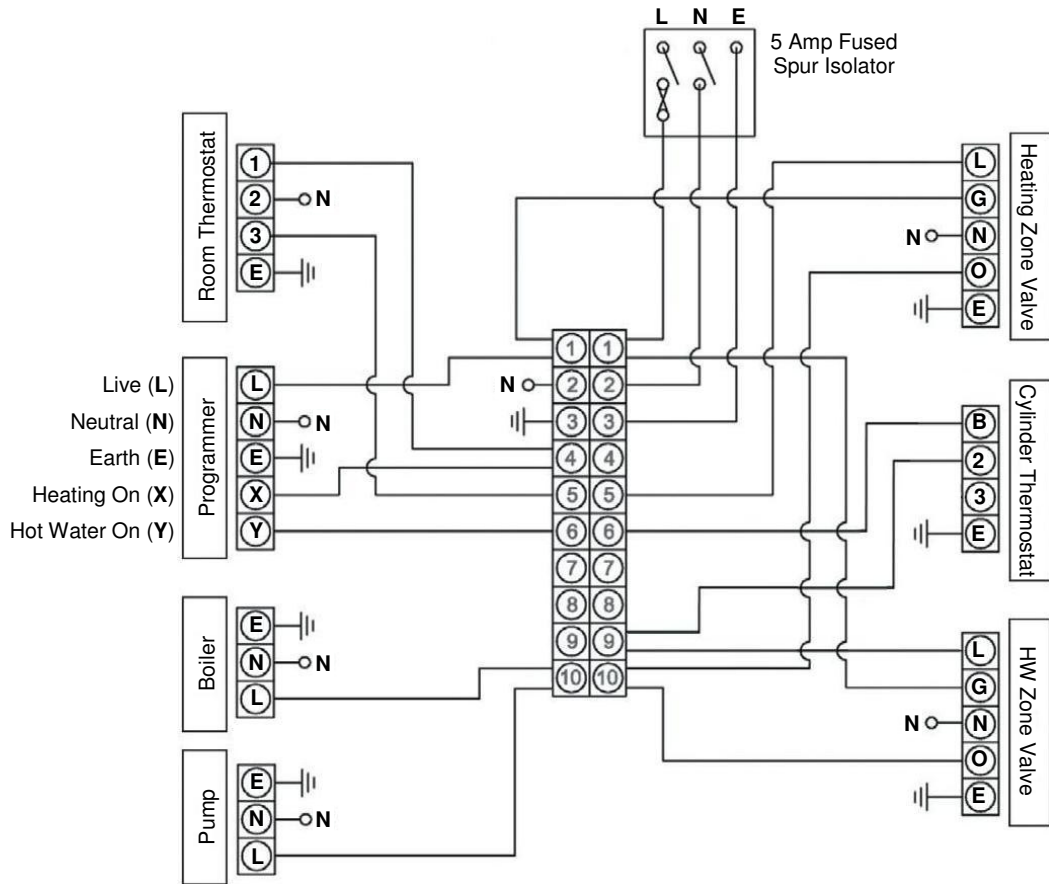
### 4.5.3 Solar temperature sensors

Solar sensors should be located in the pocket(s) behind the cylinder thermostat(s). Remove the thermostat cover and base. Pass the sensor through the base then insert downwards into the pocket as shown in Figure 5. Anchor the cable using the clamp provided.

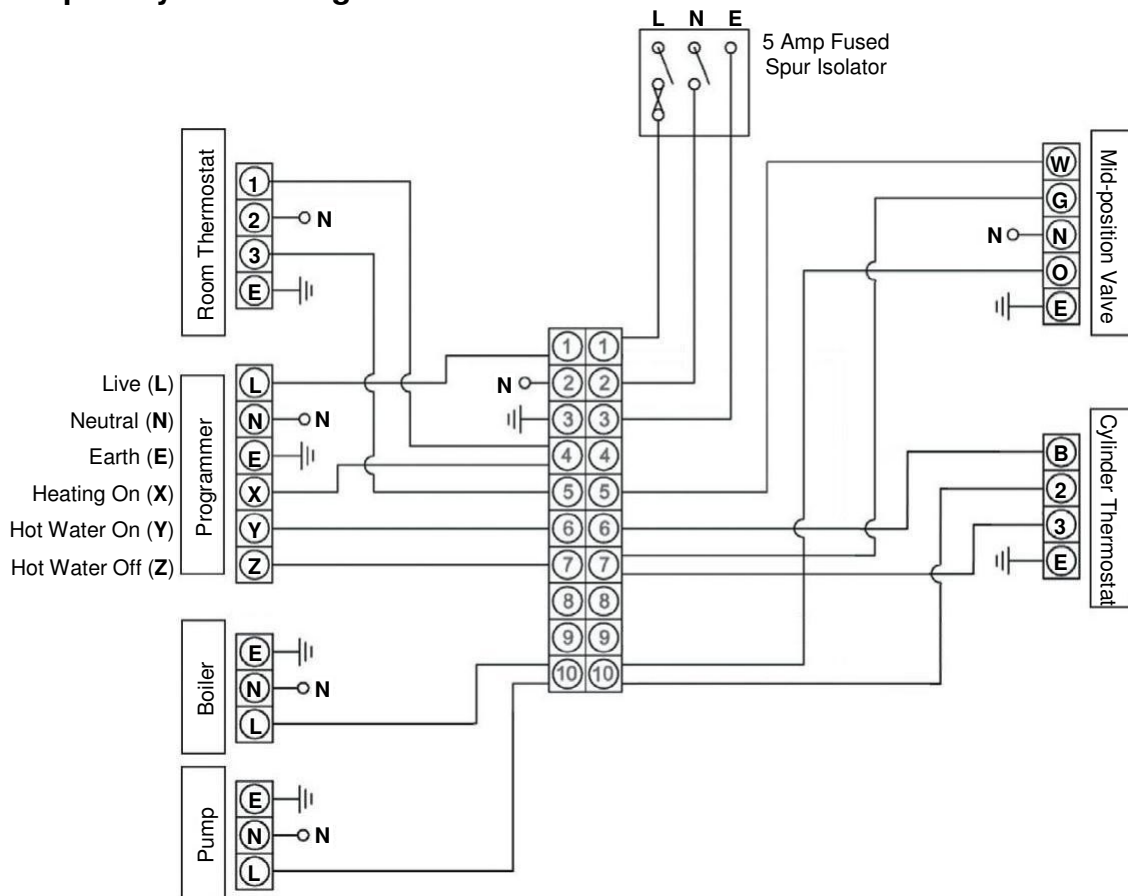


**Figure 5: Solar temperature sensor installation**

#### 4.5.4 System controls



**Figure 6: S-plan system wiring**



**Figure 7: Y-plan system wiring**



## 5 MAINTENANCE

 Isolate all electrical supplies before removing any components or before draining the cylinder or heat source circuits.

### 5.1 Inspection Access

Where necessary, the internal components of the cylinder can be inspected by means of the immersion heater boss (1<sup>3</sup>/<sub>4</sub>"") using an appropriate inspection tool e.g. boroscope.

### 5.2 Replacement Parts

<u>Part description</u>	<u>Code</u>
Cylinder thermostat	WDS6
Immersion heater c/w stat (1 <sup>3</sup> / <sub>4</sub> "")	3602

This stainless steel cylinder requires no corrosion protection device e.g. anode.

### 5.3 Fault Finding

Symptom	Possible cause	Possible remedy
<b>Little / no hot water flow</b>	Mains water supply isolated	Open stopcock.
	Cistern ball cock failure	Check ball cock in cistern tank.
<b>Water from hot taps is cold</b>	Boiler programmer or immersion timer not calling for hot water	Set programmer / timer to call.
	Cylinder thermostat high limit tripped or immersion thermostat high limit tripped	Check and reset (refer to Section 1).
	Heat source malfunction (e.g. boiler / immersion heater / etc)	Check heat source – if faulty, refer to heat source manufacturer's instructions.
	Motorised valve malfunction (where fitted, not supplied as standard)	Manually activate motorised valve. If cylinder begins to heat, replace valve.
	Circulating pump malfunction	Check wiring and/or plumbing connections to pump.

## 6 GUARANTEE

Warmflow cylinders are supplied with the following guarantees from the date of purchase:

- (a) A 25 year guarantee on the duplex stainless steel cylinder body against defects of material.
  - (b) A 2 year guarantee on all parts and components as well as any defects that may have occurred from time to time during the normal manufacturing process of the cylinder as carried out by those exercising all relevant skill and experience and complying with all relevant legislation, regulations and codes of practice relating to the manufacturing process.
1. The guarantees provided are from the date of purchase and are conditional upon:
    - 1.1 the unit being installed by competent persons in accordance with the manufacturer's instructions and relevant legislation, regulations and codes of practice in force at the time;
    - 1.2 the product being registered with Warmflow within 30 days of installation and the guarantee registration completed and returned to Warmflow along with evidence of the date of purchase;
    - 1.3 the unit not being modified in any way, or misused or subject to neglect;
    - 1.4 the unit being used solely for the purpose of heating potable water that complies at all times with EU standards and not fed from a private source.

Failure to comply with any of the conditions outlined in this clause will invalidate the warranty in its entirety.

2. The guarantee is not transferable and excludes:
  - 2.1 labour costs associated with the replacement of the unit or its components;
  - 2.2 any defects that appear after the customer makes any modification or alteration to the unit;
  - 2.3 defects caused by the improper use or storage of the unit and in particular (but without limitation) Warmflow shall not be liable in the case of defects arising from normal deterioration or improper or faulty handling or processing of the unit by the customer;
  - 2.4 consequential losses however caused.
3. If within the 2 year guaranteed period, as set out at (b) above, a material defect is discovered in the Unit:
  - 3.1 the customer must send written notification following discovery giving particulars and either at its own expense and risk shall return the unit to Warmflow within 2 weeks of written notice being provided by Warmflow; or (at Warmflow's sole option) shall permit Warmflow to inspect same; and
  - 3.2 if such defect has arisen from faulty materials employed or workmanship carried out by Warmflow and is existing but not reasonably discoverable upon inspection at the time of receipt then Warmflow shall supply such part(s) free of charge along with the costs of transporting same to the customer.
  - 3.3 The replacement parts must be fitted in accordance with the terms of the guarantee set out above.
  - 3.4 The replacement parts shall be covered under this guarantee for the remainder of the unexpired term of two years.
  - 3.5 Invoices for call out and/or repair by any third party or parts supplied by a third party will not be accepted unless previously authorised by Warmflow in writing.
- 4 Warmflow's liability for defective units is limited in all circumstances to delivery of parts for the defective unit and the customer shall accept same as fulfilment of Warmflow's obligations.
- 5 Warmflow disclaims all other warranties whether express, implied or statutory. Your statutory rights are not affected.
- 6 This guarantee applies to Warmflow cylinders installed on the UK mainland (excluding Scottish Isles), Isle of Man, Channel Islands, Northern Ireland and Republic of Ireland only. Provision of in warranty cover elsewhere is subject to the agreement in writing of Warmflow.

**FAILURE TO CORRECTLY INSTALL AND REGISTER THIS PRODUCT WILL  
INVALIDATE ALL GUARANTEES**