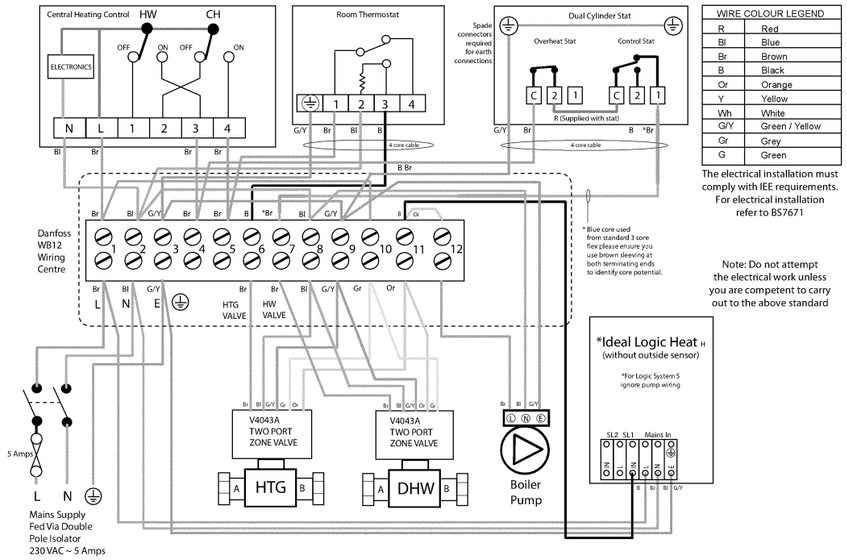
(S-PLAN) WIRING DIAGRAM WITH TWO 2 PORT VALVES



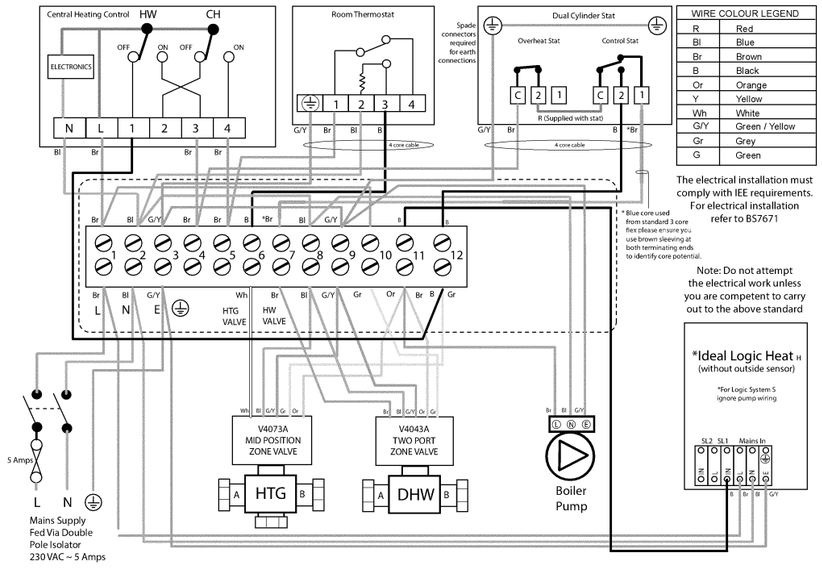
WIRE COLOUR LEGEND	
R	Red
Bl	Blue
Br	Brown
B	Black
Or	Orange
Y	Yellow
Wh	White
G/Y	Green / Yellow
Gr	Grey
G	Green

The electrical installation must comply with IEE requirements. For electrical installation refer to BS7671

Note: Do not attempt the electrical work unless you are competent to carry out to the above standard

Ideal schematic wiring diagram for an unvented installation

(Y-PLAN) WIRING DIAGRAM WITH 3 PORT VALVE/2 PORT SAFETY VALVE



WIRE COLOUR LEGEND	
R	Red
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Br	Brown
B	Black
Or	Orange
Y	Yellow
Wh	White
G/Y	Green / Yellow
Gr	Grey
G	Green

The electrical installation must comply with IEE requirements. For electrical installation refer to BS7671

Note: Do not attempt the electrical work unless you are competent to carry out to the above standard

Ideal schematic wiring diagram for an unvented installation

Electrical

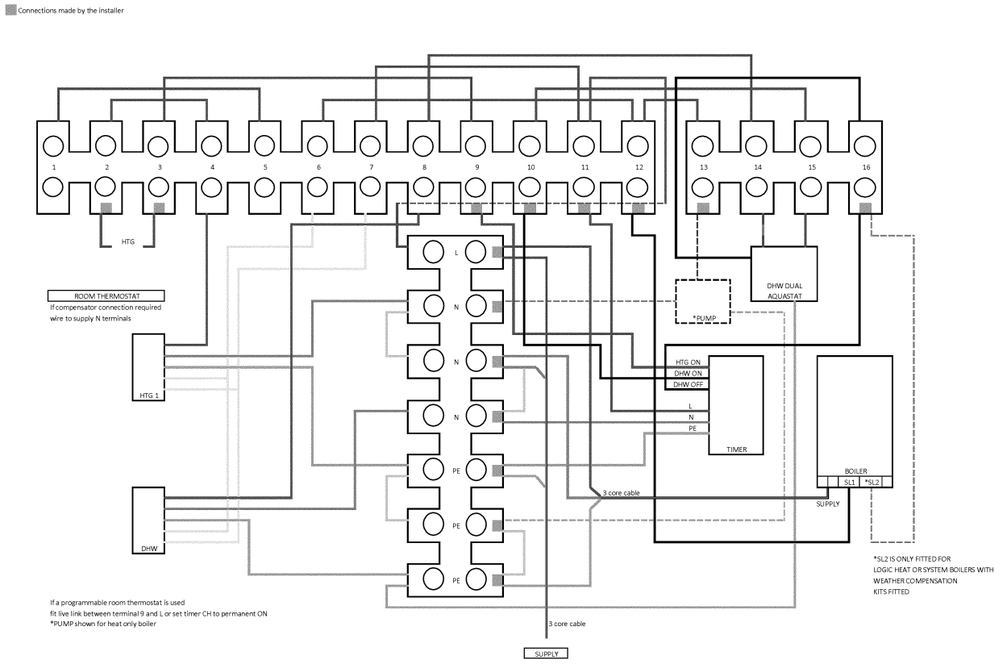
Any electrical work shall be carried out by a suitably competent person fully in accordance with the latest edition of the IEE requirements for electrical installations BS7671.

The appliance requires a suitable 230v AC mains supply rated at 5amp fed via a double-pole linked isolator with a contact separation of 3mm in both poles. Details of how to connect to the external wiring required (and the wiring provided) are shown below.

The 3kW immersion heater will require its own 230v AC mains supply. This shall be rated at 16amp and fed via a double-pole linked isolator with a contact separation of 3mm in both poles. Details of how to wire the immersion heater are shown on page 16.

Both isolators shall be located immediately adjacent to the appliance and suitably identified/labelled to allow safe use/maintenance.

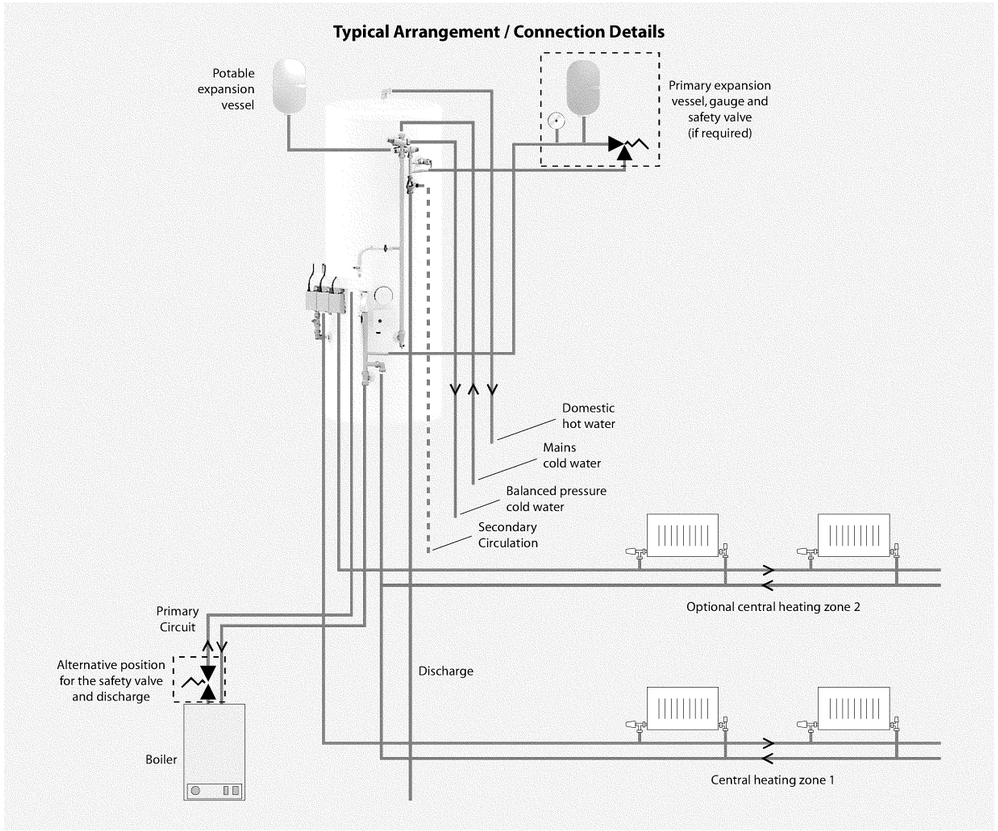
The connections within the wiring centre are shown below.



Schematic wiring diagram for an Ideal System Ready unvented installation only

Note.

For Ideal Logic Heat and System boilers with Outside Weather Compensation Kits fitted an additional connection is required between Pin 16 of the wiring centre, the Programmer/Time switch Hot Water Off signal and the Boiler SL2 IN. Refer to the wiring diagrams on page 15 for detail.



Notes

1 The position of the tundish, discharge pipe size and termination point will need to comply with the requirements set out on pages 12 and 13 of this manual and Building Regulations Approved Document G3.

2 The primary expansion vessel, gauge and safety valve should normally be fitted on the boiler flow in the appliance cupboard where the gauge can be seen when operating the filling loop. **There shall be no restriction or valves fitted in the pipework between the boiler and the primary system safety valve.**

3 If the primary pipework from the boiler to the safety valve is more than 6 metres, we recommend that the safety valve is fitted on the boiler flow adjacent to the boiler (a pressure gauge must still be visible when operating the filling loop).

4 The potable water expansion vessel should be fitted on the mains cold water supply adjacent to the Ideal System Ready appliance. **No valves shall be fitted between the inlet group and the appliance.**

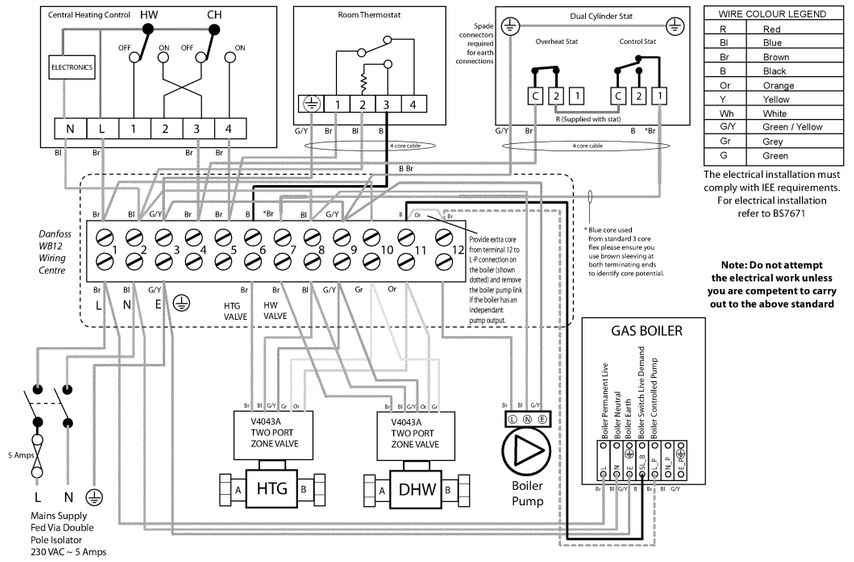
Model Selection Data/Cupboard Sizes

Use the model selection guide on page 10 to choose the appliance size.

A 700 wide x 700mm deep cupboard is recommended as the minimum size for the system ready cylinders. The height is determined by the model size selected, and sufficient room should be allowed for the siting of the expansion vessels.

A minimum 600mm deep access is required to the front of the appliance and expansion vessels to allow subsequent maintenance/replacement of the immersion heater.

(S-PLAN) WIRING DIAGRAM WITH TWO 2 PORT VALVES AND BOILER CONTROLLED PUMP OVERRUN OPTION



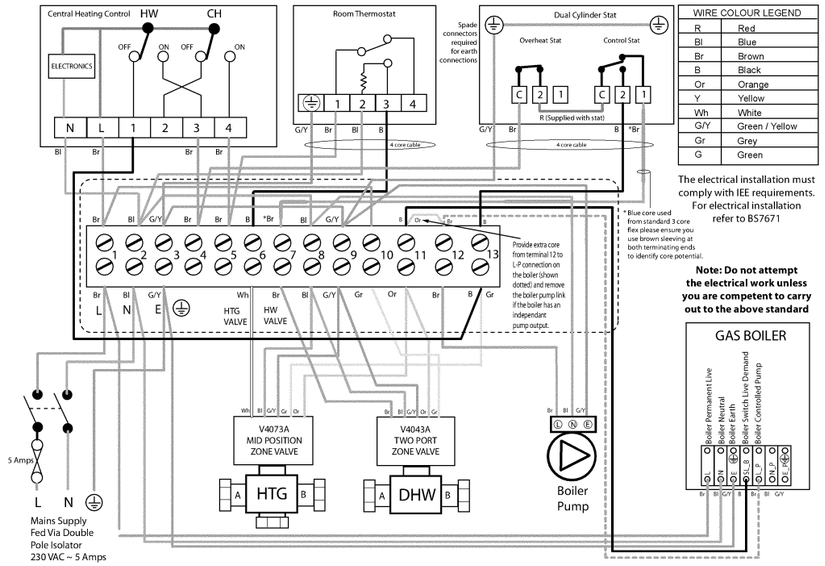
WIRE COLOUR LEGEND	
R	Red
Bl	Blue
Br	Brown
B	Black
Or	Orange
Y	Yellow
Wh	White
G/Y	Green / Yellow
Gr	Grey
G	Green

The electrical installation must comply with IEE requirements. For electrical installation refer to BS7671

Note: Do not attempt the electrical work unless you are competent to carry out to the above standard

Typical schematic wiring diagram for an unvented installation

(Y-PLAN) WIRING DIAGRAM WITH 3 PORT VALVE/2 PORT SAFETY VALVE AND BOILER CONTROLLED PUMP OVERRUN OPTION



WIRE COLOUR LEGEND	
R	Red
Bl	Blue
Br	Brown
B	Black
Or	Orange
Y	Yellow
Wh	White
G/Y	Green / Yellow
Gr	Grey
G	Green

The electrical installation must comply with IEE requirements. For electrical installation refer to BS7671

Note: Do not attempt the electrical work unless you are competent to carry out to the above standard

Typical schematic wiring diagram for an unvented installation

INSTALLATION

All factory fitted components are tightened during manufacture, however all should be checked before installation.

For the control thermostat set points of the immersion heaters for direct heating of our cylinders, please refer to page 16 of this manual. The control thermostat for indirect heat exchanger heat up of our cylinders are usually set at between 60°C - 65°C. During commissioning the actual temperature that the cylinder reaches when the thermostat(s) operate should be tested and adjusted so that it achieves a minimum of 60°C. This temperature needs to be achieved on a regular basis.

Check the pressure on the air side of the expansion vessel = 3 bar. This must be done when the water in the cylinder is free to expand in atmospheric pressure or the cylinder and relevant pipe work is empty.

Check that the drain cock is closed, and open all the cold and hot water taps and other terminal fittings. Allow the system to fill with water, and to run until there is no air left in the system. Close the taps and inspect the system closely for leaks.

Manually open the Relief Valves one by one and check that water is discharged and run freely through the tundish and out at the discharge point. The pipework should accept full bore discharge without overflowing at the tundish, and the valve should seat satisfactorily.

In line with good plumbing practice, use of excessive flux should be avoided. When soldering above the cylinder, ensure flux/solder does not contaminate the cylinder below, since this can cause corrosion. Flushing should be done performed as per BS EN 806:4 2010 section 6.2.

Allow the cylinder to heat to normal working temperature, then thoroughly flush the domestic hot and cold water pipework through each tap.

NOTE: If this appliance is to be installed in other than a single domestic dwelling ie. in an apartment block or student flats etc., the hot and cold water system will need to be disinfected in accordance with BS EB 806:4 2010 section 6.3 and the Water Regulations.

Because the Ideal Pro appliance is stainless steel, the use of chlorine as the disinfection agent can cause damage unless the appliance is adequately flushed and refilled with the mains water immediately on completion of the disinfection procedure. Damage caused through a failure to do this adequately will not be covered by the warranty.

IMPORTANT - DRAIN DOWN PROCEDURE

1 Switch off both the boiler and the immersion heater

2 Open the nearest hot tap and run all hot water until cold, then close it

3 Close the incoming cold main at the stop tap

4 **Hold open the pressure and temperature relief valve until water stops discharging into the tundish and leave it open**

5 Open the cold taps starting from the highest point and working down to the lowest tap, leaving them open

6 When the cold taps have stopped draining, open the hot taps starting from the highest and working down to the lowest tap

7 Open the drain cock and ensure the pressure and temperature relief valve is held open until the cylinder is empty

For the reasons mentioned, we recommend the use of a non chlorine based disinfectant such as Fernox LP Sterox as manufactured by Cookson Electronics when carrying out disinfection of systems incorporating these appliances.

Remove the filter from the combination inlet group clean and replace. Refill the system and open all hot taps until there is no air in the pipe work. **ENSURE CYLINDER IS DRAINED PRIOR TO CHECKING OR REMOVING FILTER FROM THE COMBINATION INLET GROUP**.

Allow the cylinder to heat to normal working temperature with whatever heat source is to be used, and check again for leaks. The pressure relief valve or the P&T valve should not operate during the heating cycle. If the P&T valve operates before the pressure relief valve due to high pressure, check that the inlet control group is fitted correctly, and no valve is between the inlet control group and the cylinder.

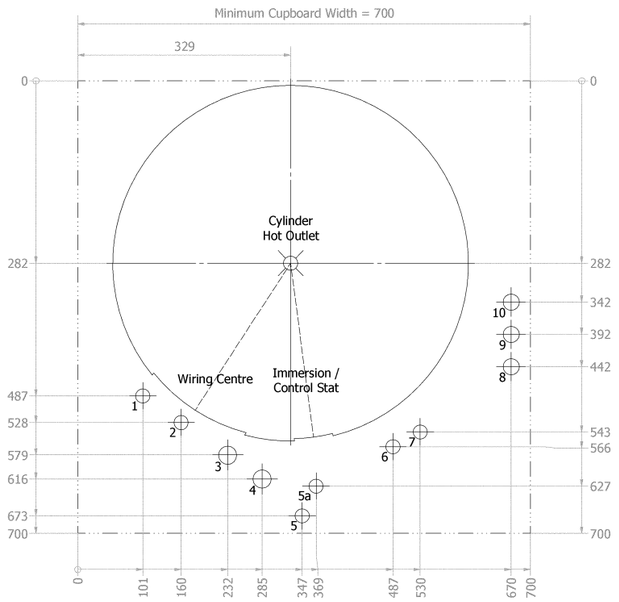
The boiler/heating systems should be filled and commissioned in accordance with good practice following the guidance in BS 7593:2006/the boiler manufacturers instructions. This includes adequately flushing the system to remove any debris that may have been introduced during installation/maintenance.

NOTE

At the time of commissioning, complete all relevant sections of the Benchmark Checklist located on the inside back pages of this document.

This must be completed during commissioning and left with the product to meet the Warranty conditions offered by Ideal Boilers.

IDEAL SYSTEM READY



Additional Component Kit

Potable System - Separate Components

In addition to the fitted equipment, the folowing potable water system components are provided separately for site fitting:

- Potable water expansion vessel precharged to 3 bar - see below for details.

Potable Water Expansion Vessel Sizes	
Pre-Plumbed Appliance Reference	**Vessel Size (Litres)**
IDEPROIN120PPSR	12
IDEPROIN150PPSR	18
IDEPROIN180PPSR	18
IDEPROIN210PPSR	25
IDEPROIN250PPSR	25
IDEPROIN300PPSR	35

The expansion vessels are suitable for wall mounting in the cupboard above the appliance and are supplied with an integral mounting bracket

Fitting Template

A first fix fitting template is supplied with the unit to allow for the first fix pipework to be installed prior to the connection of the unit.

Number	Description	Size (mm)
1	CH Zone 1	22
2	CH Zone 2	22
3	Flow From Boiler	28
4	Return To Boiler	28
5	CH Return (120/150)	22
5a	CH Return (180 up)	22
6	Tundish Outlet	22
7	Secondary Circulation	22
8	Balanced Cold Feed	22/28
9	Mains Cold Supply	22/28
10	Hot Water Feed	22/28

All pipe holes are optional.
All pipe hole sizes are dictated by the property / design. Therefore are a general indication.
The template is a general guide for installation rather than a rule that must be followed without deviation.

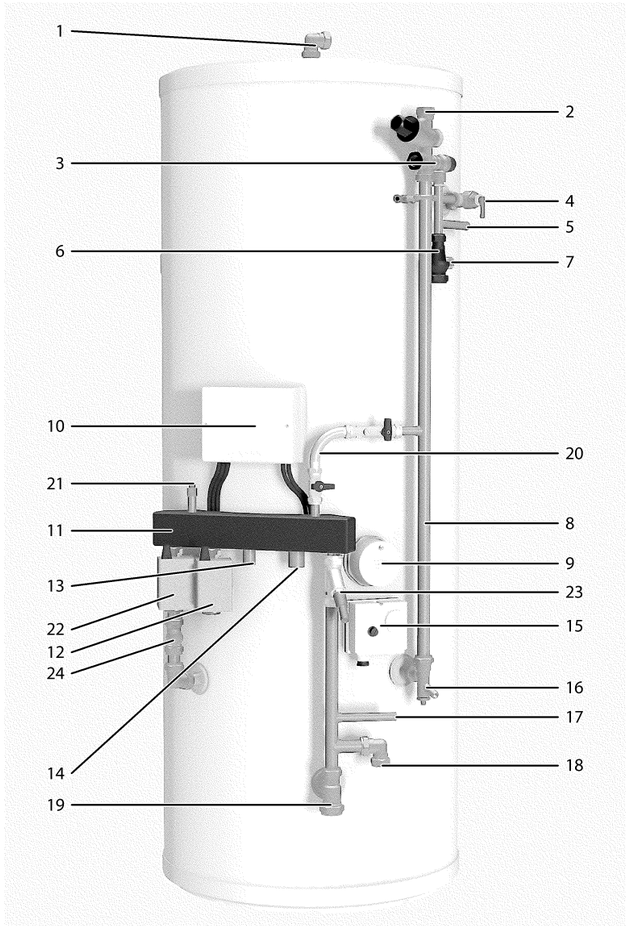
IDEAL SYSTEM READY

The Ideal System Ready is pre-plumbed and pre-wired for domestic hot water and one heating zone, incorporating a sealed primary filling loop and mains cold feed inlet control components fitted.

The following pages only provide details of the pre-fabricated pipework, components and electrical wiring that have been fitted to the Ideal Pro cylinder. For this reason all the design, installation and servicing instructions provided earlier in these instructions for the Ideal Pro cylinder are all applicable to the Ideal System Ready and should be followed when installing this unvented storage appliance.

The range consists of indirect models from 120 litres through to 300 litres. Each appliance is supplied complete with the following pipework and components which have been fitted, wired (with the exception of the immersion heater) and fully tested in the factory.

FOR THIS REASON, PLEASE ENSURE THAT YOU ADD 'SYSTEM READY' TO THE PRODUCT REFERENCE IF YOU REQUIRE THE PRE-PLUMBED/WIRED APPLIANCE WHEN ORDERING OR REQUESTING PRICES.



Ideal System Ready Range		
Model Size	**Appliance Reference**	**Volume (litres)**
IND120	IDEPROIN120PPSR	119
IND150	IDEPROIN150PPSR	148
IND180	IDEPROIN180PPSR	178
IND210	IDEPROIN210PPSR	208
IND250	IDEPROIN250PPSR	248
IND300	IDEPROIN300PPSR	287

For further technical information, please refer to Page 6 and 7 of this manual

Appliance Arrangement / Fitted Components

1 Hot water draw off (22mm), including elbow
2 22mm cold supply
3 Combination inlet group incorporating pressure reducing valve, strainer, check valve, balance cold take off point, expansion relief valve and expansion vessel connection points.
4 Pressure and temperature relief valve 95°/6 bar
5 Connection for heating expansion relief valve
6 Tundish
7 Hot water secondary return 22mm (plain pipe, not fitted to smaller sizes, see table 2)
8 Cold feed assembly
9 Immersion heater 1¾" BSP 3kW
10 Wiring junction box
11 Manifold assembly
12 Central heating zone 1 (22mm)
13 Central heating zone 2 (22mm) (optional)
14 Boiler flow (28mm)
15 Dual control/overheat stat (22mm)
16 Drain valve
17 Connection for heating expansion vessel
18 Central heating return
19 Boiler return
20 Filling loop
21 Manual air vent
22 Hot water zone valve
23 Auto bypass
24 Gate valve

Please note

All factory fitted components are tightened during manufacture, however all should be checked before installation.

SERVICING AND MAINTENANCE

The Registered Installer is responsible for the safe installation and operation of the system. The installer must also make his customer aware that periodic maintenance of the equipment is essential for safety.

Maintenance periods will vary for many reasons. Ideal Boilers recommend a maximum of 12 months to coincide with boiler maintenance. Experience of local water conditions may indicate that more frequent maintenance is desirable, eg, when water is particularly hard, scale-forming or where the water supply contains a high proportion of solids, eg, sand. Maintenance must include the following:

1. Check and clean filter
2. Manually check the operation of the temperature relief valve.
3. Manually check the operation of the expansion relief valve.
4. Check discharge pipes from temperature and expansion relief valves are free from obstruction and blockage and are not passing any water.
5. Check the condition and if necessary descale the heat exchangers in hard water areas.
6. Check that water pressure downstream of pressure reducing valve is within the manufacturers limits.
7. Check operation of motorised valve.
8. Check the pressure on the air side of the expansion vessel. This must be done with the pressure on the water side at zero (gauge pressure).
9. Check and advise the householder not to place any clothing or other combustible materials against or on top of this appliance.
10. On completion of the work, fill in the Benchmark Service Record towards the back of this manual.

IMPORTANT NOTE

When draining down the appliance for any reason, the instructions provided in the Commissioning Section (Page 16) MUST be followed to prevent potential damage to the cylinder.

After servicing, complete the relevant Service Interval Record section of the Benchmark Checklist located on the inside back pages of this document.

Scale

In hard water areas it is recommended that an in-line scale inhibitor is fitted. Reducing the temperature of the stored water will reduce the rate at which scale forms. If the recovery rate is badly affected, this is an indication that scaling may have occurred. In this event, follow the procedures as recommended by a reputable Water Treatment Company.

General

No water at the tap. Check that the mains water supply is turned ON. Check the line strainer is not blocked. Check that the combination valve has been fitted so that water is flowing in the correct direction.
If the water at the tap is cold, ensure that the boiler has been switched ON and is working correctly. Check that there are no air locks in the primary system. ISOLATE THE UNIT AT THE MAINS ELECTRIC SUPPLY AND THEN CHECK THE FOLLOWING:

i. The cylinder thermostat
ii. The thermal cut-out, which can be re-set by pushing the red button
iii. The motorised valve
iv. The boiler thermostat
v. The boiler thermostat cut-out (if fitted)

ANY ENERGY CUT-OUT MUST NEVER BE BY-PASSED UNDER ANY CIRCUMSTANCES.

If the units are not getting hot and the heat source is electrical, ensure that the immersion heaters are isolated from the mains before re-setting the energy cut-out. If the immersion heater(s) need replacing this should be done with the units supplied from Ideal Boilers.

Discharge From Relief Valves

If cold water is discharging from the expansion relief valve into the tundish check the pressure on the expansion vessel when cold and recharge if necessary.

If the fault continues and the problem cannot be stopped by operating the easing control a few times then either the Pressure Reducing Valve or the Relief Valve may be at fault. If the cold water pressure is too high, this would suggest that the Pressure Reducing Valve is at fault and the Ideal Boilers approved replacement should be fitted. If the pressure is correct then the Relief Valve will require replacing with a Ideal Boilers approved component.

See Commissioning for drain down procedure.

If there is an overheat fault and very hot water is being discharged, turn off the heat source, **but not the water supply.**

When the supply is cool, check thermostats and energy cut-outs in the boiler and immersion heaters and replace the faulty component with one supplied by Ideal Boilers and check that it works correctly before returning the system to full operation.

SPARE PARTS LIST - EXTRA COMPONENTS FOR THE 'PRE-PLUMBED S' APPLIANCE			
	Description	**Quantity**	**Stock Code No.**
1	Heating 2 port valve	1	179681
2	Hot water 2 port valve	1	179681
3	Automatic primary/heating byepass valve	1	179682
4	Primary/heating water expansion kit comprising of expansion vessel, system pressure gauge, system safety valve	1	179683
5	Manual air vent cap	1	179684
6	28mm circulator gate valves	1	179685
7	Filling loop comprising of:		
	Double check valve	1	179686
	Flex hose	1	179687
	Ballvalve	1	179688
8	Electrical wiring centre	1	179689
9	Single channel programmer - Danfoss TP1B	1	179690
10	Two channel programmer - Danfoss TP1M	1	179691
11	Pre-Plumbed group inlet 3/45	1	179692

IDEAL PRE-PLUMBED S

Electrical

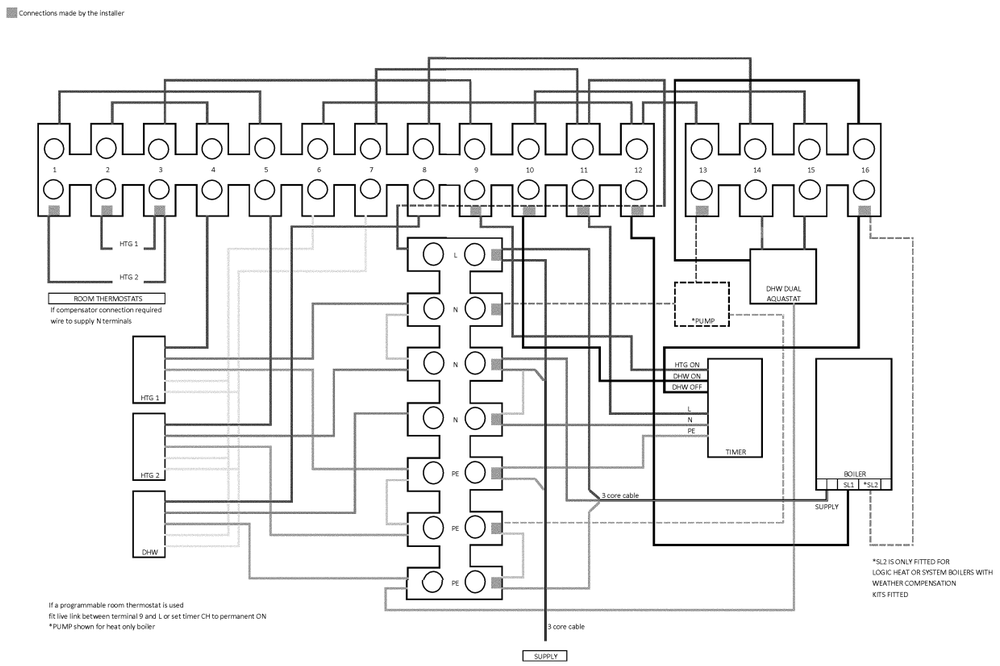
Any electrical work shall be carried out by a suitably competent person fully in accordance with the latest edition of the IEE requirements for electrical installations BS7671.

The appliance requires a suitable 230v AC mains supply rated at 5amp fed via a double-pole linked isolator with a contact separation of 3mm in both poles. Details of how to connect to the external wiring required (and the wiring provided) are shown below.

The 3kW immersion heater will require its own 230v AC mains supply. This shall be rated at 16amp and fed via a double-pole linked isolator with a contact separation of 3mm in both poles. Details of how to wire the immersion heater are shown on page 16.

Both isolators shall be located immediately adjacent to the appliance and suitably identified/labelled to allow safe use/maintenance.

The connections within the wiring centre are shown below.



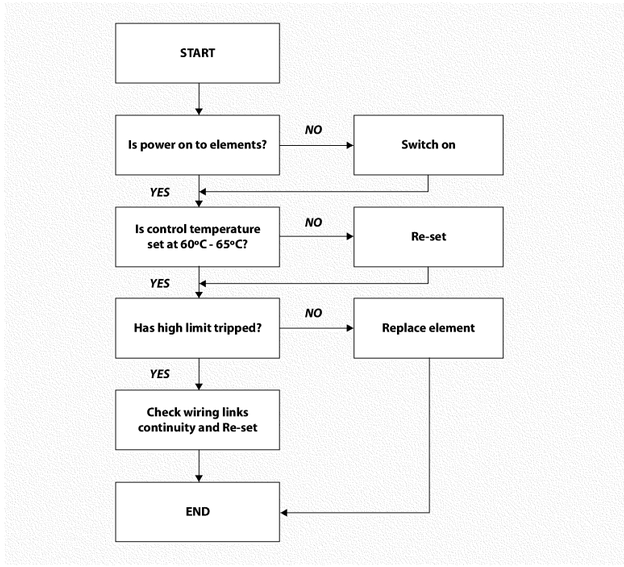
Schematic wiring diagram for an Ideal Pre-Plumbed S unvented installation only

Note.

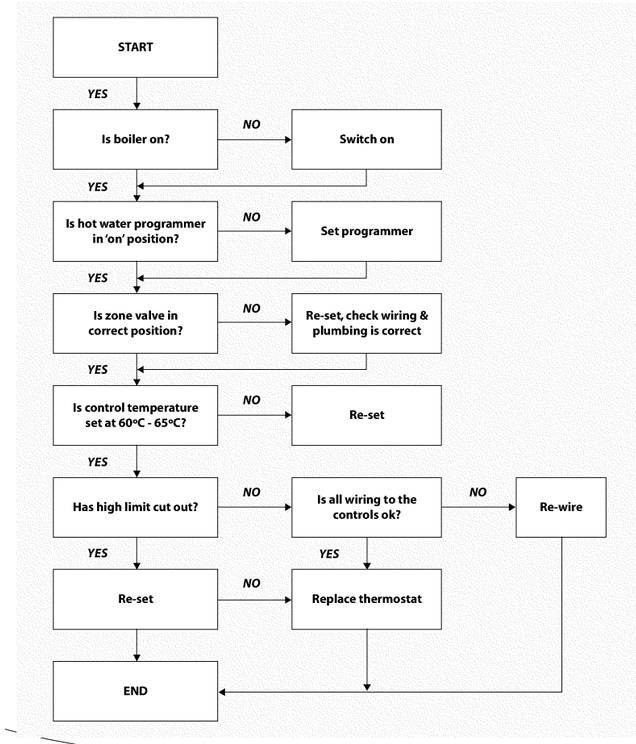
For Ideal Logic Heat and System boilers with Outside Weather Compensation Kits fitted an additional connection is required between Pin 16 of the wiring centre, the Programmer/Time switch Hot Water Off signal and the Boiler SL2 IN. Refer to the wiring diagrams on page 15 for detail.

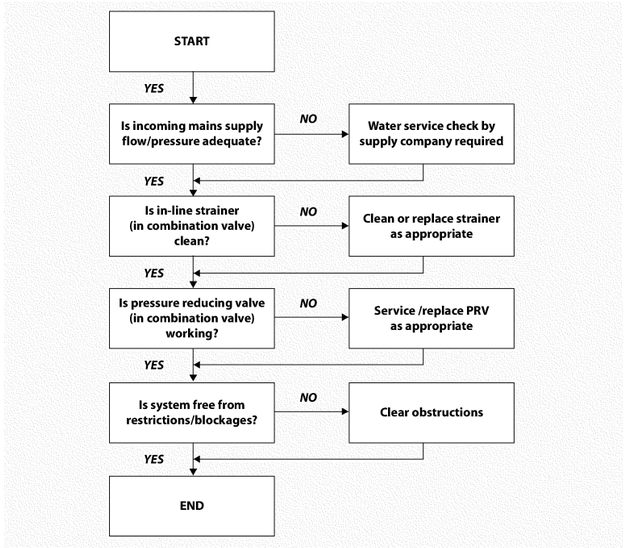
SERVICING AND MAINTENANCE

FAULT - No Hot Water (Direct)

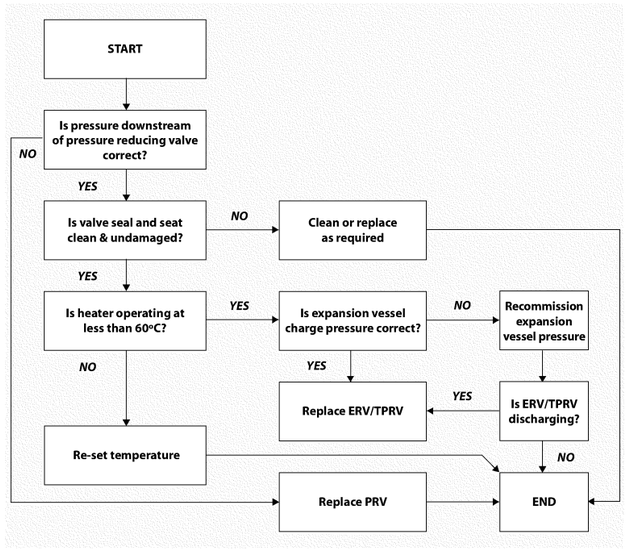


FAULT - No Hot Water (Indirect)



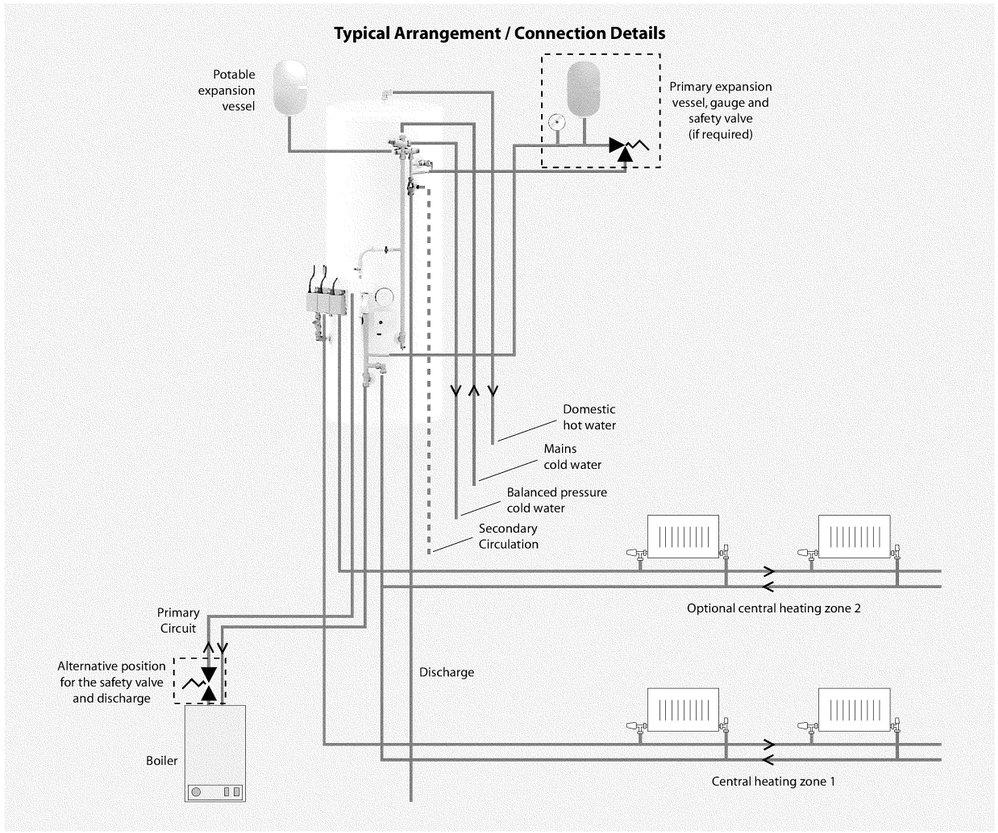


FAULT - Poor Water Flow at Hot Taps



FAULT - Water Discharge Into Tundish

Typical Arrangement / Connection Details



Notes

1 The position of the tundish, discharge pipe size and termination point will need to comply with the requirements set out on pages 12 and 13 of this manual and Building Regulations Approved Document G3.

2 The primary expansion vessel, gauge and safety valve should normally be fitted on the boiler flow in the appliance cupboard where the gauge can be seen when operating the filling loop. **There shall be no restriction or valves fitted in the pipework between the boiler and the primary system safety valve.**

3 If the primary pipework from the boiler to the safety valve is more than 6 metres, we recommend that the safety valve is fitted on the boiler flow adjacent to the boiler (a pressure gauge must still be visible when operating the filling loop).

4 The potable water expansion vessel should be fitted on the mains cold water supply adjacent to the Ideal Pre-Plumbed S appliance. **No valves shall be fitted between the inlet group and the appliance.**

Model Selection Data/Cupboard Sizes

Use the model selection guide on page 10 to choose the appliance size.

A 700 wide x 700mm deep cupboard is recommended as the minimum size for the system ready cylinders. The height is determined by the model size selected, and sufficient room should be allowed for the siting of the expansion vessels.

A minimum 600mm deep access is required to the front of the appliance and expansion vessels to allow subsequent maintenance/replacement of the immersion heater.

IDEAL PRE-PLUMBED S

Additional Component Kit

Potable System - Separate Components

In addition to the fitted equipment, the folowing potable water system components are provided separately for site fitting:

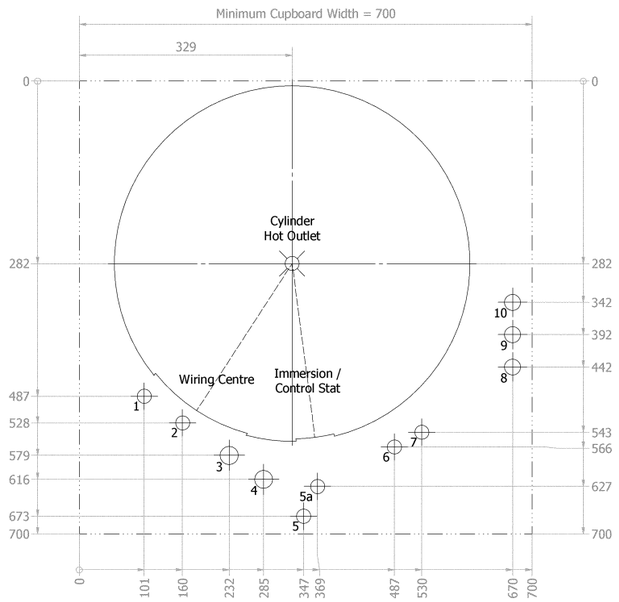
- Potable water expansion vessel precharged to 3 bar - see below for details.

Potable Water Expansion Vessel Sizes	
Pre-Plumbed Appliance Reference	**Vessel Size (Litres)**
IDEPROIN120PPSP	12
IDEPROIN150PPSP	18
IDEPROIN180PPSP	18
IDEPROIN210PPSP	25
IDEPROIN250PPSP	25
IDEPROIN300PPSP	35

The expansion vessels are suitable for wall mounting in the cupboard above the appliance and are supplied with an integral mounting bracket

Fitting Template

A first fix fitting template is supplied with the unit to allow for the first fix pipework to be installed prior to the connection of the unit.



Number	Description	Size (mm)
1	CH Zone 1	22
2	CH Zone 2	22
3	Flow From Boiler	28
4	Return To Boiler	28
5	CH Return (120/150)	22
5a	CH Return (180 up)	22
6	Tundish Outlet	22
7	Secondary Circulation	22
8	Balanced Cold Feed	22/28
9	Mains Cold Supply	22/28
10	Hot Water Feed	22/28

All pipe holes are optional.
All pipe hole sizes are dictated by the property / design. Therefore are a general indication.
The template is a general guide for installation rather than a rule that must be followed without deviation.

SERVICING AND MAINTENANCE

SPARE PARTS LIST			
	Description	**Quantity**	**Stock Code No.**
1	3kW immersion element	1	176749
2	Pressure and temperature relief valve 6 bar 95°C	1	176748
3	Inlet group set at 3 bar c/w expansion relief valve set at 4.5 bar	1	176750
4	12 litre expansion vessel	1	176751
5	18 litre expansion vessel	1	176752
6	24 litre expansion vessel	1	176753
7	35 litre expansion vessel	1	176754
8	22mm 2 port valve (indirects only)	1	176758
9	Control and overheat limit thermostat	1	176757
10	15mm x 22mm tundish	1	176756