



WORLD HEAT CYLINDERS **Installation & Service Instructions**

Stainless Steel Unvented Hot Water Cylinders 50L to 500L



Issue: 8



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Introduction

The WH Cylinders unvented domestic hot water cylinder range have been specifically designed to fully optimise the performance of the heat source it is connected to whether that is a conventional boiler, electric immersion heater, biomass boiler, heat pump or solar thermal.

The range has been rigorously tested and developed to ensure the best efficiencies and heat up performances possible along with unrivalled thermal loss protection from the high density foam insulation.

Available in the range are pre-packaged cylinders which reduce the installation time on site and our eco slim version which has a smaller footprint and can be installed into the tightest of spaces.

Available capacities range from 150 to 8,000 litres and are suitable for many different applications from domestic to large commercial.

All unvented and packaged cylinders come with all necessary safety and control devices required to connect to the cold water mains and are compliant with G3 building regulations.

Packaged pre-plumbed cylinders come with all the necessary equipment required to correctly operate the heat pump and pressurised cylinder pre-plumbed and wired which helps to dramatically reduce the time taken to install the system on site.

All WH products are manufactured under a ISO9001:2015 Quality management system.

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Storage & Handling

WH Cylinders must be stored in the supplied packaging in an upright orientation and should be stored in a dry environment.

When lifting or carrying any pre-plumbed cylinders do not use any factory fitted pipe work or connections as these can be damaged.

Safe manual handling and lifting procedures must be used when carrying any cylinder.

Equipment Supplied

The WH Cylinders unvented range comes with all the necessary equipment required to install the cylinders safely to the cold mains. G3 building regulation should always be considered when installing unvented systems.

Supplied with all unvented cylinders



240V 3 KW immersion heater



Unvented cold feed combination control set



Secondary expansion vessel and mounting bracket



Primary Circulators



Pressure and temperature relief valve



Control and high limit thermostat



Automatic Air Vents



Automatic Bypass Valve



Hot water 2 port zone valve
Indirect Only



Tundish

Supplied with pre-plumbed cylinders only



Domestic Hot water timer



Programmable room thermostat for heating



2 port heating zone valve



Mains Cold Water Supply

The WH Cylinders unvented range operates at 3 bar. This is controlled by the pressure reducing valve in the inlet manifold which is capable of providing a flow rate of over 50 litres per minute. The inlet manifold is designed to allow the greatest flow rate possible, however the performance of any unvented system is only as good as the mains water supply.

The water demand requirements of a property need to be assessed and care should be made to take into account that hot and cold services are supplied simultaneously from the mains cold water feed.

The flow rate and pressure should be checked to confirm it can meet the demand of the property.

When measuring the water pressure please be aware that a static pressure (no flow) is no guarantee of good flow availability. On a domestic installation the minimum pressure and flow rate should be no less than 1.5 bar and 25 l/m respectively.

If the recommended minimum pressure or flow rate is not being achieved any existing ½"(15mm) cold mains pipe work may need to be increased in size.

Chlorination & System Cleaning

We highly recommend that our vessels are bypassed if carrying out any chlorination and chemical cleaning to the hot water or heating systems. Chlorine and other cleaning chemicals such as hydrogen peroxide can be extremely corrosive to stainless steel. If chemical cleaning is taking place, then the chemical must be thoroughly flushed through with water to clear the chemical, then the vessel should be fully drained and jet washed internally to ensure no chemical is present inside the vessel wall. Remove any electrical elements prior to chemical cleaning and plug the holes and only refit the elements after the vessels have been drained and jet washed internally. Please contact your chemical cleaning provider to ensure anything you are using is not corrosive to stainless and mild steel material prior to use. Our warranty does not cover failure due to corrosion, therefore if the vessels are corroded by something present in the water, they will not be covered under a manufacturing warranty.

Positioning the Cylinder

The WH Cylinders unvented range must be installed vertically on a stable base which must be capable of supporting the weight when the cylinder is full of water.

The minimum recommended installation space is dependant on the specification of the cylinder, the slimline range is recommended if available space is limited. Additional considerations should be made to allow space to mount the primary and secondary expansion vessels. Full specifications, weights and dimensions of the product range are provided in this booklet.

Access for maintenance of all equipment should be considered when positioning the unvented cylinder. Care should be taken that the immersion heater can be withdrawn for servicing if required these are 375mm long. Building regulation G3 should always be followed when installing discharge pipe work from the safety valves.

Any hot outlets which are higher than the cylinder will reduce in pressure by 0.1 bar for every 1m of height difference.

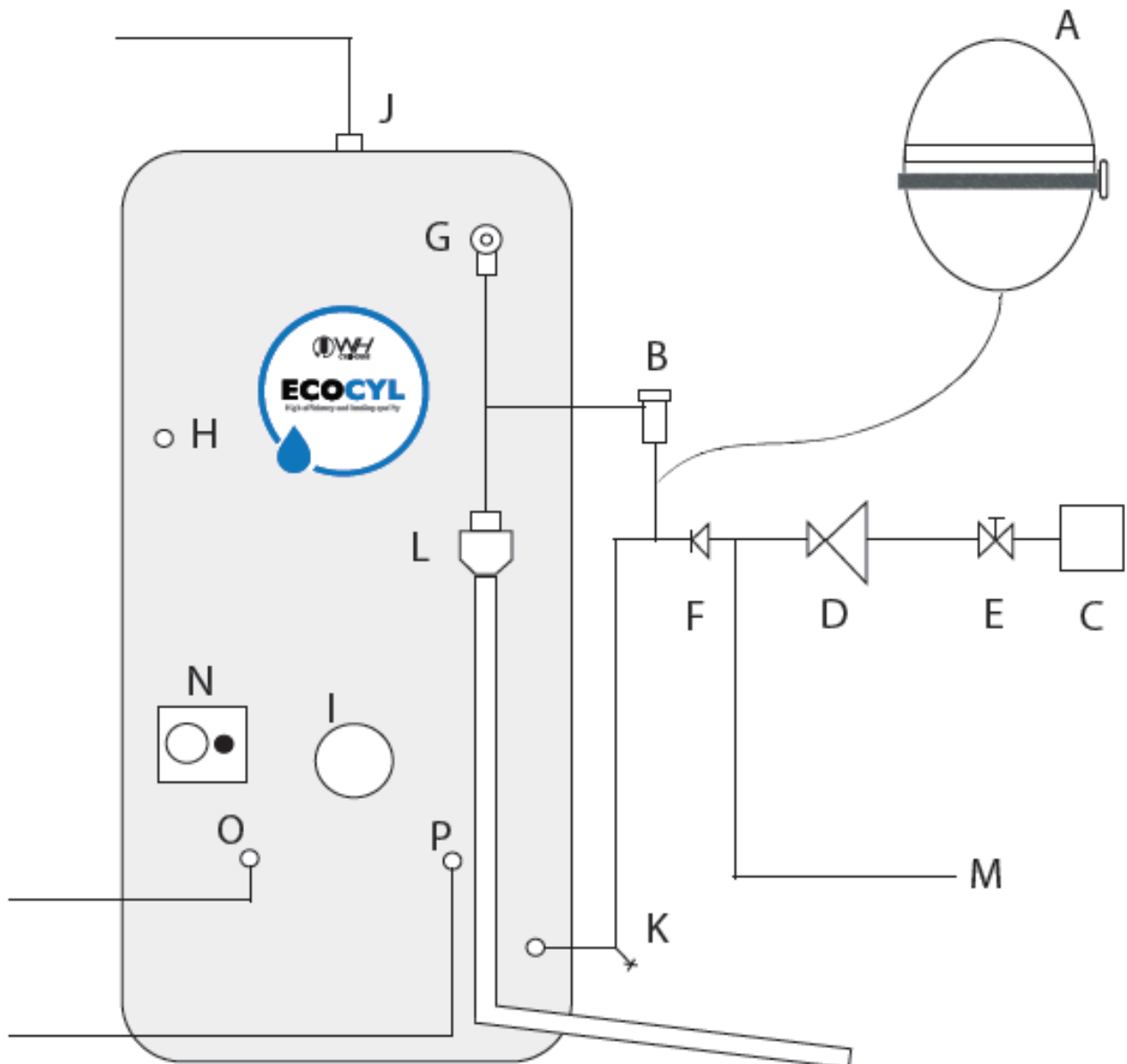
All exposed pipe work should be insulated and additional considerations should be taken to protect the unit from frost damage. Particular care is needed if the cylinder is to be installed in an exposed location such as an outhouse or garage.



Schematic Diagram

A	Expansion Vessel	I	Immersion Heater
B	Expansion Relief Valve	J	Hot Water Outlet
C	Cold Main	K	Cold Feed Connection & Drain
D	Pressure Reducing Valve	L	Tundish
E	Isolating Valve	M	Isolating Valve
F	Non Return Valve	N	Dual Thermostat
G	Pressure & Temp. Relief Valve	O	Primary Flow
H	Secondary Return*	P	Primary Return

* Selected Models Only



General Installation Information

Cold Mains Pipe Work and Manifold

Install the cold main pipe work to the area where the cylinder is to be installed. Care should be taken not to run the cold pipe near hot pipes so that the heat transfer is minimized.

Install a cold water isolating valve before any of the cylinder equipment which is NOT supplied. A 22mm quarter turn full bore lever handled ball valve is recommended to allow full flow to the cylinder. Do not use gate valve or similar as they can cause a restriction to the flow rate.

Ensure all connections to the cylinder have drain valves incorporated.

Try to position the mains inlet control manifold at the top of the cylinder to ensure that the cylinder does not have to be drained down in order to service the items in the inlet manifold.

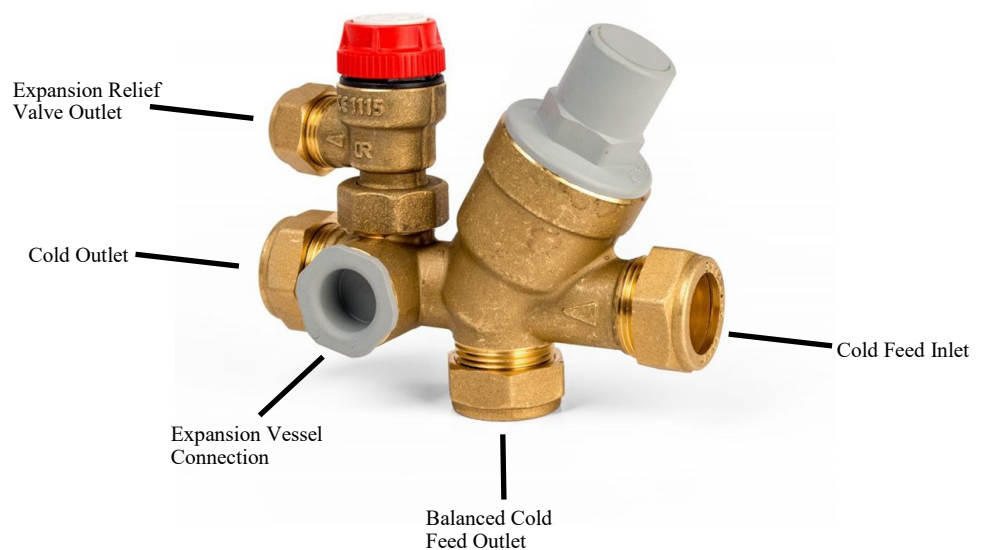
There is an arrow on the inlet manifold which indicates the correct direction of water flow.

Balanced Cold Connection

For mixer showers and taps a balanced cold feed at the same pressure as the hot feed may be necessary. A 22mm balanced connection on the inlet manifold is provided for this purpose.

Pipe work should initially run in 22mm then this can be reduced where necessary.

Maximum inlet pressure 10 bar.



Expansion Vessel

The expansion vessel can be mounted in any orientation. Access must be available to the top and bottom of the vessel. The vessel should be fixed to a solid wall using the brackets provided, please remember that the vessel will get much heavier once it is full of water.



Legionnaires Disease Prevention

When designing your pipe work and component layout considerations should be made for Legionnaires disease prevention.

The HSE guidance document states that to minimize the risk of microbial growth, expansion vessels should be:

- Installed in cool areas on cold flowing pipes;
- Mounted as close to the incoming water supply as possible;
- Mounted vertically on pipework to minimize any trapping of debris;
- Installed with an isolation and drain valve to aid flushing and sampling;
- Designed so as to minimize the volume retained within them;
- Designed to stimulate flow within the vessel.

World Heat Cylinders offer expansion vessel flow through adaptors to aid the stimulation of flow through the expansion vessel. Please ask one of our technical sales team for more information on 0161 343 8610 or email sales@whcylinders.co.uk

Notes

Electric Immersion Heaters

Only immersion heaters with a high temperature cut-out <95 deg C may be used.

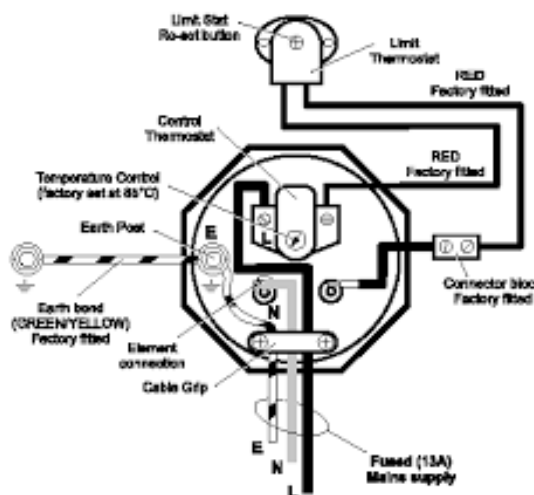
Each immersion comes complete with integral control thermostat and a high limit cut-out. If a replacement immersion heater is required please order them from WH Cylinders, installation of a non-approved immersion may affect your warranty.

The electrical supply to each immersion heaters must be installed by a qualified electrician. The fuse rating should be sized correctly to suite the heater's duty and isolators must be double pole to BS 3456.

Correct cable sizing must be carried out based on the power, cable length and cable enclosures however in most domestic applications 2.5mm² cable is suitable. Heat resistance sheathed flex complying to BS 6141:1981 should be used.

Do not energise the immersion heater until the cylinder has been filled with water as this will cause damage to the element.

Do not operate the immersion heater if any cleaning agents are in the cylinder as this will also cause premature failure of the element immersion.



Connecting to the Cylinder

Before filling and pressuring the cylinder care should be taken to check and tighten all connections including factory fitted connections as they may work loose during transportation and positioning. All of the pipe work connections on the cylinder are either 22mm compression or BSP.

22mm table X tube should only be used to connect to these connections. Good working practices should be used when preparing pipe work such as using correct pipe cutters and de-burring.

11.0. Balanced Cold Connection Continued

It is good practice to keep the length of the hot draw off pipe work to a minimum so that the time taken for the hot water to reach the outlet is as little as possible.

Do not use mixer tap or showers if they are not fed from the balanced cold connection. Outlets of this type can pass the higher cold pressure back through the hot to the cylinder and result in discharge of the relief valve. **No shut off or isolation valves whatsoever should be fitted between the expansion relief valve and the storage cylinder.**

The relief valve connections must not be used for any other purpose that they are intended.

11.1. Primary Heat Exchanger Connections

The primary connections supplied are compression connections. The primary circuit must be positively pumped, gravity circulation will not provide the required heat transfer through the coil.

The primary coil has a maximum working pressure of 3.5 bar. With pressurised primary circuits an additional expansion vessel needs to be sized to suite the circuit volume and installed along with a safety relief valve and filling loop.

The primary heat source must be complete with thermostatic temperature controls. **Uncontrollable heat sources such as wood burning store and back boilers are not suitable.** A two port motorised zone valve should be installed into the primary flow before the cylinder.

11.2. Secondary Return Circulation

Although it is not recommended for efficiency reasons certain models have a connection for a secondary circulation pump.

A WRAS approved bronze circulator suitable for use with potable water should be used and a non-return valve also installed to prevent backflow. Where a secondary circulation loop is deemed to be large an extra expansion vessel may be required to ensure expansion of the additional volume is absorbed.

11.3. Integrated Buffer Vessels

Some of our unvented cylinders are supplied complete with integrated buffer vessels for the primary heating circuits. These are either made from mild steel or stainless steel materials and connected to the system in either series or parallel depending on the type.

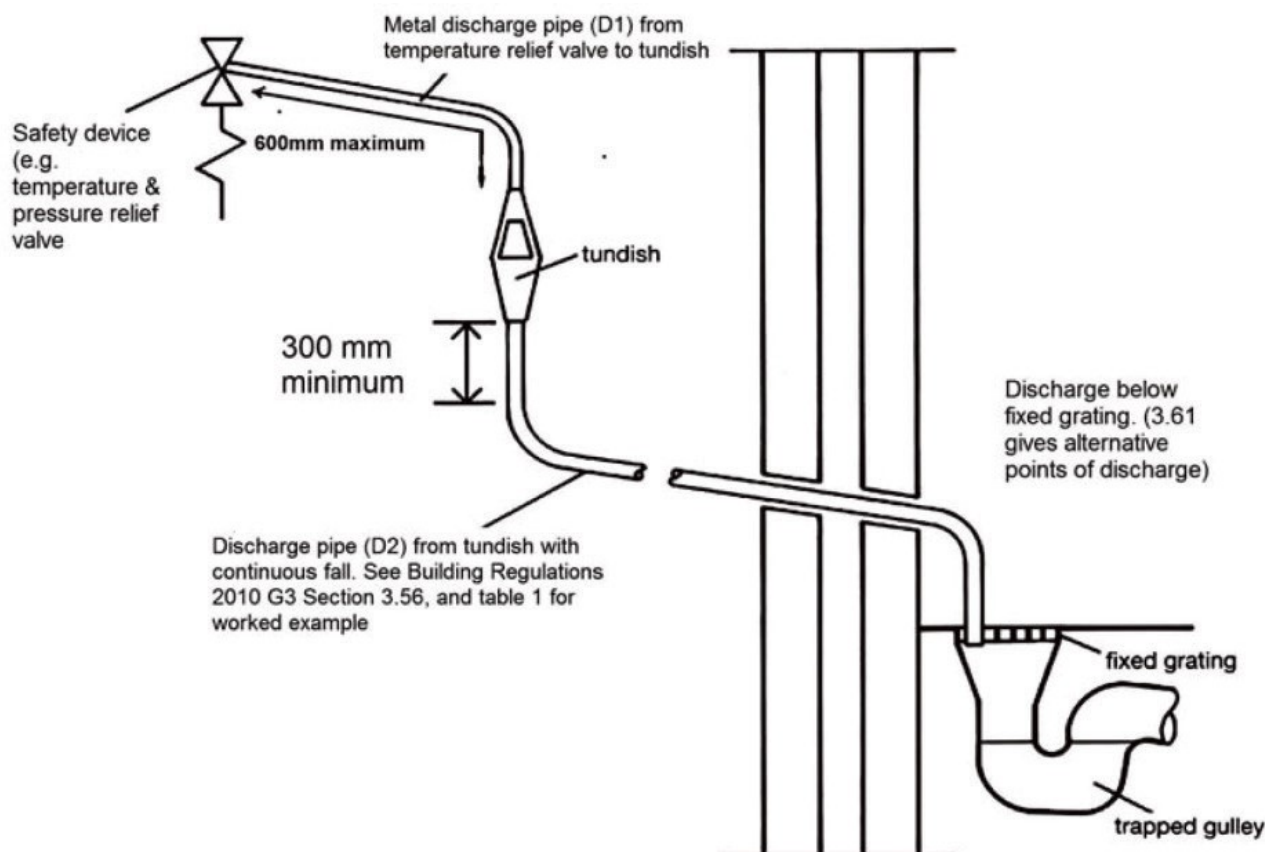
The heating circuit must be protected with an industry recognised inhibitor to prevent corrosion, the level must be checked and added during the annual maintenance of the system to prevent corrosion. On mild steel buffer vessels connected to copper pipe work then the installer must fit a brass or plastic fitting to break the copper pipe work within 300mm of the mild steel buffer connections to prevent galvanic corrosion. Please note corrosion is not covered under any manufacturing warranty as it is not deemed to be a manufacturing



Discharge Pipe Arrangement

Position the inlet control group so that the discharge from both safety valves can be joined together via a 15mm end feed Tee. Connect the tundish and route the discharge pipe. The discharge pipe work must be routed in accordance with Part G3 of schedule 1 of the Building Regulations. The information that follows is not exhaustive and if you are in doubt you should seek advice. The two safety valves will only discharge water under fault conditions. When operating normally water will not be discharged. The tundish should be vertical, located in the same space as the unvented hot water storage system and be fitted as close as possible to, and lower than, the safety device, with no more than 600mm of pipe between the valve outlet and the tundish.

Any Discharge should be visible at the tundish. The tundish should be located such that any discharge is visible. In addition, where discharges from safety devices may not be apparent, e.g. people with impaired vision or mobility, consideration should be given to the installation of a suitable safety device to warn when discharge takes place, e.g. electronically operated.



The discharge pipe (D2) from the tundish should:

- A) Have a vertical section of pipe at least 300mm long, below the tundish before any elbows or bends in the pipe work.
- B) Be installed with a continuous fall of at least 1 in 200 thereafter.



Discharge Pipe Arrangement Continued

Note: The discharge will consist of scalding water and steam. Asphalt, roofing felt and non-metallic rainwater goods may be damaged by such discharges

Note: D2 pipe from tundish is now allowed to be installed in soil stacks within premises. This activity is not recommended as discharge from T&P may continue for long periods of time. It is the installer's responsibility to ensure the discharge pipe work can support the discharge for prolonged periods. If used follow guidance on mechanical seal without water trap given in G3 Building Regulations. As discharge can be in excess of 90°C discharge into plastic pipe work is also not recommended.

The discharge pipe (D2) from the tundish should be of metal or other material that has been demonstrated to be capable of withstanding temperatures of the water discharged. The discharge pipe (D2) should be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9m long i.e. discharge pipes between 9m and 18m equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device, between 18 and 27m at least 3 sizes larger, and so on. Bends must be taken into account in calculating the flow resistance. Refer to diagram 1, Table 1 and the worked example. An alternative approach for sizing discharge pipes would be to follow BS6700 Specification for design installation, testing and maintenance of services supplying water for domestic use within Buildings.

The discharge pipe (D2) should terminate in a safe place where there is no risk to persons in the vicinity of the discharge. Examples of acceptable discharge arrangements are:

- To a trapped gully with the end of the pipe below the fixed grating and above the water seal.
- Downward discharges at a low level; i.e. up to 100mm above external surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that where children play or otherwise come into contact with discharges, a wire cage or similar guard is positioned to prevent contact whilst maintaining visibility.
- Discharges at a high level; e.g. in to metal hopper and metal down pipe with the end of the discharge pipe clearly visible or onto a roof capable of withstanding high temperature discharges of water and 3m from any plastic guttering systems that would collect such discharges.
- Device to warn when discharge takes place.

Discharge Pipe Arrangement Continued

Worked Example

The example below is for a G1/2 temperature relief valve with a discharge pipe (D2) having 4 No. elbows and length of 7m from the tundish to the point of discharge.

Maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a G1/2 temperature relief valve is: 9.0m. Subtract the resistance for 4 No. 22mm elbows at 0.8m each = 3.2m. Therefore the maximum permitted length equates to: 5.8m. 5.8m is less than the actual length of 7m therefore calculate the next largest size. Maximum resistance allowed for a straight length of 28mm pipe (D2) from a G1/2 temperature relief valve equates to: 14m. As the actual length is 7m, a 28mm (D2) copper pipe will be satisfactory.

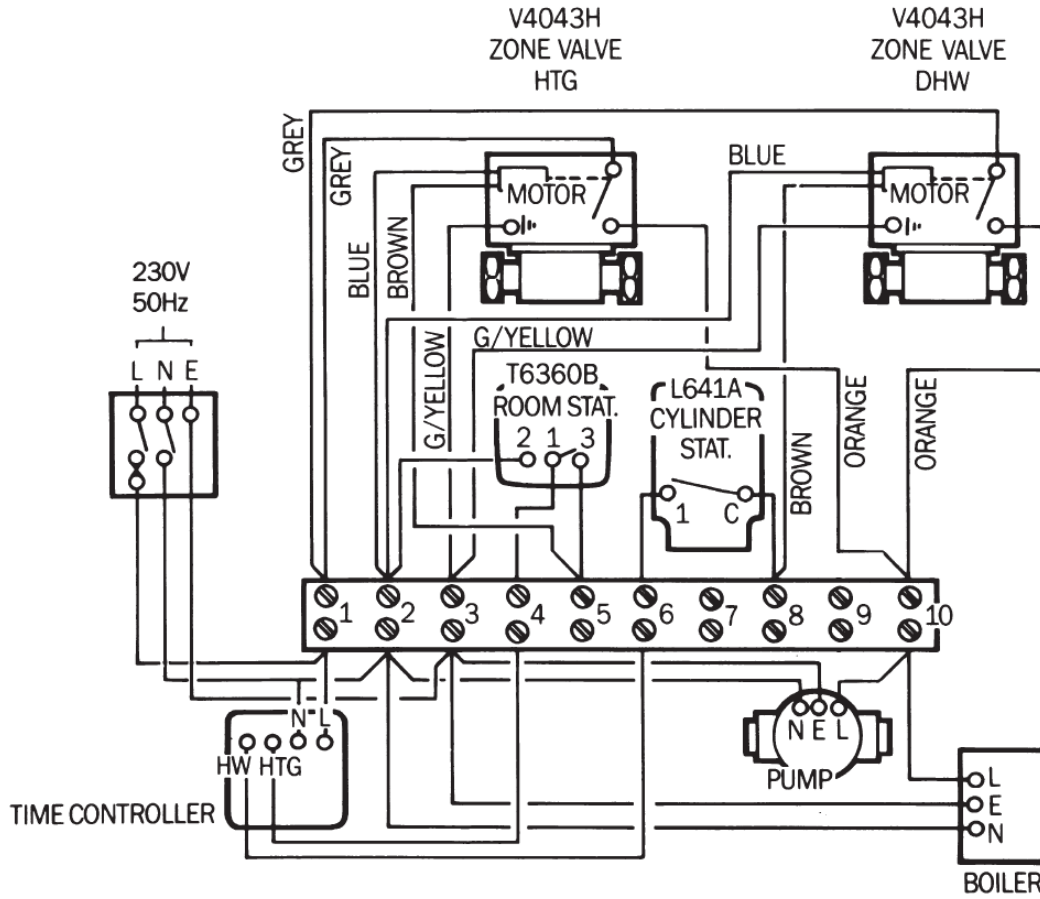
Sizing of copper discharge pipe 'D2' for a temperature relief valve with a G1/2 outlet (as supplied)

Size of discharge pipework	Maximum length of straight pipe (no bends or elbows)	Deduct the figure below from the maximum length for each bend or elbow in the discharge pipe
22mm	Up to 9m	0.8m
28mm	Up to 18m	1m
35mm	Up to 27m	1.4m

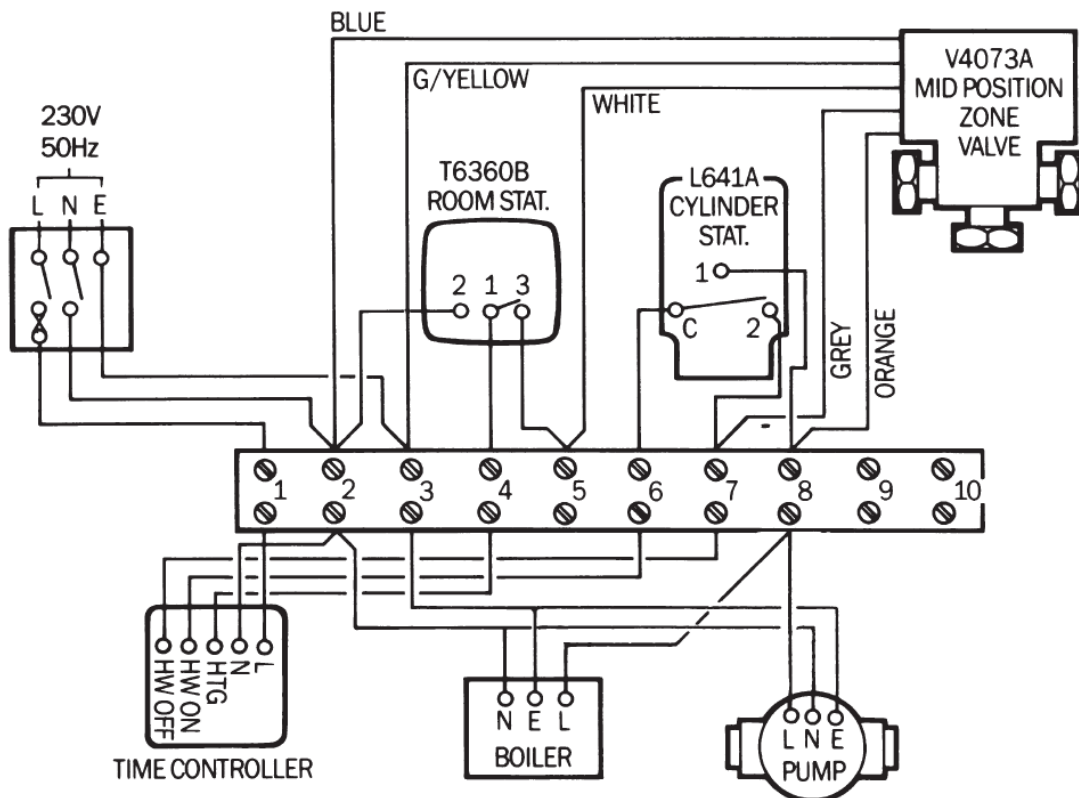
Notes



Wiring Diagram Two 2 Port Valves (S-Plan)



Wiring Diagram 3 Port Mid Position Valve (Y-Plan)



Commissioning

NOTE REGARDING PRE-PLUMBED UNITS

As part of the installation and commissioning process for pre-plumbed units, it is necessary for installers to check the pipe-work for leaks as fittings could have become loose during transportation.

Filling the cylinder

Before filling please ensure the pressure in the expansion vessel is 2.1 bar for copper vessels and 3bar for stainless steel, this is the same as the setting of the pressure reducing valve. The valve is a Schrader type like a bicycle tyre.

Please check all connections including any which are factory made for tightness such as the immersion heater, temperature and pressure relief valve before filling.

The hot tap furthest away from the Cylinder should be opened to allow the air in the pipe work to be forced out.

Gradually open the main cold isolation valve, the cylinder will begin to fill. When the cylinder is filled and water flows from the tap allow it to run for a short while to flush through any dirt or pipe jointing residue. Once this is completed close the furthest tap and open all others to remove all remaining air.

Storage Temperature

The recommended storage temperature for a WH Cylinders unvented cylinder is 60-65°C. Considerations should be made to reduce this temperature down to 50-55°C in hard water areas to help reduce scaling.

Considerations should be made for the prevention of legionella control - For details please consult the HSE legionella approved code of conduct and guidance document.

Safety Valve Checks

The safety valve correct operation should be checked prior to cylinder heat up. To do this turn the tops of both valves independently and ensure water passes through the tundish from each valve. Once this is confirmed open both valves together allowing as much water as possible to flow through the tundish as possible. At this point make sure that your discharge pipe work is free from debris and is transporting the water away to waste effectively. The valves can then be released and a check should be made to ensure they have re-seated correctly.

If water begins to discharge from either of the pressure relief valves during heat up there is a problem and heat up should be stopped immediately.

Service & Maintenance

Servicing the WH Cylinders Unvented Range

You must be a G3 qualified engineer to service and maintain an unvented domestic hot water cylinder, any spare parts required must be purchased from WH cylinders.

Safety devices should not be bypassed under any circumstances.

How to Drain the Cylinder

Before draining the cylinder the immersion heater should be isolated to prevent the element from burning out. Shut the cold feed ball valve to isolate the cylinder from the mains cold feed. Securely connect a hose pipe to the drain connection on the cylinder and take the other end to a nearby waste or soak-away. The drain point should be below the level of the cylinder to ensure that the maximum amount of water is drained from the cylinder. The nearest hot tap should be opened to allow air back into the system and prevent a vacuum being pulled in the cylinder. **Care must be taken as the draining water may be hot.**

Annual Inspection & Maintenance

The WH Cylinders unvented range requires an annual service to ensure continued safe operation and optimum efficiencies. It is essential that the following tasks are carried out by a qualified engineer on an annual basis.

1. Turn the cap of the expansion relief valve on the cold inlet manifold, water should be allowed to flow for at least 5 seconds. Upon release make sure it re-seats fully. Carry out the same procedure with the pressure / temperature relief valve. In both cases check that the discharge pipe work (D1 and D2) is carrying the water away adequately. If not check for any potential blockages and clear them where necessary. **WARNING: THE DISCHARGING WATER MAY BE HOT!**
2. Check that the factory installed immersion heater is working and the internal thermostat is controlling the water at the required temperature.
3. Test the air pressure in the expansion vessel with the pressure in the Cylinder dropped, this should be at 2.1 bar for copper vessels and 3 bar for stainless, if this is low the pressure can be topped up with a standard bicycle pump.
4. Clean the mesh filter in the cold feed combination manifold, this is accessed through the screwed plastic fitting on the top of the pressure reducing valve
5. The WH Cylinders unvented log book supplied with this unit must be completed on every service visit.



Troubleshooting

In the unlikely event of a fault with the system some basic fault finding may be required. In-depth fault finding on the unvented range should only be completed by a qualified engineer. If required please contact WH Cylinders for information on the training courses we provide.

Issue	Probable Causes	Recommended Solution
No Hot Water Coming through Taps.	Fault with primary heating system.	Check that the heat pump is operating correctly. See manufacturers service manual for further fault finding information.
Water passing through expansion relief valve.	Continues - Either the pressure reducing valve is faulty or the expansion relief valve is not re-seating correctly.	Replace pressure reducing valve or expansion relief valve.
	Intermittent - The expansion vessel air charge may have reduced or the internal diaphragm may have perished	Check expansion vessel and repair/replace if necessary
Water passing through pressure and temperature relief valve	Back pressure from higher cold feed pressure	Install a pressure reducing valve on the cold main to the property to balance both the hot and cold pressures.
	System overheat - Immersion heater or primary heat source controls have failed.	Investigate heat source thermal controls and replace where necessary.
Water passing through case	Hot draw off connection on top of cylinder passing water	Check and reseal hot draw off connection
Cloudy Water	Oxygen/Air in System	All mains pressure cylinders will release oxygen from the water when it flows. The bubbles will eventually settle after a short period of operation
No hot water flow	Cold main off	Check and open stop cock.
	Strainer blocked in pressure reducing valve.	Isolate water supply and clean
	Inlet control set may be fitted incorrectly	Check and refit as required.
Noise during draw off	Loose pipework	Install extra clips
Hot or warm water from cold tap	If tap runs cold after a minute or so the pipe is picking up heat from heating pipework	Insulate / re-route

Product Guarantee

The World Heat Cylinders Unvented Cylinder range carries a 5 year guarantee against faulty materials or manufacture provided that:

- It has been correctly installed as per this document and all relevant standards, regulations and codes of practice in force at the time
- It has not been modified in any way
- It has not been misused, tampered with or subjected to neglect
- It has only been used for the storage of potable water
- It has not been subject to frost damage
- The unit has been serviced annually
- The WH Cylinders log book has been filled in after each annual service
- The guarantee period starts from the date of purchase and no registration is required
- The system is fed from a public water supply and meets the required mineral content levels stated in our terms and conditions of sale which are available on request
- If the newly fitted water heater is not in regular use then it must be flushed through with fresh water for at least 15 minutes. Open at least one hot water tap once per week, during a period of at least 4 weeks.

Please note that invoices for servicing may be requested to prove that the unit has been serviced annually.

All components fitted to or supplied with the unvented range carry a 12 month guarantee.

Product Guarantee

LIABILITY AND GUARANTEE

9.1. Subject to the terms of these Conditions of Sale and Guarantee Terms World Heats provide Guarantees in respect of specific products as set out in this clause.

9.2. Each Guarantee is strictly conditional upon the following:-

9.2.1. Complaints must be given to us immediately, before any action is taken, as responsibility cannot be accepted if repairs or renewals are attempted on site without our written approval.

9.2.2. The unit has been installed in accordance with our installation and service instructions and all relevant codes of practice and regulations in force at the time of installation.

9.2.3. Any products connected to primary circuits such as stainless and mild steel buffer vessels and low loss headers must be protected with industry recognised central heating inhibitor which is checked on an annual basis during routine maintenance and topped up when required to ensure continued corrosion prevention.

9.2.4. All necessary inlet controls and safety valves have been fitted correctly.

9.2.5. The unit has only been used for the storage of potable water supplied from the public mains. The water quality shall be in accordance with European Council Directive 98/83 EC, or revised version at the date of installation, and is not fed with water from a private supply. Particular:

Chloride content: Max. 200 mg/l

Sulphate content: Max. 200 mg/l

Combination chloride/sulphate: Max. 300 mg/l (in total)

9.2.6 Where appropriate the unit has been regularly maintained as detailed in the installation and service instructions

9.2.7. Defects caused by corrosion, galvanic corrosion or scale deposits are not covered by any Guarantee.

9.2.8. Where we agree to rectify any defect we reserve the right to undertake the work on our own premises.

9.2.8. We will not accept any labour charges associated with replacing the unit or parts for any of the following products listed.

9.3. If the newly fitted water heater is not in regular use then it must be flushed through with fresh water for at least 15 minutes. Open at least one hot water tap once per week, during a period of at least 4 weeks.

9.3.1 Guarantees are provided in respect of specified goods supplied by World Heats as follows:-

(a) Domestic and Commercial Open Vented Cylinders and Tanks. The storage vessel is guaranteed for one year and if it proves to be defective either in materials or workmanship, we will either repair or supply replacement at our option with the closest substitute in the case of any obsolete product to any address in Great Britain.

(i) free of all charge during the first year after delivery by us.

(ii) thereafter at a charge of 100% of the then current list price and any copper price supplement and delivery charge during the second year after delivery by us and increasing by a further one-tenth on the second and subsequent anniversary of delivery by us.

(b) Primary Stores, primary buffer vessels, low loss header and all mild steel products, whether they are supplied standalone or integrated with another product of a different material. The product is guaranteed for two years and if it or any integral pipework as part of the storage vessel assembly proves to be defective either in materials or workmanship, we reserve the right to either repair or supply replacements or the closest possible substitute in the case of any obsolete product and will collect and deliver to any address in England, Wales and Scotland (excluding all Scottish Islands).

(i) free of all charge during the first year after delivery by us.

(ii) thereafter at a charge of one-fifth of the then current list price or any copper price supplement and delivery charge during the second year after delivery by us increasing by a further one-fifth on the second and subsequent anniversary of delivery by us.

(c) Stainless Unvented Cylinders World Heat guarantee the components including controls, valves and electrical parts for 12 months from the date of purchase.

IT SHOULD BE NOTED THAT THE FACTORY FITTED TEMPERATURE AND PRESSURE RELIEF VALVE MUST NOT BE REMOVED OR ALTERED IN ANY WAY OR THE GUARANTEE WILL NOT BE VALID. WORLD HEAT WILL NOT BE RESPONSIBLE FOR ANY CONSEQUENTIAL LOSS OR DAMAGE HOWEVER IT IS CAUSED.

The guarantee for the stainless steel vessel under 500 litre capacity is for twenty five years and over 500 litres 12 months from date of delivery against material defect or manufacturing faults if the original unit is returned to us AND PROVIDED THAT:

(i) It has not been modified, other than by World Heat.

(ii) It has not been subjected to wrong or improper use or left uncared for.

(iii) It has only been used for the storage of potable water supplied from the public mains, max 200mg/litre chloride.

(iv) It has not been subjected to frost damage.

(v) The benchmark service record is completed after each annual service.

(vi) The unit has been serviced annually.

(vii) Any disinfection has been carried out strictly in accordance with BS6700. If the stainless steel vessel proves to be defective either in materials or workmanship we reserve the right to either repair or supply replacements or the closest possible substitute in the case of any obsolete product and will collect and deliver to any address in England, Scotland and Wales (excluding all islands):



Technical Specifications Indirect Super Flow



Product	150ISSFLOW	180ISSFLOW	210ISSFLOW	250ISSFLOW	300ISSFLOW
Capacity (L)	150	180	210	250	300
Diameter (mm)	550	550	550	550	550
Height (mm)	1150	1350	1500	1700	2025

Nominal capacity (Litres)		150	180	210	250	300
Overall packaged dimensions H x W x D (mm)		1250 x 600 x 600	1450 x 600 x 600	1600 x 600 x 600	1920 x 600 x 600	2230 x 600 x 600
Approximate Weight (KG)	Empty	40	45	50	55	60
	Full	190	225	260	305	360
Control & relief valve pressure settings	Pressure Reducing Valve	3 bar	3 bar	3 bar	3 bar	3 bar
	Exp Vessel	12L	12L	18L	18L	24L
	T & P Valve	7 Bar	7 Bar	7 Bar	7 Bar	7 Bar
	Drain Cock	1/2"	1/2"	1/2"	1/2"	1/2"
	Air Vent	1/2"	1/2"	1/2"	1/2"	1/2"
	Y Strainer	22mm	22mm	22mm	22mm	22mm
Coil Sizes	DWH	0.9M ²	0.9M ²	0.9M ²	0.9M ²	0.9M ²
Immersion Heater	3KW Single Phase - 230V - 50hz					
Cylinder Material	Duplex Stainless Steel					
Insulation Type	Polyurethane (PU) Insulation with CO2 Blowing Agent					
Insulation thickness (mm)		50	50	50	50	50
Standing heat loss (kwh/24hr)		1.31	1.60	1.85	2.1	2.31
GWP of Insulation		0	0	0	0	0
ODP of Insulation		Less than 5	Less than 5	Less than 5	Less than 5	Less than 5



Technical Specifications

Direct Super Flow



Product	150DSSFLOW	180DSSFLOW	210DSSFLOW	250DSSFLOW	300DSSFLOW
Capacity (L)	150	180	210	250	300
Diameter (mm)	550	550	550	550	550
Height (mm)	1150	1350	1500	1700	2025

Nominal capacity (Litres)	150	180	210	250	300	
Overall packaged dimensions H x W x D (mm)	1250 x 600 x 600	1450 x 600 x 600	1600 x 600 x 600	1920 x 600 x 600	2230 x 600 x 600	
Approximate Weight (KG)	Empty	35	40	45	50	55
	Full	185	220	255	300	355
	Packaged	45	50	55	60	65
Control & relief valve pressure settings	Pressure Reducing Valve	3 bar	3 bar	3 bar	3 bar	3 bar
	Exp Vessel	12L	12L	18L	18L	24L
	T & P Valve	4 Bar	4 Bar	4 Bar	4 Bar	4 Bar
	Drain Cock	1/2"	1/2"	1/2"	1/2"	1/2"
	Air Vent	1/2"	1/2"	1/2"	1/2"	1/2"
	Y Strainer	22mm	22mm	22mm	22mm	22mm
Immersion Heater	3KW Single Phase - 230V - 50hz					
Cylinder Material	Duplex Stainless Steel					
Insulation Type	Polyurethane (PU) Insulation with CO2 Blowing Agent					
Insulation thickness (mm)	50	50	50	50	50	
Standing heat loss	1.31	1.60	1.85	2.1	2.31	
GWP of Insulation	0	0	0	0	0	
ODP of Insulation	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	



Technical Specifications

Indirect Super Flow Twin Coil – Solar Thermal



Product	150TSSFLOW	180TSSFLOW	210TSSFLOW	250TSSFLOW	300TSSFLOW
Capacity (L)	150	180	210	250	300
Diameter (mm)	550	550	550	550	550
Height (mm)	1150	1350	1550	1750	2050
A	380	450	500	580	680
B	780	850	900	980	1080

Nominal capacity (Litres)		150	180	210	250	300
Overall packaged dimensions H x W x D (mm)		1250 x 600 x 600	1450 x 600 x 600	1600 x 600 x 600	1920 x 600 x 600	2230 x 600 x 600
Approximate Weight (KG)	Empty	40	45	50	55	60
	Full	190	225	260	305	360
	Packaged	50	55	60	65	70
Control & relief valve pressure settings	Pressure Reducing Valve	3 bar	3 bar	3 bar	3 bar	3 bar
	Exp Vessel	12L	12L	18L	18L	24L
	T & P Valve	4 Bar	4 Bar	4 Bar	4 Bar	4 Bar
	Drain Cock	1/2"	1/2"	1/2"	1/2"	1/2"
	Air Vent	1/2"	1/2"	1/2"	1/2"	1/2"
	Y Strainer	22mm	22mm	22mm	22mm	22mm
Coil Sizes	DWH	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²
	Solar*	1m ²	1m ²	1m ²	1m ²	1m ²
Immersion Heater	3KW Single Phase - 230V - 50hz					
Cylinder Material	Duplex Stainless Steel					
Insulation Type	Polyurethane (PU) Insulation with CO2 Blowing Agent					
Insulation thickness (mm)	50	50	50	50	50	
Standing heat loss	1.31	1.60	1.85	2.1	2.31	
GWP of Insulation	0	0	0	0	0	
ODP of Insulation	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	



Technical Specifications

Indirect ClimaCyl - Heat Pump Cylinder



Product	150CLIMACYLSS3	180CLIMACYLSS3	210CLIMACYLSS3	250CLIMACYLSS3	300CLIMACYLSS3
Capacity (L)	150	180	210	250	300
Diameter (mm)	550	550	550	550	550
Height (mm)	1150	1300	1550	1750	2050

Nominal capacity (Litres)		150	180	210	250	300
Overall packaged dimensions H x W x D (mm)		1250 x 600 x 600	1450 x 600 x 600	1600 x 600 x 600	1920 x 600 x 600	2230 x 600 x 600
Approximate Weight (KG)	Empty	40	45	50	55	60
	Full	190	225	260	305	360
	Packaged	50	55	60	65	70
Control & relief valve pressure settings	Pressure Reducing Valve	3 bar	3 bar	3 bar	3 bar	3 bar
	Exp Vessel	12L	12L	18L	18L	24L
	T & P Valve	4 Bar	4 Bar	4 Bar	4 Bar	4 Bar
	Drain Cock	1/2"	1/2"	1/2"	1/2"	1/2"
	Air Vent	1/2"	1/2"	1/2"	1/2"	1/2"
	Y Strainer	22mm	22mm	22mm	22mm	22mm
Coil Sizes	DWH	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²
	Solar*	1m ²	1m ²	1m ²	1m ²	1m ²
Immersion Heater	3KW Single Phase - 230V - 50hz					
Cylinder Material	Duplex Stainless Steel					
Insulation Type	Polyurethane (PU) Insulation with CO2 Blowing Agent					
Insulation thickness (mm)	50	50	50	50	50	
Standing heat loss	1.31	1.60	1.85	2.1	2.31	
GWP of Insulation	0	0	0	0	0	
ODP of Insulation	Less than 5	Less than 5	Less than 5	Less than 5	Less than 5	



Technical Specifications

Indirect ClimaCyl - Twin Coil - Heat Pump & Solar Cylinder



Product	150CLIMACYLTC13	180CLIMACYLTC13	210CLIMACYLTC13	250CLIMACYLTC13	300CLIMACYLTC13
Capacity (L)	150	180	210	250	300
Diameter (mm)	550	550	550	550	550
Height (mm)	1150	1350	1500	1700	2025
A	380	993	1000	1000	1000

Nominal capacity (Litres)		150	180	210	250	300
Overall packaged dimensions H x W x D (mm)		1250 x 600 x 600	1450 x 600 x 600	1600 x 600 x 600	1920 x 600 x 600	2230 x 600 x 600
Approximate Weight (KG)	Empty	40	45	50	55	60
	Full	190	225	260	305	360
	Packaged	50	55	60	65	70
Control & relief valve pressure settings	Pressure Reducing Valve	3 bar	3 bar	3 bar	3 bar	3 bar
	Exp Vessel	12L	12L	18L	18L	24L
	T & P Valve	4 Bar	4 Bar	4 Bar	4 Bar	4 Bar
	Drain Cock	1/2"	1/2"	1/2"	1/2"	1/2"
	Air Vent	1/2"	1/2"	1/2"	1/2"	1/2"
	Y Strainer	22mm	22mm	22mm	22mm	22mm
Coil Sizes	DWH	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²	2M ² & 3M ²
	Solar*	1m ²	1m ²	1m ²	1m ²	1m ²
Immersion Heater	3KW Single Phase - 230V - 50hz					
Cylinder Material	Duplex Stainless Steel					
Insulation Type	Polyurethane (PU) Insulation with CO2 Blowing Agent					
Insulation thickness (mm)		50	50	50	50	50
Standing heat loss		1.31	1.60	1.85	2.1	2.31
GWP of Insulation		0	0	0	0	0
ODP of Insulation		Less than 5	Less than 5	Less than 5	Less than 5	Less than 5



Technical Specifications

Indirect EcoSlim



Product	150ECOSLIMPPMEUK	180ECOSLIMPPMEUK	210ECOSLIMPPMEUK
Capacity (L)	150	180	210
Diameter (mm)	475	475	475
Height (mm)	1400	1700	2000

Nominal capacity (Litres)		150	180	210
Overall packaged dimensions H x W x D (mm)		1500 x 600 x 600	1800 x 600 x 600	2100 x 600 x 600
Approximate Weight (KG)	Empty	40	45	50
	Full	190	225	260
	Packaged	50	55	60
Control & relief valve pressure settings	Pressure Reducing Valve	3 bar	3 bar	3 bar
	Exp Vessel	12L	12L	18L
	T & P Valve	4 Bar	4 Bar	4 Bar
	Drain Cock	1/2"	1/2"	1/2"
	Air Vent	1/2"	1/2"	1/2"
	Y Strainer	22mm	22mm	22mm
Immersion Heater	3KW Single Phase - 230V - 50hz			
Cylinder Material	Duplex Stainless Steel			
Insulation Type	Polyurethane (PU) Insulation with CO2 Blowing Agent			
Insulation thickness (mm)		50	50	50
Standing heat loss		1.31	1.60	1.85
GWP of Insulation		0	0	0
ODP of Insulation		Less than 5	Less than 5	Less than 5



Technical Specifications

Direct Slim



Product	150ECOSLIMPPMEDUK	180ECOSLIMPPMEDUK	210ECOSLIMPPMEDUK
Capacity (L)	150	180	210
Diameter (mm)	470	470	470
Height (mm)	1400	1700	2000

Nominal capacity (Litres)		150	180	210
Overall packaged dimensions H x W x D (mm)		1500 x 600 x 600	1800 x 600 x 600	2100 x 600 x 600
Approximate Weight (KG)	Empty	40	45	50
	Full	190	225	260
	Packaged	50	55	60
Control & relief valve pressure settings	Pressure Reducing Valve	3 bar	3 bar	3 bar
	Exp Vessel	12L	12L	18L
	T & P Valve	4 Bar	4 Bar	4 Bar
	Drain Cock	1/2"	1/2"	1/2"
	Air Vent	1/2"	1/2"	1/2"
	Y Strainer	22mm	22mm	22mm
Immersion Heater	3KW Single Phase - 230V - 50hz			
Cylinder Material	Duplex Stainless Steel			
Insulation Type	Polyurethane (PU) Insulation with CO2 Blowing Agent			
Insulation thickness (mm)	50	50	50	
Standing heat loss	1.31	1.60	1.85	
GWP of Insulation	0	0	0	
ODP of Insulation	Less than 5	Less than 5	Less than 5	

Pre-Plumbed Units - Specification List



The pre-plumbed ClimaCyl and EcoSlim stainless steel unvented range is manufactured from high quality material both internally and externally.

Every cylinder is manufactured to an ISO9001 quality management system ensuring consistent wiring and plumbing.

Equipment Supplied

- Cold Feed Manifold
- Primary Circulator
- 2 x 22mm Zone Valves
- Dual Thermostat
- Auto Bypass Valve
- Wiring Centre
- Tundish
- Auto Air Vent
- Temperature & Pressure Relief Valve
- Secondary Expansion Vessel
- Heating Drain Connection
- Boiler Flow & Return Connections
- Cold Feed Drain Connection
- Two Channel Time Clock
- Wireless Programmable Thermostat



WORLD HEAT CYLINDERS



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