

Connection to Metric Copper Pipe

Hep₂O[®] fittings have been designed to form reliable joints with metric copper tube which conforms to BS EN 1057 - R520. Copper pipes should be cut with a wheel cutter. Before jointing, copper pipe ends should be inspected to ensure they are free from burrs or swarf (which could damage the 'O' ring).

It is also possible to connect 10mm BS EN 1057 - R220 copper tube into Hep₂O[®] fittings providing the tube end is carefully prepared. R220 copper tube is 'soft' and therefore susceptible to becoming mis-shaped or dented if it is not handled with care on site. Therefore the R220 tube end should be inspected for any signs of damage prior to jointing, as deformity of the tube could damage the 'O' ring whilst jointing, or otherwise affect the joint seal.

R220 tube should be cut with a mini wheel cutter, and then a chamfer should be filed on the pipe. Rinse away the remainder of any copper filings and dry off.

Connection to Imperial Copper Pipe

When connecting to 3/4" imperial copper Hep₂O[®] offers a special Straight Adaptor (HX3A/22) which accepts 22mm pipe at one end and 3/4" imperial at the other end.

See also fitting detachment procedure in System Modification & Maintenance (page 52).

Standard Hep₂O[®] fittings can be used to connect 3/8", 1/2" and 1" imperial pipes.



Cut copper pipe using a wheel cutter



Inspect ends to ensure they are free from burrs or swarf



Straight Adaptor HX3A/22



Insert copper end protector (HX61)



Mark joint depth on copper pipe before jointing



Push pipe firmly into fitting



Tug back on the pipe to ensure grab wedge engages properly



Connection to Compression Fittings

Hep₂O[®] pipe is suitable for connecting to compression fittings complying with BS EN 1254.

Cut the Hep₂O[®] pipe with the recommended cutters and proceed as shown below.



Insert support sleeve into pipe



Apply PTFE if required



Ensure pipe is fully inserted



Tightening nut

Connections Adjacent to Capillary Joints

When using Hep₂O[®] pipe or fittings adjacent to capillary joints it is preferable to carry out the soldering work before the Hep₂O[®] is installed.

If it is not possible to undertake the work in this sequence then the following precautions should be observed:

- do keep flame or soldering irons away from Hep₂O[®].
- do not allow flux to run onto Hep₂O[®]. Flux runs inside pipe may occur during soldering. This effect can be reduced by not using excessive amounts of flux and by applying flux to copper tube end only.
- do not allow hot solder to come into contact with Hep₂O[®].
- to prevent overheating of Hep₂O[®] by conduction of heat along copper pipe, where necessary, wrap a damp cloth around copper pipe to minimise this effect.
- systems should be flushed with water to remove any internal flux residues.

Connection to Chrome Plated Copper or Stainless Steel Pipe

Hep₂O[®] fittings cannot be connected directly to chrome plated copper or stainless steel, because of the relative surface hardness of these materials. Therefore compression fittings should be used.

Connection to Brass Spigots

The only brass spigots which are suitable for jointing into Hep₂O[®] fittings are those within the Hep₂O[®] range. Brass spigots designed for compression or capillary joints do not have the necessary joint grooves and are too short.

Connection to Acorn[®]

Hep₂O[®] is fully compatible with its predecessor, Acorn[®] system previously manufactured by Bartol, a Hepworth company.

Pre-1984 Acorn[®] 22mm pipe was manufactured with a thicker wall and requires a different support sleeve. If carrying out remedial work on such an Acorn[®] system please contact our Technical Advisory Service.

Internal components of current Hep₂O[®] fittings (Cap, BiTite Grab Wedge, Wedge Support Ring and 'O' Ring) are not in any way compatible with original Hep₂O[®] fitting components (Cap, 'O' Ring, Spacer Washer and Grab Ring) and therefore bodies and components must not be mixed.

However, Hep₂O[®] Pipe (Standard or Barrier) is fully compatible with all versions of Hep₂O[®] fittings.

For further advice and information contact Hepworth Plumbing Products' Technical Advisory Service.

Connection to Plastic Pipes

Hep₂O[®] should not be used in conjunction with other manufacturers' plastics pipe and fittings as dimensional tolerances and quality control cannot be guaranteed by Hepworth Plumbing Products.

Connection to Incoming Service Pipes

Water may enter a property through a variety of pipe materials. In recently developed properties the water is typically brought to a residence in blue MDPE (medium density polyethylene) pipe. However, in renovation of older properties this pipe may well be made of one of a number of metals. The method of converting from the service pipe to Hep₂O[®] differs depending on the material of the service pipe.

The following guidance is applicable to blue MDPE pipe to BS 6572.

For 20mm MDPE use:

- a polyethylene 20 x 1/2" BSP male adaptor (code 20PEAM05).
- a MDPE pipe liner (code 20PELIN).
- Hep₂O[®] female adaptor (code HX30/15).
- Hep₂O[®] stopcock (code HX36/15).

Refer to Figure 5.

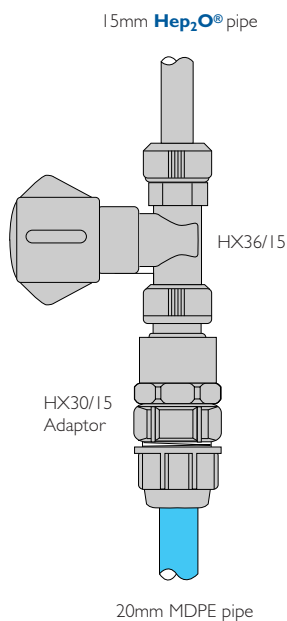


Figure 5
Rotatable stopcock

For 25mm MDPE use:

- a Hep₂O[®] x MDPE stopcock (code HX43/22).
- a MDPE pipe liner (code 25PELIN).

Refer to Figure 6.

Alternatively if you wish to take advantage of the rotatability of Hep₂O[®] joints by turning the stopcock towards the wall when not in use, then use:

- a polyethylene 25 x 3/4" BSP male adaptor (code 25PEAM07).
- a MDPE pipe liner (code 25PELIN).
- Hep₂O[®] female adaptor (code HX30/22).
- Hep₂O[®] stopcock (code HX36/22).

Refer to Figure 7.

Details of MDPE pipe, fittings and jointing instructions are contained in separate literature which can be obtained by contacting our Literature Service Hotline Tel: 01709 856408 Fax: 01709 856409.

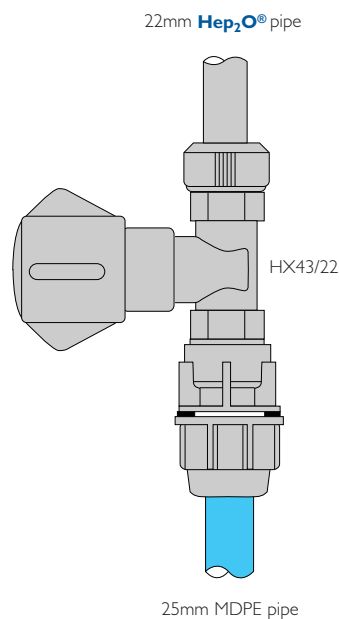


Figure 6
Non-rotatable stopcock

Consideration should also be made of the following:

- where a common supply pipe serves two or more dwellings a double check valve (code HX72) is required directly after the stopcock in each dwelling to comply with Water Byelaws.
- a drain-cock (code HX32) should be fitted immediately after the stopcock or after a double check valve where provided to comply with Water Regulations.
- for sealing screwed joints on adaptors apply PTFE to threads.

Alternatively a PE (polyethylene) to copper compression stopcock can be used. The information on using compression fittings on Hep₂O[®] pipe should be carefully noted. See page 47.

For metal pipes an appropriate stopcock should be used with a compression outlet to 15 or 22mm copper. Hep₂O[®] can then be fitted directly to these outlets carefully noting details in Connection to Compression Fittings. See page 47.

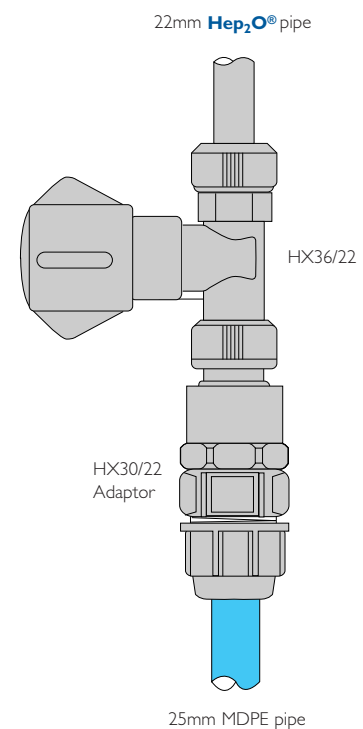


Figure 7
Rotatable stopcock



Connection to Steel Pipes and Threaded Bosses

In order to facilitate connection to male and female iron threads, four adaptors (HX28/HX29 Socket Adaptors, HX31/HX30 Spigot Adaptors) are available in the Hep₂O® range. This enables connection to a wide range of different materials.



HX28



HX29



HX30



HX31

Connection to Appliances

When connecting to appliances and dishwashers always use Hep₂O® appliance valves (HX38C/15, HX38H/15). The Hep₂O® pipework used to service these appliances should be clipped in accordance with the recommended clipping distances using screw-type clips (HX85). Refer to page 66.



Pipe Clip - Screw type HX85



Appliance valve HX38 (Cold or Hot)



Connecting appliance valves

Connection to Draw-off Taps

When connecting to draw-off taps having a male threaded 'tail' use either the Demountable or SlimLine Hep₂O® tap connector. Do not use any jointing compound on the jointing shoulder, use only the washer provided. When using the wall plate elbow or the 1/2" x 3/8" BSP adaptor the threads should be sealed by applying PTFE tape to the male threads.



Demountable fitting HD25



Demountable fitting HD27



SlimLine fitting HX25



SlimLine fitting HX27



Wall Plate Elbow (auxiliary fitting HX6)
(tap not supplied)

Connection to Ancillaries (Pumps, Valves, etc.)

When connecting Hep₂O[®] to ancillaries it is important to follow the guidance in the section 'Connection to Compression Fittings' (Page 47). Due to the flexibility of Hep₂O[®] the pipework must be clipped adjacent to the outlets of the pumps and valves using Hep₂O[®] screw pipe clips (code HX85). This ensures adequate support and reduces vibration in the majority of cases.

Where it is felt that the weight of the pump merits extra support, metal brackets should be used.

Where the size of the pump and/or valve requires fixing at a greater distance from the wall than can be accommodated by the pipe clip alone, then this can be augmented with a pipe spacer (code HX86), which will allow a greater 'stand-off' distance whilst maintaining security.



Connection to pump

Connection to Storage Vessels and Radiators

When connecting Hep₂O[®] pipe to cylinders, radiators etc., it is always recommended that Hep₂O[®] fittings are used wherever possible.

The Hep₂O[®] range of fittings includes thermostatic, wheel head and lockshield radiator valves, double check valves, tank connectors, gate valves, stopcocks and cylinder connectors.

If the use of compression fittings is unavoidable then the jointing instructions outlined in the section, 'Connection to Compression Fittings' (page 47) should be carefully followed.

Do not use jointing compound on the jointing shoulder of the cylinder connector; use only PTFE tape.

Do not use any jointing compound when fitting tank connectors, use only sealing washers (not provided).

Refer to 'Design Considerations', page 70, for information on cylinder cupboard requirements.



Tank connector



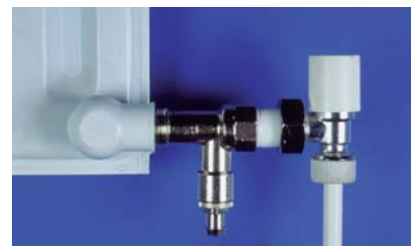
Cylinder connector



Radiator or Lockshield Valve (HX73)



Thermostatic Radiator Valve (HX71)



Radiator or Lockshield Valve (HX73)
+
Straight Radiator Connector (HX77)
+
Radiator Draincock (HX23)

Connection to Boilers and Heaters

Where boilers incorporate a high limit cut out thermostat, pump overrun device, and have connections outside the boiler casing 350mm from the heat source, direct connection can be made to Hep₂O®. Typically these boilers contain a copper heat exchanger and are low water content boilers. See Figure 8.

Where any one of the above criteria for direct connection to a boiler cannot be met a minimum one metre run of copper pipe should be installed between the boiler and the start of the Hep₂O® system. See Figure 9.

In all cases (including instantaneous water heaters, caravan heaters etc.) care should be taken to ensure that appliances have the appropriate thermostatic controls and cut outs to ensure that operating conditions do not exceed the temperature and pressure limits laid down for Class S pipe (see Table 2, page 41). For any type of back boiler all water connections should be extended from the appliance to the outside of the fireplace opening in copper tube.

In these instances, where the heat output may be uncontrolled, a minimum one metre run of copper pipe should be used between the boiler and the start of the Hep₂O® system.

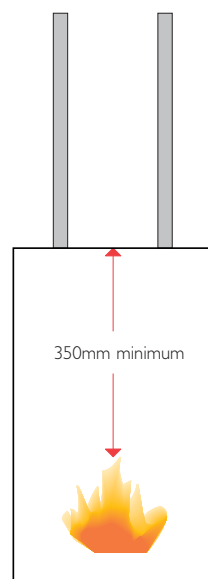
Any gravity circuit of a solid fuel boiler should always be installed in copper.

Regulations require that metal pipe be used as discharge pipe from temperature/pressure relief valves on unvented water heaters, to or from a tundish or from safety valves on sealed central heating systems. On sealed systems where the safety valve is not provided within the boiler casing, the pipe between the safety valve and the boiler should be in copper.

All boiler connections should be made in accordance with the requirements of BS 5955: Part 8.

On heating systems where normal circulation may be drastically reduced (eg. thermostatic radiator valves fitted throughout), then a bypass should be fitted to the circulation pipework preferably controlled by an automatic differential pressure bypass valve.

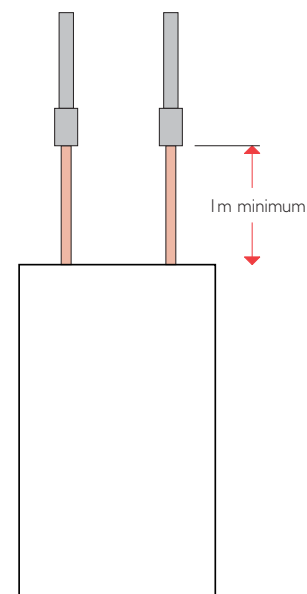
During commissioning it is important to ensure that all trapped air is purged from the heating system before the boiler is operated. 'Pockets' of air can affect proper circulation and impair the correct operation of boiler temperature controls that could cause severe overheating.



Boiler with:

- high limit stat.
- pump over-run.
- connections outside casing.
- connections 350mm from heat source.

Figure 8
Direct connection to Hep₂O®



Boiler with:

- uncontrolled temperature (i.e. solid fuel).
- connections within casing (cast iron heat exchanger).

Figure 9
Connection via copper pipe