

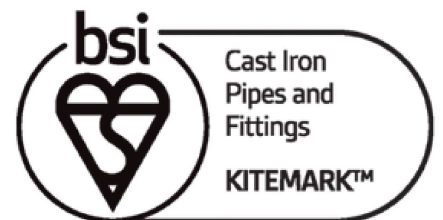
HALIFAX SOIL & DRAIN



Cast Iron Mechanically Jointed System

INSTALLATION

Fully Compliant with BS EN 877:1999 + A1:2006



KM 684754

BS EN 877

Safe Practice

The first consideration for any on site installation work should be safety. Information relating to managing health and safety in construction can be found in Guidance on the Construction (Design and Management) Regulations 2015.

L153

Key Elements to Securing Construction Health & Safety

The key elements include:

- a) Managing the risks by applying the general principles of prevention
- b) Appointing the right people and organisations at the right time
- c) Making sure everyone has the information, instruction, training and supervision they need to carry out their jobs in a way that secures health and safety
- d) Duty holders cooperating and communicating with each other and coordinating their work; and
- e) Consulting workers and engaging with them to promote and develop effective measures to secure health, safety and welfare



Joining Method for Couplings

Ductile Iron Couplings -

Step 1

Check the components – two-part coupling and EPDM gasket, 2 x M8 bolts and nuts (up to 100 mm diameter pipes, 4 x M8 nuts and bolts for 150mm diameter and above). Ensure the 2 grub screws for electrical continuity are present (shown below inserted into casting).



Step 2

Fit the gasket to the lower pipe/fitting first, line up the upper component and fit carefully into place. Make sure the two components are square and parallel and line up correctly with the gasket.

Step 3

Line up the two parts of the coupling ensuring they fit correctly over the gasket. At this point check that the two grub screws for electrical continuity do not protrude on the inside of the coupling.



Step 4

Bolt the two parts of the coupling together and gradually tighten, ensuring an equal distance is maintained during assembly. Do not over tighten or tighten only one side at a time. We recommend the use of a torque wrench at 15Nm.

Step 5

Adjust the grub screws until each is lightly touching the pipe then give them a final half turn. This normally will be adequate to allow metal to metal contact and provide electrical continuity – do not over tighten.



Rapid Connect Couplings -

Step 1

Rapid connect pipe coupling supplied complete with EPDM gasket and electrical continuity provision



Step 2

Push the coupling onto the end of the pipe or fitting up to the gasket's central register.

Step 3

Push the next pipe or fitting into the coupling making sure that the cut pipes are square.



Step 4

- Tighten the set screw using;
- 6mm allen key /socket adaptor (50 – 150mm)
 - 8mm allen key/socket adaptor (200mm)

Note: due to the block tightening feature the joint cannot be overtightened and this also ensures the sharp edges of coupling cut through the painted finish to provide electrical continuity

Tools for Coupling Assembly

Rapid connect pipe coupling supplied complete with EPDM gasket and electrical continuity provision

Description	Code
1/2 Inch Drive Ratchet Spanner	HSD001
6mm Allen Socket Adaptor	HSD003
8mm Allen Socket Adaptor	HSD004
14mm Socket - for Access Door Bolts	HSD002

Push Fit Couplings -

Step 1

Apply a small amount of lubricant [*HS0001 / HD0001*] to the rubber gasket and to the spigot of the pipe/fitting to be inserted.



Step 2

Push the socket onto the spigot and ensure that the spigot is fully inserted and abutting the central register. It is important to ensure that the socket and spigot are correctly aligned before beginning to ease the connection.

Step 3

Lubricate the other gasket and spigot and push the components together to form a joint as above.



Step 4 - (Halifax Soil Push fit Coupling Only)

Adjust the grub screws until each is lightly touching the pipe then give them a final half turn. This normally will be adequate to allow metal to metal contact and provide electrical continuity – do not over tighten.

Installation Above Ground

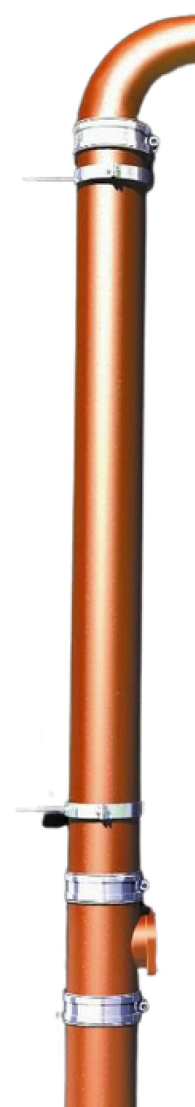
Securing Brackets to Walls

Securing bracketry to supporting structures is primarily dependent upon the condition of the proposed structure. To this end, the methods employed for securing the bracketry should be decided upon by the designers and installers for each project on an individual basis dependent upon the design and condition of the structure in the desired location.

It would be advisable to check the fixing requirements for each bracket (See HFDS 107 – Product Tables) prior to placement of order to ensure suitability for the application and availability of the required fixings.

Vertical Pipework Support

For vertical soil and rainwater stacks load bearing brackets should be provided every 3m maximum at each floor level. These brackets should be securely fixed and tightened as the installation proceeds so as to adequately support the pipework and its contents and prevent unnecessary load at the base of the stack. Where fittings are installed within the vertical stack it is recommended that additional brackets are provided to ensure alignment of the pipework.



Stack Support Pipe

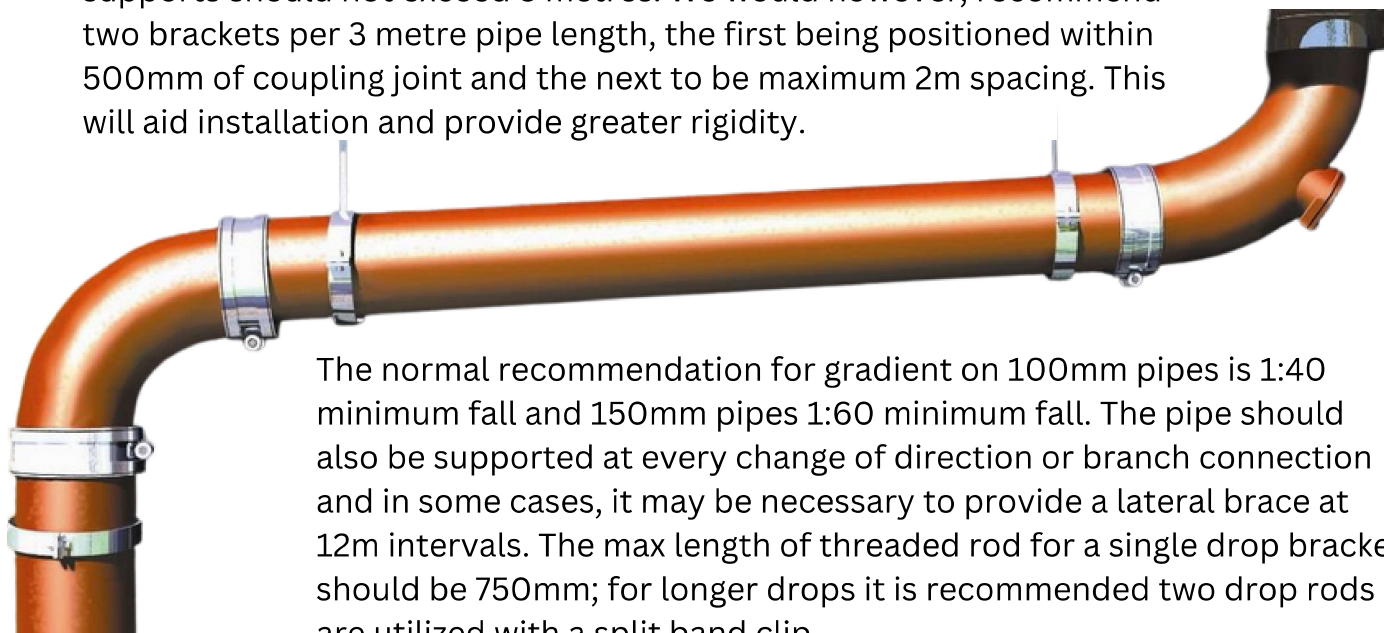
On multi storey buildings there may be a requirement for additional support in the form of stack support pipes, see table below. When installing stack support pipes these should be positioned at ground floor and every subsequent fifth floor where average floor to ceiling height is 2.5 metres.

We recommend either the Halifax Stack Support Console combined with a Stack Support Pipe or alternatively Cantilever Arms supporting a Stack Support Bracket and Stack Support Pipe (see illustrations for both).

Installation Above Ground

Low Gradient Horizontal Pipework Support

BS EN 12056-2 Code of Practice advises the distance between pipe supports should not exceed 3 metres. We would however, recommend two brackets per 3 metre pipe length, the first being positioned within 500mm of coupling joint and the next to be maximum 2m spacing. This will aid installation and provide greater rigidity.



The normal recommendation for gradient on 100mm pipes is 1:40 minimum fall and 150mm pipes 1:60 minimum fall. The pipe should also be supported at every change of direction or branch connection and in some cases, it may be necessary to provide a lateral brace at 12m intervals. The max length of threaded rod for a single drop bracket should be 750mm; for longer drops it is recommended two drop rods are utilized with a split band clip.

Acoustic Dampener

For best results the dampener bracket (HSD6703) should be used in conjunction with the Bismat bracket as indicated by the figures in the Technical Submittal Document (HFDS 075).

The dampener should be positioned with a 10mm gap between it and the supporting structure. A 16mm gap should then be left between the dampener and Bismat bracket. See image for indicative positions.



Halifax Manifold Connection

This multi-waste connector allows up to 3 waste pipes from various appliances e.g. sinks, basins and showers to be connected at a single internal point above finished floor level. The rubber grommets in the manifold connector may be cut to accept 32 & 40mm plastic or 35 and 42mm copper. The manifold body is connected to the stack by standard ductile iron couplings (HS4012) or stainless-steel couplings (HS4002).



- 1)** Remove grommets and pierce appropriate size hole to suit waste pipe. If any of the connections are not to be used save a grommet for blanking off.
- 2)** Apply a small amount of silicone grease (not supplied) to the outside of grommets and re-fit into manifold. Ensure the grommet retaining groove is correctly located in the manifold casing.
- 3)** Lubricate pipe ends before insertion into grommet with a rotational movement. We recommend pipe ends are chamfered to ease assembly.
- 4)** Any blank grommet must be fitted as point 2 above.

WC Connection

The Halifax system accepts Multikwik and similar push fit WC connectors

PVC Above Ground Soil Systems

100 & 150mm Halifax to PVC use standard Ductile Iron or Stainless-Steel Couplings

Conventional Cast Iron Soil/Drain

To connect Halifax into a conventional socket use a traditional caulked joint.

Below Ground Clayware

Halifax can be connected to a clay or earthenware socket using a traditional cement joint. When connecting to Supersleve/Hepsleve use the appropriate adaptor coupling by Hepworth.

Roof Outlets / Floor Drains

In most cases our standard couplings will connect directly onto the majority of products available on the market, but if in doubt, contact us to check on compatibility.

Installation Below Ground

Buried Pipelines

While both pipe systems use the same 2-pack Epoxy coating, the coating used on the Halifax Drain system is thicker than that used on the Halifax Soil system and as such, has a higher resistance to chemical attack. This makes the Halifax Drain system more suited to being buried in the ground. It should be noted however that where the products are to be placed in particularly aggressive soils (e.g. peat) where the PH value is less than 6, it is recommended that the pipe system be encased in polyethylene sleeves for additional protection.

Trench Preparation

Halifax drainage may be laid directly into an accurately trimmed trench allowing 50mm clearance beneath each coupling joint. The bottom of the trench should be flat to provide continuous support. Where accurate trimming cannot be achieved due to the subsoil condition, it will be necessary to excavate an additional 100mm to allow a granular bed to be laid whilst still maintaining the 50mm clearance beneath each joint.

Concrete Encasement

In a situation where the pipes need to be encased in concrete, provided the applied coating is dense, undamaged and free from bare patches and lack of adhesion, they will form a barrier between the cast iron and the concrete therefore making either system suitable for use. However, due to the thicker coating mentioned above, if we were to recommend a product system to be completely encased in concrete (as opposed to a short length passing through a concrete wall/foundation), the Halifax Drain system would be the most appropriate. In the event that the concrete encasement becomes damaged or is not fully coherent, the painted surface of the casting may be required to form a barrier between the otherwise exposed cast iron and any encroaching aggressive substances.

Bedding in Concrete

When a concrete bed is required prepare the trench as above to provide 100mm of concrete under the pipe but support the pipe on a compressible material (expanded polystyrene) either side of each joint. If the pipework is being surrounded in concrete provision should be made for a flexible joint, within the concrete, at 5m intervals and placed next to a pipe joint. This should be made of suitable compressible material and cover the full cross-sectional area of the concrete. It is recommended that inspection and testing of the pipework is completed in sections prior to haunching and surround with concrete.

Settlement

Pipework leaving buildings and manholes which may be subject to settlement should incorporate a minimum of two joints close to the point of exit at a maximum of 600mm apart. This will provide a short length of pipe to act as a “rocker pipe” and in areas where large settlement is expected more than one may be required.

Under the provisions of BS EN 877, the couplings within the system are designed to function with up to 3° of deflection. It is this allowance along with the short pipe length which permits the movement due to settlement without impeding the function of the pipe system.



Depth of Pipework

Halifax drainage may be installed under most buildings without additional protection, but when laid under roads with less than 1.2m cover and in areas which are subject to special loadings it is recommended that extra protection be considered.

Pipe Falls

The pipework gradient should provide a self-cleaning action under normal discharge conditions. For flows of less than 1 litre/sec. gradients of 1 in 40 for 100mm pipe and 1 in 60 for 150mm pipe are usually satisfactory; but in any case, the gradients should not be less than 1 in 80 for 100mm pipe and 1 in 150 for 150mm pipe.

Provision for Access

Access is required on drainage pipelines to enable the rodding and clearing of any debris and may be provided by manholes, chambers, access fittings or rodding eyes/roddable gullies – the latter allowing downstream access only.

As a general guide, no part of a drain should be further from a manhole than 45 metres and the distance between manholes should not exceed 90 metres. Where one drain connects with another drain without provision of access in the form of a manhole or inspection chamber, access should be provided on the branch drain within 12 metres of the junction. Where the drainage pipeline changes direction either vertically or horizontally; it is recommended an access fitting be incorporated in the design.



Puddle Flanges

In basement areas where pipes pass through external walls it may be necessary to install a puddle flange. For locations which are below the water table or in areas liable to flooding, puddle flanges will reduce the risk of water entering the building.

Denso tape or similar should be wrapped around the pipe before bolting on the two-piece puddle flange; this will ensure a watertight seal is achieved.

When pipes are installed through pipe sleeves which have been cast into the concrete wall section, it will be necessary to seal the gap between the sleeve and pipe passing through it with a mastic/ sealant.

Cutting Pipes

Halifax Soil & Drain pipes are easy to cut when shorter lengths are required. We recommend the use of a powered chop saw or disc cutter with the appropriate metal cutting disc fitted” (a manual hacksaw is not practical!) Any burrs or sharp edges should be removed prior to installation to avoid damage to the gaskets. Please see note below regarding paint touch-up.

Caution: – Ensure that eye, respiratory and hand protection are worn at all times when cutting pipes. If power tools are to be used, ensure the area is free from flammable materials/chemicals which may ignite from sparks.

Touching-Up

Any areas of exposed metal (including cut ends of pipes) should be touched up prior to installation. First any dust, debris or loose paint should be removed then the area should be lightly sanded to ensure good adhesion of paint. The area should then be touched up using a high-quality paint suitable for outdoor use on metallic surfaces.

Modifications & Testing of Installations

Modifications to Existing Installations

1. Measure the height of the fitting to be inserted into the existing stack. Add 15mm to this height to allow space for the jointing system.
2. Ensure sufficient support is present in the stack both above and below the location to be cut. If there is any doubt as to the support in place, do not begin modification works.
3. Mark locations on pipe stack to be cut.
4. Cut section out of pipe using a cutting disk or rotary grinder.
5. Remove any burrs, cutting dust and other debris paying particular attention to the sealing zones (approximately 50mm either side of the joint locations)
6. Cut ends should be coated as per the touch-up procedure. Ensure coating is fully cured before proceeding with modifications
7. Insert exposed ends of pipes into coupling gaskets making sure that the central register in the gasket is firmly seated against the pipe ends.
8. Insert fitting into gap. Make sure that the gasket is correctly seated against the fitting both top and bottom and that the central register of the coupling is firmly seated against the pipe ends.
9. Loosely assemble the coupling halves around the gasket and check alignment of the pipe stack.
10. Tighten bolts in couplings to the recommended torque settings (15Nm for Ductile Iron Couplings). Ensure that each side of the coupling is tightened evenly.
11. Conduct testing of the new joints & fitting to ensure modification has been successful.

Testing of Sanitary Pipework

In accordance with The Building Regulations 2010 – Approved Document H: Drainage and Waste Disposal, clause 1.38:

“Air Tightness.

The pipes, fittings and joints should be capable of withstanding an air test of positive pressure of at least 38mm water gauge for at least 3 minutes. Every trap should maintain a water seal of at least 25mm. Smoke testing may be used to identify defects where a water test has failed. Smoke testing is not recommended for PVC-U pipes.”

Testing of Foul Drainage Pipework

In accordance with The Building Regulations 2010 – Approved Document H: Drainage and Waste Disposal, clause 2.61:

“Water Test.

For pipes up to 300mm diameter the system should be filled with water up to a depth of 5m above the lowest invert in the test section and a minimum depth of 1m measured at the highest invert in the test section. This may then be left for a period (one hour is generally sufficient) to condition the pipe. The test pressure should be maintained for a period of 30 minutes, by topping up the water level as necessary so that it is within 100mm of the required level throughout the test. The losses per square metre of surface area should not exceed 0.15 litres for test lengths with only pipelines or 0.20 litres for test lengths including pipelines and manholes, or 0.40 litres for tests with only manholes and inspection chambers alone (i.e. no pipelines).”

In accordance with The Building Regulations 2010 – Approved Document H: Drainage and Waste Disposal, clause 2.62:

“Connectivity.

Where separate drainage systems are provided (see Approved Document H5), connections should be proven to ensure that they are connected to the correct system.”

