Installation guide

Generally

The following standards will assist designers select the correct size of pipe system for a particular application: BS EN 12056: gravity drainage systems inside buildings. BS EN 752: drain and sewer systems outside buildings. Installation should be in accordance with the manufacturer's recommendations but also BS EN 12056–2, BS EN 12056–3 and BS EN 752.

Pipe cutting

If it is necessary to adapt or shorten pipe lengths then whatever tools are used, the cut must be square, clean, ready chamfered and free from burrs. Suitable cutters and whole cutter sets are available from ACO (see page 46).

Pipe weights

Engineers should be aware of minimum and maximum weights when designing vertical stack and horizontal pipe run systems. Generally, when the pipe is completely full of water, then the vertical deflection of the pipe between brackets should not exceed 1.5mm. The discretion of the installer should be applied in each instance to ensure that the pipe is adequately supported.

As a guide, use the table below for bracket spacing on horizontal pipes.

Pipe Ø (mm)	Vertical Bracket Spacing (m)
50	2.0
75	2.3
110	2.5
125	2.5
160	2.5
200	2.5

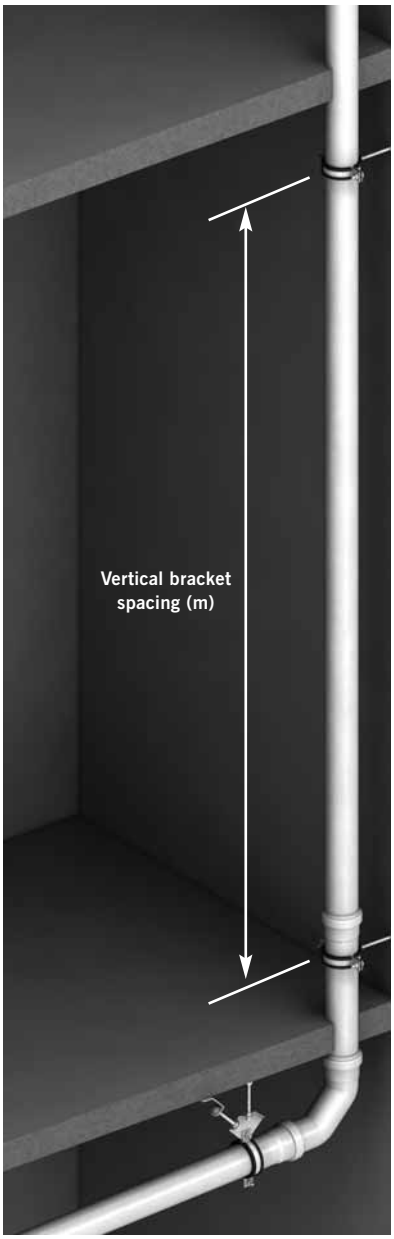
Table 77

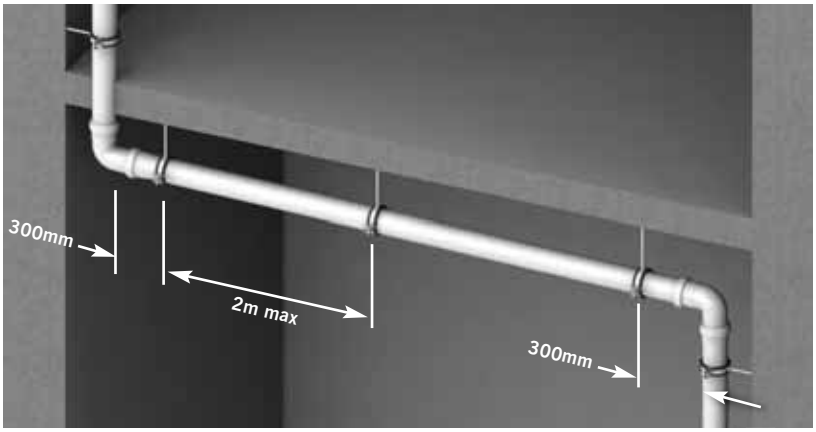
Horizontal pipe runs

Horizontal pipework should be supported with at least two brackets per 3 metre pipe length. Brackets should be within 300mm of the pipe joints and approximately at the midpoint of the pipe length, but not more than 2 metres from the next bracket. Additional brackets should be used at changes of direction and at junction points immediately downstream of the fitting. Where long pipe runs occur i.e. greater than 15 metres, a fixing arm should be attached to the bracket to prevent pendulum movement within the system.

Vertical pipe stacks

When designing a rainwater or soil and waste system, pipework must be supported and using the vertical bracket spacing in the table below should be fixed to the wall not less than 30mm to facilitate maintenance and painting. Allow at least one bracket per fitting preferably at the downstream end of the fitting with additional brackets at changes of direction or junction points.





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Pipe jointing

The assembly of pipe joints is quick and straightforward requiring only a light application of lubricant available from ACO to the chamfered pipe end. Ensure that the mating ends of the pipes and fittings are clean and free from contamination. Push-fit the pipe end into the socket but do not push fully home into the socket recess so as to allow for thermal expansion within the system.

Seal assembly

The double lip seal is easily removed and replaced from the female end of all pipes and fittings. This allows the on-site upgrade of seal material from EPDM or Viton without the need for special tools.

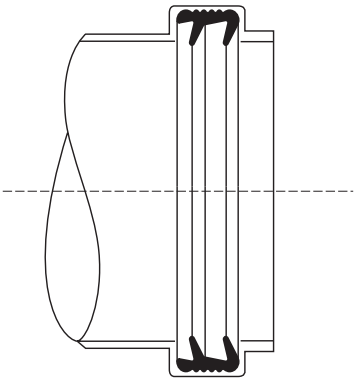
Seal installation notes

1. If changing the seal, ensure the correct size and grade of seal is selected for the application. For reference, EPDM seals are BLACK and Viton seals are GREEN. If in doubt, contact the ACO Building Drainage Helpline on 01462 816666 for assistance.

2. Ensure the seal itself and the zone around the pipe and/or fitting receiving the seal is clean, dry and free from dirt, dust or particulates.

3. Insert the dry seal into the pipe/fitting recess as shown in the diagram below. NOTE: the seal MUST be inserted so the double sealing lips face away from the opening of the pipe/fitting.

4. Do not use tools to aid the assembly process otherwise damage to the pipes, fittings and seals may occur.



Seal integrity

Providing the installation guidelines are followed and that all reasonable precautions are taken during the installation and that the system is not exposed to chemicals or conditions outside the specification for the component materials, a life expectancy of around 25 years can be reasonably expected. No guarantees on seal integrity can be offered as the ACO Pipe® components are subjected to a variety of installation and in-service operational variables beyond the control of ACO Building Drainage.

Installation guide

Below ground installation

Handling and care

ACO Pipe® thin-walled stainless steel pipe systems are vulnerable to damage if not treated with care during the installation process. The system must not be subjected to rough manual handling or knocks on site or during the installation process.

Back filling

The choice of bedding and backfilling depends on the depth at which the pipes are to be laid and the size and strength of the pipes. Selected fill, whether selected from locally excavated material or imported, shall consist of uniform, readily compacted material. Fill shall be free from vegetable matter, building rubbish and frozen material or materials susceptible to spontaneous combustion and shall exclude clay of liquid limit greater than 80 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones retained on 75mm and 37.5mm sieves respectively, shall be excluded from the fill material. All granular backfill materials shall pass through a 75 mm BS sieve. All granular backfill materials used in the reinstatement of trenches less than 150 mm wide shall pass through a 37.5 mm BS sieve.

Compaction

Sidefill should be placed evenly on both sides of the pipe, and compacted in accordance with the project specification. Single-sized coarse granular materials, such as stone or gravel, may achieve the necessary density without compaction. Compaction of these materials is recommended where trench walls are relatively soft and weak. For well-graded granular soils compaction will be necessary. It is important that compacting equipment does not come into contact with the pipe at any stage of compaction. The sidefill material should normally extend a minimum 100mm above the pipe crown. Backfill material within 300mm of the pipe crown should be free from material exceeding 40mm diameter. Heavy compaction should not be applied until pipe cover is a minimum of 300mm. Backfill material placed more than 300mm above the pipe crown should be placed and compacted in layers not greater than 300mm thick or in accordance with the project specification. Trench support, where employed, is to be removed progressively prior to compaction of side and backfill.

Local standards

Pipe installation should be in accordance with the requirements of BS EN 12056:2000 Gravity drainage systems inside buildings (various parts) and The Building Regulations 2010 Part H.

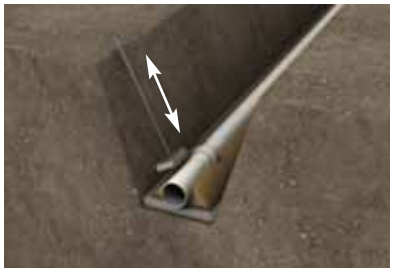
Socket clamps

Drainage systems for soil, waste water and rainwater in above-ground installations are gravity systems with free draining and should not be overloaded/blocked. The ACO PIPE® socketed systems have push-fit socket joints and consequently will not be able to resist internal pressure unless precautions are taken to ensure that the joints will not slide apart.

Appropriate fixing to the building can prevent the joints from sliding apart in most cases, but if it is difficult or impossible to fix the pipes to the building, the socket clamps (Part No. 419134–7) can prevent the push-fit sockets and spigot ends from sliding apart if the system is overloaded or internal pressure is generated.

Installation guide

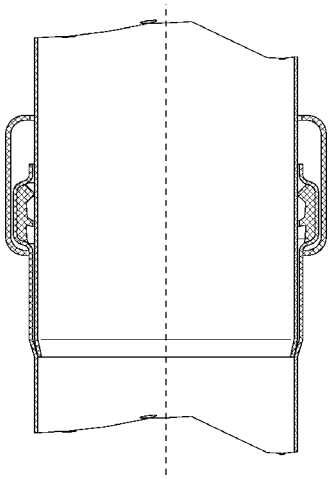






Pipe Ø (mm)	Max. pressure (bar)
50mm	2.0
75mm	2.0
110mm	2.0
160mm	1.0

Table 78



The ACO PIPE® socketed joints with the socket clamps can withstand the pressures presented in the Table 76.